

The comfortable and cost-effective road to the future

Heating and air-conditioning systems for trucks



When a good working climate also lowers costs. That's Feel the Drive.



Trucks are mobile workplaces, in which comfort has a direct impact on safety. Not just the driver, but your balance sheet will feel the positive effects of our heating and air-conditioning systems. You save fuel thanks to less engine idling time and a more focused driving style.

Our comprehensive climate expertise helps you reduce costly engine idling times. As it is, many countries have already prohibited these during rest stops. That's why the Webasto non-idling solutions generate and maintain a pleasant temperature in the driver's cab – totally independent of the engine. Thereby fuel consumption drops and – as a positive side effect – so do the emission of pollutants.

Deftly putting the brakes on costs

This way, your driving is not only cost-efficient, but conscientious. On average, an idling truck engine consumes three liters of fuel.

And that figure is hourly. What's more, there's also increased wear and tear that affects both the engine and the auxiliary equipment. These are costs that Webasto helps you save.

Breaks that relax – driving that is focused

Sit back, relax and enjoy the drive. Just like your drivers. Following a break with pleasant temperatures and without annoying engine noise, they are especially rejuvenated as they get back on the road. The driver can concentrate and drives with more control and awareness.

On the road with know-how

At Webasto, our focal point is our customers and their individual requirements. And we've been doing that for over 110 years. To accomplish this, we seek innovative solutions in all areas – both in original equipment and for retrofitting. Aside from our specific knowledge of the market, what helps us do this is the know-how that we have acquired as one of the 100 leading suppliers to the automotive and commercial vehicle industries. As a family-owned company with over 50 locations worldwide, we aspire to exceed expectations by always offering a bit more. That's what drives us. That is our motivation. And that's Feel the Drive.

When our know-how is an investment in the future.

Heating is our core competency. As the market leader, we constantly refine and develop it for our customers. We were early in identifying electromobility as a growth market.

The Webasto High-Voltage Heater (HVH) represents the future of heating solutions for electromobility. In developing this device, we have made substantial advances over other heaters. By using new technologies, we have succeeded in achieving superlative loss-free conversion of electricity into heat. The high-efficiency heater operates with an effectiveness level of up to 95 percent and can be used flexibly in a voltage range of up to 450 V DC.

Our promise

We are there for you from the initial concept. And we support you through all stages from design, development and validation all the way to after-sales. That is our promise. One that we can give you as a global systems supplier. That is a promise you can rely on.

When restorative breaks make driving more efficient.

Fuel consumption is one of the greatest cost drivers in the transportation business. Fuel-efficient engines alone cannot possible compensate for the huge spikes in fuel prices. However, a focused driver and a parking heater equipped with engine-off technology can make a significant contribution to cost reduction.

Concentration saves fuel

It is a well-known fact that fatigue at the wheel frequently leads to accidents. Mercedes-Benz wanted to determine whether there was a correlation between the driver's ability to concentrate and fuel consumption. Do well-rested drivers drive more economically? The conclusion of the study: Yes. Using real-life conditions, the study explored the influence of a short nap on driving performance. For example, the tests compared how often fatigued and well-rested drivers used the service brake or

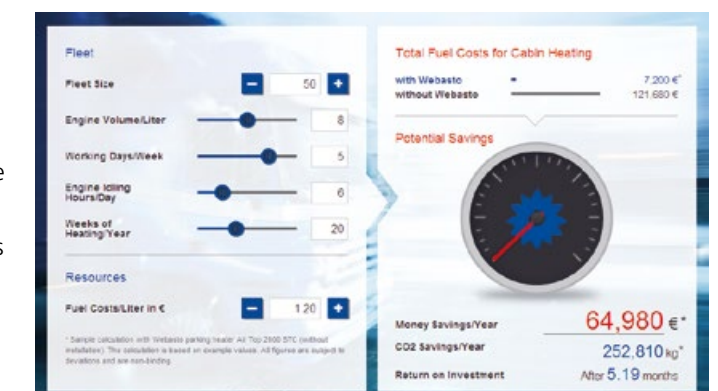
the adaptive cruise control. The results: The braking behavior differs significantly – to the advantage of the rested truck drivers. Their trucks consume less fuel. In a comparison, that can amount to one liter of fuel per 100 km.* The reason: only those who can fully concentrate are capable of driving their vehicles with the necessary control and awareness required to avoid unnecessary braking and acceleration.

**Source: Mercedes-Benz TopFit trucker study, 2010*



Engine off and relax

Our engine-off technology ensures revitalizing breaks and downtime without engine noise – and without fuel consumption. It heats by using the residual heat of the powered down engine. So even on long breaks, thanks to the parking heater, the temperature of the engine and the cabin remain constant. Webasto parking coolers also ensure pleasant temperatures without the engine running.



How great is the potential for savings in your vehicle? Our calculator on the Webasto website figures it out for you.

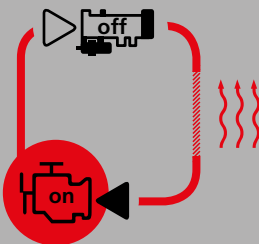
When the engine is off and the cabin has the right temperature.

Ideal for short downtimes as well as long breaks: With the Webasto engine-off technology your cabin always maintains the perfect temperature – and that with the motor switched off. Thus, right after your drive, the Webasto solution utilizes the residual heat of the engine to heat the cabin. Later the parking heater is automatically activated.

- Your benefits:**
- No unnecessary engine idling
 - The perfect cabin temperature at all times, without the engine running
 - Reduction of fuel costs
 - Efficient utilization of engine’s residual heat

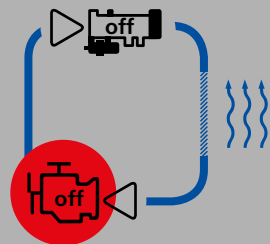
This is how the engine-off technology works:

Without engine-off technology



Engine is running:

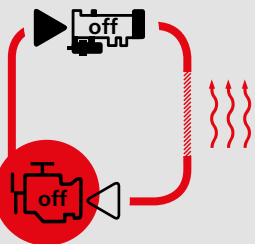
The engine generates heat that is distributed via the cabin's heat exchanger.



Engine is off:

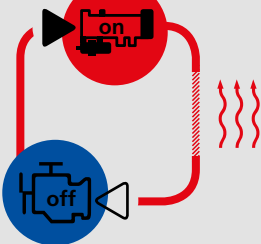
Turning off the engines, the heat transport is stopped through the interruption of the coolant flow to the cabin. The heat energy, which is stored in the engine, is not used anymore and the cabin temperature decreases.

With engine-off technology



Engine is off – use of residual heat:

The heater continues to use the available residual heat of the engine, since the Webasto circulation pump ensures the transfer of residual heat through the cooling circuit. Cabin temperature remains constant.



Engine is off – with parking heater feature:

When the engine cools down further, the parking heater is automatically switched on. Engine and cabin temperature remain constant.

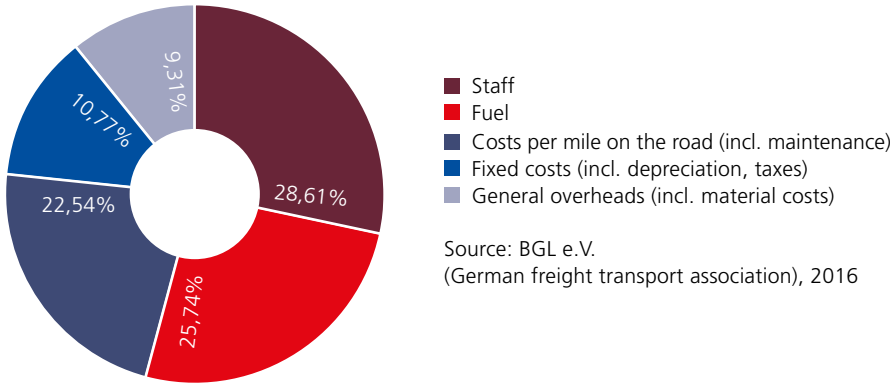
Engine
 Water heater
 Pump on
 Pump off
 Cabin interior heat exchange system

Fuel is the key cost driver

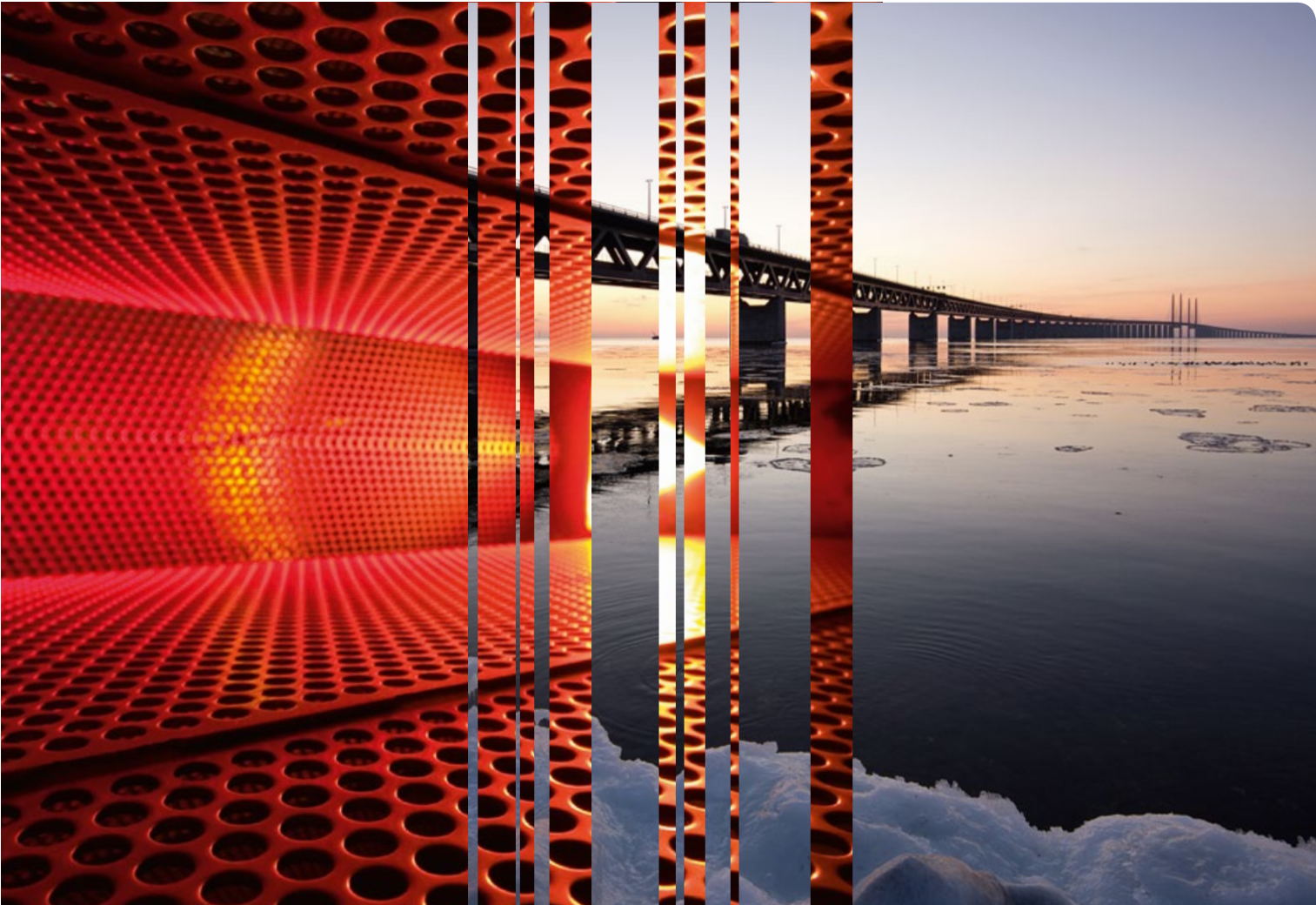
The largest cost pools

Expenditures for fuel constitute the second largest cost factor in the industry. A fact that is unlikely to change in the future. Therefore, savings in this area really add up.

The nearby chart illustrates the cost breakdown, using Germany as an example.



Source: BGL e.V.
(German freight transport association), 2016



When the parking heater does its job and keeps out the cold.

With us you have a choice of air or water heaters, with the systems differing both in their functions and performance categories. What they do have in common: They are easy to operate and, depending on the customer’s preferences, are available in a variety of models. The burner technology that we have developed also ensures that Webasto heaters operate in a very fuel-efficient manner. Aside from the driver’s cab, they also heat the cargo space. On the following pages you will determine precisely what the individual strong points of the air and water heaters are.

- Webasto air and water heating systems are**
- Efficient: They save resources and costs
 - Compact: Space-saving installation in any vehicle
 - Flexible: Option for interior and exterior installation

Smart at the start

Our ThermoCall App ensures ahead of time that your Webasto parking heater will provide comfort when it’s switched on. You can simply set the temperature and service time with the Smartphone App. Heating and ventilation at the touch of a button – and what’s more, it all happens no matter where the user is located.



ThermoCall App



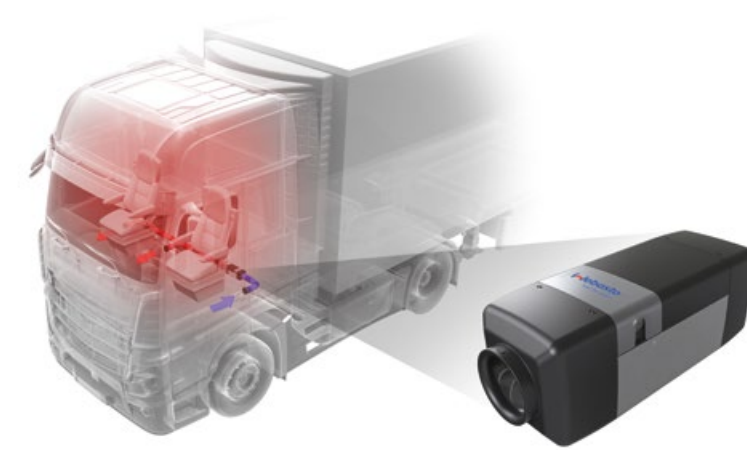
When the engine is turned off and the air heater turns on.

Quickly, efficiently and evenly, is how Air Top air heaters warm up your vehicle, even when it's still parked. The motto is: Get inside and feel good. And that also goes for rest periods. Thanks to air heating, you can enjoy these entirely without engine noise. The positive side-effects: Because the engine is turned off, fuel consumption and operating costs go down.

By offering heating output from 2.0 kW to 5.5 kW, we can provide you with just the right system for your requirements. The integrated altitude sensor guarantees that even at low air pressure in high-altitude locations – and the resulting low oxygen concentration – the heaters always deliver optimum heating performance.

Your benefits:

- Particularly even heat-up process with progressive performance regulation
- Low-noise operation
- Stable constant temperature
- Low power consumption
- Automatic altitude mode for Air Top Evo devices



	Air Top 2000 STC	Air Top Evo 40	Air Top Evo 55
Heating capacity, control range/boost (kW)	0.9 – 2.0	1.5 – 3.5/4.0	1.5 – 5.0/5.5
Nominal voltage (V)	12/24	12/24	12/24

Example of integration of an air heater

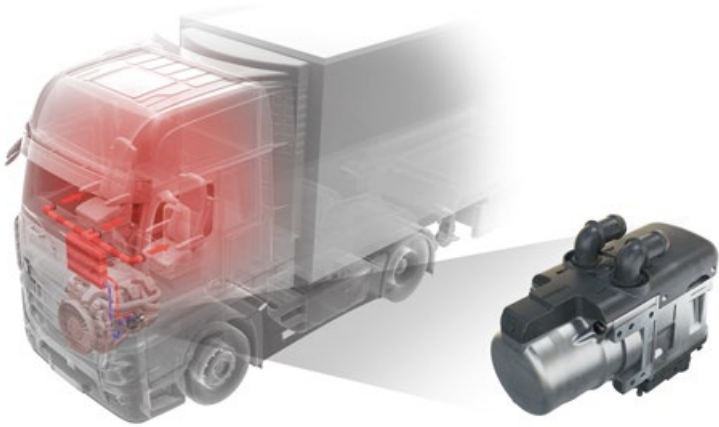
When not only fuel costs but emissions are reduced.

Twice as economical. That's how to describe the Webasto Thermo water heaters. For they heat not only the driver's cab, but the entirety of the vehicle's own coolant circuit. The engine is already preheated when the trip begins, so you can avoid cold starts. Moreover, fuel consumption and pollutant emissions are reduced.

And the interior is already heated to a comfortable temperature before the drive begins. The cabin is preheated to a feel-good temperature level using a heat exchanger and fan. Here too, the integrated altitude sensor ensures optimum heating performance – even at high altitudes when the air pressure and oxygen concentration quickly decline. So you're always on the road both cost-effectively and comfortably.

Your benefits:

- The engine is at already at operating temperature before the drive begins
- Consistent, individually adjustable temperature
- Efficient use of residual heat
- Automatic altitude mode



	Thermo Pro 50 Eco	Thermo Pro 90
Heating capacity, part load/full load/boost (kW)	2.5/5	1.8/7.6/9.1
Nominal voltage (V)	24	12/24

Example of integration of a water heater



When our air-conditioning technology makes your work easier.

The air-conditioning technology in the driver's cab must work flawlessly so that drivers can always be well-rested and efficient on the road. The Cool Top RTE 10 rooftop air-conditioning system is impressive for its high-quality components and durable technology.

Ideal climate in the driver's cab

The Cool Top RTE 10 is a parking cooler that is reliable in ensuring optimal temperatures and atmospheric humidity. The compressor-driven system is prefilled with refrigerant and connected to the vehicle battery.

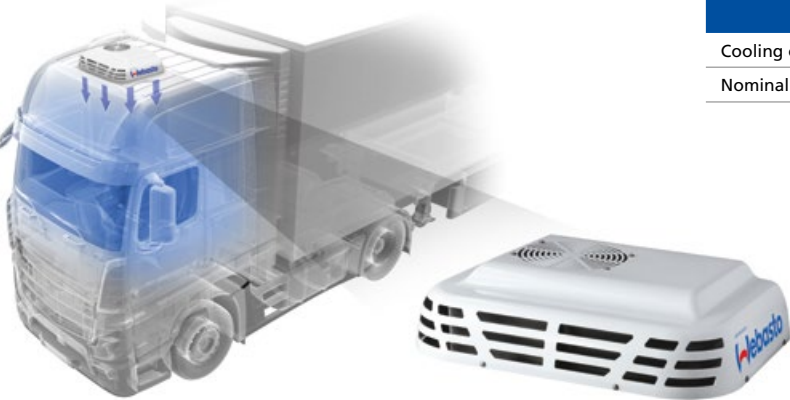
Easy, individual operation and control

The air-conditioning system offers two modes (standard and turbo) and allows for manual control. Thanks to a clearly organized display, the driver has an immediate overview of the status of the system and can control it simply and intuitively. The accompanying remote control makes for added comfort and convenience.

Your benefits:

- Powerful parking cooler with high level of energy efficiency
- Optimal air distribution and quiet operation
- Secure engine start thanks to low-voltage switch-off feature

	Cool Top RTE 10
Cooling capacity (kW)	950 (Turbo), 650 (Standard)
Nominal voltage (V)	24



Example of integration of a parking cooler

When new heating technology makes E-Mobility more convenient and efficient.

Heating systems for electrically powered commercial vehicles have to heat the interior quickly and reliably. Moreover, they should operate efficiently and not put too great a strain on the battery. Thanks to new heating layer technology, the Webasto High-Voltage Heater (HVH) converts electricity into heat almost without loss. The heater is suitable for all electric and hybrid commercial vehicles.

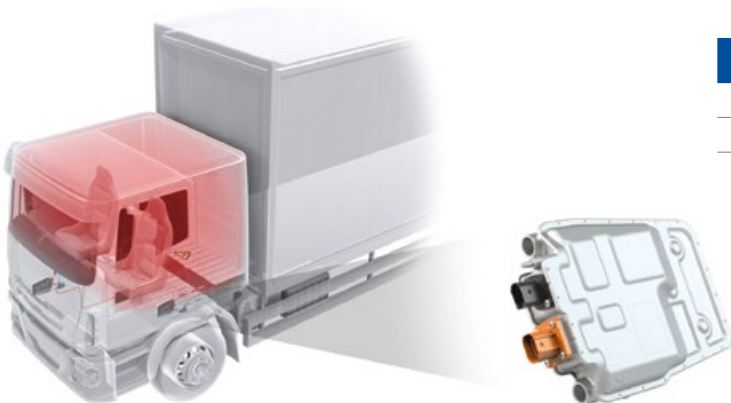
Technological edge

Given its effectiveness level of up to 95 percent and very compact design (1,700 cm³), the water heater demonstrates that it is clearly superior to other technology concepts. The HVH provides heating capacity of 5 kW or 7 kW and is continuously adjustable. Its performance remains constant even at high refrigerant temperatures.

Your benefits:

- Significantly higher effectiveness than those of PTC heaters
- Can be used in range between 250 V and 450 V
- Stable heating output even at high temperatures
- Precise, continuously variable adjustability
- Weight of only 2 kg and compact design allows for flexible installation
- Recuperation and boost function
- Heaters with up to 10 kW output and higher operating voltage are being developed

	High-Voltage Heater
Heating capacity (kW)	7
Nominal voltage (V)	24



Example of integration of a high voltage heater



When Feel the Drive means always seeking to do things just a bit better.

For 110 years, we have had only one subject in mind: You. What drives us is to be capable of offering you precisely the solution that you need. Does this involve a system perfectly custom-tailored to your requirements? Or do you need a retrofit solution that can be easily integrated into your vehicle? We deliver both.

Individually developed

Are you looking for the perfect air-conditioning solution for your application? We would be pleased to take on your project. From the analysis of requirements to development and validation all the way to production, we guide you step by step as you get closer to exactly the product you want. Of course, our on-site experts work with you in close cooperation in every stage.

Easily installed

And when it comes to retrofitting, you're in the right company. Ensuring comfort doesn't begin when you use our products. It already starts during installation. Everything from the molded hose to the mounting brackets is synchronized and fits easily. The installation instructions describe the retrofitting specifically for your vehicle type.

From our home in Gilching – at home worldwide

As a regionally rooted family enterprise, being close to our customers is particularly important to us. Our specialists on the ground in 43 countries see to that by providing competent consulting, direct project coordination, without detours, and reliable spare parts management. Because we don't just want to meet your expectations, we want to exceed them.

The Webasto quality factor

All our products are subjected to extensive testing, with subsequent production adhering to the specifications of automotive standards. We also provide expert support with the integration of your application solution. Thus, we build specific applications components as needed and perform a prototype installation. As you can see, we do all it takes to deliver exactly the products that you need. With the quality that you expect.

Step by step to your customized solution.



Phase 1: Definition of customer requirements
In a first step we define your specific requirements and work together with you to determine what solution is right for you.



Phase 3: Design
Once the solution has been established, we develop both the mechanical and the thermodynamic design.



Phase 5: Documentation
Critical documents such as user manuals or installation instructions are created.



Phase 7: in actual use
Now it's time for the Webasto solution to really kick off. Even after completion of the project, we continue to look after you with personalized service.



Phase 2: Concept development and simulation
Various simulations help us in our development. Thus, for example, we simulate the design of air ducts or the temperature distribution within the vehicle.



Phase 4: Analyses and tests
From the analysis to EMC tests as far as vibration tests: We put the system to the acid test. And our products have to repeatedly prove their merit in the Webasto climate chamber.



Phase 6: Production/ installation
After all instructions have been drawn up, the fully developed system can be used in actual practice. You get the support of our experts during installation as well as commissioning.

When the business utility of all types of commercial vehicles can be enhanced thanks to innovative climate systems, that's Feel the Drive.

Vehicles change the world. And Webasto is changing vehicles and their world. Our solutions help trucks reach their destinations more economically. Buses and trains are more comfortable. Special and commercial vehicles are more efficient. Whether they are original parts or parts for retrofitting, our products provide sustainable solutions – that benefit the environment as well as companies.

Our dedicated people support you all around the world. Wherever commercial vehicles are planned, produced, redesigned or repaired, we are there for you. Professional, committed and helpful, we see to it that you, our customers, reach your destinations comfortably and efficiently. This is what drives us as a company and inspires our work.

And that is what we call Feel the Drive.

Webasto has developed innovative heating and air-conditioning solutions for the following markets.



Trucks
Efficient heating and compact air-conditioning systems maintain exactly the right temperature in the cabin interior, the engine compartment and the cargo area.



Light-duty vehicles
We provide heating and air-conditioning systems to match your individual requirements.



Buses
Our air-conditioning systems make driving more pleasant and safer.



Rail
Air-conditioning systems for passenger compartments and drivers' cabins, boosting efficiency and comfort the moment the vehicle enters operation.



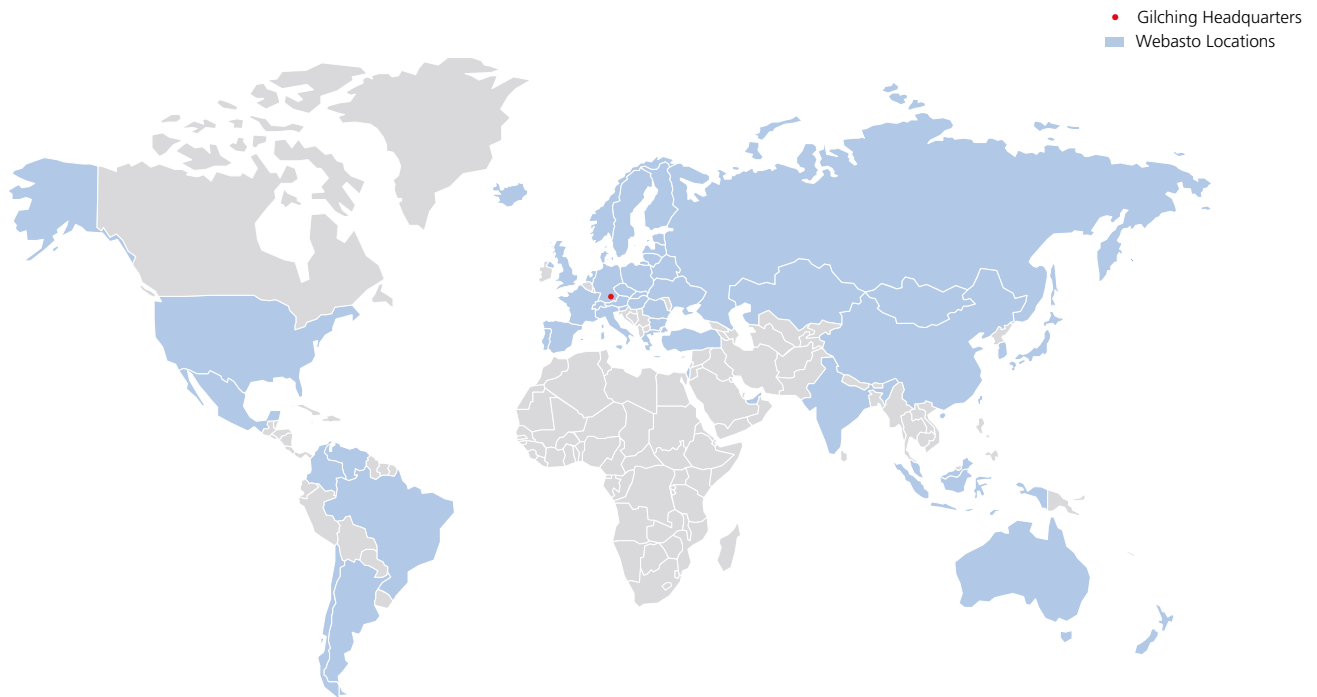
Off-highway
We supply sturdy and efficient heating and air-conditioning systems for a pleasant working environment, whatever the weather.



Defense
We provide special heating and air-conditioning systems to ensure vehicles are always ready for action.



Special vehicles
Our solutions make your job more comfortable, safer and more profitable.



Since its foundation in 1901 the Webasto group has continued to set new technological standards in the original equipment and aftermarket sector. Today, we are one of the 100 biggest suppliers in the automotive industry worldwide. We develop and produce roof, convertible as well as heating, cooling and ventilation systems. Our products help provide a better atmosphere on the road, more comfort and security, as well as increased efficiency for cars, commercial and special vehicles, motor homes and boats. An outstanding network of production facilities and dealers guarantees high-quality products, installation standards and services worldwide.



Best brand

Webasto is Number 1 for air-conditioning and heating*. For the eleventh time in a row, experts in the commercial vehicles industry have chosen Webasto as the best brand in the air-conditioning/heating category.

* Survey of the German trade magazines *lastauto omnibus* (truck and bus), *transaktuell* and *Fernfahrer* (long-haul driver), 2016.