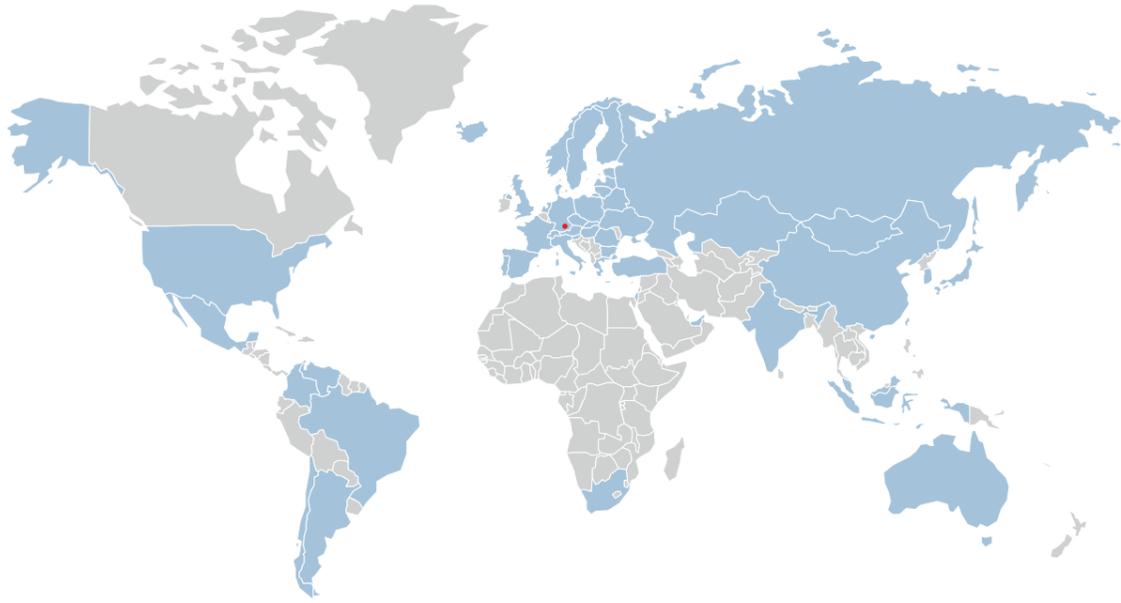


Keeping the Focus on Your Efficiency and an Eye on Your Future.

Heating and air-conditioning systems for rail vehicles



• Gilching Headquarters
■ Webasto Locations



For more than 75 years, the Webasto SE has continued to set new technological standards – in both the original equipment sector and the aftermarket. As 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.

Ident-Nr. MK11509 • 07/14 • Errors and omissions excepted • Printed in Germany • © Webasto Thermo & Comfort SE 2014



When the right climate is on the schedule from the start. That's Feel the Drive.

People who travel by train have one top priority: arriving at their destination comfortably and on time. Proper climate control is key to this. However, in addition to passenger satisfaction, such factors as efficiency and sustainability are becoming increasingly important.

Arriving in your own personal way

Just as you take your passengers safely to their destination, so we accompany you reliably toward your climate control solution. We accomplish this in a perfectly individual way, too. In addition to our standard products, for instance, you also get platform solutions which stand out for their modular and hence flexible structure. Or would you prefer a specific solution? We will be pleased to develop it in close coordination with you. Moreover, we also offer you refurbishment solutions of course as well as system maintenance.

Experience that gets you further ahead

No matter what you decide on, you will always get our experience. Webasto has developed heating, ventilation, and air-conditioning technology for rail vehicles for over 40 years. What's more, we are one of the 100 largest automotive suppliers in the world. We have always transferred this expertise successfully to the commercial vehicle market.

Competence all down the line

We are able to offer you solutions from one source, from research and development to installation and training, and all the way to servicing. You will find the distillation of all this at our Air-Conditioning Competence Center – and thanks to our global network, also right where you are, anytime.

Sustainably toward the future

In all of this, we – like you – keep an eye not only on quality but also on cost effectiveness, comfort, and efficiency. And the environment benefits, too: because our systems not only save resources and energy – they are also made from recyclable materials.

As you can see, we get you ahead. And we do so in a way that is efficient, ecological, and saves energy.

When we have the fitting system ready for any challenge.

What does standard actually mean? At Webasto, standard means short delivery times, high availability, and low costs. You could also say that to us, standard means utmost customer satisfaction.

More than standard

First of all, standardized products are two things: they are always available and tried-and-tested. After all, they have already demonstrated their quality extensively in actual practice. Another advantage is the cost factor. Since development and delivery times are relatively short, you can get going more quickly. This saves you time and money. And what's best: what with all the standardization, we remain flexible in terms of connection. To make sure everything fits together perfectly in the end.

Clever planning

Early planners luck out. At least with Webasto: because if our experts are included in the development process early on, the vehicle and HVAC components can be optimally adjusted to one another. As a consequence, you get a customized solution at minimum development costs.

Thermo 350 Rail

The powerful water heater with 35 kW heat output heats railroad vehicles up to operating temperature quickly and efficiently prior to departure and also ensures the optimum climate in the passenger carriage.



DBW 2016

The robust water heating system is ideally suited to the preheating of larger engines and the heating of driver cabins and freight carriages. It also works quickly and reliably in the case of cold external temperatures.

Railcool R

The automatically regulating roof-top air-conditioning system Railcool R not only has an impressive cooling capacity of up to 7 kW, but also a remarkably flexible control concept. It can be operated using either various external operating elements or via a control unit that is integrated into the vehicle itself.

Compact Cooler Rail

The roof-top Compact Cooler Rail is available with electric as well as hydrostatic drive. With a cooling capacity of up to 6.5 kW it ensures the optimum climate in the driver's cabins of different railroad vehicles.

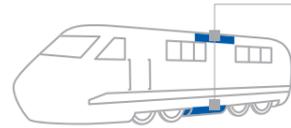
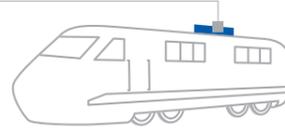


When individual solutions are the right choice.

Heating, Ventilation, and Air Conditioning: these are the functions for which the acronym HVAC stands with which our solutions are labeled. There are also three basic alternatives for the way our products can be installed in vehicles: on top of the roof, integrated in the roof, or as a split solution underneath the roof and in the underfloor area. As a result, each system can be perfectly adjusted to the specific situation of the driver's cab and the passenger compartment.

Roof-top HVAC

- Easy installation and maintenance
- Standard control or electronic control

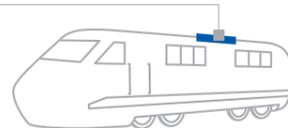


Split HVAC

- Flexible installation
- Space-saving and ideal for retrofit installation

Roof-integrated HVAC

- Developed as part of the roof of the vehicle
- Ideal for limited construction space at the roof top



Reliable, because it is independent

Whether it is mounted on the roof, in the roof, or as a split system: all three applications allow for the continuous control of the amount of air in the evaporator blower. All HVAC solutions for passenger compartments are equipped with two- or fourfold independent cooling and heating circuits, which makes the systems especially reliable. It also goes without saying that they meet the European Railway Standards.

Individual, because it is flexible

Webasto products do not just impress as a result of their reliable quality; they are also modular. This means that our standard heating systems and basic air-conditioning units can be assembled into different hybrid systems, and, as such, can be adjusted to suit customers' specific requirements.

From glaring heat to a chilling frost

The stability of a heating or cooling system is best demonstrated in extreme temperatures. Webasto has developed special kits that can be simply integrated into all HVAC solutions especially for these challenging conditions. For example, the Desert Kit has been designed for external temperatures of up to +50°C and for places where the air contains an extremely high proportion of sand/dust. In contrast, the Arctic Kit guarantees that vehicles will start reliably and smoothly, even when it is -40°C outside.



GrEEn Evolution – Efficiency and Energy-saving made by Webasto

Trains are one of the most environmentally friendly and efficient modes of transportation. Still, there are many areas with room for improvement – and this is where GrEEn Evolution comes in. Our developers work persistently on reducing energy consumption, making the design more compact, lowering lifecycle costs, and using materials in a way that is sustainable and saves energy. Our air-conditioning systems require smaller amounts of coolants, and thanks to the computer-aided intelligent control, they consume less energy.



When our product adjusts to your requirements.

It is your job to already know in advance where you are headed. It's ours, too. Because with our products we are often able to satisfy your requirements even without having to start a completely new development – we are the only manufacturer to offer you a modular platform concept.

Free to combine

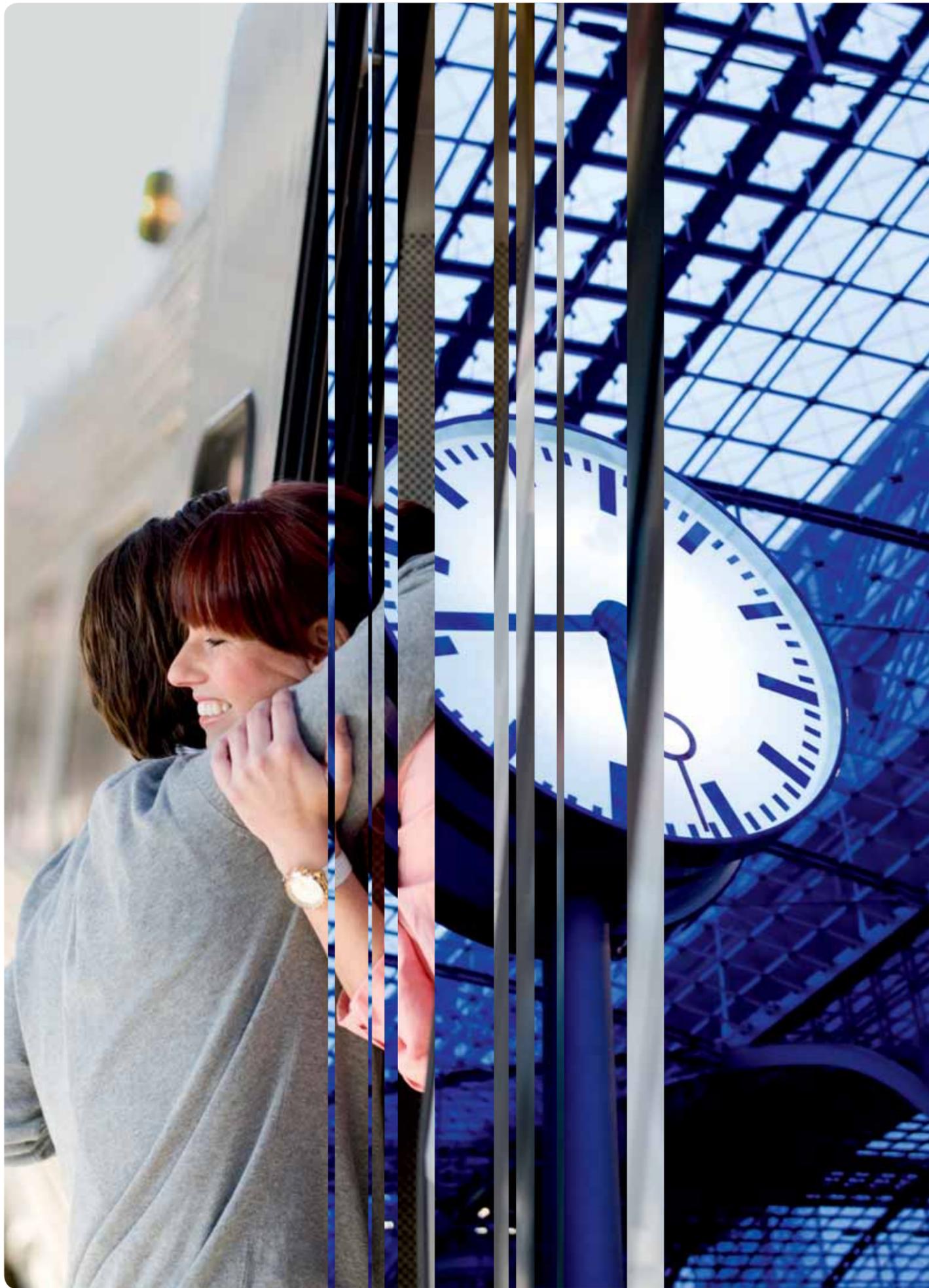
If you are looking not only for individual products but a complete comfort solution, Webasto is the right place for you. After all, our components can be freely combined to suit your specific circumstances. Moreover, our modular concept offers you different power levels and sizes as well as the kind of flexibility that even extends to interfaces and accessories.

For refurbishments, you can swiftly assemble a low-priced system that is indistinguishable from a custom-built product – except in terms of availability and cost, of course. Plus, you can always be certain that all units have been inspected many times and tested under operating conditions.

Customized production at the Competence Center

In addition to the platform alternative we also give you the option of a completely individual solution – the “tailor-made suit,” as it were. The know-how from many years of development, production, service, and consultation comes together at our Competence Center. This allows us to accompany you competently and purposefully on the road toward your specific climate control solution.

No matter which alternative you decide on, the development and installation service are always a key part of our offer.



When each leg of the journey brings you closer to your destination.

The road toward the finished climate control solution is full of challenges and hence planned in every detail. From start – the definition of the customer requirements – to analyses and tests, all the way to finish: service in the field.

From country to country

You don't arrive at a tailor-made climate control solution overnight. Especially not when a project involves several countries. That is one of the everyday challenges in the rail market. We are familiar with your business and are perfectly equipped to handle it. How? To begin with, by having a global network which allows us to manage projects across national borders. That is why Webasto is at home in more than 50 locations. At 30 of them we also manufacture our products. Just like we do at our Competence Center for railroad vehicles.

From the get-go to after-sales

Our know-how is another advantage and one that you can enjoy throughout the entire development process. Our experts accompany you from the first consultation through the various development stages and all the way to the installation. And even afterwards – when your Webasto climate control system has long since been in use – our after-sales service is always there for you.



Station 1: Defining the customer requirements
In the first step we define your specific requirements and determine together with you which solution is the right one for you.



Station 3: Design
Once the solution has been decided upon, we develop both the mechanical and the thermodynamic design.



Station 5: Documentation
Important documents, such as the maintenance manual and the operation manual, are produced.



Station 7: In service
Now things are starting to get really serious for the climate control system. But we continue to offer support: with a personal service and maintenance at your customer's site.



Station 2: Concept development and simulation
Various simulations help us to deliver forecasts, for instance about laying air ducts or regarding the temperature distribution in the vehicle.



Station 4: Analyses and tests
From the RAMS analysis to EMV tests, all the way to shock and vibration tests: we subject the system to very thorough checks. And our products must demonstrate their fitness again and again in Webasto's climatic chamber.



Station 6: Installation
After all instructions have been written, the climate control system can be put to practice. Our experts will assist you with the installation as well as commissioning.

When a modular set offers not only parts but also solutions.

With us, not only your passengers enjoy comfort. You, too, can lean back and relax. After all, we already have your individual climate control solution in store. For example, we have several basic air-conditioning systems which can be individually compiled thanks to the modular principle. Webasto has what you are looking for.

Our modular climate control solutions do not just vary in size. They also consist of scalable components and have up to four heating and cooling circuits. Webasto systems thus meet the requirements of almost any type of vehicle. From electric cars to diesel-driven cars, to passenger coaches, and all the way to subways, we have the right solution in stock.



		Diesel railcar and electric railcar	Subways	Passenger coaches	Special vehicles and locomotives	Streetcars	Double-decker rail cars
 Thermo 230/300/350 Water heating	Heating systems	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
		 DBW 2010/2016 Water heating system	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
 Railcool M Roof-top system Passenger compartment	Cooling solutions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
 Railcool R Roof-top system Driver's cabin		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 Railcool X Roof-integrated system Passenger compartment			<input checked="" type="checkbox"/>				
 Railcool S Split system Passenger compartment/ driver's cabin				<input checked="" type="checkbox"/>			
 Railcool T Roof-top system Passenger compartment						<input checked="" type="checkbox"/>	
 Railcool A Roof-top system Passenger compartment/ driver's cabin						<input checked="" type="checkbox"/>	
 Railcool D Roof-integrated system Passenger compartment							<input checked="" type="checkbox"/>



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. We help trucks reach their destinations more economically. Buses and trains are more comfortable for passengers. And all kinds of special and commercial vehicles are more efficient. Whether they are original parts or parts for retrofitting: our products provide sustainable solutions – that benefit both the environment and your company.

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.

We call it Feel the Drive.



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



Truck

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.



Bus

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.