

# Electric High Voltage Heater

Perfect climate for electric vehicles



The electric High Voltage Heater (HVH) is the ideal heating system for plug-in hybrids and electric vehicles. It converts DC electric power into heat with practically no losses.

The innovative technology from Webasto works with an extremely thin heating layer that is firmly bonded onto the heat exchanger, and a large contact area for heating the coolant. The HVH therefore achieves extremely fast heat-up times, high precision and the highest efficiency.

Customers benefit from greater driving ranges with the same battery capacity and optimum climate comfort. In addition, gentle and optimum conditioning of the battery is possible.

Furthermore, the system requires only a small installation space and can therefore easily be integrated into vehicles. It offers various control solutions with different functionalities based on the customer's requirements. Webasto offers a wide range of accessories for integrating the HVH into vehicles, together with an international support and service network.

Good to know: The HVH delivers up to 12 kW heating power and works with voltages up to 880 V, needed by many busses and trucks, as well as LCV and construction machines. Unique is the active discharge support function of the HVH 100 Compact, HVH 100 Compact+ and HVH 120, that reduce the discharge time to milliseconds.

## Key benefits at a glance:

- Powerful 5/7/10/12 kW heating performance and wide voltage range up to 880 V independent of coolant temperature
- Highest efficiency through quick and direct heat transfer
- Stepless and exact controllability with no inrush currents
- Reliable safety concept with redundant controls
- Certified for automotive requirements with ECE-R10 and ECE-R122 type approval
- CE certified for various segments and applications



Car



Truck

Light  
vehicles

Bus

Recreational  
vehicles

Marine



Off-Highway

Specialty  
vehicles

## The innovative water heater for hybrid and electric vehicles

### Technical specifications

|  | HVH 50 Gen 1.5<br>HVH 70 Gen 1.5                            | HVH 100 Compact                  | HVH 100 Compact+                | HVH 120                                    |
|--|---|----------------------------------|---------------------------------|--|
| Heating performance (kW)                         | 5 / 7   | 10                               |                                 | 12   |
| HV voltage range DC (V)                          | 100 - 490   | 250 - 880                        |                                 |  |
| LV voltage DC (V)                                | 12  |                                  | 12 / 24                         |  |
| Efficiency (%)                                   | > 95  |                                  |                                 |  |
| Controllability steps (W)                        | 50  | 100                              |                                 |  |
| Dimensions (mm)                                  | 284 x 200 x 54  | 284 x 201 x 72                   |                                 | 326 x 201 x 72                             |
| Weight (kg)                                      | 2.0   | 2.3                              |                                 | 2.5  |
| Temperature range for heating (°C)               | -40 to 90   |                                  |                                 |  |
| Communication                                    | LIN 2.1   | LIN 2.2                          | LIN 2.2, CAN J1939, Main Switch |  |
| Passive discharge (V) according to ISO 6469-3.3. | < 60 in 4 Sec   | < 60 in 40 Sec*                  |                                 |  |
| Dielectric strength (V DC)                       | 2,500   |                                  |                                 |  |
| Coolant connection (mm)                          | VDA 19  | VDA 20                           |                                 |  |
| IP protection class                              | IP 6K9K IP 6K7  |                                  |                                 |  |
| HV connection                                    | TYCO HVA280 Type A  | TYCO HVA280 Typ E                |                                 |  |
| NV connection                                    | LV FEP connector 8 PIN with integrated de-aerating membrane |                                  |                                 |  |
| Interlock  | Passive   |                                  |                                 |  |
| Electrical safety                                | ISO 6469 Part 3   |                                  |                                 |  |
| Functional safety                                | According to ISO 26262 ASIL B for overheat                  |                                  |                                 | According to ISO 26262 ASIL D for overheat |
| Cyber security                                   | UN-ECE WP.29 / ISO 21434                                    |                                  |                                 |  |
| EMC  | ECE R10 Rev. 5  |                                  |                                 |  |
| Insulation resistance (MΩ)                       | > 50  | >30                              |                                 |  |
| Service life                                     | 15 years or 12,000 heating hours                            | 15 years or 15,000 heating hours |                                 | 15 years or 25,000 heating hours           |

\* With the active discharge support function, the discharge time can be reduced to milliseconds.

### Advantages:

- **Powerful and reliable heat output:** all-time comfort for the driver
- **Efficient and quick performance:** longer driving experience without energy waste
- **Precise and stepless controllability:** better performance and highest driving range
- **Reliable and certified safety:** three mechanisms to handle faults and guarantee safety



Contact details

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