# Vehicle heaters, additional parts, installation tips and technical data

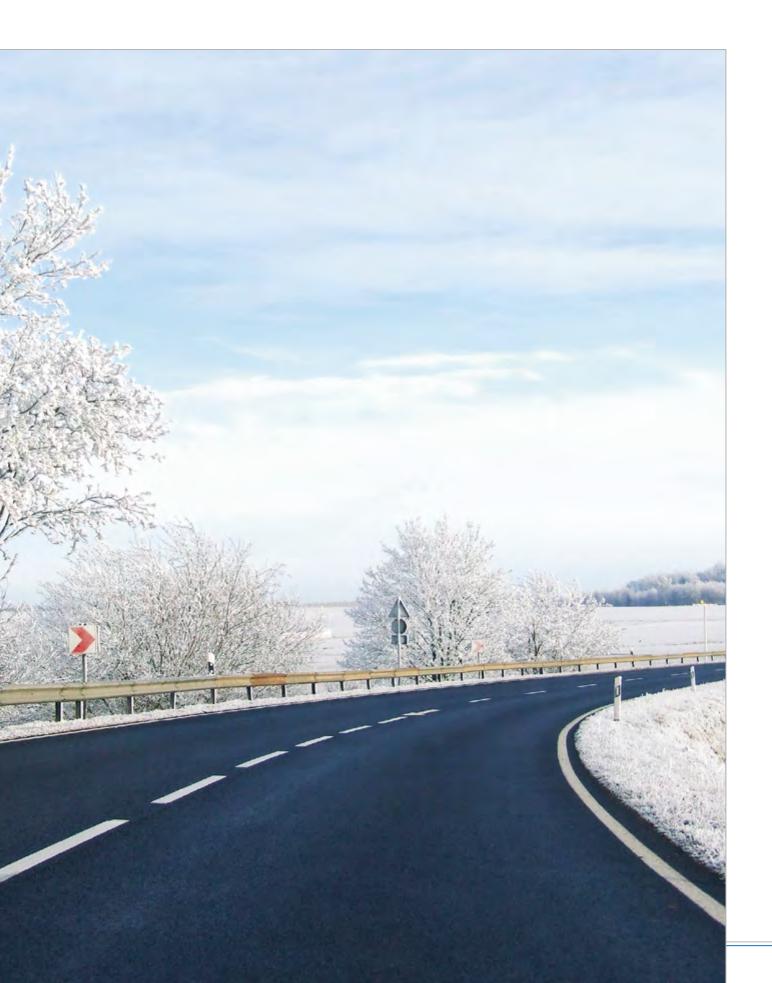




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### 1 | Heating systems - Air or water?

The basic principle of pre-heaters is to heat the passenger compartment of all kinds of vehicles without having to depend on the heat given off by a running engine. That's a well-known fact. But at some point or other you must have asked yourself what the actual difference is between air and water heaters.

#### Air-based pre-heaters – Eberspächer Airtronic:

Air-based pre-heaters are mostly installed inside the cab and directly heat the air inside it, which is sucked in via the unit's own fan. Their effects are noticeable almost instantly, as the heat in the form of hot gas, which is produced by a burner, does not have to heat up a water circuit first. Modern devices are very quiet, low on emissions and chiefly used to maintain the temperature in the cab of a truck or transporter at a pleasant level even while it is at a standstill (e.g. overnight).

#### Water-based pre-heaters – Eberspächer Hydronic:

Water-based pre-heaters have a compact design and can be fitted almost anywhere in the engine compartment. They are therefore the pre-heater of choice for cars with interiors too cramped for additional installations. The heat generated by a burner is transferred to the vehicle's cooling water. An (additional) electric circulation pump distributes the heat, even when the engine is switched off. Then, the interior fan is activated automatically

- everything works as it does in normal heater operation. Water-based heaters therefore not only warm up the interior, but can also, depending on the application, preheat the engine or the tap water in boats or motor homes. Engines heated in this way can be started more easily in cold weather while also protecting the car battery from the effects of the cold, and producing fewer harmful emissions on starting, as the hotter exhaust temperature enables the catalytic converter to reach its operating temperature more quickly. The cold-starting phase, which produces mechanical stress and higher emissions, is dramatically reduced, as the oil reaches operating temperature fast when the engine is started. This saves fuel and money on the one hand, and lowers CO<sub>2</sub> emissions on the other.

Both systems generally run on the vehicle's fuel, straight out of the fuel tank. Depending on the model, heaters can be activated with a timer switch, radio remote control or cellphone.

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# 1 | Heating systems: Hydronic - Water heaters

#### Hydronic S3 (4 kW):

Cab and engine heater



Passenger cars (up to 2.0 I displacement)



**Emergency vehicles** 



Station wagons (with additional thermo-combi valve if using Hydronic 4; ideally use Hydronic 5)



Small agricultural and construction machinery



Motor yachts up to around 22 ft long\*

#### Hydronic S3 (5 kW):

Cab and engine heater



Passenger cars (from 2.0 I displacement)



**Emergency vehicles** 



Vans, large taxis, minivans



Commercial vehicles, including tandem configurations with air heaters



Construction and agricultural machines



Motor yachts up to around 25 ft long



Motor homes\*

#### Hydronic M8 / M10 / M12 (8-12 kW):

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Commercial vehicles from approx. 150 kW engine power



Cargo area heating



Military vehicles



Large agricultural and construction machinery



Motor yachts up to approx. 45 ft long



Motor homes

#### Hydronic L16 / L24 / L30 / L35 (16-35 kW):

Coaches and city buses



Large freight compartments for goods which need to be kept warm



Container setups



Diesel locomotives



Yachts and ships up to approx. 72 ft long

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\* The heater is approved for mains operation (230 V/50 Hz), e.g. as is the case for camping or parking areas for motor homes or in marinas for boats, only in combination with a special cable harness (order no.: 25 2652 82 11 00, see page 106). The cable harness is included in the universal installation kit for recreational vehicles (order no.: 25 2652 82 00 00).

# 1 | Heating systems: Airtronic - Air heaters

#### Airtronic S2 (2.2 kW):

Heating comfort for a variety of applications.



Vans, small motor homes, small buses



Truck cabs with sleeping cabins



Construction and agricultural machinery without engine-dependent heating



Forklifts and other plant machinery



Electric vehicles



Yachts up to approx. 22 ft long

#### Airtronic M2 (4 kW):

The high-performance, compact air heater for mid-range requirements.



Large trucks - cabs with sleeping cabins



Vans, small buses



Large agricultural and construction machinery



Yachts up to approx. 35 ft long



Motor homes



Minivans, and vehicles used for conferences and consultancy

#### Airtronic D5 / B5 (5.5 kW):

TRS-enabled, continuously variable, pre-selectable Interior temperature regulation.



Vans, workshop vehicles and personnel carriers, small buses (fast heating despite door opening frequently)



Ambulances and emergency medics' vehicles special heating and temperature requirements



Freight compartment and freight goods heating plus frost protection and dew point prevention



Yachts and ships up to approx. 45 ft long

#### D8 LC (8kW):

Continuously variable, pre-selectable interior temperature regulation.



Large freight compartments, containers



Personnel carriers



Coaches and city buses



Ships up to around 62 ft long

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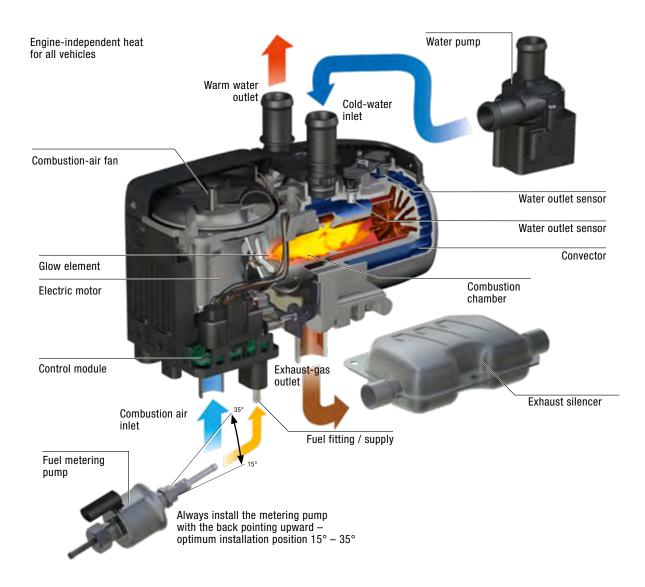
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# 2 | Hydronic S3 Economy: Technology

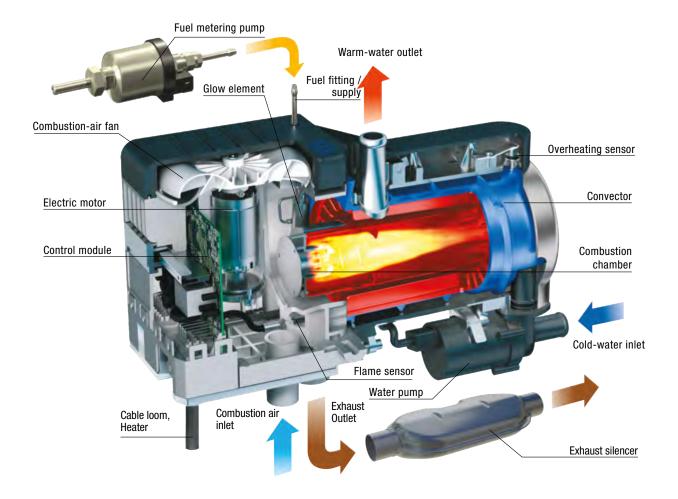


### Hydronic S3 Economy\* functions:

- Combustion air is conveyed to the combustion chamber by the fan motor and impeller.
- Fuel is drawn from the vehicle's tank.
- Fuel is conveyed to the combustion chamber by the metering pump (reciprocating pump).
- The glow element vaporizes this fuel as it enters the combustion chamber and creates a combustible fuel-air mix with the combustion air.
- The resulting flame formation switches off the glow element, transfers the heat to the cooling water via the convector, and diverts exhaust gas via the exhaust silencer.
- The cooling water circulation pump conveys cool water to the heater, where it is warmed by the convector and then routed to the vehicle's convector and combustion engine.

<sup>\*</sup> The heater is approved for mains operation (230 V/50 Hz), e.g. as is the case for camping or parking areas for motor homes or in marinas for boats, only in combination with a special cable harness (order no.: 25 2652 82 11 00, see page 106). The cable harness is included in the universal installation kit for recreational vehicles (order no.: 25 2652 82 00 00).

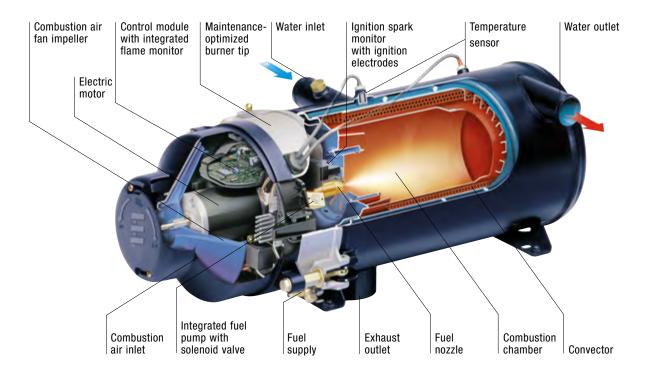
### 2 | Hydronic M: Technology



### Hydronic M functions:

- Combustion air is conveyed to the combustion chamber by the fan motor and impeller.
- Fuel is drawn from the vehicle's tank.
- Fuel is conveyed to the combustion chamber by the metering pump (reciprocating pump).
- The glow element vaporises this fuel as it enters the combustion chamber and creates a combustible fuel-air mix with the combustion air.
- The resulting flame formation switches off the glow element, transfers the heat to the cooling water via the convector, and diverts exhaust gas via the exhaust silencer.
- The cooling water circulation pump conveys cool water to the heater, where it is warmed by the convector and then routed to the vehicle's own convector and combustion engine.

# 2 | Hydronic L: Technology



#### Hydronic L functions:

- Combustion air is conveyed to the combustion chamber by the fan motor and impeller.
- A gear pump conveys fuel from the vehicle's tank and builds up pressure against the closed solenoid valve.
- The solenoid valve opens and the fuel is atomized by the fuel nozzle in the combustion chamber / flame tube.
- The ignition spark monitor ignites the fuel-air mix.
- The resulting flame detection by an optical flame sensor switches off the ignition spark monitor, transfers the heat to the cooling water via the convector, and diverts exhaust gas via the exhaust silencer.
- The cooling water circulation pump conveys cool water to the heater, where it is warmed by the convector and then routed to the vehicle's own convector and combustion engine.

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### Eberspächer Hydronic

Heater		Hydronic 2 Ethanol E4S
Product package		Heater, water pump, metering pump
Techn. designation		E4S 12V
Order no. for <b>heater</b>		20 1920 05 00 00
Fuel		E85 bio-ethanol according to DIN 51625 / E100
Voltage	V	12
Heating medium		Mixture of water and (max 50 %) coolant
Control / heat settings		low / high / power
Heat output	w	1,300 / 3,700 / 4,300
Fuel consumption	I/h	0.23 / 0.67 / 0.78
Power consumption, heater	W	7 / 20 / 27
Power consumption, water pump	w	11
Elec. power consumption, start	W	120
Minimum water throughput	I/h	250
Lower voltage limit	V	10.5
Upper voltage limit	V	16
Interference suppression		5 (DIN EN 55025)
Dimensions L x W x H	mm	214 x 86 x 139
Weight empty	kg	2.4



### Eberspächer Hydronic

Heater		Hydronic S3 Economy*				
Product package		Heater, water pump, metering pump				
Techn. designation		Hydronic S3 Economy B4E	Hydronic S3 Economy B5E	Hydronic S3 Economy D4E	Hydronic S3 Economy D5E	
Order no. for <b>heater</b>		20 2007 05 0000	20 2008 05 0000	25 2933 05 0000	25 2934 05 0000	
Order no. for heater with APRMP	)*	_	-	25 2943 05 0000	25 2942 05 0000	
Fuel		Gaso	oline	Die	esel	
Voltage	٧		1	2		
Heating medium			Wa	ater		
Control / heat settings		Infinitely variable				
Heat output	W	1,800 to 4,300	1,800 to 5,000	1,300 to 4,300	1,300 to 5,000	
Fuel consumption	I/h	0.57	0.67	0.53	0.59	
Power consumption, heater	W	7 / 24	7 / 32	5 / 27	5 / 32	
Power consumption, water pum	p W	17				
Elec. power consumption, start	W		1;	35		
Minimum water throughput	I/h		30	00		
Lower voltage limit	V	10.5				
Upper voltage limit	٧	16				
Protection rating		Heater: IP5K6K, IP5K9K, Control module: IP6K6K, IP6K9K				
Dimensions L x W x H	mm	215 x 91 x 180 (with straight connection fittings)				
Weight empty	kg	2.0				

<sup>\*</sup> The heater is approved for mains operation (230 V/50 Hz), e.g. as is the case for camping or parking areas for motor homes or in marinas for boats, only in combination with a special cable harness (order no.: 25 2652 82 11 00, see page 106). The cable harness is included in the universal installation kit for recreational vehicles (order no.: 25 2652 82 00 00).

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### Eberspächer Hydronic

Heater		Hydronic S3 Commercial			
Product package		Heater, water pump, metering pump			
Techn. designation		Hydronic S3 Commercial D5L	Hydronic S3 Commercial D6L		
Order no. for <b>heater</b>		25 2696 05 0000	25 2745 05 0000		
Fuel		Diesel fuel – commercially available (DIN EN 590) Addition of max. 30% FAME according to DIN EN 14214 is permissible.			
Voltage	V	24	4		
Heating medium		Mix of water and antifreeze (proportion of antifreeze min. 10% to max. 50%)			
Control / heat settings		Stepless			
Heat output	W	1,300 to 5,000	1,300 to 5,600		
Fuel consumption	I/h	0.59	0.65		
Power consumption, heater	W	32 37			
Power consumption, water pump	) W	3:	5		
Elec. power consumption, start	W	13	5		
Minimum water throughput	I/h	/h 300			
Lower voltage limit	V	20.4			
Upper voltage limit	٧	32			
Protection rating		Heater: IP5K6K, IP5K9K, control unit: IP6K6K, IP6K9K*			
Dimensions L x W x H	mm	215 x 91 x 180 (with straight connection fittings)			
Weight empty	kg	2.0			

<sup>\*</sup> The heater is protected against dust in harmful quantities, against powerful water jets under increased pressure and against water during high-pressure/steam jet cleaning (provided it is not in operation). The control unit is fully dustproof, fully protected against powerful water jets under increased pressure, as well as against water during high-pressure/steam jet cleaning (provided it is not in operation).

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Eberspächer Hydronic						
Heater		Hydronic M	8 Biodiesel	Hydron	ic M10	
Product package			Heater, water pum	p, metering pump		
Techn. designation		Hydronic I	M-II (D8W)	Hydronic N	1-II (D10W)	
Order no. for <b>heater</b>		25 2470 05 00 00	25 2471 05 00 00	25 2434 05 00 00	25 2435 05 00 00	
Fuel		Diesel and FA	ME (biodiesel)	Die	sel	
Voltage	٧	12	24	12	24	
Heating medium			Wa	Water		
Control / heat settings		low / medium / high / power				
Heat output	W	1,500 / 3,500 /	5,000 / 8,000	1,500 / 3,500 / 8,000 / 9,500		
Fuel consumption	I/h	0.18 / 0.4 /	0.65 / 0.9	0.18 / 0.4 / 0.9 / 1.2		
Power consumption, heater	W	6 / 10 /	17 / 26	6 / 10 /	31 / 57	
Power consumption, water pump	o W		2	9		
Elec. power consumption, start	W	20	00	12	20	
Minimum water throughput	I/h		50	00		
Lower voltage limit	٧	10 20		10	20	
Upper voltage limit	٧	15	30	15	30	
Interference suppression			5 (DIN EN	N 55025)		
Dimensions L x W x H	mm		331 x 13	38 x 221		

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kg

Weight empty

### Eberspächer Hydronic

Heater		Hydronic M12	Hydronic M12		
Product package		Heater, water pump, metering pump			
Techn. designation		Hydronic N	I-II (D12W)		
Order no. for <b>heater</b>		25 2472 05 00 00	25 2473 05 00 00		
Fuel		Die	sel		
Voltage	٧	12	24		
Heating medium		Wa	ter		
Control / heat settings		low / medium 1 / medium 2	low / medium 1 / medium 2 / medium 3 / high / power		
Heat output	W	1,200 / 1,500 / 3,500 /	5,000 / 9,500 / 12,000		
Fuel consumption	I/h	0.15 / 0.18 / 0.4	/ 0.65 / 1.2 / 1.5		
Power consumption, heater	W	5 / 6 / 10 / 1	7 / 57 / 103		
Power consumption, water pum	o W	2	9		
Elec. power consumption, start	W	12	20		
Minimum water throughput	I/h	50	00		
Lower voltage limit	٧	10 20			
Upper voltage limit	V	15	30		
Interference suppression		5 (DIN EN 55025)			
Dimensions L x W x H	mm	331 x 138 x 221			
Weight empty	kg	6.	2		



### Eberspächer Hydronic

Heater		Hydronic L16	Hydronic L24	Hydronic L30	Hydronic L35	
Product package		Heater				
Techn. designation		Hydronic L-II (HL2-16)	Hydronic L-II (HL2-24)	Hydronic L-II (HL2-30)	Hydronic L-II (HL2-35)	
Order no. for <b>heater</b>		25 2486 02 00 00	25 2487 02 00 00	25 2599 02 00 00	25 2600 02 00 00	
Order no. for <b>compact heater</b>		_	25 2487 05 00 00	25 2599 05 00 00	25 2600 05 00 00	
Fuel			Diesel ar	nd fuel oil		
Voltage	V	24				
Heating medium		Water				
Heat output	w	16,000	24,000	30,000	35,000	
Fuel consumption	I/h	2	2.9	3.65	4.2	
Power consumption, heater	w	60	80	105	120	
Power consumption, water pur	mp W	104 – 210*				
Minimum water throughput	I/h	1,400	2,000	2,600	3,000	
Lower voltage limit	V	20				
Upper voltage limit	V	30				
Dimensions L x W x H	mm	600 x 230 x 222				
Weight empty**	kg	18				

<sup>\*</sup> depending on the water pump model

Weight empty\*

kg

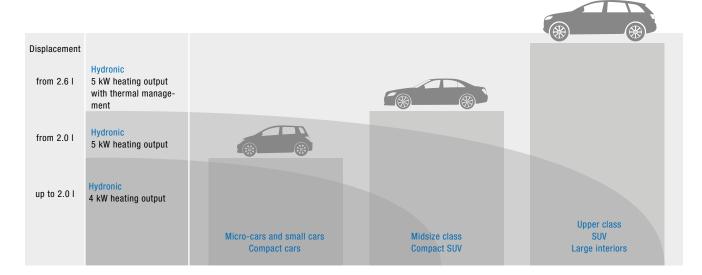
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Eberspächer wate pumps for Hydron					
Water pumps		Flowtronic 5000	Flowtronic 5000 S	Flowtronic 6000 SC	
Order no. for water pump		25 2488 26 00 00	25 1818 30 00 00	25 2488 25 00 00	
			Water-glycol mix with up to max 50 % glycol		
Delivery rate	I/h	5,200 a	t 0.2 bar	6,000 at 0.4 bar	
Operating pressure	bar		max. 2		
Nominal voltage	٧		24		
Elec. power consumption	W	10	104		
Protection class		IP5K4	IP25 (potted electronics)		
Dry running	No Yes			Yes – motor switches itself off after 45 minutes	
Shaft-impeller connector		Mechanical seal Magnetic coupling			

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### 2 | Water-heater range for cars



#### Advantages:

- Hydronic S3 Economy & Commercial (4 to 6 kW): New bracket design plus straight and 90° angled water fittings (rotatable through 360°) which can be used in any combination for faster installation. New installation recommendations and kits are available.
- Hydronic M2 (8 to 12 kW): provide increased power for larger engines and cabins, e.g. large trucks, small buses, cargo areas.
- Hydronic L (16 to 35 kW) is ideally suited for buses, trains, boats and cargo areas.

#### Fuel compatibility:

- Multifuel E85: The Hydronic 2 B5S and B5SC with fuel kit (E85 kit) for heating electric vehicles and multifuel vehicles; fuel kit order number 22 1000 20 31 00.
- Biodiesel: Hydronic S3 Economy (up to 30 %), Hydronic M8 (100 %), Hydronic M10 / M12 (up to 20 %).
- **E10:** all (professionally installed) water heaters.

Expert tips for installing the pressure-resistant metering pump: You need to know the fuel pressure. The return line must end just above the floor of the tank and must not be fitted with a check valve. Diese vehicles can then be connected straight to the return line. Please also always take note of the technical description of the particular equipment

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# 2 | Vehicle-specific additional parts

The product package for individual devices generally includes the heater itself, the fuel-metering pump and the water pump. For retrofitting vehicles for which Eberspächer provides installation recommendations, a vehicle-specific installation kit (IK) and, if applicable, an air-conditioning kit are also required.

Heater	Heater     Water pump     Metering pump	
Vehicle-specific installation kit	Heater mounting bracket     Water hoses     Fuel lines     Cable harnesses     Combustion-air hose     Exhaust hose with silencer     Climate control kit if applicable	
EasyFan / A/C kit	Cable harness Preconfigured cable harness Relay IPCU (see also Service, options with IPCU, if there is no EasyFan / A/C kit)	
Control unit	• Easy Start Pro / Remote / Remote+ / EasyStart Web	30 Mm

Images are for illustrative purposes only

### 2 | Universal installation kits

The following table shows the housing types and product packages of the various water heater models along with their corresponding installation kits. In contrast with individual devices, complete packages include the heater (incl. fuel-metering and water pump) and universal installation kit. The universal installation kit includes a host of (vehicle independent) parts required for installation. In this case, additional vehicle-specific installation parts are required which are not listed in the respective installation recommendations. If Eberspächer provides no installation recommendations for a particular vehicle, you can still retrofit a pre-heater using a complete package (see also the next section, "Hydronic – retrofit parts range for passenger cars", step 4B).

Water heaters	Heater	Individual devices	Vehicle-specific IK A/C kit if applicable	Universal IK	Universal IK for recreational vehicles *
Hydronic S3 Economy CS (12V) *	25 2933 05 00 00 25 2943 05 00 00 25 2934 05 00 00 25 2942 05 00 00		x x x x	25 2933 80 00 00	25 2652 82 00 00
Hydronic S3 Commercial CS (24V)	25 2696 05 00 00 25 2745 05 00 00			25 2696 80 00 00	
Hydronic M2	25 2470 05 00 00 25 2471 05 00 00 25 2434 05 00 00 25 2435 05 00 00 25 2472 05 00 00 25 2473 05 00 00	x x x x x x		25 2435 81 00 00	

<sup>\*</sup> The heater is approved for mains operation (230 V/50 Hz), e.g. as is the case for camping or parking areas for motor homes or in marinas for boats, only in combination with a special cable harness (order no.: 25 2652 82 11 00, see page 106). The cable harness is included in the universal installation kit for recreational vehicles (order no.: 25 2652 82 00 00).

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# 2 | Retrofit parts range for passenger cars

#### Installation of the Hydronic S3 with 4 or 5 kW heating output:

### 1 | Logging into the Partner Portal

Log into the Eberspächer Partner Portal with your personal access details (email and password): http://partner.eberspaecher.com



### 2 | "Installation Information" pane

Next, select the "Installation Information / Installation Recommendations" tab.



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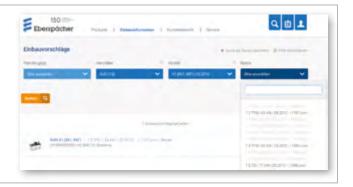
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Using the dropdown menu, select the required vehicle and confirm with the "Search" button.

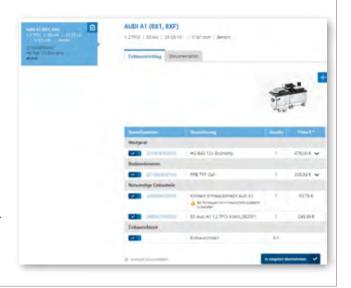


#### 4a | There is an installation recommendation for the vehicle

If there is an existing retrofit installation recommendation for the vehicle, the vehicle model will be listed along with the recommended heater, including the price (excl. sales tax). Click on the vehicle in the list. The parts required for the installation are now displayed:

- Recommended heater (including water pump and fuel metering pump)
- Control unit
- Vehicle-specific installation kit including all parts required for the mechanical installation
- A/C kit if applicable (for models with automatic air conditioning)
- Additional installation parts if applicable
- Recommended installation guide time
- \* Heaters and control units with a black arrow after the price can be adapted if necessary by clicking the arrow and making a selection.

If you click the "Get estimate" button, this will take you to the estimates pane where you can obtain a quote.



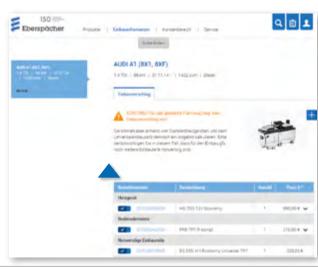
#### 4b | There is no installation recommendation for the vehicle

**EXPERT TIPS** 

If there is no installation recommendation, you will see a note to this effect and the installation recommendation will be grayed out. However, it may still be possible to retrofit an Eberspächer pre-heater in the selected vehicle by using the universal installation kit.

The required installation parts are displayed.

- Recommended heater
- Control unit
- Required installation parts
- Installation guide time
- \* Heaters and control units with a black arrow after the price can be adapted if necessary by clicking the arrow and making a selection.



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### 2 | Retrofit parts range

# Installation of the Hydronic M water heater with 8 – 12 kW heating output:

Installation parts for the **Hydronic-M** heaters are usually heavily application-dependent. Planning installation of these heaters requires not only the heater and universal installation kit but also, where applicable, additional installation parts that need to be determined during installation planning. Please see the section on "Accessories" for the corresponding additional parts. For example, with convector and boiler installations, a wide range of heating options can be used in parallel.

**Hydronic-M** heater installations generally require the following parts:

- Hydronic M heater with 8 kW, 10 kW or 12 kW output, 12 or 24 V
- Hydronic M universal installation kit
- Control unit (of your choice)
- Additional installation parts based on application, if applicable (see also "Accessories" section)

See also the sections on "Complete packages / universal installation kits", "Device range" and "Control units".

# Installation of the Hydronic L water heater with 16 – 35 kW heating output:

Installation parts for the **Hydronic L** heaters are also heavily application-dependent. As a result there is no universal installation kit for these heaters.

Alongside the heater, installation planning needs to include some additional installation parts which have to be specified during planning. Please see the section on "Accessories" for the corresponding additional parts. Again, for example, there is a host of heating options that can be used in parallel in convector and boiler installation.

The 24 kW, 30 kW and 35 kW heater variants are available individually as well as in a compact version. To make heater installation easier the compact version comes with the water pump and fuel filter and their installation parts pre-installed.

- Hydronic L 16 kW, 24 kW, 30 kW or 35 kW heater as individual device or compact version
- Additional parts for connecting the water circuit
- Additional parts for the fuel supply
- Additional parts of the exhaust system
- Control unit (of your choice)

See also the sections on "Device range" and "Control units".

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# 2 | Optional add-ons

#### Altitude kit\*:

Suitable for older heater generations such as Hydronic, Hydronic 2 and Airtronic 1 and is required from altitudes of around 1,500 m. When the heater starts, the pressure sensor measures the atmospheric pressure cyclically and sends the measured values to the heater control module. The control module evaluates the measured values and if required, adjusts the fuel feed in the metering pump to the current atmospheric pressure. It begins reducing fuel feed at around 1,400 m, which immediately starts to reduce heating power by around 9 % for every 1,000 m in altitude.

An altitude kit is no longer required for the new heater generations Hydronic S3 Commercial (CS) and the Airtronic 2 models.

A manual altitude function using CAN control units is possible for the Hydronic S3 Economy (CS).

Heater operation up to altitudes of 3,000 m. The Hydronic S3 Economy (CL) does not support an altitude function.

The Hydronic M10/M12 models also feature automatic altitude adjustment. The heating can be operated up to altitudes of 3,500 m.

Check the compatibility of the heater, and pressure sensor and control unit before installation. (Please look for "H-Kit" on the heater identification label)

Technical data altitude kit (22 1000 33 22 00): Max. permissible height: approx. 3,500 m

Measuring range: 600 hPa to 1,150 hPa

Nominal voltage: 12 / 24 V Operating voltage: 8 to 32 V Dimensions: 76 x 76 x 29 mm

Operating temperature: -40 °C to +85 °C

#### Identification label:

- 1. In this case, on the right-hand side of the heater identification label you will see "H-Kit". If the label carries this mark, the heater is suitable for automatic altitude adjustment.
- 2. The heater's packaging (box) carries a sticker on which you will find the drawing number of the heater: The last two characters of this number (e.g. "ON") specify heater status. Based on this information, the Technical Hotline can tell you whether the heater is compatible with the altitude kit. If the label is not legible, please contact the Technical Hotline.







Fig.: Sticker on heater box

# 2 | Optional water circuits on a Hydronic S3 Economy\* example

#### "Inline integration" of cooling circuit:

Cut through the vehicle's water feed hose from the engine and the convector.

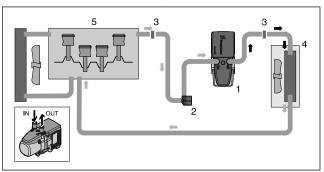
Connect the heater and water pump to the water feed hose using the connection fittings and water hoses.

Run and connect a water hose from the water pump pressure fitting to the heater water inlet fitting.

#### **Heating characteristic**

When the heater is switched on, heat is initially only conveyed to the vehicle's engine via the vehicle convector.

Once the coolant temperature reaches approx. 30  $^{\circ}$ C, the vehicle's fan starts up and heat is supplied to the passenger compartment as well.



- 1 Heater
- 2 Water pump
- 3 Connecting piece
- 4 Convector
- 5 Vehicle engine

#### Cooling circuit with check valve:

Cut through the vehicle's water feed hose from the engine to the convector and insert the check valve.

Connect the heater and the water pump and hoses to the check valve

Run and connect a water hose from the water pump pressure fitting to the heater water inlet fitting.

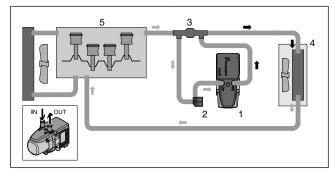
#### **Heating characteristic**

When the heater is switched on, heat is initially only conveyed to the vehicle's engine via the vehicle convector.

Once the coolant temperature reaches approx. 30  $^{\circ}$ C, the vehicle's fan starts up and heat is supplied to the passenger compartment as well

#### Advantage of in-line integration in the water circuit

No loss of performance on the vehicle heater when the heater is switched off.



- 1 Heater
- 4 Convector
- 2 Water pump
- 5 Vehicle engine
- 3 Check valve
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- The check valve must be ordered separately see page 77 f. for order number.

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\* The heater is approved for mains operation (230 V/50 Hz), e.g. as is the case for camping or parking areas for motor homes or in marinas for boats, only in combination with a special cable harness (order no.: 25 2652 82 11 00, see page 106). The cable harness is included in the universal installation kit for recreational vehicles (order no.: 25 2652 82 00 00).

<sup>7</sup> 

#### Cooling circuit with combi valve:

#### Using the 5-connection combi valve

If the water feed and return lines between the vehicle's engine and convector are installed separately in the engine compartment, the 5-connection combi valve must be used along with a T-piece.

#### Using the 6-connection combi valve

If the water feed and return lines between the vehicle's engine and convector are installed in parallel in the engine compartment, the 6-connection combi valve can be used (without a T-piece).

# Heating characteristic in pre-heating mode – small cooling circuit:

Initially the heat from the heater, at a coolant temperature of approximately 67 °C, is conveyed only to the vehicle convector, rapidly heating the vehicle interior.

Once the coolant temperature reaches around 67 °C, some of the heat from the heater is also conveyed to the engine. This allows the engine to be pre-heated while preventing the "small cooling circuit" for interior heating from cooling too fast.

# Heating characteristic in additional heating mode – large cooling circuit

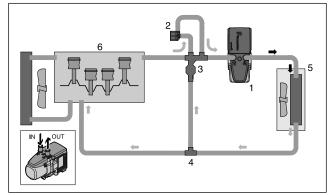
When the vehicle's engine is operating, heat is distributed evenly between its convector and engine, making the warmup phase even shorter and heating the vehicle interior.

#### Installing a combi valve with 5 connections:

Cut the water feed hose running from the vehicle's engine and convector, and install the combi valve.

Cut through the water return hose from the vehicle's convector and engine and insert the T-piece.

Connect the heater and water pump and hoses to the combi valve and T-piece as shown in the drawing.



- 1 Heater
- 2 Water pump
- 3 Combi valve (5 connections)
- 4 T-piece
- 5 Vehicle convector
- 5 Vehicle engine

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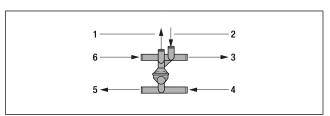
<sup>\*</sup> The heater is approved for mains operation (230 V/50 Hz), e.g. as is the case for camping or parking areas for motor homes or in marinas for boats, only in combination with a special cable harness (order no.: 25 2652 82 11 00, see page 106). The cable harness is included in the universal installation kit for recreational vehicles (order no.: 25 2652 82 00 00).

# 2 | Optional water circuits on a Hydronic S3 Economy\* example

#### Installing a combi valve with 6 connections:

Cut the water feed and return lines between the vehicle's engine and convector and install the combi valve.

Connect the heater and water pump and hoses to the combi valve as shown in the drawing.



- 1 To water pump
- 2 From water pump
- 3 To heater
- 4 From vehicle convector
- 5 To vehicle engine
- 6 From vehicle engine

#### Cooling circuit with two check valves:

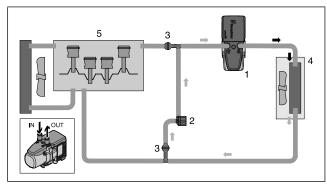
To pre-heat the vehicle interior only (vehicle engine disengaged) Cut the water feed and return lines between the vehicle's engine and convector and insert the combi valve. It is essential to observe the flow direction through the check valves.

Install the heater in the water feed hose between the check valve and the vehicle's convector

Connect the water pump and hoses to the check valve.

#### **Heating characteristic**

When the heater is switched on, the heat is conveyed only to the vehicle's convector. Once the coolant temperature reaches approx. 30 °C, the vehicle's fan starts up and the heat is supplied exclusively to the passenger compartment.



- 1 Heater
- 2 Water pump
- 3 T-piece with check valve
- 4 Vehicle convector
- 5 Vehicle engine

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\* The heater is approved for mains operation (230 V/50 Hz), e.g. as is the case for camping or parking areas for motor homes or in marinas for boats, only in combination with a special cable harness (order no.: 25 2652 82 11 00, see page 106). The cable harness is included in the universal installation kit for recreational vehicles (order no.: 25 2652 82 00 00).

# 2 | Hydronic S3 optional add-ons - fuel supply

#### Diesel:

- Hydronic S3 Economy with pressure-resistant metering pump:
- Advantage: easy to connect to the vehicle's fuel system, speeding up installation
- Prerequisite: Fuel pressure < 2 bar for diesel, no check valve on tank connection, return line ends just above tank floor

Please note! The following versions of the Hydronic S3 Economy include the pressure-resistant metering pump:

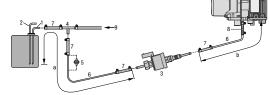
D4E 12 V: 25 2943 05 00 00 D5E 12 V: 25 2942 05 00 00

#### Gasoline:

 Gasoline applications with a pressure of > 0.2 bar also require the pressure reducer

Please note! For fuel lines pressurized at 2.0 bar to max. 4.0 bar, use the pressure reducer (order no. 22 1000 20 08 00) or a separate tank connection.

Fuel is extracted via a T-piece in the fuel return pipe from the engine to the tank cover

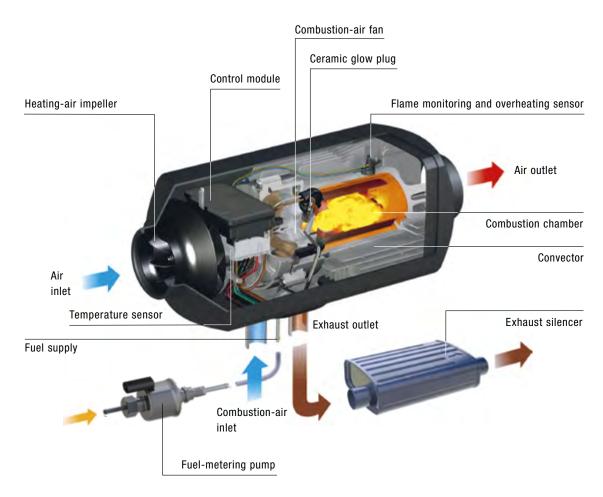


- 1. Fuel return line from vehicle tank cover
- Fuel supply line from vehicle tank cover
- Metering pump
   (pressure resistant up
   to 2.0 bar) identified
   with a green label
- 4. T-piece
- 5. Fuel filter required only for contaminated fuel
- 6. Fuel pipe, 4 x 1 (di =  $\emptyset$  2 mm, blue)
- 7. Fuel hose 3.5 x 3 (di Ø 3.5 mm), approx. 50 mm long 8. Adapter
- (Ø 4.5/3.5 mm)
- From vehicle engine to tank fitting

Permissible line lengths: Suction side: a = max. 2 m Pressure side:

b = max. 6 m

# 3 | Airtronic: technology



#### Airtronic functions:

- Combustion air is conveyed to the combustion chamber by the fan motor and impeller.
- Fuel is drawn from the vehicle's tank.
- Fuel is conveyed to the combustion chamber by the metering pump.
- The glow element vaporizes this fuel as it enters the combustion chamber and creates a combustible fuel-air mix with the combustion air.
- The resulting flame formation switches off the glow element (or filament glow plug), transfers the heat to the heating air via the convector, and diverts exhaust gas via the exhaust silencer.
- The fan motor and heating-air impeller convey cool air to the heater, where it is warmed by the convector and then blown into the vehicle interior.





### Eberspächer Airtronic

Heater		Airtronic S2	Commercial	Airtronic S2 Commercial		
Product package		Heater, metering pump				
Techn. designation		Airtronic D2L – 12V	Airtronic D2L – 24V	Airtronic E2L – 12V		
Order no. for <b>heater</b>		25 2721 05 00 00	25 2726 05 00 00	25 3015 05 00 00		
Fuel		Die	esel	Bio-ethanol E100		
Voltage	V	12	24	12		
Heating medium			A	ir		
Control / heat settings			Off/stepless	s: minmax.		
Heat output	W		- / 850	/ 2,200		
Fuel consumption	l/h	<b>-/0.1</b>	/ 0.28	- / 0.16 / 0.49		
Elec. power consumption, operation	w	4 / 6	5 / 31	4 / 6 / 31		
Elec. power consumption, start	w		≤ 1	100		
Air flow volume w/o backpressure	kg / h	13 / 42 / 105				
Lower voltage limit	V	10.5	21	10.5		
Upper voltage limit	V	16	32	16		
Interference suppression		Disturbance class 5 (DIN EN 55025)				
Dimensions L x W x H mm		310 x 115 x 122				
Weight empty	kg	2.7				
Ventilation mode		available				

Eberspächer Airtroni	ic	et.				
Heater		Airtronic M2	Commercial	Airtronic M2 Recreational	Airtronic M2 Commercial	
Product package			Heater, me	tering pump		
Techn. designation		Airtronic D4L – 12 V	Airtronic D4L – 24 V	Airtronic D4R – 12 V	Airtronic B4L	
Order no. for <b>heater</b>		25 2720 05 00 00	25 2729 05 00 00	25 2746 05 00 00	20 1987 05 00 00	
Fuel			Diesel		Gasoline	
Voltage	V	12	24	12	12	
Heating medium						
Control / heat settings		Off/stepless: minmax.				
Heat output	w	- / 900 / 4,000			- / 1,300 / 3,800	
Fuel consumption	I/h		- / 0.11 / 0.51		- / 0.18 / 0.54	
Elec. power consumption, operation	W	5 / 6	/ 42	5 / 6 / 65	5 / 7 / 42	
Elec. power consumption, start	w		≤ `	100		
Air flow volume w/o backpressure kg / h		22 / 60 / 180		22 / 55 / 185	24 / 85 / 180	
_ower voltage limit	V	10.5	21	10.5	10.5	
Upper voltage limit	V	16	32	16	16	
Interference suppression		Disturbance class 5 (DIN EN 55025)				
Dimensions L x W x H	mm	376 x 140 x 150				
Weight empty	kg	4.5				
Ventilation mode		available				

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### Eberspächer Airtronic

Heater		Airtronic B5	Airtronic D5	Airtronic D5	
Product package		Heater, metering pump			
Techn. designation		Airtronic L (B5)	Airtronic L (B5) Airtronic L (D5)		
Order no. for <b>heater</b>		20 1859 05 00 00	25 2361 05 00 00	25 2362 05 00 00	
Fuel		Gasoline	Diesel		
Voltage	V	1	12		
Heating medium			Air		
Control / heat settings		low / medium / high / power			
Heat output	w	2,000 / 2,700 / 4,800 / 5,500	1,600 / 2,700 / 4,800 / 5,500		
Fuel consumption I / h		0.27 / 0.37 / 0.65 / 0.75	0.2 / 0.34 / 0.58 / 0.66		
Elec. power consumption, operation W		15 / 30 / 80 / 85	15 / 30 / 80 / 85 25 / 35 / 80 / 85		
Elec. power consumption, start	W		250		
Air flow volume w/o backpressure	kg / h	125 / 180 / 275 / 280 155 / 190 / 275 / 280		/ 275 / 280	
Lower voltage limit	V	10,5		21	
Upper voltage limit	V	1	16		
Interference suppression			Disturbance class 5 (DIN EN 55025)		
Dimensions L x W x H	mm				
Weight empty	kg	9.3			
Ventilation mode		available			



### Eberspächer Airtronic

Epotopaonor / in tromo						
Heater		D8 LC D8 LC				
Product package		Heater, met	Heater, metering pump			
Techn. designation		8 L (D8 LC)	8 L (D8 LC)			
Order no. for <b>heater</b>		25 1890 00 00 00	25 1891 00 00 00			
Fuel		Die	sel			
Voltage	V	12	24			
Heating medium		A	ir			
Control / heat settings		low /	high			
Heat output	w	3,500 / 8,000				
Fuel consumption	I / h	0.4 / 1.05				
Elec. power consumption, operation	w	11	15			
Elec. power consumption, star	t W	330	380			
Air flow volume w/o backpressur	e kg / h	310				
Lower voltage limit	V	10	20			
Upper voltage limit	V	14	28			
Interference suppression		Long-distance (additional measures possible)				
Dimensions L x W x H	mm	653 x 20	653 x 260 x 250			
Weight empty	kg	1	14			
Ventilation mode		avai	lable			

### 3 | Selecting the air heater

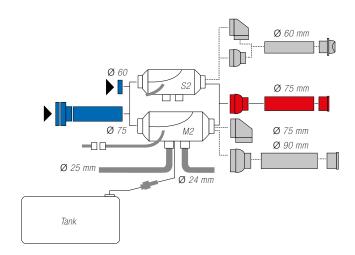
The heating output information provided refers to heating the interior of a cold vehicle to around 20 °C in cold outside temperatures. If the heater only needs to maintain the existing temperature of the interior, less heating power is required. The heating outputs are only guide values. The exact heating requirement also depends on other environmental conditions (e.g. wind, materials, cabin walls, heating-air ducting, etc.).

Guide values for required heating output		Outside temperature			
Example	Volume of interior	< -15 °C	-15 °C to 0 °C	> 0 °C	
Truck cabin	< 8 m³	4 kW	4 kW (2 kW)*	2 kW	
Small bus	8 – 12 m³	5 kW (4 kW)*	4 kW*	2 kW	
Motor home / van	12 – 20 m³	8 kW	4 kW (5 kW)*	4 kW	
Yacht / boat	> 20 m³	see documentation: Marine catalog			

<sup>\*</sup> Values (referring to heat-insulated cabins / vehicles)

#### Range of devices and their respective advantages:

- Airtronic S2 Commercial: the smallest air heater on the market, advantageous in cramped installation spaces. Air ducting with 60 mm or 75 mm air hoses possible.
- Airtronic M2 Commercial: output 4,000 W, air ducting with 75 mm or 90 mm air hoses possible, for vans and suitably sized trucks; offers the advantage of high power within a reasonable installation space, wide range of applications from 900 W (gasoline 1,300 W) to 4,000 W.
- Airtronic M2 Recreational: for applications requiring a higher air throughput, e.g. for long, complex heating air ducting in campers/motor homes, boats or ambulances.



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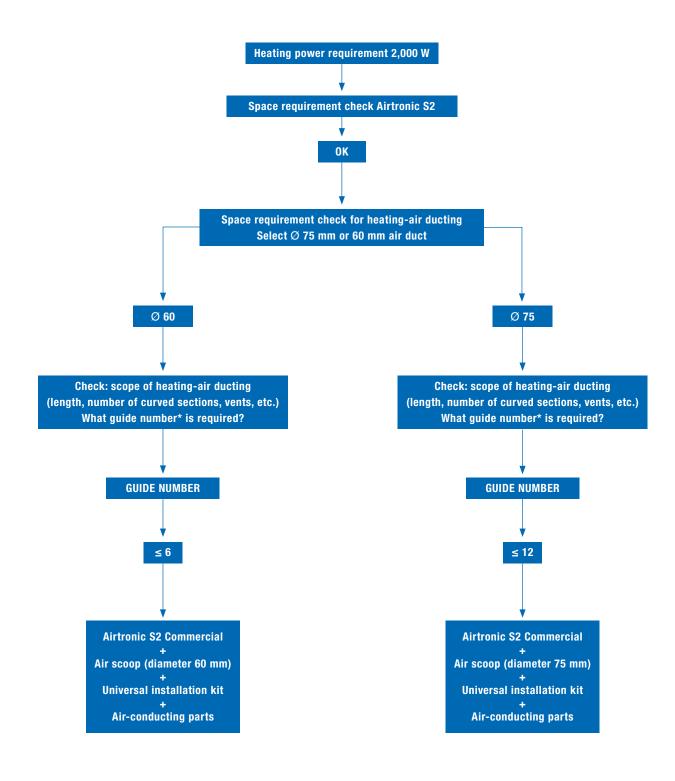
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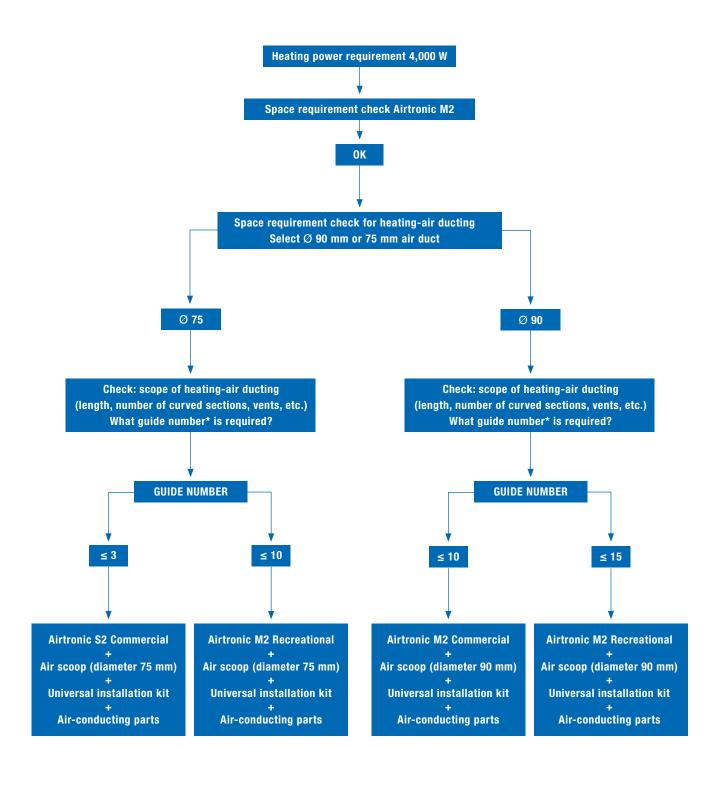
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# 3 | Selecting the air heater



<sup>\*</sup> Guide number: each component of the heating-air ducting (air hose, curved sections, vents, etc.) has a line guide number. The sum of these line guide numbers must not be greater than the guide number for the heater, otherwise the heater could malfunction — e.g. overheating The higher the guide number for the heater, the more heating-air ducting components may be connected. Please refer to Eberspächer's Accessories catalog for a detailed explanation of guide numbers.



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### 3 | Installation kits

#### General notes on heating-air ducting:

Heating-air ducting can also be mounted onto the heater. Each part has a line guide number which indicates the reduction in the heating-air throughput. In order to give you the opportunity to check that the installation you have planned does not reduce the heating-air throughput to an inadmissible level, we have calculated a heater guide number for each heater and a line guide number for each heating-air ducting; see information in the guide number tables:

0 = no temperature increase,

- = no line guide number.

The total of the line guide numbers of the heating-air ducts connected to the heater must not be greater than the heater guide number, as otherwise the vent temperature would be inadmissibly high, the heat distribution would be uneven and the overheating sensor would respond. If the total of the line guide numbers is greater than the heater guide number, the total can be reduced by selecting a larger diameter for the air ducts or switching from a one-duct to a two-duct system.

#### 1-duct means:

One heating-air duct leads to or from the heater. The line guide numbers under "1-duct" apply.

#### 2-duct means:

After the heater, the heating-air line divides into two ducts. Up until this branch, the line guide numbers specified under "1-duct" apply, from the branch onwards the line guide numbers under "2-duct" apply. Note the information on air ducting and calculating the total of the guide line numbers starting on page 42.

When using two air ducts or multiple vents, at least one of the ducts must be permanently open.

The branch that can be closed must not be taken into account when calculating the total of the line guide numbers.

#### Rule of thumb:

Double cross-section or two lines the same, routed in parallel = 1/4 of the guide number.

#### Example:

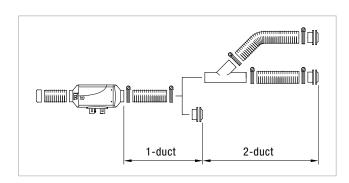
Hose Ø 60 mm

Cross-section  $A = 19.6 \text{ cm}^2$ , guide number 1.0

Hose Ø 75,

Cross-section  $A = 44.2 \text{ cm}^2$ , guide number 0.25

With smooth welded pipes, the line guide number is only half of the flexible hose with the same diameter (i.e. double pipe length).



#### With innovative air control units:

To counter the uneven distribution of warm air in systems with multiple ducts and vents, we have developed innovative air flow regulating elements that are simply clipped into the hose connection fitting of the air vent. These patented regulating elements reduce the air flow cross-section accordingly and therefore the amount of air that escapes. Available for fitting diameters 60, 75 and 90 mm.



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#### The new range of air vents:

Particularly colorfast and durable even at high temperatures, the covers of our completely re-designed range of vents are impressive, featuring a streamlined and high-quality design that allows for a variety of flow directions. They are available in white and black, allowing seamless integration into any interior.

- Clear, simple system thanks to the modular design.
- Plug-in connections between cover and fitting or fitting and air hose for easy assembly.
- Fittings available in 50, 60, 75 and 90 mm.

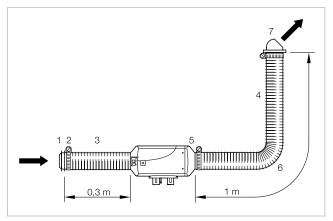


### Example calculation for heating-air ducting:

Airtronic: Heater guide no = 6

NO.	DESCRIPTION	Line guide number	
1	Protective grille	1.7	
2	Connectors Ø 60	1.7	
3	Flex. Pipe Ø 60, 0.3 m long	0.3	
4	Flex. Pipe Ø 60, 1.0 m long	1.0	
5	Straight air scoop, Ø 60	0	
6	1 x 90° elbow, flex. pipe	0.6	
7	Rotating air vent	1.4	
Total of	the line guide numbers	5.0	

Total of line guide numbers, 5.0, does not exceed the heater guide number 6, so the installation is admissible.



### Heater guide numbers:

Heater	Guide number
Airtronic S2 with scoop 60	6
Airtronic S2 with scoop 75	12
Airtronic M2 Commercial with scoop 75	3
Airtronic M2 Recreational with scoop 75	10
Airtronic M2 Commercial with scoop 90	10
Airtronic M2 Recreational with scoop 90	15

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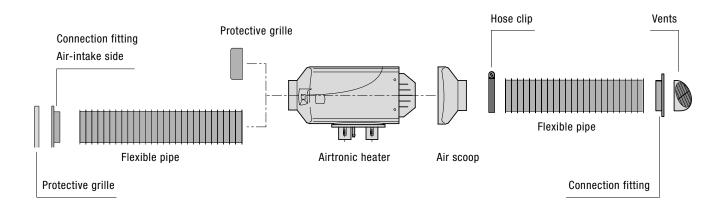
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# 3 | Parts for Airtronic 2 installation



### Installation with 60 mm parts

Heater	Order no. Heater	Order no. Universal installation kit	Protective grille 60 mm	Air scoop 60 mm	Flexible pipe 60 mm	
AS2 D2L 12V	25 2721 05 00 00	25 2720 80 00 00	25 1688 80 06 00	22 1000 01 00 16	10 2114 21 00 00	
AS2 D2L 24V	25 2726 05 00 00	25 2720 80 00 00	25 1000 80 00 00	22 1000 01 00 16	10 2114 31 00 00	

### Installation with 75 mm or 90 mm parts

Heater	Order no. Heater	Order no. Universal installation kit	Protective grille 75 mm	Air scoop 75 mm	Flexible pipe 75 mm	Air scoop 90 mm	Flexible pipe 90 mm
AS2 D2L 12V	25 2721 05 00 00	25 2720 80 00 00	-	22 1000 01 00 17	10 2114 34 00 00	-	-
AS2 D2L 24V	25 2726 05 00 00						
AM2 D4L 12V	25 2720 05 00 00		25 1552 05 01 00	22 1000 01 00 18		22 1000 01 00 19	10 0114 07 00 00
AM2 D4L 24V	25 2729 05 00 00						
AM2 B4L 12V	20 1987 05 00 00						10 2114 37 00 00
AM2 D4R 12V	25 2746 05 00 00						

### The universal installation kit is required for all Airtronic 2 heaters.

The following items must be ordered in addition to the parts listed in the table (air scoop, installation kit, grille and flexible pipe):

- Fuel extractor
- Hose clip
- Fittings:  $\varnothing$  50/60/75/90 mm depending on air ducting
- Vents:  $\varnothing$  50/60 depending on air ducting, or for 75/90 mm

The following items are additionally required depending on the customer application:

- Control unit
- Fuel kit





	Flat vent, 0°	Flat vent, 30°		
	Order no.	Order no.		
75/90 mm black	22 1000 01 0048	22 1000 01 0052		
75/90 mm white	22 1000 01 0049	22 1000 01 0053		
50/60 mm black	22 1000 01 0040	22 1000 01 0044		
50/60 mm white 22 1000 01 0041		22 1000 01 0045		





	Flat vent, lockable	Upright vent, 30°
	Order no.	Order no.
	Oruer no.	Order no.
75/90 mm black	22 1000 01 0076	22 1000 01 0060
75/90 mm white	22 1000 01 0077	22 1000 01 0061
50/60 mm black	22 1000 01 0072	22 1000 01 0056
50/60 mm white	22 1000 01 0073	22 1000 01 0057

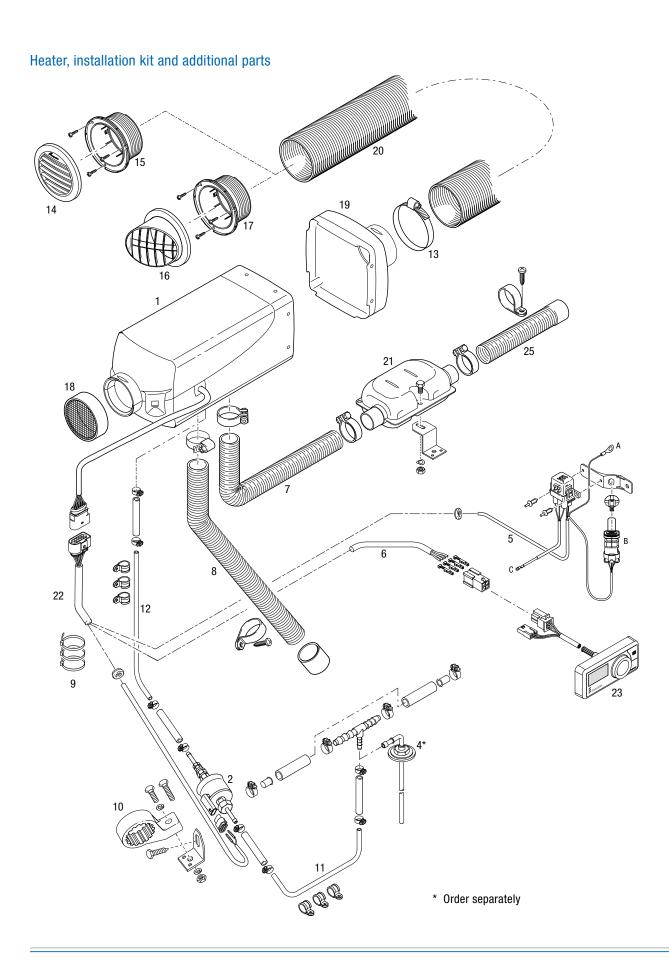




	Upright vent, 90°	Fitting	
	Order no.	Order no.	
75/90 mm black	22 1000 01 0068	-	
75/90 mm white	22 1000 01 0069	-	
50/60 mm black	22 1000 01 0064	_	
50/60 mm white 22 1000 01 0065		-	
black Ø 90 mm	-	22 1000 01 0037	
black Ø 75 mm	-	22 1000 01 0036	
black Ø 60 mm	-	22 1000 01 0035	
black Ø 50 mm	-	22 1000 01 0034	
Air control element		Inner diameter of fitting can be reduced with the air control element	
Ø 75 mm	22 1000 01 0080		
Ø 90 mm	22 1000 01 0081	460	

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# 3 | Product package Airtronic S2 & M2



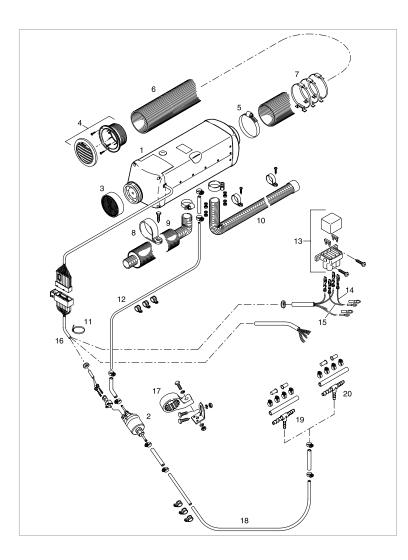
# 3 | Product package Airtronic L

### Heizgerät, Einbausatz und Zusatzteile

Air heaters	Heater	Universal IK
Airtronic L – B5, 12 V	20 1859 05 0000	
Airtronic L – D5, 12 V	25 2361 05 0000	25 2361 80 0000
Airtronic L – D5, 24 V	25 2362 05 0000	

#### Please note

- See page 50 for control units
- Parts with no image number are small parts which are bagged
- If the installation requires additional parts, see page 81.



Heater -	- Product package:
1	Airtronic heater
2	Metering pump
Univers	al installation kit – Product package:
3	Grille, ∅ 90 mm
4	Flat vent, 30° with 90 mm fitting
5	Hose clip, $\varnothing$ 90 mm – 110 mm (2 x)
6	Flexible hose $\varnothing$ 90 mm
7	Bracket (3x)
8	Pipe clip, $\varnothing$ 50 mm
9	Intake silencer
10	Flexible exhaust pipe $\varnothing$ 24 mm
11	Cable tie 200 (2 x 10)
12	Fuel pipe, 4 x 1.25, 7.5 m long
13	Fuse holder
14	Plus cable, 1 <sup>2</sup> rt
15	Plus cable, 4 <sup>2</sup> rt
16	Cable harness
17	Mounting bracket, metering pump
18	Fuel pipe, 6 x 2, 1.5 m long
19	Hose connector 8 / 6 / 8
20	Hose connector 10 / 6 / 10

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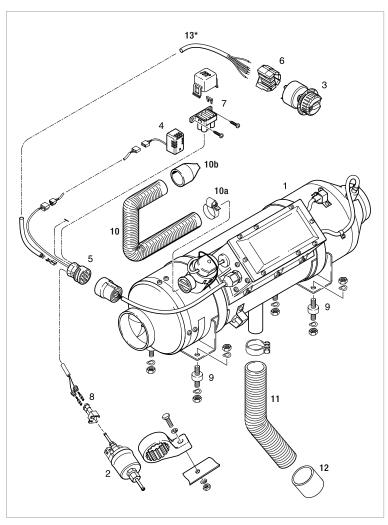
### 3 | Product package air heater D8 LC

### Heizgerät, Einbausatz und Zusatzteile

Air heaters	Heater
D8 LC, 12 V	25 1890 00 0000
D8 LC, 24 V	25 1891 00 0000

#### Please note:

- See page 50 for control units
- Parts with no image number are small parts which are bagged
- If the installation requires additional parts, see page 81.



Heater – Product package:							
1	Heater, pre-mounted						
2	Metering pump with integrated fuel fi bracket	Iter and mounting					
3	Control unit						
4	Temperature sensor, external						
5	Cable harness with connection parts						
6	Bushing connector housing with conn	Bushing connector housing with connection parts					
7	Blade fuse with fuse holder						
8	Bushing connector housing with busing connectors and seals (2 x)						
9	Rubber-metal buffer with fastening pa	arts (4 x)					
Not incl	uded in product package:						
10	Combustion air hose	10 2114 25 0000					
10a	Hose clip	10 2067 03 2050					
10b	End sleeve for combustion-air hose	25 1480 89 0400					
11	Flexible exhaust pipe LW42	360 61 381					
12	End sleeve for flex. exhaust pipe LW42	22 1000 40 0200					
13*	Cable harness, control unit						

\* Self-assembly with the 5 m cable harness (Order no. 22 1000 30 0300). Cut the existing connectors off the cable harness. Prepare the cable strands for the bushing connectors and fit them. The bushing connectors are included in the product package. Connect the cable harness to the cable harness connector (5) and to the bushing connector housing of the control unit (6) following the circuit diagrams at the end of the documentation.

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### 3 | Guide numbers

### Airtronic S2 Commercial

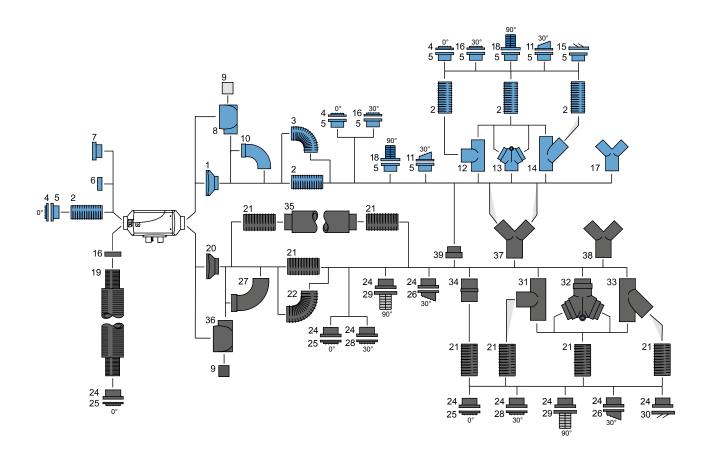
Heater number  $\mathbf{6}$  – with  $\emptyset$  60 air scoop Heater number 12 – with  $\emptyset$  75 air scoop

The drawing shows the application options for the main air ducts.

There are no installation examples.

#### Please note:

For an explanation of one- and two-duct heating-air ducting, see page 118.



= Ø 50 mm = Ø 60 mm

= Ø 75 mm

### 3 | Guide numbers

### Airtronic M2 Commercial

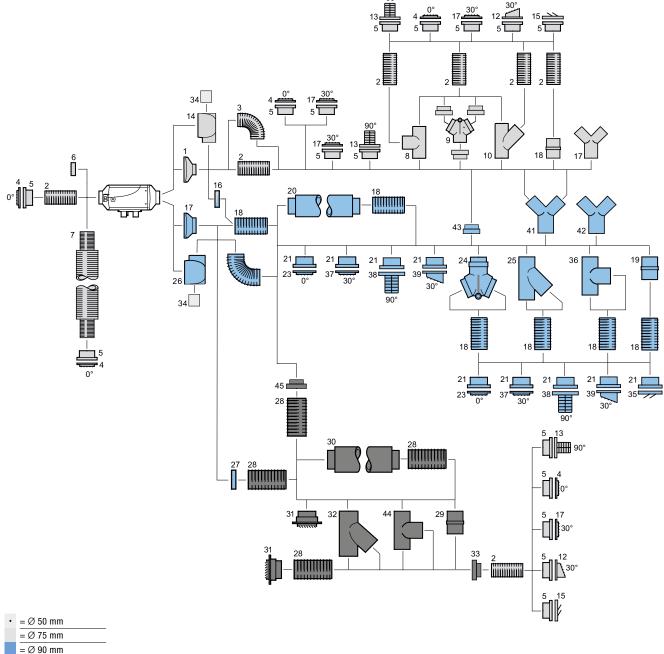
Heater number 3 – with  $\emptyset$  75 air scoop Heater number  $\mathbf{10}$  – with  $\varnothing$  90 air scoop

The drawing shows the application options for the main air ducts. There are no installation examples.

\* Heater guide numbers for the Airtronic M2 Recreational are different, see page 35.

#### Please note:

For an explanation of one- and two-duct heating-air ducting, see page 118.



= Ø 100 mm

No.	Name (dimensions in mm)	Line guide number 1-duct		Line guide number 2-duct		See series no. sec. 8	
		Ø 75	Ø 90	Ø 75	Ø 90	air-conducting parts	
	Heating-air duct with a Ø 75 scoop (heater guide number 3)					'	
1a	Scoop, Ø 75	0	_	_	_	21	
2	Flex. pipe Ø 75 per m	1	-	0.25	-	1	
3	90° elbow, flexible pipe, Ø 75	0.2	_	-	-	1	
4	Flat vent, 0° with Ø 75 fitting	0.4	_	0.1	_	13	
5	Fitting, Ø 75	0.0	_	0.0	_	16	
6	Grille, Ø 75	2.0	_	_	_	17	
7	Intake silencer, Ø 75	0.8	_	_	_	4	
8	T-junction, Ø 75	_	_	0.5	_	35	
9	Butterfly valve Ø 90 / 90 / 90 with 75 / 90 adapters	_	_	1.8	_	40	
10	Plastic Y-junction Ø 75 / 75 / 75	_	_	0.6	_	43	
11	Flat vent, 30° with Ø 75 fitting	0.4	_	0.1	_	11	
12	Upright vent, 30° with Ø 75 fitting	0.6	_	0.2	_	10	
13	Upright vent, 90° with Ø 75 fitting	1.1	_	0.3	_	14	
14	Ball-shaped scoop, Ø 75	2.0	_	_	_	32	
15	Closable vent with Ø 75 fitting	_	_	_	_	12	
16	Ring, Ø 75 / 90	0.5	_	_	_	34	
17	Symmetrical plastic Y-junction Ø 75 / 60 / 60	_	_	0.9	_	42	
18	Hose connector	0.5	_	0.1	_	44	
	Heating-air duct with Ø 90 scoop (heater guide number 10)	0.0		011			
1b	Scoop, Ø 90	_	0	_	_	21	
18	Flex. pipe Ø 90 per m	_	1	_	0.25	1	
19	Hose connector fitting, Ø 90		0.5	_	0.1	44	
20	Silencer, Ø 90		0.7	_	0.1	3	
21	Fitting, Ø 90		0.7	_	0	16	
23	Flat vent, 0° with Ø 90 fitting		1.1	_	0.3	13	
24	Butterfly valve, Ø 90 / 90 / 90		1.2	_	0.3	40	
25	Y-junction Ø 90 / 90 / 90		-	_	0.3	43	
26	•		5.0	_	0.5	32	
27	Ball-shaped scoop, Ø 90*		0	_	_	34	
28	Ring, Ø 90 / 100		0.4	_	_	1	
29	Flexible pipe, Ø 100, per m		0.4	_	_	44	
	Hose connector fitting, Ø 100					3	
30	Silencer, Ø 100		0.5	_	0.5		
31	Rotatable vent Ø 100		2.1		0.5	11.1	
32	Y-junction Ø 100 / 100 / 100	_	_	_	0.5	43	
33	Adapter Ø 75 – 100	-			0.8	45	
34a	Connection fitting 50x Ø 75	_	-	-	1.0	31	
34b	Connection fitting 50x Ø 90		-	_	2.5	31	
35	Closable vent with Ø 90 fitting	-	-	-	-	12	
36	T-junction, Ø 90	_	-	-	0.6	35	
37	Flat vent, 30° with Ø 90 fitting	_	2.0	-	0.4	11	
38	Upright vent, 90° with Ø 90 fitting		2.7	-	0.3	14	
39	Upright vent, 30° with Ø 90 fitting	- 0.1	2.4	-	0.6	10	
40	90° elbow, flexible pipe, Ø 90	0.1	-	-	-	1	
41	Symmetrical plastic Y-junction Ø 90 / 75 / 75	-	-	-	0.9	42	
42	Symmetrical plastic Y-junction Ø 90 / 60 / 60		-	-	2.1	42	
43	Adapter Ø 75 – 90	-	3.3	-	-	45	
44	T-junction, Ø 100		-	-	0.4	35	
45	Adapter Ø 90 − 100		0.4	_	-	45	

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<sup>\*</sup> Cannot be used with the Airtronic D4 Plus

### 3 | Guide numbers

### Airtronic L

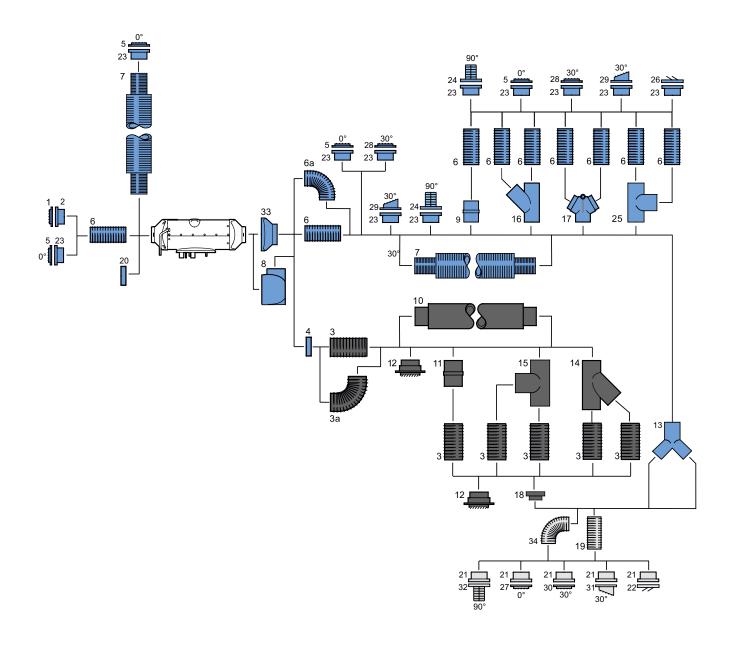
#### Heater number 10

The drawing shows the application options for the main air ducts.

There are no installation examples.

### Please note:

For an explanation of one- and two-duct heating-air ducting, see page 118.



= Ø 75 mm

= Ø 90 mm

= Ø 100 mm

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No.	Name (Dimensions in mm)	Line guide number 1-duct	Line guide number 2-duct	See series no. sec. 8 air-conducting parts
	<b>Heating-air duct with Ø 90 scoop</b> (heater guide number 10	0)		
1	Metal grille vent $\varnothing$ 90	0.6	0.2	13.1
2	Hose fitting Ø 90	0	0	18
3	Flexible pipe, Ø 100, per m	0.6	0.2	1
3a	90° elbow, flexible pipe, Ø 100	0.6	-	1
4	Adapter Ø 90 / 100	0	-	45
5	Flat vent, 0° with Ø 90 fitting	1	0.2	13
6	Flexible pipe, Ø 90, per m	1	0.25	1
6a	90° elbow, flexible pipe, Ø 90	0.2	-	1
7	Intake silencer, Ø 90	0.8	_	3
8	Ball-shaped scoop, ∅ 90	8	-	22
9	Hose connector fitting, Ø 90	0.5	0.1	46
10	Silencer, Ø 100	0.5	-	3
11	Hose connector fitting, Ø 100	0.4	0.1	44
12	Flat vent, Ø 100, 30°	2	0.5	11.1
13	Symmetrical plastic Y-junction Ø 90 / 75 / 75	-	0.9	42
14	Y-junction Ø 100 / 100 / 100	-	0.5	43
15	T-junction Ø 100 / 100 / 100	-	0.5	35
16	Y-junction Ø 90 / 90 / 90	-	0.6	43
17	Butterfly valve, Ø 90 / 90 / 90	-	1.1	40
18	Adapter Ø 75 − 100	3.2	_	45
19	Flexible pipe, Ø 75, per m	4	1	1
20	Plastic heater grille, Ø 90	2	-	17
21	Fitting, Ø 75	0	0	16
22	Closable vent with Ø 75 fitting	-	-	12
23	Fitting, Ø 90	0	0	16
24	Upright vent, 90° with ∅ 90 fitting	3	0.8	14
25	T-junction Ø 90 / 90 / 90	-	0.6	35
26	Closable vent with ∅ 90 fitting	-	-	12
27	Flat vent, 0° with Ø 75 fitting	2.5	0.7	13
28	Flat vent, 30° with Ø 90 fitting	1.7	0.4	11
29	Upright vent, 30° with ∅ 90 fitting	2.3	0.6	10
30	Flat vent, 30° with Ø 75 fitting	2.7	0.8	11
31	Upright vent, 30° with ∅ 75 fitting	2.1	0.5	10
32	Upright vent, 90° with Ø 75 fitting	4.7	1.2	14
33	Scoop, Ø 90	0	0	-
34	90° elbow, flexible pipe, Ø 75	1	0.25	1

<sup>\*</sup> Item 4 – when using the  $\varnothing$  90 / 100 adapter, cut the grille

### 3 | Guide numbers

### Air Heater 8 L

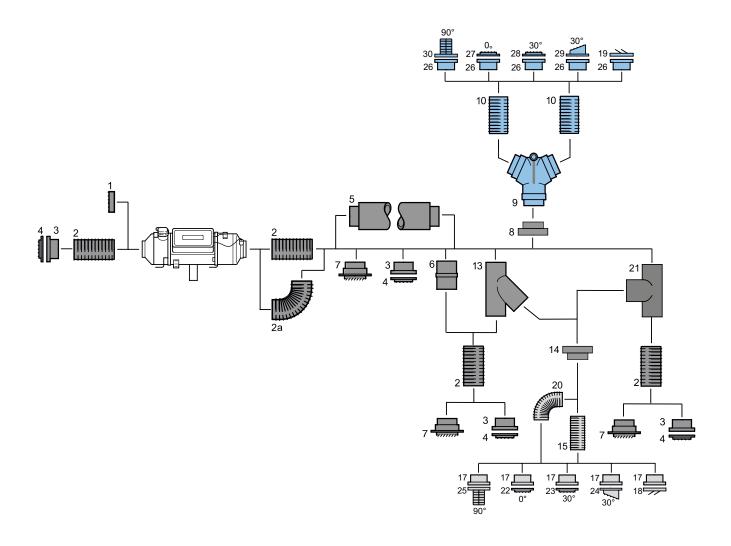
#### Heater number 8

The drawing shows the application options for the main air ducts.

There are no installation examples.

### Please note:

For an explanation of one- and two-duct heating-air ducting, see page 118.



= Ø 75 mm

= Ø 90 mm

= Ø 100 mm

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### 4 | Control units

Control units		F	0	• • •		First
Model	Mini-Controller Control unit	EasyStart Select Control unit	EasyStart Remote Remote control	EasyStart Remote+ Remote control	EasyStart Pro Timer switch	EasyStart Web **/*** Web-based remote control
Order number	22 1000 32 07 00	22 1000 34 13 00	22 1000 34 81 00	22 1000 34 17 00	22 1000 35 22 00	22 1000 34 78 00
Interface	S+	LIN	LIN, S+	LIN, S+	CAN	LIN, S+, CAN <sup>1</sup>
Basic Functions	w Heating / ve	ntilation on / off	Heating / ventilation on / off Operating time adjustable	Heating / ventilation on /     Long-press function for i     A second / additional hea	mmediate heating	Heating / ventilation on / off     Can be operated via all internet-compatible devices incl. voice assistant
Programming the timer	_	_	_	Three programming locations within seven days Selection of an individual day of the week or one of three time periods (Mon–Fri / Sat+Sun / Mon–Sun)	Three programming locations within seven days Selection of individual days of the week or one of three time periods (Mon–Fri / Sat+Sun / Mon–Sun)	Three programming locations within seven days Selection of individual days of the week or one of three time periods (Mon–Fri / Sat+Sun / Mon–Sun)  (only via CAN communication (EasyStart 7.1))
Operating time settings	Continuous operation	60 min. preset	Adjustable 10, 20, 30, 40, 50 or 60 min.	Adjustable 10–120 min.; additionally endless with Airtronic	10-720 mir	n. or endless
Pre-ventilation*	Yes	Yes	No	Yes	Yes	Yes
Display Interior temperature	_	_	_	Yes	Yes	Yes
Range	_	_		km under conditions	_	Unlimited (given network coverage)
Diagnostic capability	_	Display of fault number	-	Diagnosis via fault number in Workshop menu	Simple diagnostics in text form via User menu Diagnostics via Workshop menu	Simple diagnostics in text form via User menu Remote diagnostics via Workshop menu

The control unit's specific scope of functions depends on the heater and the connection type used (S+ / LIN / CAN).

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**EasyStart Remote** 

Remote control



EasyStart Remote+

Remote control



EasyStart Pro

Timer switch



EasyStart Web \*\*/\*\*\*

control

Web-based remote

Mini-Controller Model Control unit

**EasyStart Select** Control unit

Specifics in connection with Hydronic heaters:

Residual heat function possible	_	_	_	_	Yes *	Depending on the heater type
Timer programming: automatic run time calculation	_	_	_	Yes	Yes	Yes
Manual high-altitude operation Hydronic S3 Economy (CS) possible	-	_	_	_	Yes	Yes

#### Specifics in connection with Airtronic heaters:

Lower air flow						
temperature can	_	_	_	_	Yes	Yes
be set						

- The existing EasyStart Web 22 1000 34 51 00 can be upgraded to the CAN-compatible EasyStart Web 2019 via EasyScan.
- Depending on heater type
- \*\* End users can pre-book connectivity at standard cellphone rates for 12 months at a time at www.myeberspaecher.com
- \*\*\* Network coverage available in the following countries: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain and Northern Ireland, Italy, Latvia, Lithuania,  $Nether lands, Norway, Poland, Romania, Russia, Sweden, Switzerland, Turkey, Ukraine\ and\ Belarus.$

### 4 | Optional add-ons

### Selection of control and display sensors

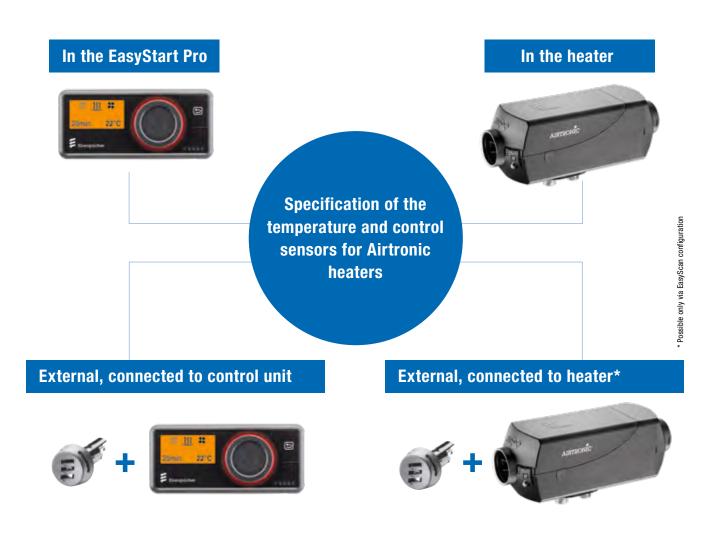
The EasyStart Pro has an integrated temperature sensor, which is used to determine the interior temperature. An exterior temperature sensor additionally can be connected and implemented in the system upon installation. The temperature sensor, which is built into the heater, can also be used by air heaters to determine the interior temperature. The sensors to be used for temperature control (control sensor) and for temperature display (display sensor) can be set via the EasyStart Pro during commissioning.

#### Specifics regarding fresh-air mode:

The control sensor must not be the internal heater sensor

There are three options:

- Use of the integrated temperature sensor of the EasyStart Pro
- Connection of an external temperature sensor to the EasyStart Pro
- · Connection of an external temperature sensor to the air heater



# 4 | Control units - compatibility with heaters

Control units		(2)   (2)   (3) (4) (4)	• <b>    </b> •	0	**	<b></b> 0°	Total
Model	Airtronic Mini-controller	EasyStart Select	EasyStart Timer	EasyStart Remote Remote control	EasyStart Remote+ Remote control	EasyStart Pro	EasyStart Web **/*** Web-based remote control
Order no.	22 1000 32 07 00	22 1000 34 13 00	22 1000 34 15 00	22 1000 34 81 00	22 1000 34 17 00	22 1000 35 22 00	22 1000 34 78 00
Interface	\$+	LIN	LIN, S+	LIN, S+	LIN, S+	CAN	LIN, S+, CAN 1

Compatibility of control units with heaters

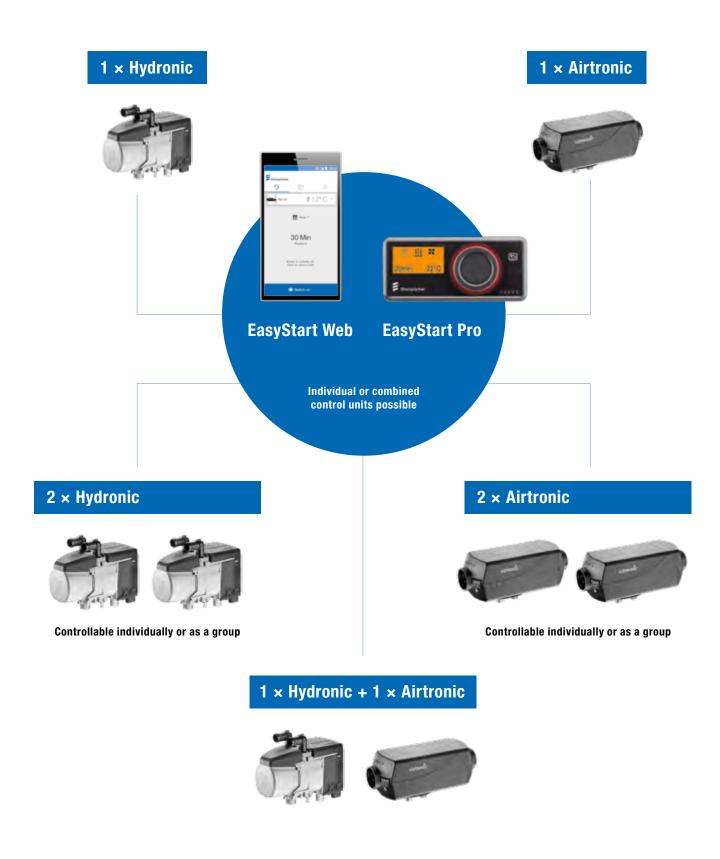
77	Hydronic S3 12V CS Economy	-	-	S+ *	S+	S+ *	CAN	CAN
3	Hydronic S3 24V CS Commercial	-	-	S+ *	S+	S+ *	CAN	CAN
7	Hydronic S3 12V CL Economy	-	LIN	LIN	LIN	LIN	-	LIN
	Hydronic M II 12/24 V	-	LIN	LIN	LIN	LIN	-	LIN
43	Hydronic L16, L24, L30, L35	-	-	S+ *	S+	S+ *	-	S+ *
	Airtronic S2/M2 12V Commercial	S+ **	LIN	LIN	LIN – no setpoint input possible	LIN	CAN	CAN
	Airtronic M2 12V Recreational	S+ **	LIN	LIN	LIN – no setpoint input possible	LIN	CAN	CAN
	Airtronic S2/M2 24V Commercial	S+ **	-	S+ * no setpoint input possible	S+ no setpoint input possible	S+ * no setpoint input possible	CAN	CAN
	Airtronic D2, D3, D4, D4+, B4 (1st Gen.)	S+	LIN	LIN	No setpoint input possible	LIN	-	LIN
	Airtronic D5, Airtronic B5	S+ *	LIN	LIN	LIN	LIN	-	LIN
0	Air heater D8LC	-	-	-	S+ ***	S+ ***	-	S+ ***

The existing EasyStart Web 22 1000 34 51 00 can be upgraded to the CAN-compatible EasyStart Web 2019 via EasyScan.
 With restricted function: diagnostics cannot be run via the control unit
 With restricted function: no external temperature sensor possible
 Can be used only as an additional remote control to supplement the permanently installed control unit. No setpoint input possible.

### 4 | Combination options via CAN communication

Possible from Facelift Release 2 in 04/2020

Combination options for heaters and control units via CAN



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### 4 | Control units - EasyStart web\*



### 1. Advantages (functions):

- Pre-installed SIM chip
- Integrated antenna in the receiver allows for easy installation
- Three interfaces: CAN, LIN, switching plus (S+)
- Support of complex applications through a combination of up to two heaters and one additional CAN-compatible control unit (e.g. EasyStart Pro) – see Compatibility and Combinations section
- Display of error classes for the user
- Remote diagnostics by the workshop (must be approved by the end customer)
- Smartwatch compatibility and Alexa voice control
- High altitude operation can be activated manually above altitudes of 1,500 m in combination with the Hydronic S3 Economy CS
- Integrated residual heat function (when combined with Hydronic S3 CS)
- LIN and S+ interfaces permit flexible fuse for older heater generations as well

### 2. Further features:

- Use of all available networks for optimum connectivity
- No need to fit or replace a SIM card
- Roaming function enables use in other countries without additional costs
- Convenient, cost-effective pre-booking of a flat rate for 12 months at a time
- Intuitive operation with newly designed smartphone app
- Compatibility with all internet-enabled devices via wireless-optimized browser version

- Automatic calculation of the operating time (depending on application)
- Current status display (e.g. operational state, interior temperature and timer)
- Can be combined with other control units (depending on application)
- The heater can be flexibly controlled using a variety of control units (depending on application)

### Technical data:

Order number		22 1000 34 78 00
Dimensions L x W x H (without fastening brackets)	mm	66 x 106 x 25
Protection rating		IP 40 to ISO 20653
Average standby current draw	mA	< 1
Current consumption during data transfer	Α	< 0.5
Max. continuous current draw (during operation)	mA	< 30
Operating temperature	°C	-40 to +85
Wireless module		Quad-band GSM module (2G)

Network coverage available in the following countries: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain and Northern Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Romania, Russia, Sweden, Switzerland, Turkey, Ukraine and Belarus.

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### 4 | Control units - EasyStart Pro



### 1. Advantages (functions):

- Intuitive navigation with control knob
- Integrated temperature sensor
- Operation of up to two heaters separately or two identical (Airtronic or Hydronic) heaters in a group
- Simple plain text diagnostics for users
- Detailed diagnostics function for the workshop
- Integrated residual heat function for Hydronic (CS) heaters: efficient heating using the engine's residual heat
- Altitude mode can be activated manually above 1,500 m (Hydronic S3 Economy (CS))
- Easy-to-read system status display (home screen)

- Timer function: up to three programming locations available
- Display and LED color ring for clearly indicating the status in all operating conditions
- · Various installation variants possible (surface mounting with concealed or visible cable routing, flush mounting)
- Mounting-optimized ribbon cable
- Endless heater operating time can be set (Airtronic 2 and Hydronic S3 (CS))
- Menu operation available in English and German, as well as 25 other languages

### 2. Further features:

- Setup assistant simplifies installation
- Maintenance interval setting possible
- Immediate heating via the long-press function
- Integration of an additional CAN control unit possible: EasyStart Web (from Q2/2020) or additional EasyStart Pro
- Permanent display illumination possible
- ADR compliant
- Easy diagnostics via EasyScan; no disassembly required

### Technical Data:

Order no.		22 1000 35 22 00
Dimensions L x B x H	mm	81.8 x 37.0 x 13.5 (without control knob) 81.8 x 37.0 x 18.6 (with control knob)
Protection rating		IP5K2
Average standby current draw	mA	< 0.4
Operating temperature	°C	-40 to +85

### 4 | Service: EasyScan diagnostic and service tool

# EasyScan – the new diagnostic and service tool for Eberspächer pre-heater systems:

EasyScan is the diagnostic and service tool for the future – it is the workshop's future-proof solution for challenges in the long term. The new tool is the successor to our existing diagnostics system EDiTH and accordingly, is backward compatible. Usually air and water heaters from 2007 and 2009, respectively, can be diagnosed.

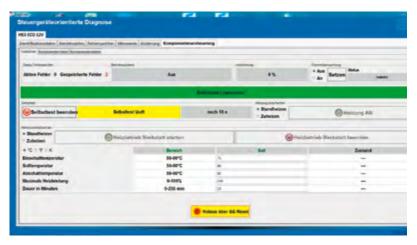


Fig.: Component or workshop test

#### 1. Advantages (functions):

- New, modern, user-friendly interface
- Comprehensive evaluation of current operating status
- Error analysis of devices and components
- Error code output for heaters with CAN communication including additional system parameters
- Heating application function check
- Commissioning support for heating systems with CAN communication
- Integrated results log at the end of commissioning and for diagnostic sessions
- Existing heater adapters can continue to be used
- Direct link to the Eberspächer Partner Portal at any time
- Datasets can be installed, e.g. for the EasyFan Flap and Fan module, as well as EasyStart Web firmware updates

### 2. Further features:

- PC software is downloaded via the Partner Portal
- Alternative for installing and updating software locally from a data carrier
- Ongoing updates provided on the Partner Portal
- Product package: VCI, USB cable and Y adapter cable (connection for existing heaters and forthcoming applications)



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# 4 | Service: EasyScan diagnostic and service tool

### Technical data:

Part number		22 1550 89 00 00
Compatibility		Air and water heaters Hydronic 1 (12 V), Hydronic 2, Hydronic 2 Commercial (12 V & 24 V), Hydronic S3 Economy (12 V), Hydronic M II (12 V & 24 V), Airtronic 2 (12 V & 24 V) and all future heaters
Temperature range	°C	-40 to +70
Dimensions L x W x H	mm	82 x 72 x 24
Protection rating		IP 20

### PC system requirements:

- Standard PC or laptop with Windows 7 or later
- Hardware: Processor speed min. 1 GHz
- RAM: min. 1 GB (3 GB recommended)
- USB port
- OS: Windows 7 (32- + 64-bit, SP1) or later

Languages	DE / EN
	FR / IT / CZ / PL / CN / JP / KO / RU





Fig.: Error memory readout

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### 4 | Service: Additional diagnostic devices

### Eberspächer diagnostics options:

- EasyScan: requires PC, ISO adapter and software see heater fault finding or EasyScan instructions on the Partner Portal
- With EasyStart control units:
   See heater and control unit fault finding on the Partner Portal
- With existing diagnostic devices 22 1512 89 00 00 and 22 1529 89 00 00 and with the new diagnostic device 22 1545 89 00 00

See heater fault finding or diagnostic device instructions on the Partner Portal

Testing heaters using	EasyScan	CONTROL unit / diagnostic device
Full test without PC		x
Full test with PC	х	

### EasyScan:

- Reads out general heater data, e.g. running times for function tests in the vehicle and on the test bench, parameter displays
- Individual component activation for components testing or line filling
- Hydronic S3 and Airtronic 2 heaters may be diagnosed in detail only with EasyScan, EasyStart Pro and EasyStart Web.

# Diagnostic device 22 1545 89 00 00 is used for Hydronic 1, Hydronic 2 and Airtronic 1:

- If EasyScan and PC are not available
- If EasyStart Select, Timer, Remote, Remote+ or Web is not installed
- As a replacement for defective diagnostic devices
   22 1512 89 00 00 and 22 1529 89 00 00

### Diagnostic devices:

- For correct commissioning or rapid diagnostics in vehicles, without a diagnostics-enabled control unit
- If there is no PC
- Minimal installation

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# Testing equipment for heaters:



Designation	Item no.
EasyScan	22 1550 89 00 00
Diagnostic device (new timer)	22 1545 89 00 00

### Current adapter cables:

Designation	Item no.
Hydronic I 3/4/5 kW	22 1000 31 63 00
Hydronic 2 Economy / Comfort	22 1000 33 78 00
Hydronic M-II	22 1000 33 44 00
Hydronic 2 (OEM)	22 1000 32 64 00
Airtronic 1 (D2/D3/D3 Plus/D4/D4 Plus)	22 1000 31 86 00
EasyFan / EasyStart Web	22 1000 34 57 00

# Adapter cables for older heaters:



for older heaters:	
Designation	Item no.
Air heater compact	22 1000 30 69 00
Air heater C (D1L C DAF)	22 1000 30 20 00
D9W, Hydronic 10 (old diagnostic timer)	22 1000 30 05 00
D9W, Hydronic 10	22 1000 31 83 00
Hydronic 10 (25 2161/25 2162)	22 1000 32 52 00
Hydronic 16/24/30/35	22 1000 31 66 00
D1/3LC MAN	22 1000 30 32 00
Hydronic 30 Neoplan	22 1000 31 16 00
D1LC/D1LC compact RVI	22 1000 31 23 00
D1/3LC compact DAF	22 1000 31 21 00

 $<sup>^{\</sup>star}$  Diagnostic function using EasyScan depends on the diagnostic device or diagnostic protocol of the heater.

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### 5 | Fan and flap module EasyFan

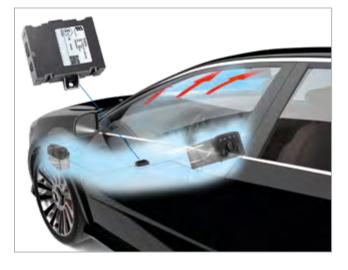
# EasyFan – the new fan & flap module for Hydronic 1, 2 and S3 Economy in passenger car applications:

The Fan & Flap module EasyFan is a product developed in-house for activating vehicle fans and air and heating flaps. As a customer you will benefit from the usual high-quality Eberspächer support and well-maintained data.



### 1. Advantages (functions):

- Automatic activation of vehicle fan and air and heating flaps: no need for the user to set the fan or flaps to "Defrost" in the vehicle before the heating process
- All previously selected fan and flap settings are automatically restored after the heating process or after the engine has started
- For Hydronic 1, 2 and S3 Economy, delivered pre-programmed for vehicle-specific installation
- Automotive electronics fault protection: no physical connection between product and CAN unless the ignition is switched off, otherwise automatic cutoff



#### 2. Further features:

- Vehicle-specific EasyFan modules are available for a wide range of cars and A/C versions
- Impress customers who own the following brands of car:
   Audi, BMW, Citroen, Dodge, Fiat, Ford, Honda, Infinity, KIA, Land
   Rover, Mazda, Mercedes-Benz, Nissan, Peugeot, Renault, Seat,
   Skoda, Subaru, Toyota, VW

As always, for more details please visit: partner.eberspaecher.com

- Input signal:
  - EasyFan is activated via the fan output or a CAN message from the heater
- Output signal:
  - Fan and flap settings are controlled via CAN messages to the climate control unit
  - Two hardware versions for high- and low-speed CAN are available to accommodate the various car bus systems on the market.

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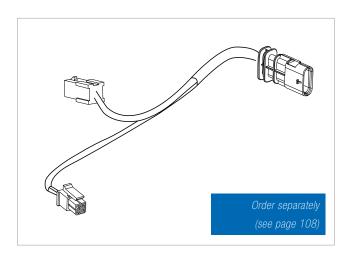
### Technical data:

Programmed versions		For part numbers, see the vehicle-specific A/C kit on the Partner Portal
Current draw	mA	50
Closed-circuit current	mA	0.1
Protection rating		IP 40
Operating temperature	°C	- 40 to +85
Dimensions L x W x H		
(with fastening brackets)	mm	72 x 76 x 23

### EasyFan Programmierkabel

 $\label{lem:continuous} \textbf{Required for programming EasyFan modules}.$ 

Order no.: 22 1000 34 57 00





### 5 | A/C kit with IPCU for controlling the vehicle's fan

### The IPCU is part of the A/C kit:

A/C kits should be installed first!

#### OPTIONS:

- See installation recommendations / Service Portal as to whether A/C kit is available
- If there is no A/C kit, see Service Portal:
- IPCU programming list (Download area)
- Call the Technical Hotline

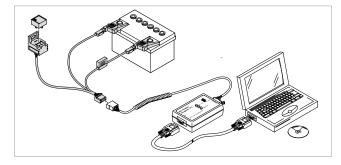
#### WARNING:

- Taking measurements requires specialist knowledge in automotive electronics
- Taking measurements requires the vehicle manufacturer's circuit diagrams
- We can accept no liability for measuring errors which result in permanent damage to the vehicle's air-conditioning system and / or measuring devices and diagnostics equipment

### Programming options with EDiTH Basic:

Adapter cable for IPCU configuration

Order no.: 22 1000 32 74 00



# Introduction to taking measurements with the relevant instruments:

Universal multimeter with frequency meter and duty cycle or an oscilloscope (workshop equipment).

#### TAKING MEASUREMENTS:

- Preselect voltage meter measuring range minimum U3; measure according to circuit diagram
- Switch on ignition
- Change fan speed using A/C control unit
- If the voltage is changeable between 0 5 V or 0 10 V:
   voltage divider, choose a low fan speed, note voltage values

#### No clear change:

- Switch fan to 0, measure direct current in voltage range
  - Voltage to battery: Low activity or
  - 0 V: High activity, note

Important: do not exceed maximum voltage!

- Switch to frequency measurement, read and note frequency
- Select low fan speed, switch to duty cycle and note duty cycle in %
- Choose a fan speed that puts the duty cycle at ~50 %, switch the measuring device to minimum U13, read voltage, multiply by 2 and note

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### 6 | The benefits for workshops

Robust design, high-performance, sophisticated technology: Eberspächer fuel heaters have made a name for themselves around the world. For every application, our innovative heating technology ensures an extremely comfortable degree of warmth as soon as the driver or passengers enter a vehicle. Use our products for the benefit of your customers – and therefore to your advantage. We have summarized the most important reasons why both you and your customers should choose Eberspächer.

#### More turnover and better workshop utilization:

Selling pre-heaters is a high-margin alternative to conventional workshop business. Make the best possible use of this opportunity to increase your workshop's utilization.

#### Potential:

More than 90% of customers who have bought a pre-heater would opt for this extra again with their next vehicle.

#### Partnership:

As an Eberspächer Partner you are comprehensively trained so that you have all the necessary know-how on Eberspächer preheaters. You also have access to our Web portal where you can obtain important information such as installation recommendations, prices and catalogs. At the start of the season you receive our comprehensive advertising package.

### Here's how you can support sales internally:

- Your customer will only buy something he knows and loves. That means your demonstration vehicles should have a pre-heater too!
- Motivation is everything: in the run-up, make sure that your salespeople are fired up and fully-versed on the subject of preheaters.
- To make sure they close the deal: provide your employees with impressive sample calculations for available leasing and finance offers
- Go for maximum impact: drive the advertising message on your homepage, in your newsletter or with direct mail too.

# So when you're planning, here are the key areas to consider:

- Provide your sales team and your parts and service managers with campaign information in good time.
- Set out which vehicle models the promotional package can be offered for.
- Make sure you provide a careful calculation of the package price.
- Order our advertising materials and use them for optimum effect at your premises.
- Make sure you have the necessary parts in stock!
- Check that your pre-heater workshop knowledge is up-to-date and if you need a refresher, use the training provided by your distributor and Eberspächer.
- Together with your team, work through a guideline for your sales discussions. Next – some compelling arguments!

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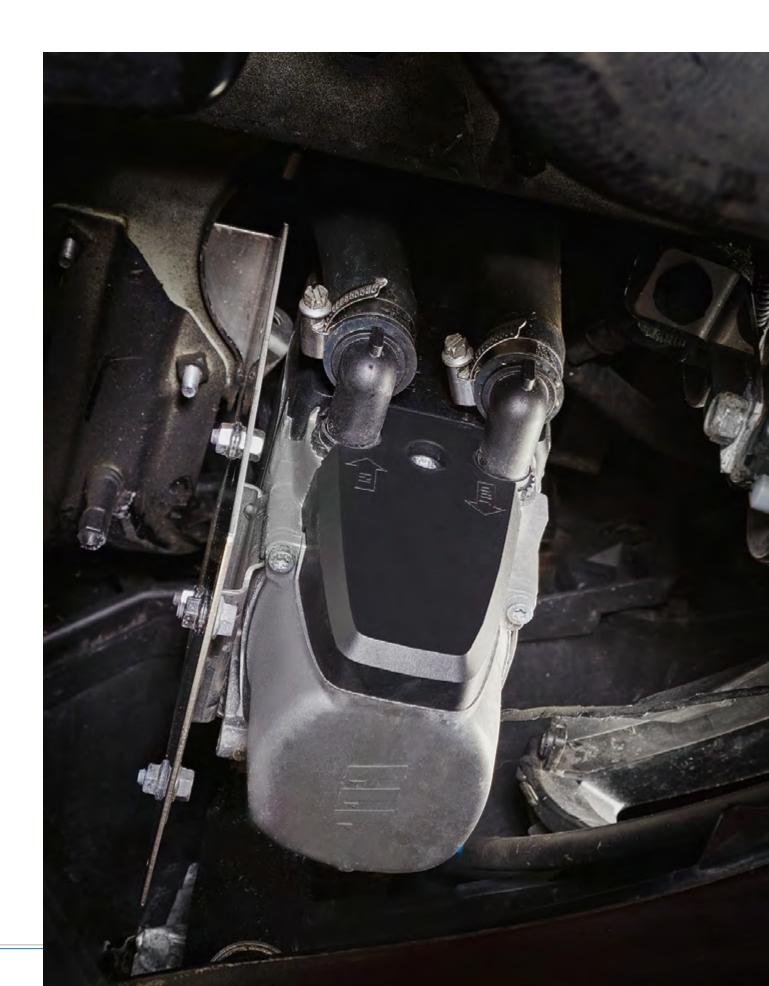
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### 6 | The benefits for end customers



### Customer benefits for car owners:

- Not only do you no longer have to waste time scraping the ice off the windows in the morning – a pre-heater also ensures you have a pleasantly warm car to get into after playing sports, having a wellness treatment, or spending an evening at the movies or theater. A pre-heater is also a true status symbol which every high-end car should have.
- The Eberspächer pre-heater ensures that your windows are thawed in time for you to leave, and do not fog up. A clear view of the road and no need to wear a thick winter jacket at the steering wheel – for real safety!
- A cold start puts as much of a burden on the engine as many miles of highway driving. A modern pre-heater prevents this, because it heats not only the interior but also the engine via the cooling circuit. The extremely wear-inducing cold-start phase is avoided, which helps to maintain the vehicle's value.
- An engine warmed by a pre-heater consumes considerably less fuel when starting and for the first few minutes of a journey, because the cold-starting or warm-up phase described earlier does not occur.
- Pollutant emissions during a warm start are lower than during a cold start. This not only eases people's conscience, but also specifically protects the environment.
- Winters at our latitudes last much longer than we realize. Ice in April is not unusual! And the thermometer often drops below zero as early as October. On hot summer days, just select pre-ventilation and you can keep your car supplied with fresh outside air while it is parked as well.



### Customer benefits for motor home owners:

- The heater is supplied with fuel from the vehicle's fuel tank so the customer needn't worry about gas bottles and connections when traveling abroad.
- Eberspächer heaters feature low fuel and electricity consumption.
- The heating can be conveniently operated using presets, remote control or smartphone.
- Eberspächer fuel-operated heaters are now even quieter.
- Compared to competitor products, Eberspächer products permit space-saving installation underfloor or in the engine compartment in addition to interior installation.
- Heating is permitted worldwide even while without additional components.
- The heater's design is particularly easy to service and maintain.

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### Customer benefits for special-purpose vehicle owners:

- Lower operating costs due to high efficiency.
- Reliable starting even in low temperatures
- Comfortable temperatures in mobile workplaces and optimum temperature control for storage compartments.
- Eberspächer fuel-operated heaters are now even quieter.
- The heater is installed in the motor home interior. Space-saving underfloor installation or in the engine compartment is also possible.
- The heater's design is particularly easy to service and maintain.



### Customer benefits for boat owners:

- Eberspächer heaters feature low fuel and electricity consumption.
- The heater provides exactly the climate you want in the cabin.
- You can operate your heater conveniently using the controller, presets or phone.
- Eberspächer fuel-operated heaters are now even quieter.
- You need not sacrifice any room in the cabin in order to install the heater as they can be housed in any space with good external ventilation, e.g. in the storage locker, the cockpit or other storage areas.
- The heater's design is particularly easy to service and maintain.
- It also provides hot water for your shower or general use

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### 7 | Water-conducting parts

#### General information:

- Install water pumps no higher than the heater and preferably lower.
- All water lines for heaters must always be below the engine's coolant level.
- When installing a water heater, always use water hoses approved for use with vehicles, otherwise there is a danger of parts of the hose becoming flattened or layers of the hose perishing, blocking the water circuit.
- Always secure water hoses with hose clips at connections.
- Always route water hoses so that they are not affected by moving parts and cannot be chafed. Pay particular attention to the heavy vibration caused by switching the engine on and off.
- Always use a large radius when routing water hoses to prevent kinking, and do not leave hoses hanging loose.
- Protect water hoses from intense heat or even contact with hot engine parts, e.g. the exhaust pipe.
- Always vent the whole water circuit of a vehicle after any assembly operation.
- Please also refer to the safety information on this section in the heater documentation.

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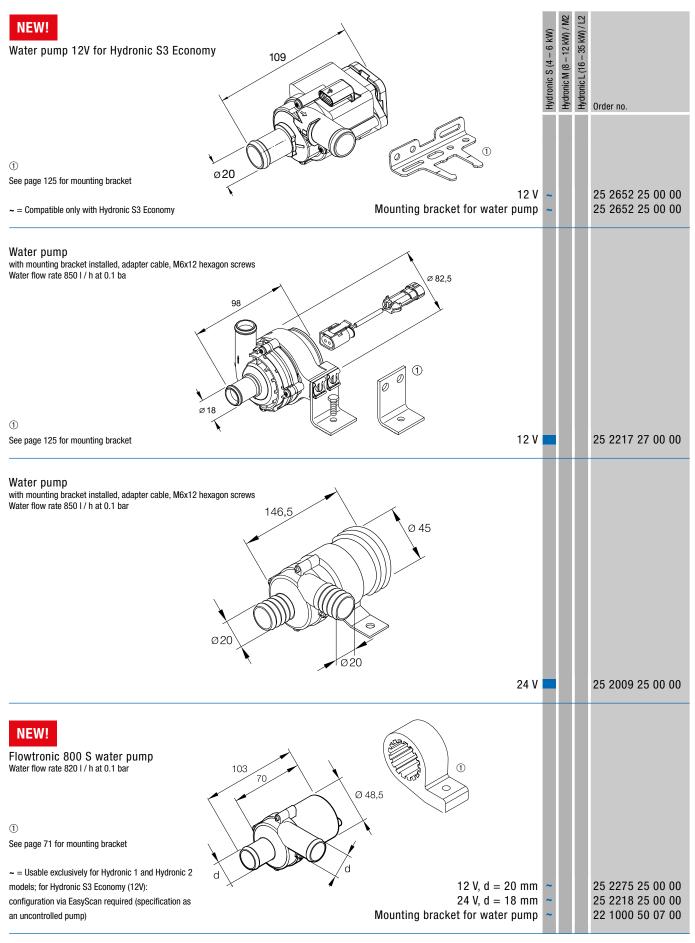
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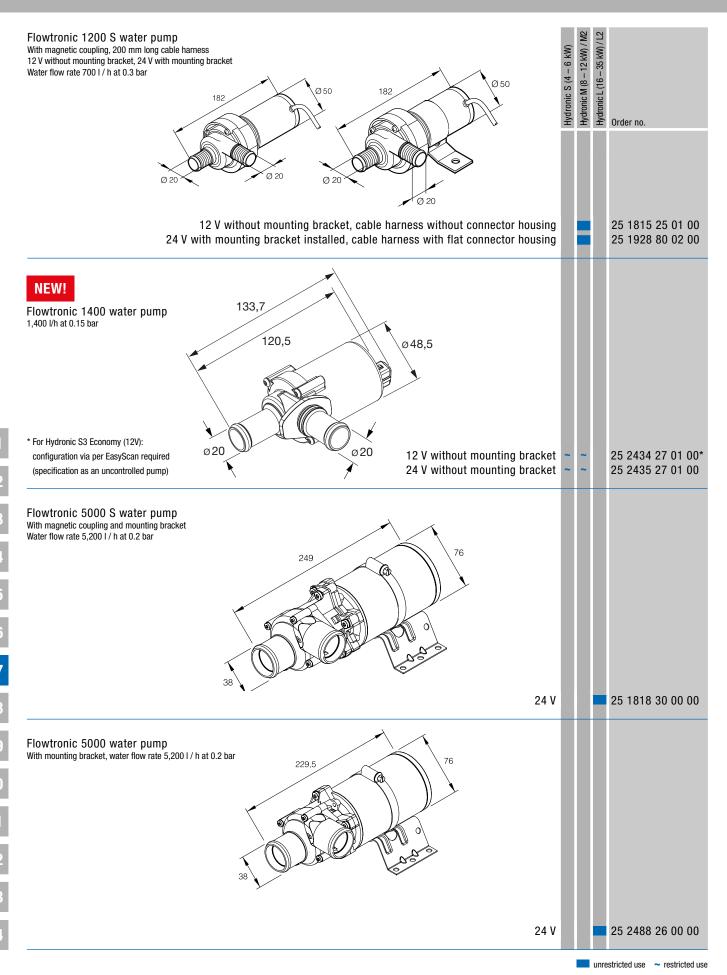
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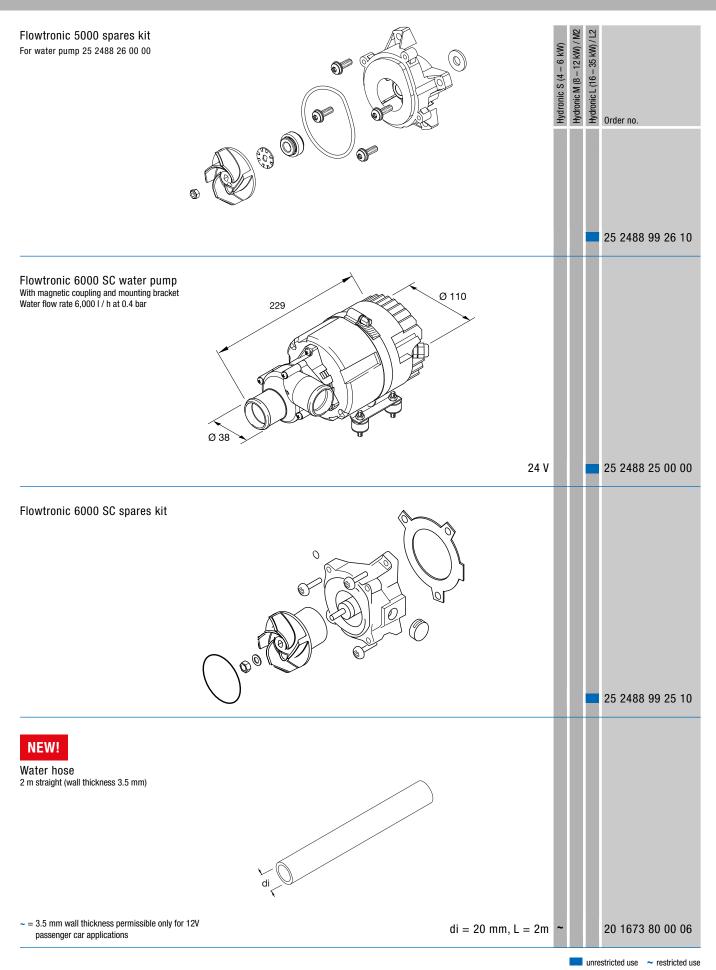
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unrestricted use ~ restricted use

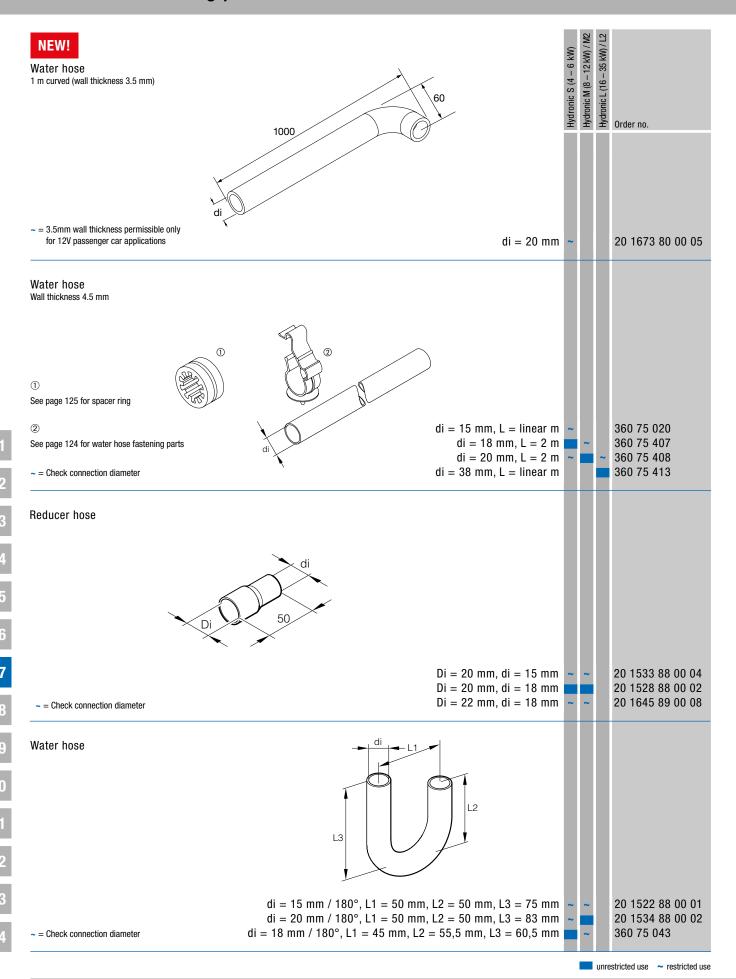
### 7 | Water-conducting parts

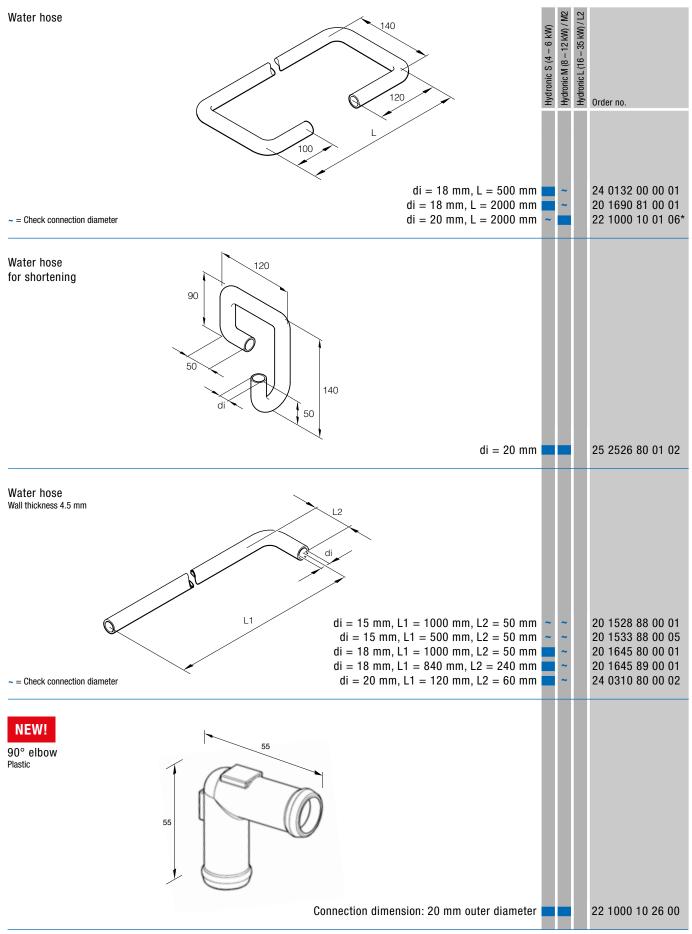




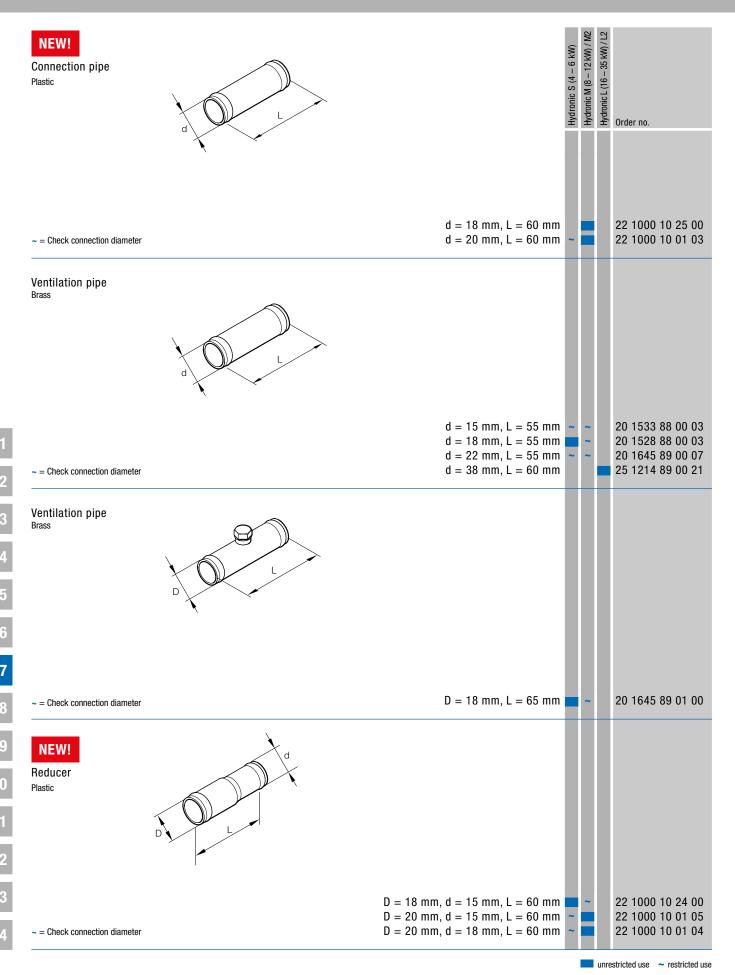
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### 7 | Water-conducting parts



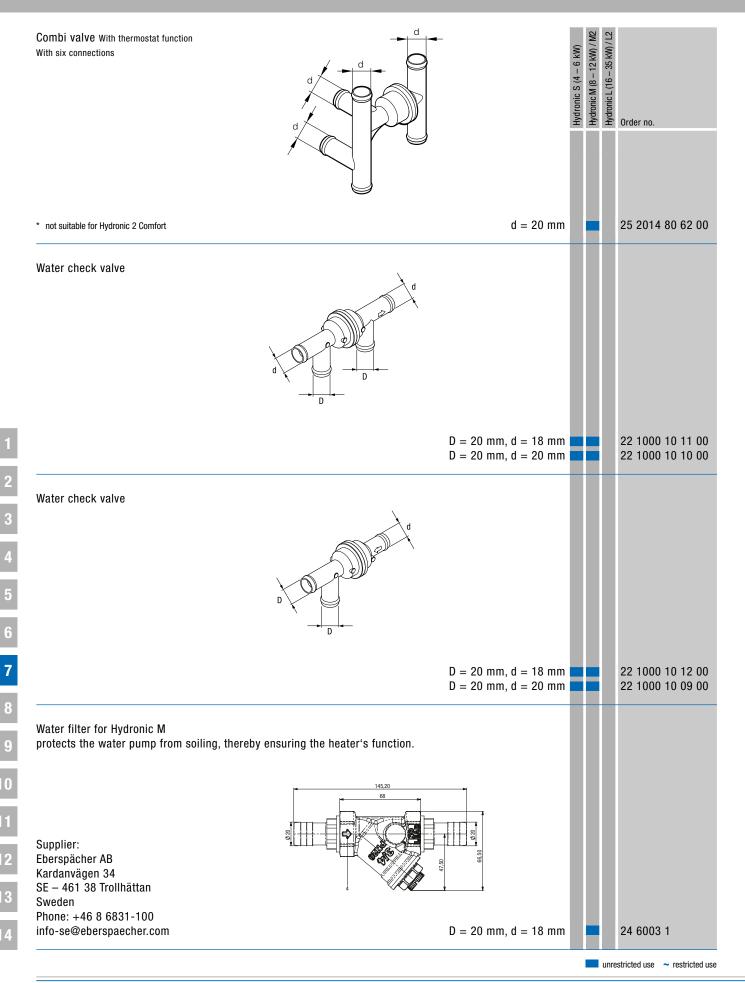


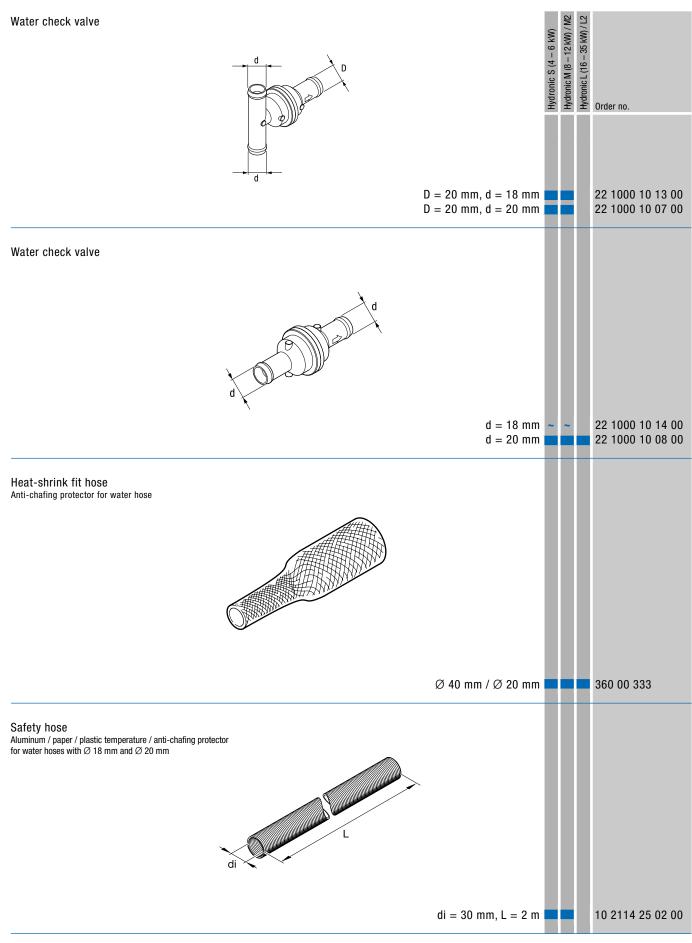
### 7 | Water-conducting parts



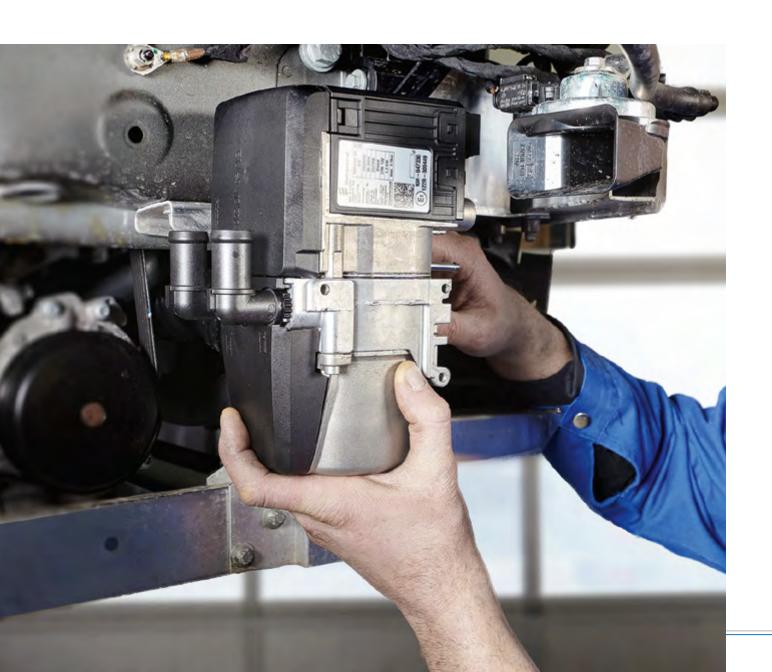
Reducer Brass		Hydronic S (4 – 6 kW)	Hydronic M (8 – 12 kW) / M2 Hydronic L (16 – 35 kW) / L2	Order no.
~ = Anschlussdurchmesser prüfen	D = 18 mm, d = 15 mm, L = 60 mm D = 20 mm, d = 16 mm, L = 60 mm D = 22 mm, d = 15 mm, L = 60 mm D = 22 mm, d = 18 mm, L = 60 mm D = 22 mm, d = 20 mm, L = 60 mm	~ ~ ~ ~	~ ~	20 1645 80 02 01 24 0176 89 00 01 25 1214 89 00 11 20 1645 89 00 05 25 1214 89 00 04
NEW! T-piece Plastic				
~ = Check connection diameter	$ D = 18 \ mm, \ d = 18 \ mm, \ L = 84 \ mm \\ D = 20 \ mm, \ d = 18 \ mm, \ L = 84 \ mm \\ D = 20 \ mm, \ d = 20 \ mm, \ L = 84 \ mm \\ $		~ ~	22 1000 10 21 00 22 1000 10 23 00 22 1000 10 22 00
T-piece Brass   Check connection diameter	D = 18 mm, d = 15 mm, L = 60 mm D = 18 mm, d = 18 mm, L = 75 mm D = 20 mm, d = 18 mm, L = 75 mm D = 20 mm, d = 20 mm, L = 75 mm D = 38 mm, d = 38 mm, L = 120 mm	2 2	2 2	25 1214 89 16 00 20 1645 89 10 00 20 1645 89 11 00 20 1673 80 11 00 25 1371 89 04 00
Combi valve with thermostat function With five connections  * not suitable for Hydronic 2 Comfort	d			
Also required: T-piece, page 77	* d = 20 mm	~		25 2014 80 72 00
			uni	restricted use ~ restricted use

## 7 | Water-conducting parts





# 7 | Water-conducting parts



#### General information:

- Heating-air throughput is at its highest in a heater if the airflow is unimpeded. Heating-air ducts reduce heating-air throughput.
- In order to give you the opportunity to check that the installation you have planned does not reduce the heating air throughput to an inadmissible level, we have calculated a heater guide number for each heater and a line guide number for each air duct.
- The total of the line guide numbers of the heating-air ducts connected to the heater must not be greater than the heater guide number, as otherwise the air flow temperature would be inadmissibly high and the overheating sensor would respond.
- If the total of the line guide numbers is greater than the heater guide number, the total can be reduced by selecting a larger diameter for the air ducts.

#### Rule of thumb:

Double cross-section or two lines the same, routed in parallel = 1 / 4 of the guide number.

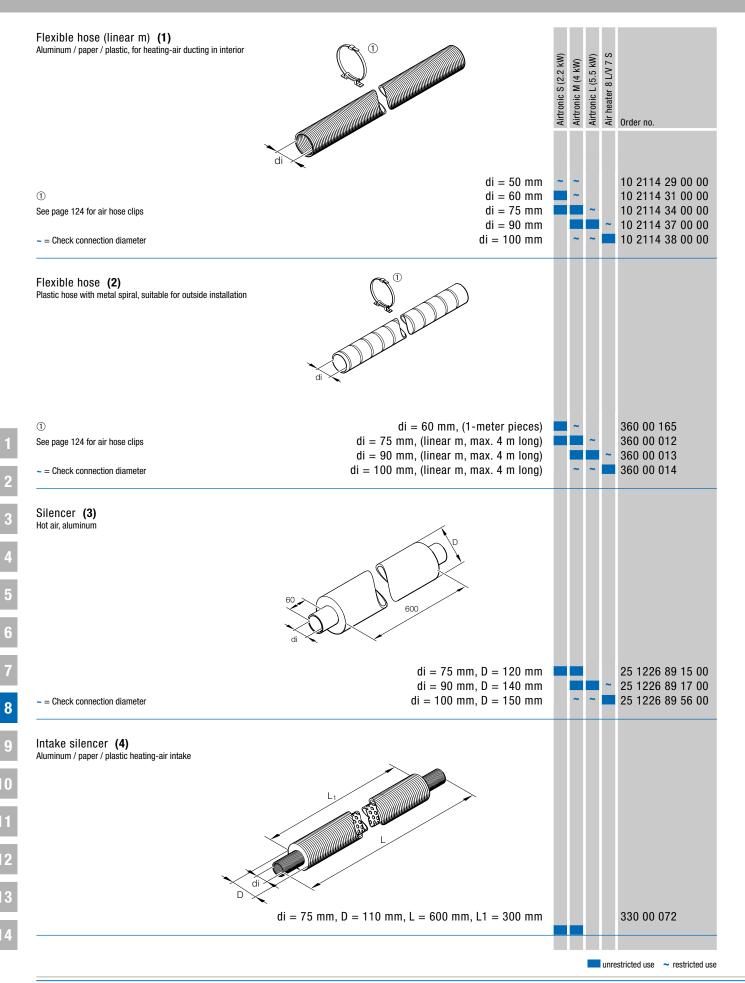
#### Example:

Hose Ø 60 mm

Cross-section A = 19.6 cm<sup>2</sup>, guide number 1.0 Hose  $\emptyset$  75,

Cross-section  $A = 44.2 \text{ cm}^2$ , guide number 0.25

With smooth welded pipes, the line guide number is only half of the flexible hose with the same diameter (i.e. double pipe length).



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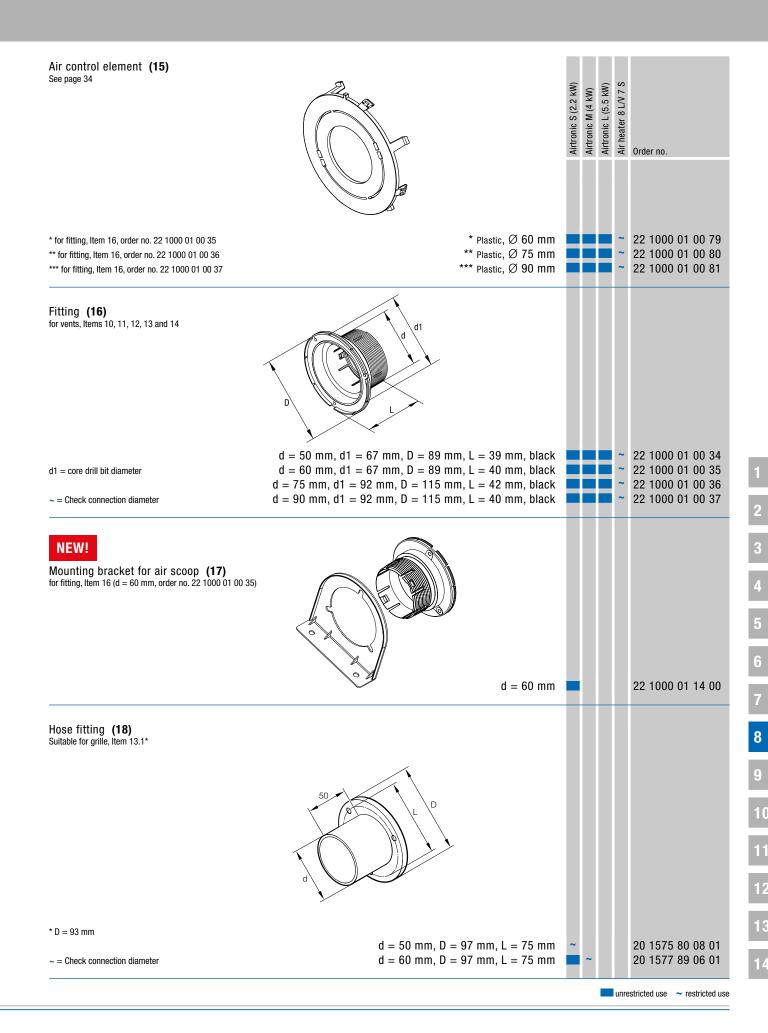
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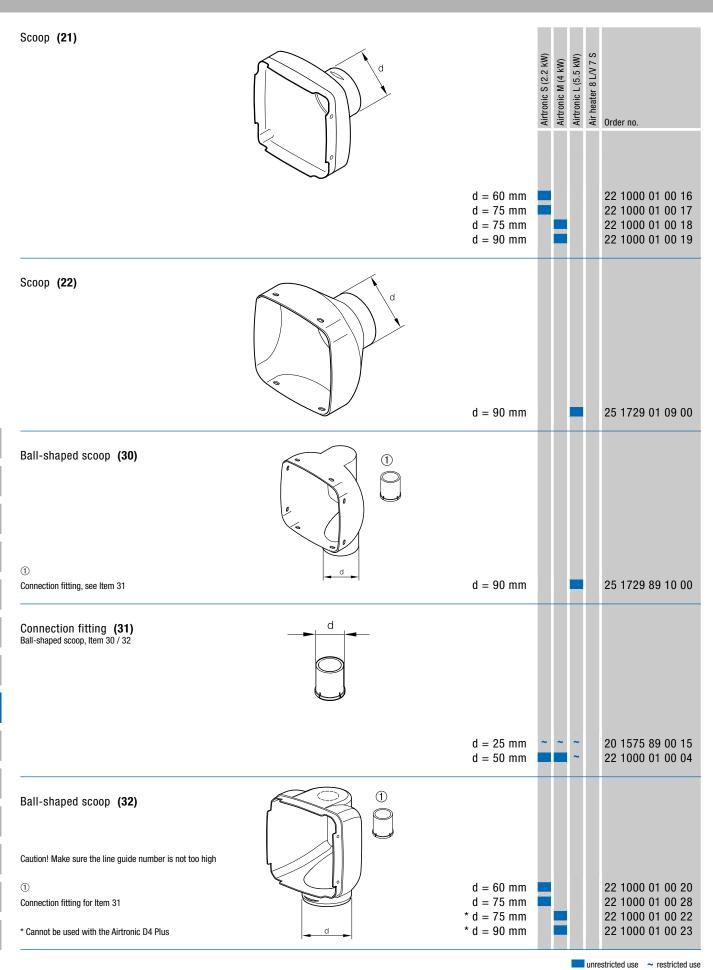
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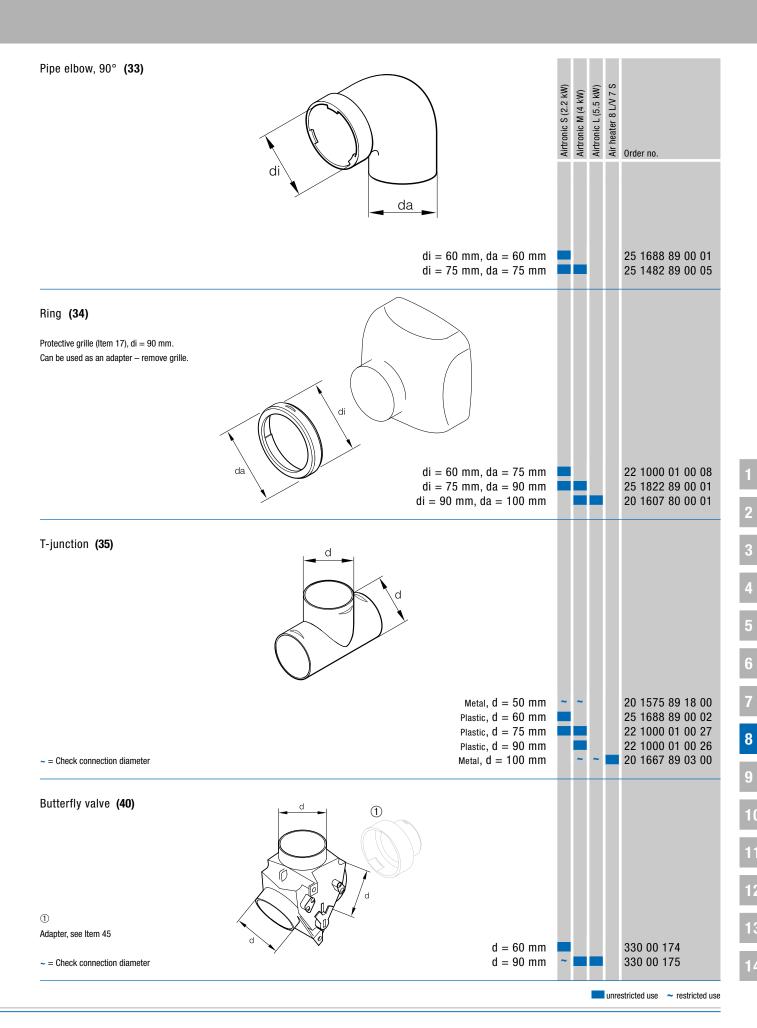
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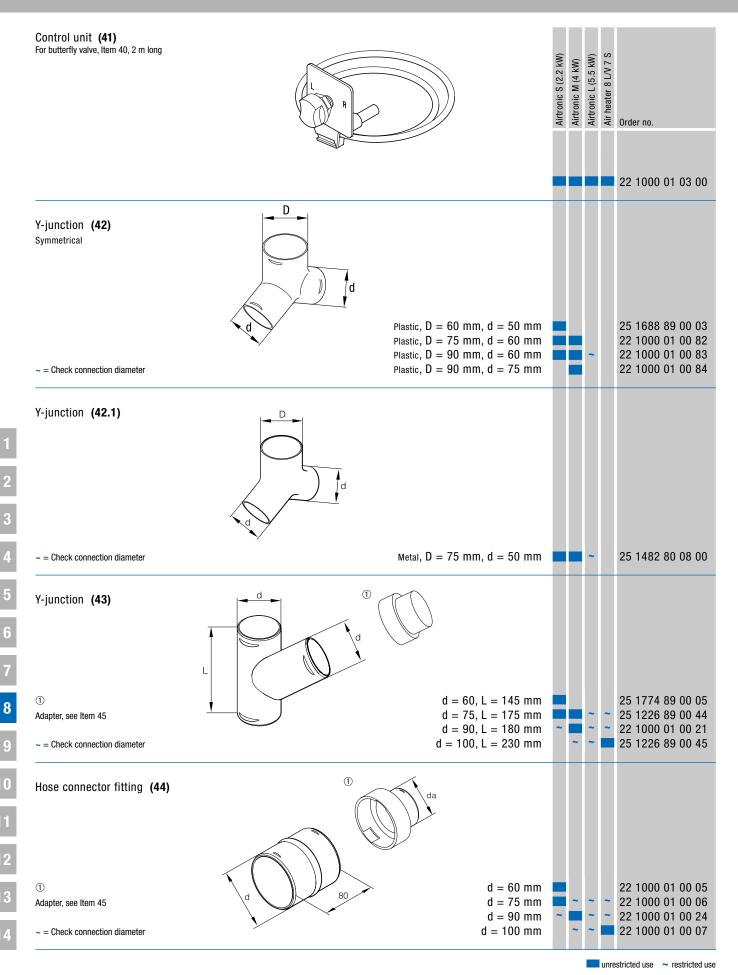
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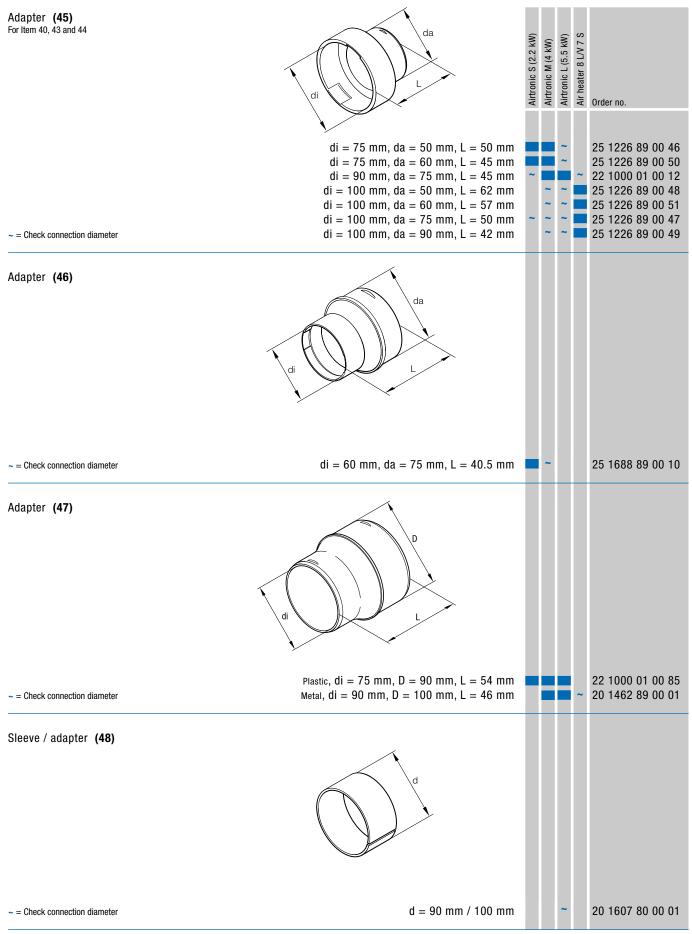
Closable vent (12) Rotatable, see Item 16 for fitting		Airtronic S (2.2 kW)	Airtronic M (4 kW)	Airtronic L (5.5 kW)	Air heater 8 L/V 7 S	Order no.
~ = Check connection diameter	suitable for $\varnothing$ 50 / 60 mm fitting, black suitable for $\varnothing$ 50 / 60 mm fitting, white suitable for $\varnothing$ 75 / 90 mm fitting, black suitable for $\varnothing$ 75 / 90 mm fitting, white				2 2 2 2	22 1000 01 00 72 22 1000 01 00 73 22 1000 01 00 76 22 1000 01 00 77
Flat vent, 0° <b>(13)</b> Rotatable, see Item 16 for fitting						
~ = Check connection diameter	suitable for $\varnothing$ 50 / 60 mm fitting, black suitable for $\varnothing$ 50 / 60 mm fitting, white suitable for $\varnothing$ 75 / 90 mm fitting, black suitable for $\varnothing$ 75 / 90 mm fitting, white				2 2 2 2	22 1000 01 00 40 22 1000 01 00 41 22 1000 01 00 48 22 1000 01 00 49
Grille (13.1)	* D = 93 mm, L = 75, d = 60 mm Nickel-plated					25 1226 89 05 00
* suitable for Item 18	* D = 93 mm, L = 75, d = $60 \text{ mm}$ Plastic					22 1000 01 00 01
Upright vent, 90° <b>(14)</b> Rotatable, see Item 16 for fitting						
~ = Check connection diameter	suitable for $\varnothing$ 50 / 60 mm fitting, black suitable for $\varnothing$ 50 / 60 mm fitting, white suitable for $\varnothing$ 75 / 90 mm fitting, black suitable for $\varnothing$ 75 / 90 mm fitting, white				2 2 2 2	22 1000 01 00 64 22 1000 01 00 65 22 1000 01 00 68 22 1000 01 00 69











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## 9 | Fuel-conducting parts

#### General information:

- Protect fuel lines, filters and metering pumps from impermissible heat levels; do not install near control dampers and exhaust pipes.
- Take the rear axle suspension into account when installing fuel lines, fuel filters and metering pumps near the rear axle.
- When cutting fuel hoses and types, be sure to use a sharp knife.
- Cut surfaces must have no dents or burrs.
- Please also refer to the safety information on this section in the heater documentation.

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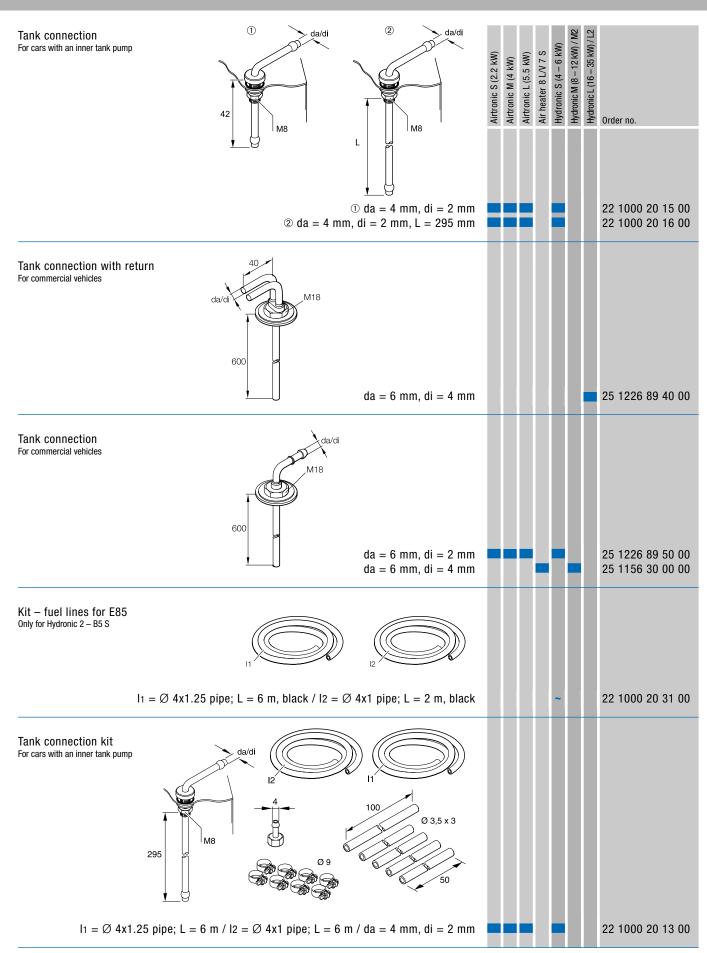
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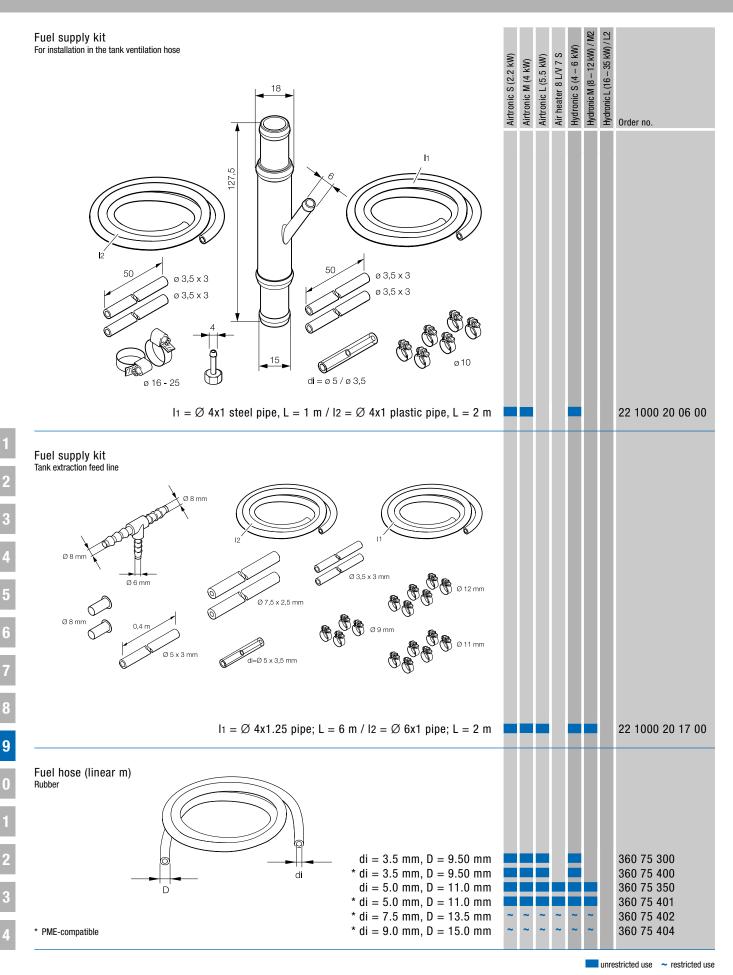
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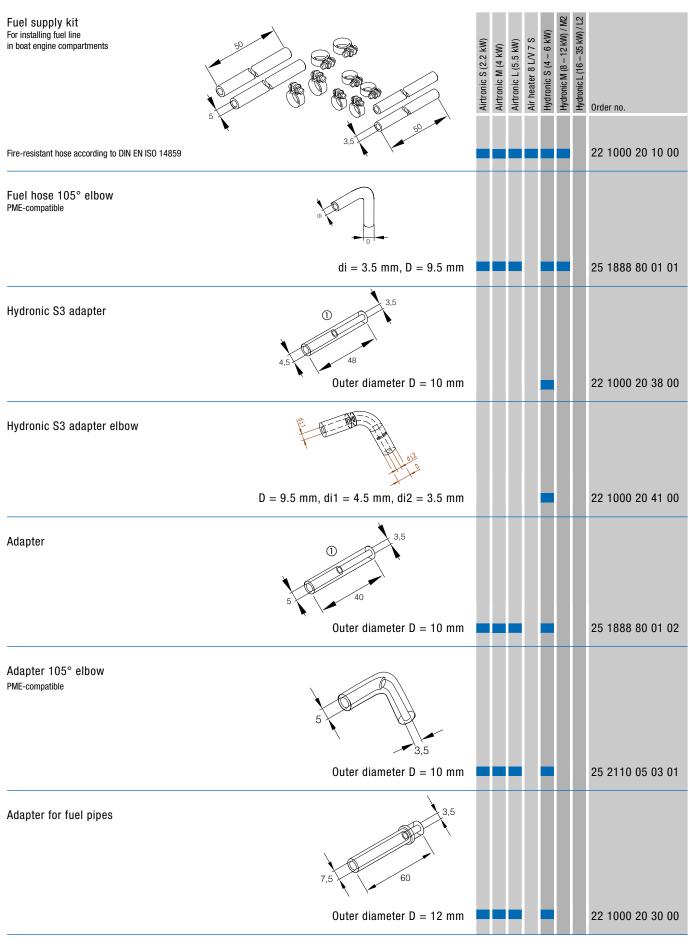
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### 9 | Fuel-conducting parts



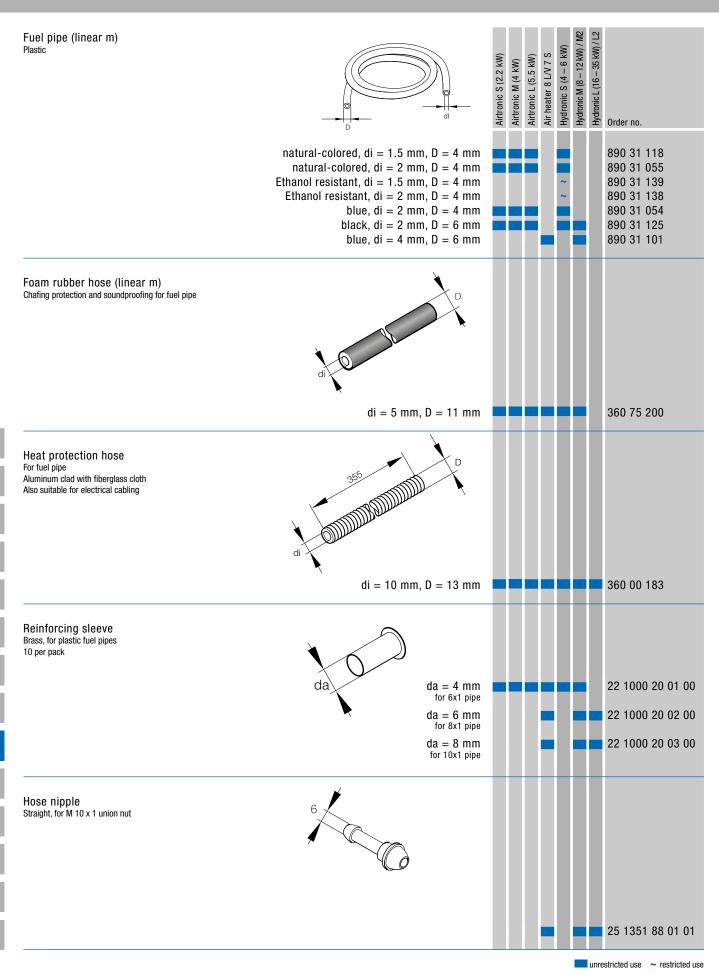


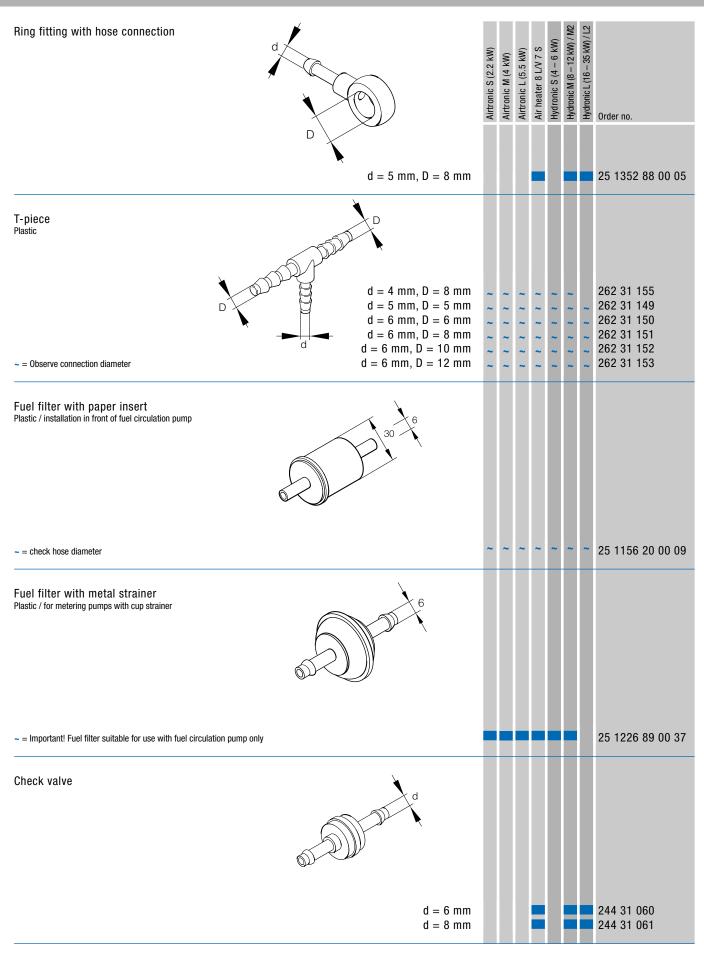
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### 9 | Fuel-conducting parts





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### 9 | Fuel-conducting parts

Hydronic L (16 – 35 kW) / L2 ou der uo Pressure reducer with cup strainer and hose fitting Input pressure 0.2 – 4 bar Control pressure min. 50 mbar, max. 150 mbar 22 1000 20 08 00 Complete fuel tank, 10 I 450 22 1000 20 28 00  $\sim$  = Only suitable for diesel / bio-diesel (FAME) / heating oil Fuel tank lid including seal Suitable for 22 1000 20 28 00 22 1000 20 22 00 ~ = Only suitable for diesel / bio-diesel (FAME) / heating oil Fuel strainer for fuel tank Suitable for 22 1000 20 28 00 22 1000 20 28 03  $\sim$  = Only suitable for diesel / bio-diesel (FAME) / heating oil O-ring for fuel valve, 6 mm Suitable for 22 1000 20 28 00 22 1000 20 28 04 ~ = Only suitable for diesel / bio-diesel (FAME) / heating oil

### 10 | Electrical parts / Testing equipment

#### General information:

- Using a timer you can manually or automatically switch on the heater at a preset time (pre-heating mode).
- Always make sure that a heater can run on, even if the vehicle's whole electrical system can be shut down with a battery main switch (i.e. via an additional electrical connection or clear instruction that the battery main switch should be open when the heater is running with a flame).
- The rule of thumb for the electrical power supply is: charging time = heating time.
- In certain circumstances, heaters in motor homes or commercial vehicles are operated for longer sustained periods. In these cases, the on-board energy resources need to be monitored.
- For more detailed information, see technical description and installation instructions.
- Please also refer to the safety information on this section in the heater documentation.

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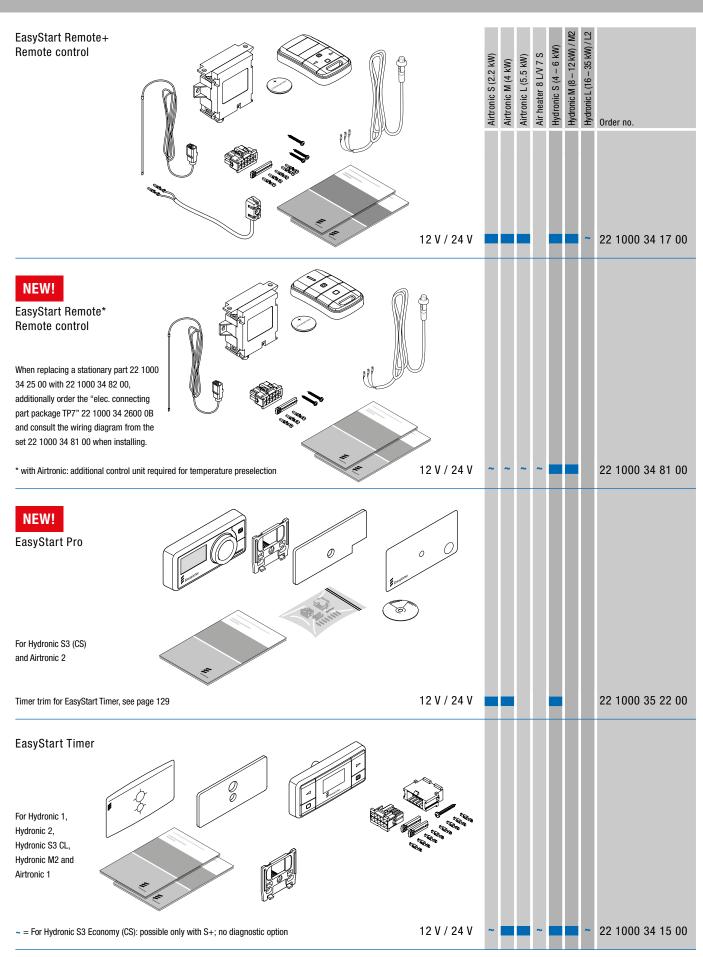
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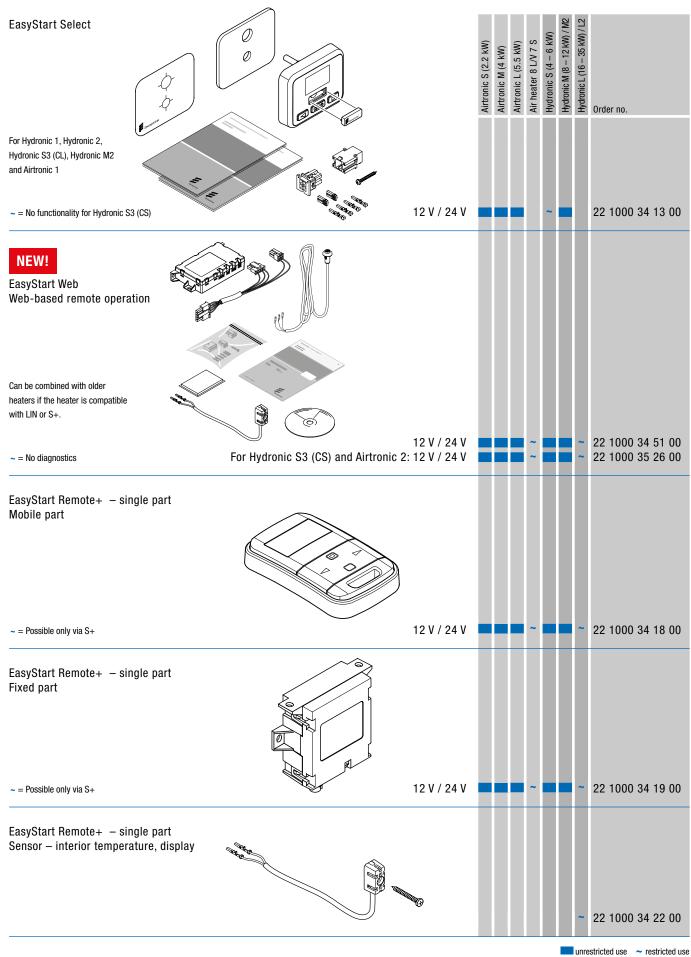
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### 10 | Electrical parts





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### 10 | Electrical parts

Hydronic L (16 – 35 kW) / L2 Order no. EasyStart Remote - single part Mobile part 12 V / 24 V 22 1000 34 24 00 NEW! EasyStart Remote - single part Stationary part When replacing a stationary part 22 1000 34 25 00 with 22 1000 34 8200, additionally order the "elec. connecting part package TP7" 22 1000 34 2600 and consult the wiring diagram from the set 22 1000 34 81 00 when installing. Can be combined with older heaters if the heater is compatible with LIN or S+. ~ = Airtronic S, M, L: no setpoint input possible  $\sim$  = Air heater: no setpoint input possible, only S+ 12 V / 24 V 22 1000 34 82 00 ~ = Hydronic S, L: only S+ EasyStart Remote+ / EasyStart Remote - single part Cover for battery compartment EasyStart Remote+ 22 1000 34 18 01 EasyStart Remote 22 1000 34 24 01 EasyStart Remote+ / EasyStart Remote - single part Antenna 22 1000 34 21 00 EasyStart Remote+ / EasyStart Remote - single part 22 1000 34 20 00

EasyStart Call / EasyStart Remote+ / EasyStart Electrical connection parts	t Remote / EasyStart Timer / EasyStart Select –	Airtronic S (2.2 kW) <b>b</b>		Air heater 8 L/V 7 S	Hydronic S (4 – 6 kW)	Hydronic M (8 – 12 kW) / M2	Hydronic L (16 – 35 kW) / L2	Order no. 22 1000 34 26 00
EasyStart Select – single part Plugs	Eberspächer							22 1000 34 13 01
EasyStart Call – single part Slide antenna								22 1000 34 03 00
EasyStart Call – single part Button								22 1000 34 04 00
EasyStart Call – single part Temperature sensor								22 1000 34 09 00

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# 10 | Electrical parts

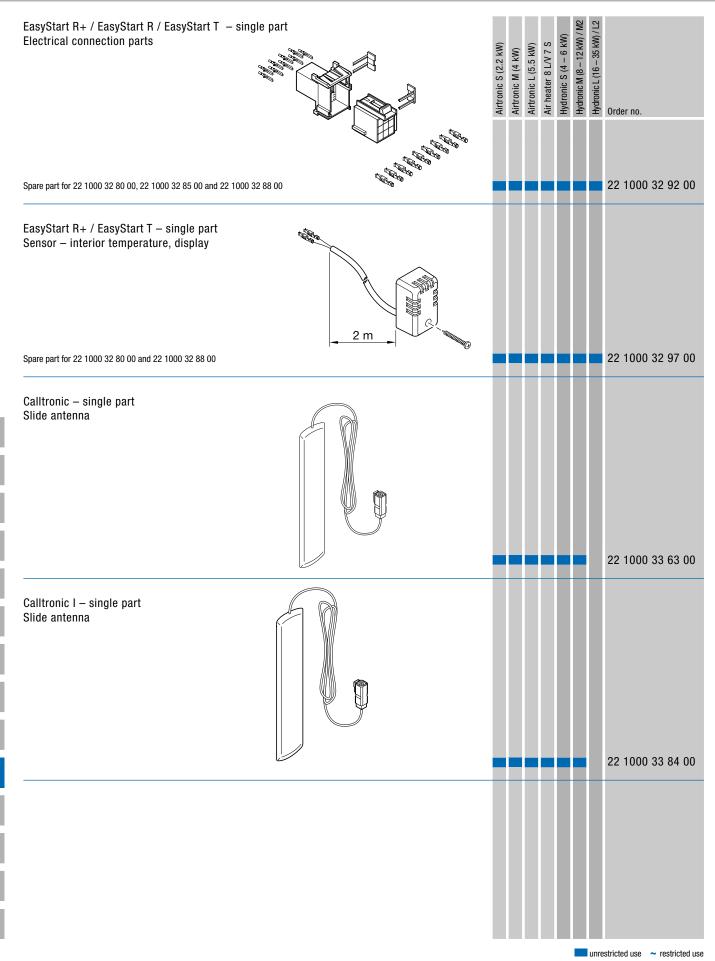
EasyStart Call, EasyStart Re Adapter cable	mote+ / EasyStart Remote / EasyStart Timer – single part	Airtronic S (2.2 kW)	Airtronic M (4 kW)	Airtronic L (5.5 kW)	Air heater 8 L/V 7 S	Hydronic S (4 – 6 kW)	Hydronic M (8 – 12 kW) / M2	Hydronic L (16 – 35 kW) / L2	Order no.
	EasyStart Remote / EasyStart Remote+ / EasyStart Call (12-pin) EasyStart Timer (10-pin)								22 1000 34 08 00 22 1000 34 45 00
EasyStart R+ – single part Mobile part	IN THE POOL OK								
Spare part for 22 1000 32 80 00	12 V / 24 V								22 1000 32 81 00
EasyStart R+ - single part Fixed part  Spare part for 22 1000 32 80 00									22 1000 32 82 00
EasyStart R — single part  Spare part for 22 1000 32 85 00	12 V / 24 V								22 1000 32 86 00
EasyStart R — single part Fixed part  Spare part for 22 1000 32 85 00									22 1000 32 87 00

EasyStart R+ / EasyStart R – single part Cover for battery compartment	BRANCE OR OF CROSS	Airtronic S (2.2 kW)	Airtronic M (4 kW) Airtronic L (5.5 kW)	Air heater 8 L/V 7 S Hydronic S (4 – 6 kW)	Hydronic M (8 – 12 kW) / M2 Hydronic L (16 – 35 kW) / L2	Order no.
Spare part for 22 1000 32 80 00 and 22 1000 32 85 00						22 1000 32 91 00
EasyStart R+ / EasyStart R – single part Antenna						
Spare part for 22 1000 32 80 00 and 22 1000 32 85 00						22 1000 32 83 00
EasyStart R+ / EasyStart R – single part Electrical connection parts		digital control of the control of th				
Spare part for 22 1000 32 80 00 and 22 1000 32 85 00				ı		22 1000 32 90 00
NEU! EasyStart R – single part Button						
Spare part for 22 1000 32 80 00, 22 1000 32 85 00 and 22 1000 32	88 00					22 1000 34 75 00
NEU! EasyStart Web – single part Button						
						22 1000 34 76 00

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## 10 | Electrical parts



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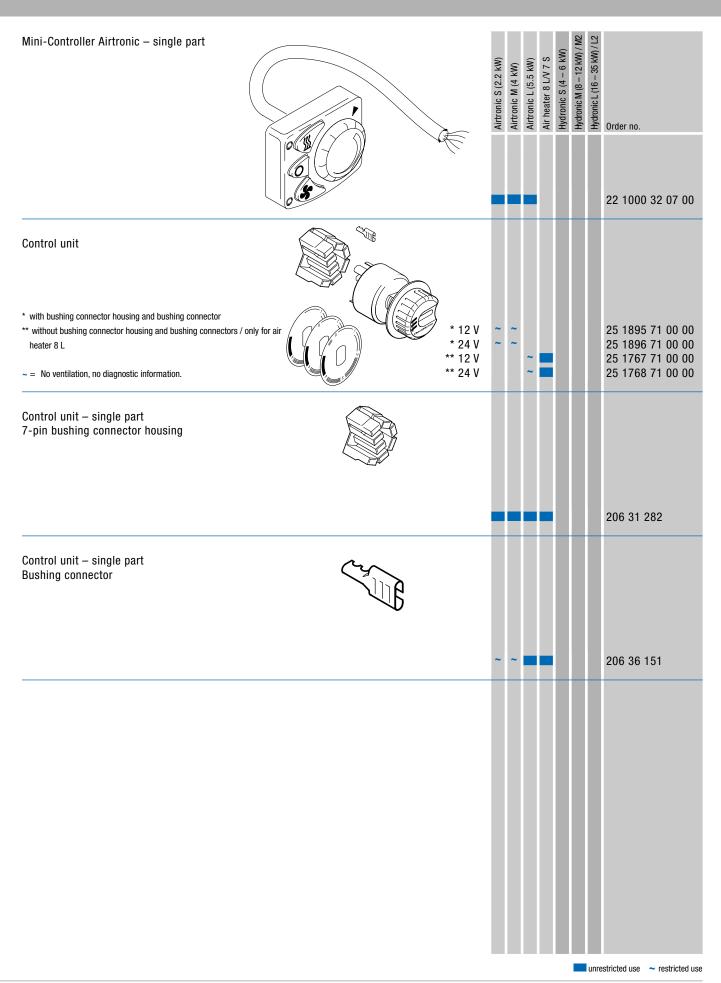
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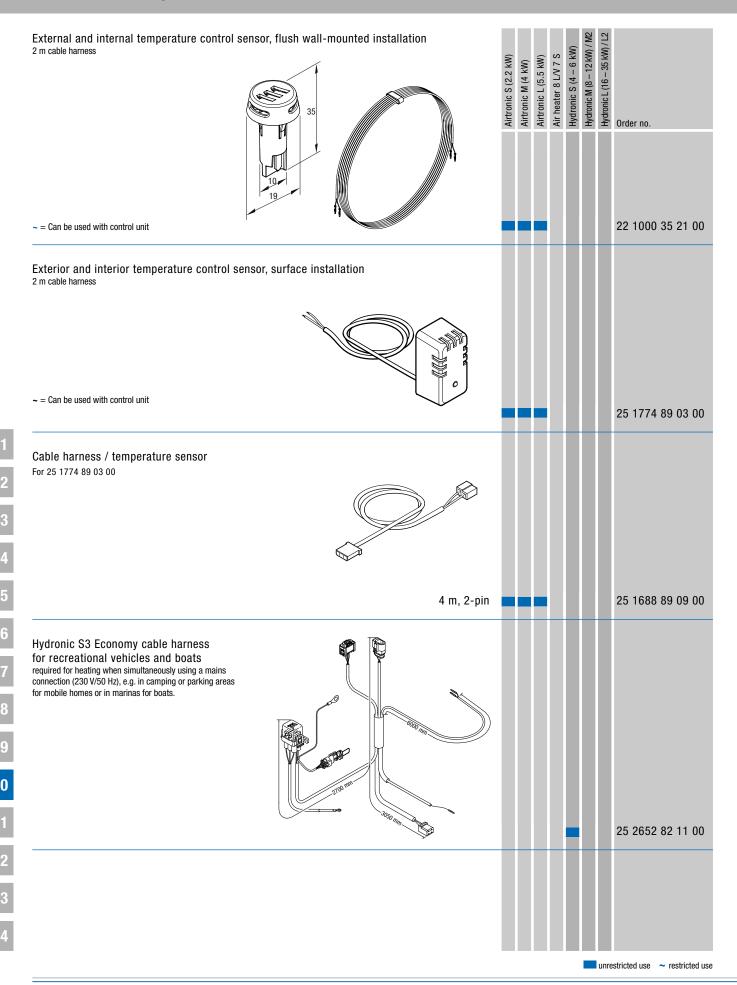
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## 10 | Electrical parts



Voltage divider for fan control – single part Connector block			Airtronic S (2.2 kW)	Airtronic L (5.5 kW)	Air heater 8 L/V 7 S	Hydronic S $(4-6 \text{ kW})$	Hydronic L (16 – 35 kW) / L2 Hydronic L (16 – 35 kW) / L2	Order no.
								203 00 085
Voltage divider for fan control – single part Bushing connector								
								203 53 020
IPCU retrofit kit								
~ = For customer-specific retrofit kits, see the Service Portal – EPRO / Accessories / E	Electrical parts	12 V				~	~	24 0273 00 00 00
IPCU retrofit kit – single part Relay								
		12 V				~	~	22 1000 32 73 00

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# 10 | Electrical parts

NEW!  EasyFan programming cable / EasyStart Web adapter cable (for diagnosis via EasyScan) for EasyFan modules	Airtronic S (2.2 kW)	Airtronic M (4 kW)	Airtronic L (5.5 kW)	Air heater 8 L/V 7 S	Hydronic S $(4-6 \text{ kW})$	Hydronic M (8 – 12 kW) / M2	Hydronic L (16 – 35 kW) / L2	Order no.
					2			22 1000 34 57 00
IPCU adapter cable for EDiTH Basic					2	~		22 1000 32 74 00
Relay, changeover contact Max. current consumption 40 A  12 V 24 V								203 00 097 203 00 096
Triple fuse holder with pin With 5 A, 15 A, 25 A fuses plus fastening parts								22 1000 31 06 00
Mounting bracket for fuse and diagnostic connector (for 22 1000 31 06 00; see above)  Mounting bracket  Clip  Mounting bracket without clip  Mounting bracket with clip								22 1000 51 48 00 22 1000 51 49 00

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Flat connector housing / Junior Timer For mini-timer 22 1000 30 14 00		Airtonic S (2.2 kW) Airtonic M (4 kW) Airtonic L (5.5 kW) Air heater 8 L/V 7 S Hydronic S (4 – 6 kW) Hydronic L (16 – 35 kW) / M2	Order no.
	4-pin		206 31 100
Flat connector housing / Junior Timer For mini-timer 22 1000 32 35 00			
	6-pin		206 31 106
Flat connector housing / Junior Timer			
	8-pin		206 31 101
Flat connector For flat connector housing / Junior Timer	ANT TO SERVICE		
	$0.5^2 - 1.0^2$		206 36 018
Bushing connector housing / Junior Timer For mini-timer 22 1000 30 14 00			
	4-pin		206 31 296
Bushing connector housing / Junior Timer For mini-timer 22 1000 32 35 00			
	6-pin		206 31 297

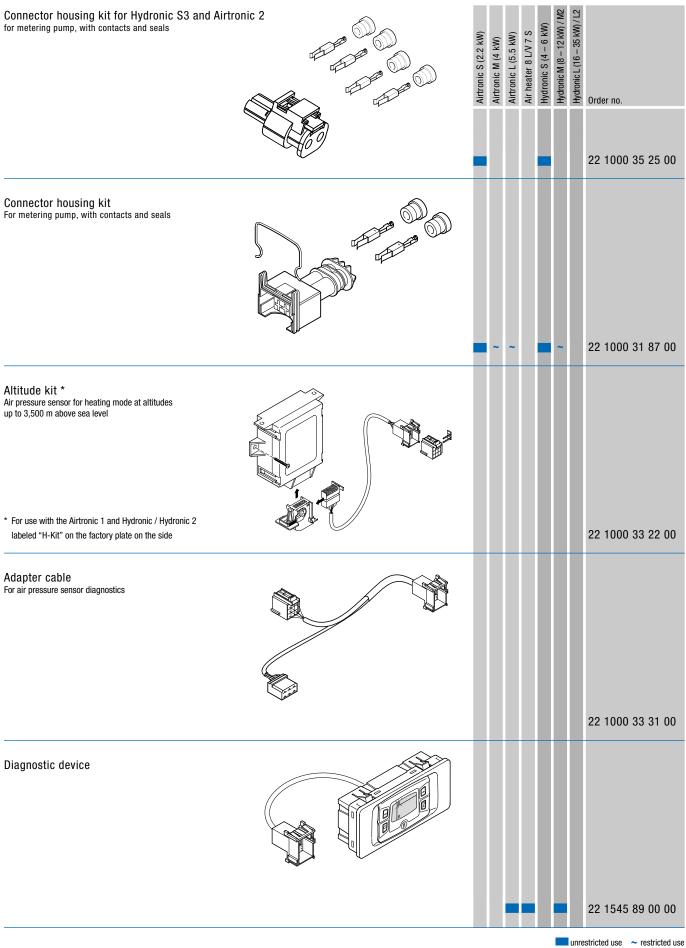
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# 10 | Electrical parts

Bushing connector housing / Junior Timer		Airtronic S (2.2 kW) Airtronic M (4 kW) Airtronic L (5.5 kW) Air heater 8 L/V 7 S Hydronic S (4 – 6 kW) Hydronic M (8 – 12 kW) / M2 Hydronic L (16 – 35 kW) / L2	Order no.
	8-pin		206 31 298
Bushing connector For bushing connector housing / Junior Timer			
	$0.5^2 - 1.0^2 \\ 1.0^2 - 2.5^2$		206 73 052 206 73 053
Flat connector housing AMP 2.8			
	2-pin		206 31 018
Flat connector For flat connector housing AMP 2.8			
	$0.5^2 - 1.0^2 \\ 1.0^2 - 2.5^2$		206 73 001 206 52 151
Bushing connector housing AMP 2.8			
			206 31 306
Bushing connector For bushing connector housing AMP 2.8			
	$0.5^{2} - 1.0^{2}$ $1.0^{2} - 2.5^{2}$		206 73 039 206 36 161
8-pin bushing connector housing kit For Hydronic 1, with contacts and seals			
			22 1000 30 10 21

## 10 | Electrical parts / Testing equipment



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# 10 | Testing equipment

EasyScan 8 20 10 10 10 10 10 10 10 10 10 10 10 10 10	Airtronic S (2.2 kW)	Airtronic M (4 kW)	Airtronic L (5.5 kW)	Air heater 8 L/V 7 S	Hydronic S (4 – 6 kW)	Hydronic M (8 – 12 kW) / M2	Hydronic L (16 – 35 kW) / L2	Order no.
69,1					~	~		22 1550 89 0000
Adapter cable for older models of heater								
Airtronic / Airtronic M Hydronic Hydronic 2 / Hydronic 2 C / Hydronic M2 (versions from June 2012) Hydronic L / Hydronic L2 Hydronic M2 Hydronic M2 (versions pre-dating June 2012) B / D1 LC compact, B / D3 LC compact, B / D3 LP compact B / D1 LC, B / D3 LC, B / D3 LP, B / D5 LC D9 W, Hydronic 10 Toyota Neoplan								22 1000 31 86 00 22 1000 31 63 00 22 1000 33 78 00 22 1000 31 66 00 22 1000 32 52 00 22 1000 33 44 00 22 1000 30 69 00 22 1000 30 20 00 22 1000 31 83 00 22 1526 89 03 00 22 1000 31 16 00
Adapter cable * for EasyStart Call and EDITH Basic								
* Cable harness with diagnostic connector EasyStart Call								22 1000 34 11 00
Adapter cable for older models of heater vehicle-specific for diagnostic device and EDiTH Basic  MAN B / D1 LC compact, B / D3 LC compact MAN B / D1 LC / D3 LC RVI B / D1 LC compact, B / D3 LC compact RVI D1 LC DAF B / D1 LC compact, B / D3 LC compact								22 1000 32 20 00 22 1000 30 32 00 22 1000 31 25 00 22 1000 31 23 00 22 1000 31 21 00
USB to serial adapter Incl. EDiTH diagnostic tool software CD								22 1543 89 00 00



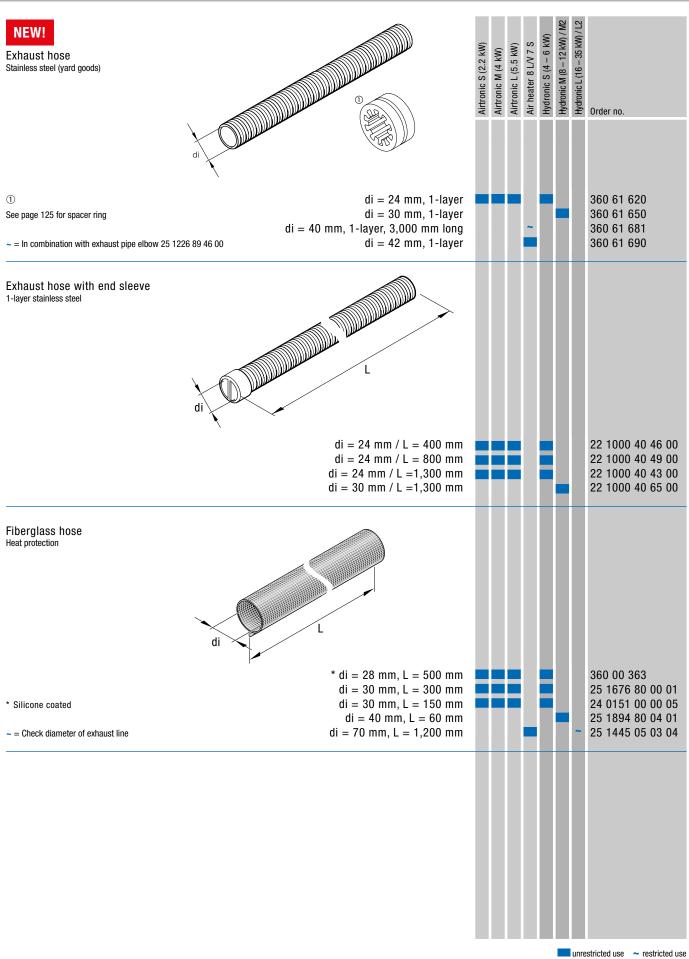
#### General information:

# The exhaust and combustion air system must be installed in such a way that it ensures the following:

- The connection to the heater plug is sealed.
- The mouth of the pipe is never facing a head wind.
- As far as possible, the mouth of the pipe is protected from spray water ingress and spray must be able to run straight out again without penetrating the heater.
- There is no possibility of heater or vehicle engine exhaust gases being sucked in.
- Please also refer to the safety information on this section in the heater documentation.

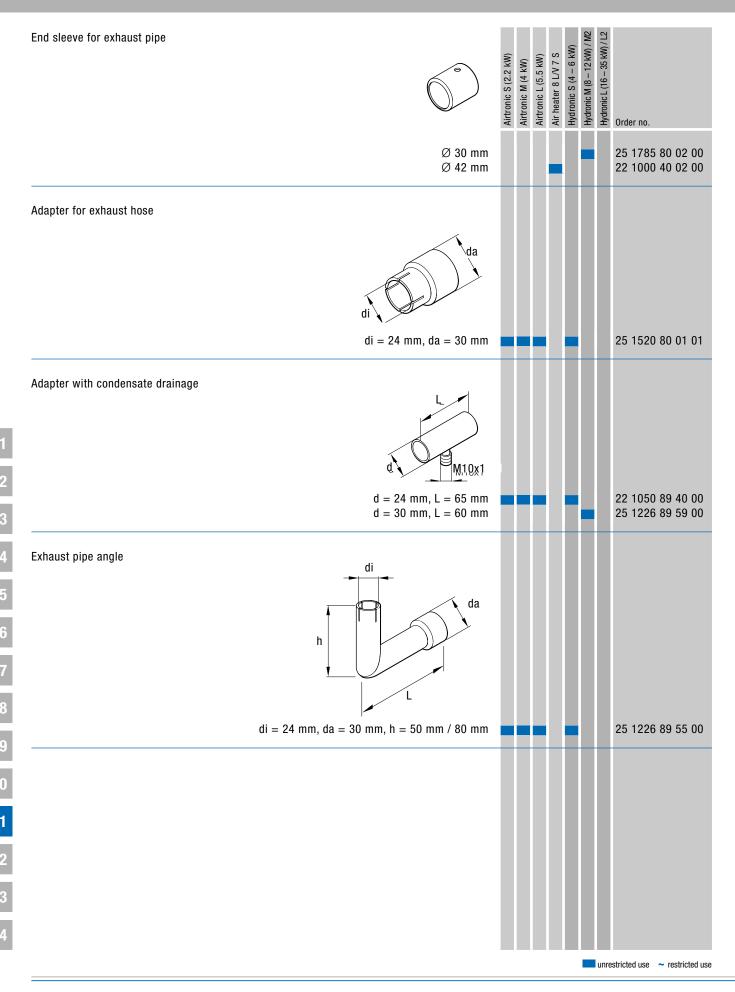
#### Installing the exhaust line:

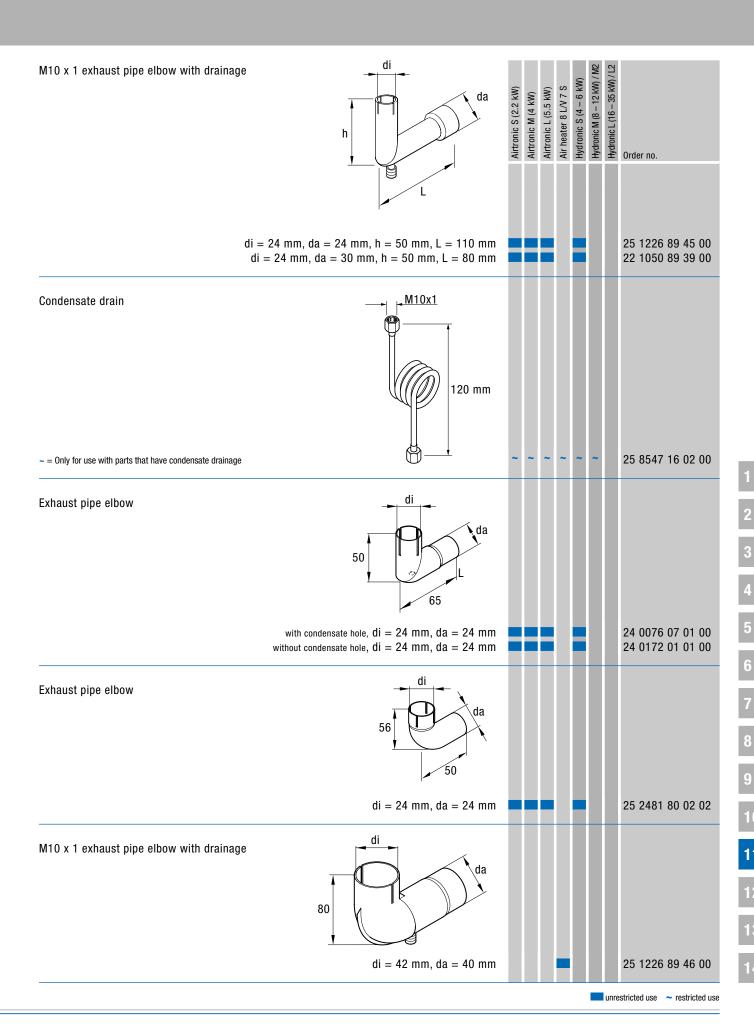
- Exhaust pipes should always be installed with a fall towards the tail
  of the pipe.
- If this is not possible, a water drainage hole must be drilled at the lowest point.
- If this point is not in the open air (e.g. in a ship's engine room), this opening must have a sealed connection to an overflow vessel.
- Under no circumstances must any cross-sections in the exhaust line be narrower than those on the heater exhaust connection.
- For permissible lengths, diameters and curvatures in the combustion-air and exhaust lines, see the technical information and installation instructions.

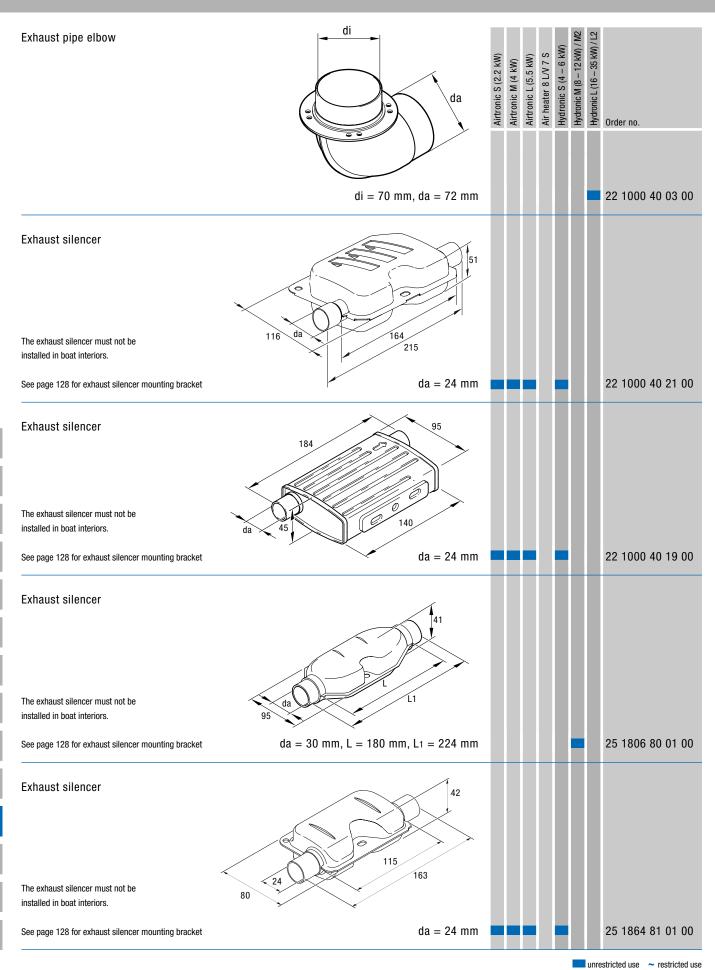


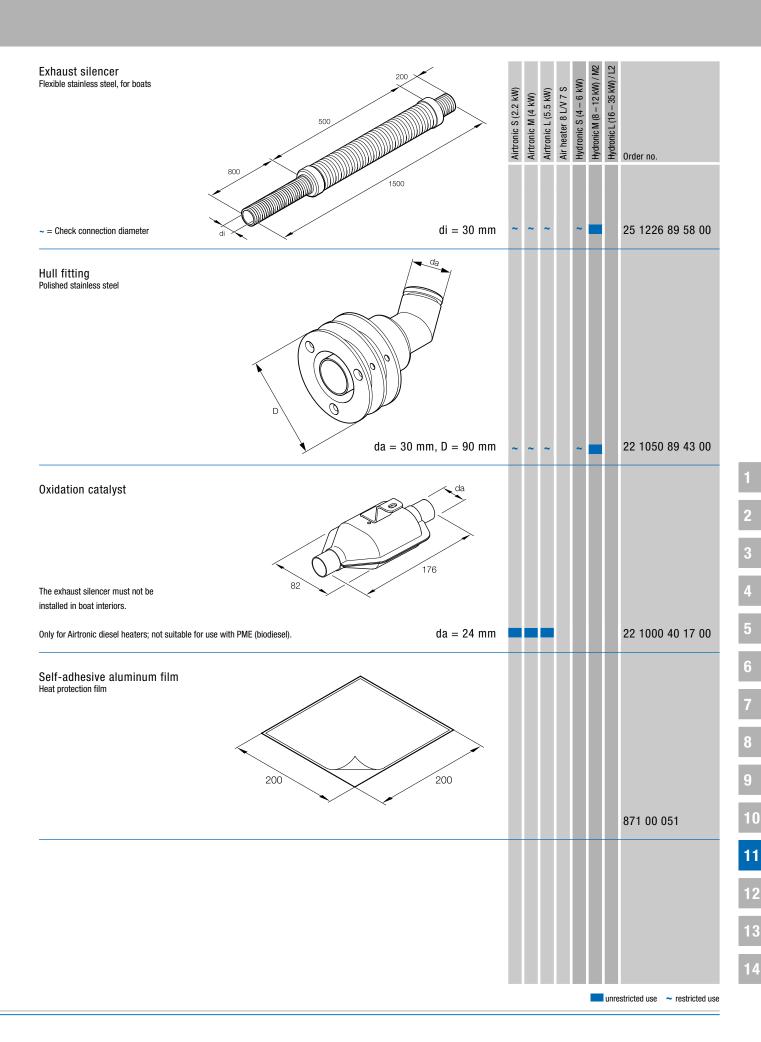
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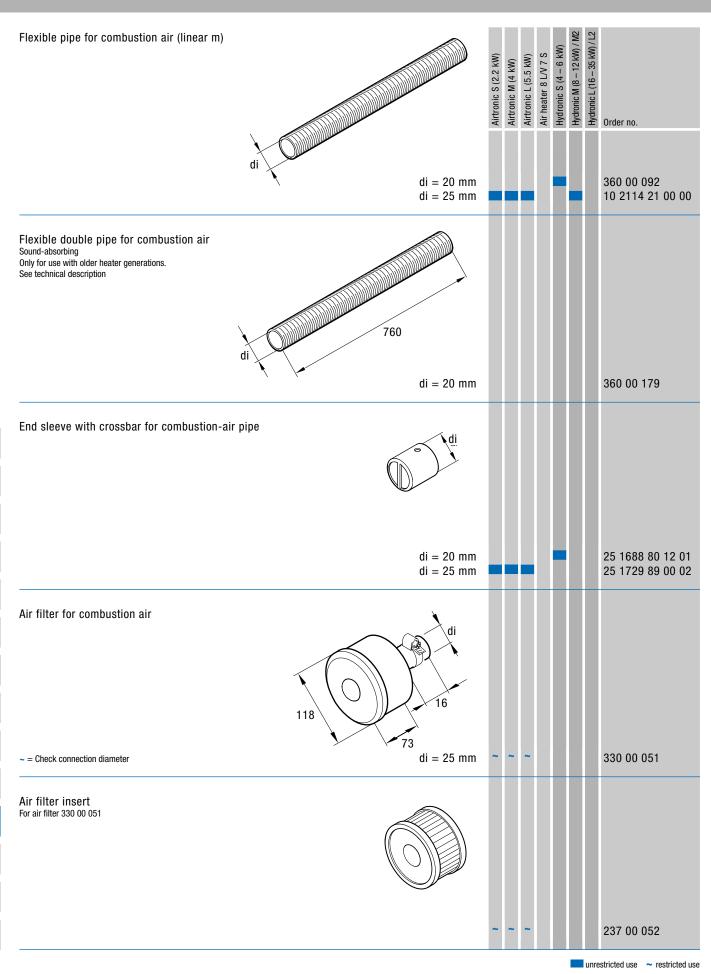
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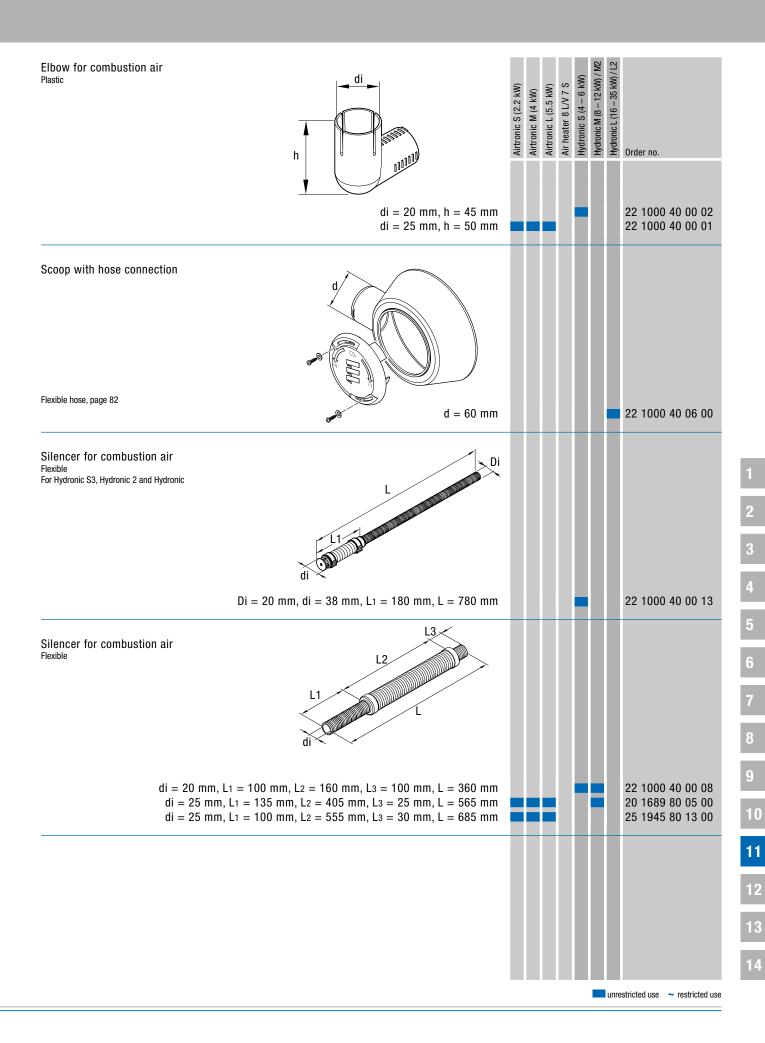












### 12 | Fastening parts

#### General information:

- The fastening parts supplied take account of all standard installation conditions.
- In installations in cars and buses, the heater or its mount can usually be rigidly attached to the corresponding part of the body.
- However in trucks and in particular, construction machinery, rubber-metal buffers need to be installed as vibration dampers, but these must not be placed under tension or shearing stress.
- This type of rubber-metal component also reduces structure-borne noise transmission and so they are used e.g. on houseboats for installing both the heater and the metering pump.
- Please also refer to the safety information on this section in the heater documentation.

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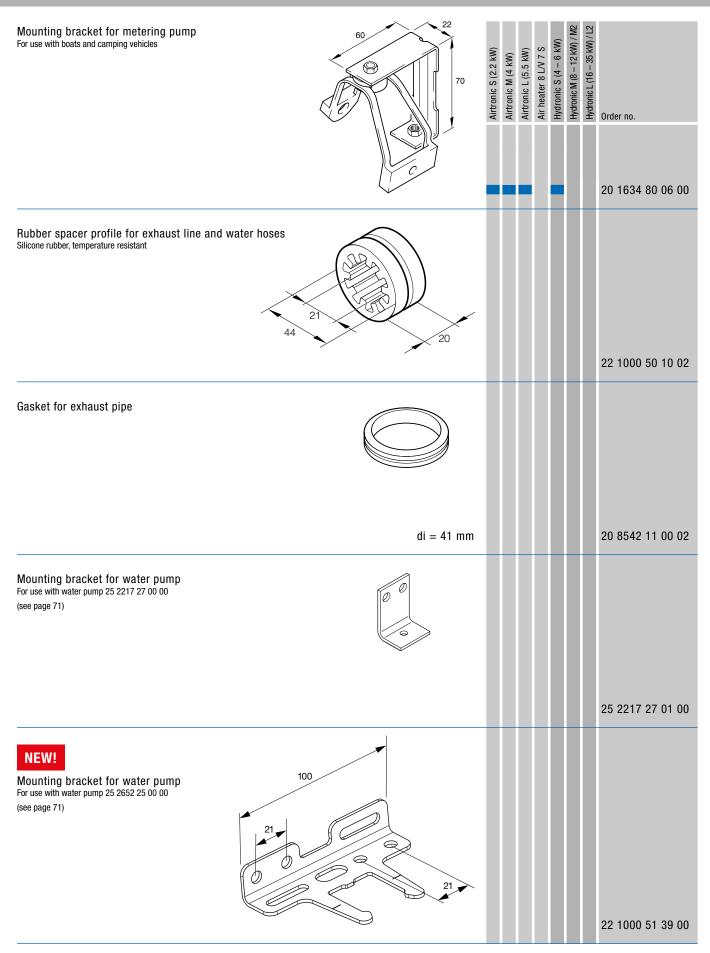
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Hose clip		Airtronic S (2.2 kW)  Airtronic M (4 kW)  Airtronic L (5.5 kW)  Air heater 8 LV 7 S  Hydronic S (4 – 6 kW)  Hydronic M (8 – 12 kW) / MZ  Hydronic L (16 – 35 kW) / L2	Order no.
~ = Check connection diameter	Ø 16 – Ø 25 mm Ø 20 – Ø 32 mm Ø 32 – Ø 50 mm Ø 40 – Ø 47 mm Ø 50 – Ø 70 mm Ø 70 – Ø 90 mm Ø 90 – Ø 110 mm	An A	0rder no.  10 2067 01 60 25 10 2067 02 00 32 10 2067 03 20 50 15 2090 17 10 2067 05 00 70 10 2067 07 00 90 10 2067 09 01 10
Hose clip with lug			
~ = Check connection diameter	Ø 9 − Ø 10.5 mm Ø 21 − Ø 24.0 mm		152 61 104 152 61 115
Hose clip  ~ = Check connection diameter	Ø 7 mm Ø 9 mm Ø 10 mm Ø 11 mm Ø 12 mm Ø 14 mm		10 2068 00 70 78 10 2068 00 90 98 10 2068 01 00 98 10 2068 01 10 98 10 2068 01 20 98 10 2068 01 40 98
Pipe clip for exhaust pipe	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		
	Ø 26 – Ø 28 mm Ø 32 – Ø 34 mm		22 1000 51 44 00 22 1000 51 45 00
Pipe clip for exhaust pipe			
	Ø 42 – Ø 45 mm Ø 43 – Ø 46 mm		152 09 004 152 09 005
			stricted use ~ restricted use

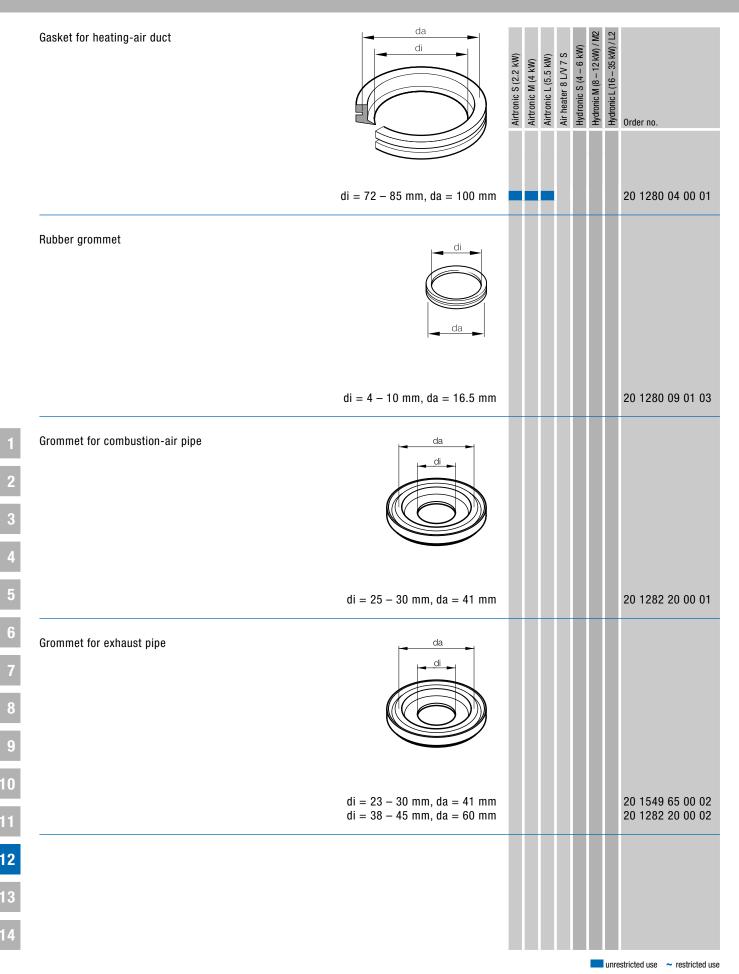
### 12 | Fastening parts

Hydronic L (16 – 35 kW) / L2 ou der uo Mounting bracket for metering pump and Flowtronic Water Pump 800 S (see page 71) Ø 34 mm 22 1000 50 03 00 Ø 41 mm 22 1000 50 07 00 Air hose fastening kit Plastic, 3 per pack Ø 60 – Ø 100 mm 22 1000 50 02 00 Clip Galvanized  $\emptyset$  28 mm 152 09 010  $\emptyset$  41 mm 152 10 039 Ø 50 mm 152 09 011  $\varnothing$  65 mm 152 09 012 Do not use for flexible exhaust pipes! Clip Stainless steel  $\varnothing$  25 mm 152 10 048 Ø 28 mm 152 61 001  $\emptyset$  32 mm 152 10 069 Pipe clip with rubber inlay Ø 10 mm 152 00 139  $\emptyset$  41 mm 152 00 131 Fastening clip For water hoses,  $\emptyset$  15 mm – 20 mm 156 31 011 See page 128 for mounting bracket



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### 12 | Fastening parts



Rubber-metal buffer	SW 19 8 34	Airtronic S (2.2 kW) Airtronic M (4 kW) Airtronic L (5.5 kW) Air heater 8 L/V 7 S Hydronic S (4 – 6 kW) Hydronic L (16 – 35 kW) / M2 Hydronic L (16 – 35 kW) / L2	Order no.
	thread size M6 / ST 6.3 C x 15		20 1673 80 01 01
Rubber-metal buffer	SW 19 8 30		
	thread size 2 x M6 x 11 mm		20 1185 00 00 01
Rubber-metal buffer Metal-reinforced	SW 20 15 15 15 10 10		
	thread size M6 x 10 mm / M6 x 15 mm		22 1000 50 00 08
Rubber-metal buffer	h1 h2		
	thread size 2 x M6 x 10, d = 20 mm, h1 = 15 mm, h2 = 35 mm thread size 2 x M6 x 10, d = 20 mm, h1 = 25 mm, h2 = 45 mm thread size 2 x M8 x 13, d = 30 mm, h1 = 15 mm, h2 = 41 mm		20 1607 65 00 02 20 1609 05 00 04 330 09 002
			estricted use ~ restricted use

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# 12 | Fastening parts

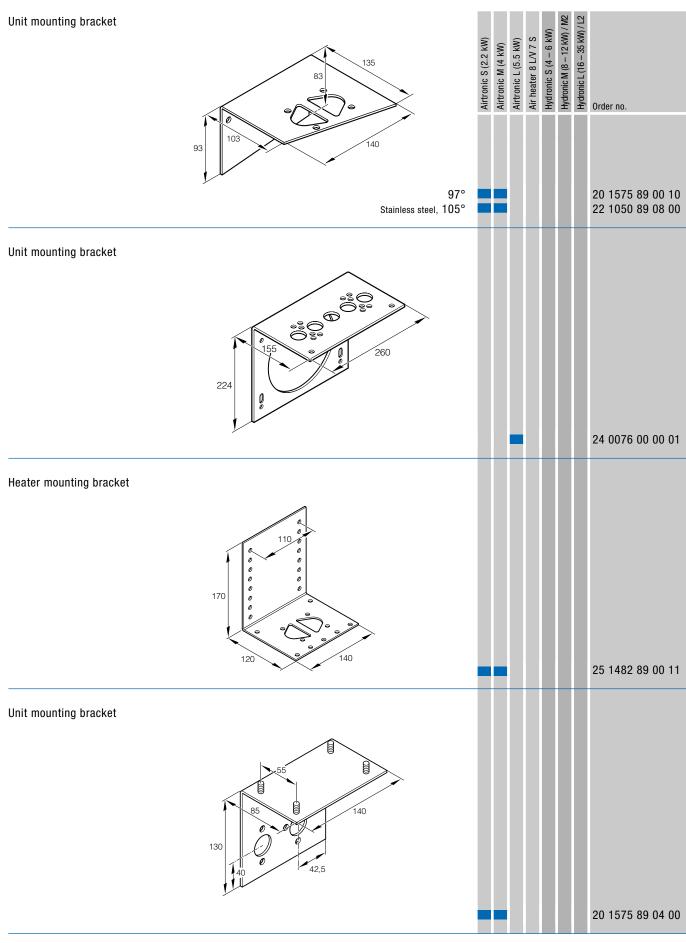
Mounting bracket	30 6,4 17,4 22	Airtronic S (2.2 kW) Airtronic M (4 kW) Airtronic L (5.5 kW) Airtronic L (5.5 kW) Airtronic S (4 – 6 kW) Hydronic S (4 – 6 kW) Hydronic L (16 – 35 kW) / L2  Outlier 100 000000000000000000000000000000000
Mounting bracket	30 6,4 17,4 17,4	20 1348 03 00 04
Mounting bracket	30 6,4 4 17,4 24 6,4	20 1533 88 00 07
L-mounting bracket For exhaust silencer 22 1000 40 19 00  See page 118 for exhaust silencer	50 22 22 30 50	22 1000 51 34 00
Z-mounting bracket For exhaust silencer 22 1000 40 19 00  See page 118 for exhaust silencer	62,5	22 1000 51 35 00

Mounting frame with trim for EasyStart T (TP6)		Airtonic S (2.2 kW) Airtonic M (4 kW) Airtonic L (5.5 kW) Air heater 8 L/V 7 S Hydronic S (4 – 6 kW) Hydronic L (16 – 35 kW) / L2 D D D D D D D D D D D D D D D D D D D
For use when replacing the modular timer with EasyStart T		22 1000 51 33 00
EasyStart T – single part Fastening parts		22 1000 32 93 00
EasyStart T — single part Bracket For slanting, level or convex installation surfaces		22 1000 51 32 00
Installation frame for EasyStart Timer (TP7)		22 1000 51 41 00
Spacer plate Rubber	6 mm thick	25 1482 89 00 02
	3 <b>1110</b> .	unrestricted use ~ restricted use

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## 12 | Fastening parts

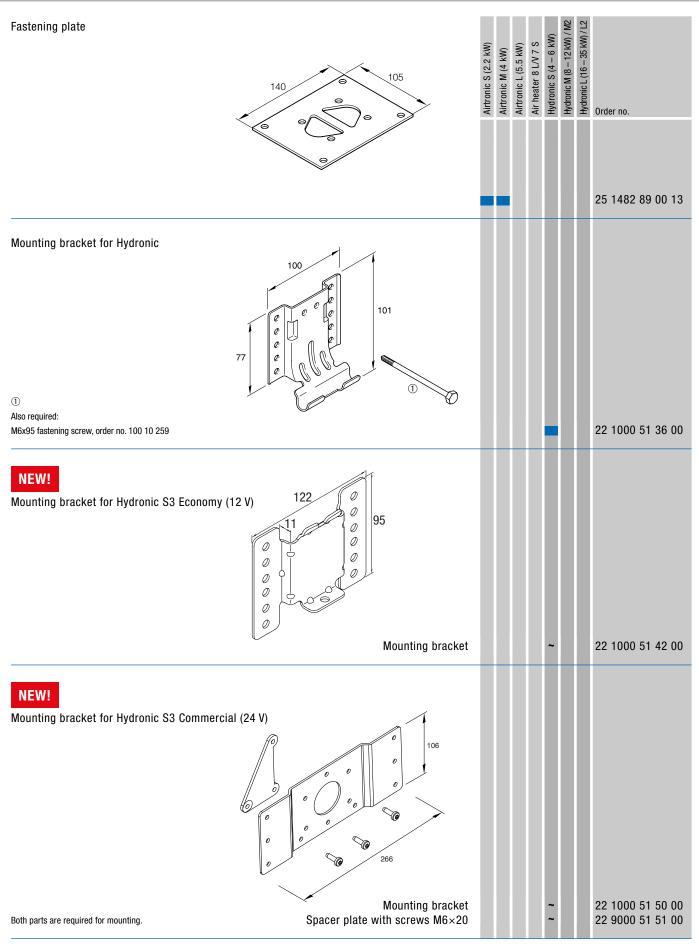


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# 12 | Fastening parts

Mounting bracket for Hydronic 2	Airtronic S (2.2 kW)	Airtronic M (4 kW)	Airtronic L (5.5 kW)	Air heater 8 L/V 7 S	Hydronic S (4 – 6 kW)	Hydronic M (8 – 12 kW) / M2	Hydronic L (16 – 35 kW) / L2	Order no.
① Special screw also required: for Economy / Comfort 25 2526 80 01 01								22 1000 51 37 00

### 13 | Name plates / Information signs

#### General information:

#### Name plates

The name plate must be easily visible after installation. If necessary, a second (duplicate) name plate can be attached in a clearly visible place on the heater after installation or on one of the covers in front of the heater. A second plate is not required if the original can be seen by removing a cover without the aid of tools.

A second (duplicate) name plate can be sent on request (chargeable). To order this, complete the form below and fax it to the number given.

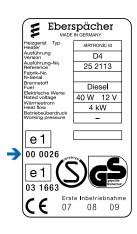
The duplicate name plate costs EUR 15.

#### Please note!

Name plates for heaters with a general design certification (German: ABG – Allgemeine Bauartgenehmigung) are identifiable by the wavy line which is its mark of conformity ( $\sim\sim$ ).



Name plates for heaters with an EC type approval are identifiable by the official EC and EEC  $\boxed{\text{e 1}}$  type approval mark.





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# 13 | Name plates / Information signs

### Order

## 2. Name plate (duplicate)

Copy this form, fill in the information from the original identification label and fax your order to:

label and fax your order to:		
+49 (0)711 939 161 338	Company	
(Germany only)	Contact	
Stree	t, building number	
Zij	code, town / city	
	VAT-no.	
	Phone	
	Fax	
	Email	
		Sender (please print in block letters)
	Heater type	
	Version	
	Version number	
	Factory number	
N	Mark of conformity	···
	or EC type approval	e1
	and EMC type approval	e1
	Fuel	
	Electrical values	
	Heat flow	
C	perating pressure	

Information sticker	1. Heater OFF 2. Refuel  Eberspächer	Airtronic S (2.2 kW)	Airtronic M (4 kW)	Airtronic L (5.5 kW)	Air heater 8 L/V 7 S	Hydronic S (4 – 6 kW)	Hydronic M (8 – 12 kW) / M2	Order no. 25 2652 05 00 01
Information sticker	Vor dem Betätigen des Batterie- Trennschalters Heizgerät abschalten und Nachlauf abwarten.							
								25 1482 89 00 08

# 14 | Auxiliary products – convectors

Convectors and fan convectors with 2,000 – 10,000 W ou	tput.						/ M2	/12	
		Airtronic S (2.2 kW)	Airtronic M (4 kW)	Airtronic L (5.5 kW)	Air heater 8 L / V 7 S	Hydronic S (4 – 6 kW)	Hydronic M (8 – 12 kW) / M2	Hydronic L (16 – 35 kW),	Order no.
HELIOS 2000 Incl. on / off switch, airflow / h 125 m³, 2 kW	B								
	Aluminum grille 12 \ L = 172, B = 129, T = 107 24 \ \ Aluminum grille, gray 12 \ L = 200, B = 170, T = 105 24 \ \ Plastic grille, white 12 \ L = 200, B = 170, T = 105 24 \ \ Plastic grille, white 12 \ \ L = 200, B = 170, T = 105 24 \ \ \ Stainless steel grille 12 \ \ L = 200, B = 170, T = 105 24 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \						2 2 2 2 2 2 2 2 2 2 2	2 2 2 2 2	22 2282 10 41 00 22 2282 10 42 00 22 2282 10 42 20 22 2282 10 42 20 22 2282 10 41 21 22 2282 10 42 21 22 2282 10 42 21 22 2282 10 42 22 22 2282 10 42 22 22 2282 10 41 09 22 2282 10 42 09
HELIOS 2000 Noiseless, incl. on / off switch, airflow / h 125 m³, 2 kV	B								
	Aluminum grille 12 \ L = 172, B = 129, T = 107 24 \					~ ~	2 2		22 2282 10 41 26 22 2282 10 42 26
								unre	stricted use ~ restricted use

HELIOS 2000 PREMIUM Incl. on / off switch, airflow / h 125 m³, 2 kW		В	Airtronic S (2.2 kW)	Airtronic M (4 kW)	Airtronic L (5.5 kW)	Air heater 8 L/V 7 S	Hydronic S (4 – 6 kW)	Hydronic M (8 – 12 kW) / M2	Hydronic L (16 – 35 kW) / L2	Order no.
	Grille, black L = 172, B = 129, T = 103.5 Grille, white L = 172, B = 129, T = 103.5 Grille, gray L = 172, B = 129, T = 103.5	12 V 24 V 12 V 24 V 12 V 24 V					1 1 1 1 1	2 2 2 2 2	1 1 1 1 1	22 2282 10 41 13 22 2282 10 42 16 22 2282 10 41 12 22 2282 10 42 15 22 2282 10 41 11 22 2282 10 42 11
HELIOS 2000 PREMIUM Incl. on / off switch, airflow / h 125 m³, 2 kW		В								
	Aluminum grille L = 172, B = 129, T = 103.5	12 V 24 V					2 2	2 2	2 2	22 2282 10 41 14 22 2282 10 42 17
HELIOS 4000 Incl. on / off switch, airflow / h: 250 m³, 4 kW		В								
	Aluminum grille L = 320, B = 129, T = 104 mm	12 V 24 V					~ ~	~ ~	2 2	22 2282 10 51 00 22 2282 10 52 00

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# 14 | Auxiliary products – convectors

HELIOS 7000 With housing and on / off switch, airflow / h 500 m	3, 4 kW	В	Airtronic S (2.2 kW)	Airtronic M (4 kW)	Airtronic L (5.5 kW)	Air heater 8 L/V 7 S	Hydronic S $(4-6 \text{ kW})$	Hydronic M $(8-12\mathrm{kW})$ / M2	Hydronic L ( $16-35 \text{ kW}$ ) / L2	Order no.
	L = 580, B = 129, T = 140 mm	12 V 24 V						2 2	2 2	22 2282 10 61 00 22 2282 10 62 00
HELIOS 7000 Without housing, with on / off switch, airflow / h 50	00 m³, 4 kW	B								
	L = 580, B = 129, T = 124 mm	12 V 24 V						2 2	2 2	22 2282 10 61 03 22 2282 10 62 03
XEROS 4000 Airflow / h 200 m³, 4 kW	*° ° °	В								
	Standard L = 273, B = 114, T = 207 mm Plastic grille L = 273, B = 114, T = 207 mm Plastic grille, front and side L = 273, B = 114, T = 207 mm Marine stainless steel plate L = 273, B = 114, T = 207 mm $\varnothing$ 14, L = 258, B = 115, T = 200 mm	12 V 24 V 12 V 24 V 12 V 24 V 12 V 24 V 12 V					~ ~ ~ ~ ~ ~ ~ ~ ~ ~		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	22 2282 11 01 00 22 2282 11 02 00 22 2282 11 01 10 22 2282 11 02 10 22 2282 11 01 11 22 2282 11 02 11 22 2282 11 02 11 22 2282 11 01 31 22 2282 11 02 31 22 2282 11 01 02

XEROS 4000 with fittings, airflow / h: 200 m³, 4 kW	B L	Airtronic S (2.2 kW)	Airtronic M (4 kW)	Airtronic L (5.5 kW)	Air heater 8 L/V 7 S	Hydronic S (4 – 6 kW)	Hydronic M (8 – 12 kW) / M2	Hydronic L (16 – 35 kW) / L2	Order no.
	with 2 fittings, $\emptyset$ 45 12 L = 273, B = 114, T = 207 mm 24 with 2 fittings, $\emptyset$ 50 12 L = 273, B = 114, T = 207 mm 24 with 2 fittings, $\emptyset$ 60 12 L = 273, B = 114, T = 207 mm 24 with 2 fittings, $\emptyset$ 75 12 L = 273, B = 114, T = 207 mm 24 with rotatable and closable vents L = 273, B = 114, T = 207 mm 12	         				2 2 2 2 2 2 2 2 2	2 2 2 2 2 2 2 2 2	2 2 2 2 2 2 2 2 2	22 2282 11 01 66 22 2282 11 02 66 22 2282 11 01 61 22 2282 11 02 61 22 2282 11 01 63 22 2282 11 02 63 22 2282 11 01 65 22 2282 11 02 65 22 2282 11 01 53
ZENITH 8000 Airflow / h: 440 m³, 8 kW	B								
	Standard       12         L = 315, B = 130, T = 242 mm       24         with plastic grilles       12         L = 315, B = 130, T = 242 mm       24         with 3 fittings Ø 60       12         L = 315, B = 130, T = 242 mm       24         with 3 fittings Ø 75       12         L = 315, B = 130, T = 242 mm       24         with 4 fittings Ø 60       12         L = 315, B = 130, T = 242 mm       24	         							22 2282 11 21 00 22 2282 11 22 00 22 2282 11 21 03 22 2282 11 22 03 22 2282 11 21 01 22 2282 11 22 01 22 2282 11 21 02 22 2282 11 22 02 22 2282 11 21 04 22 2282 11 22 04
ARTIK 10 000 Airflow / h: 440 m <sup>3</sup> , 10 kW	B								
	Marine stainless steel defroster 12 L = 442, B = 132, T = 225 24					~ ~	~ ~	~ ~	22 2282 11 31 00C 22 2282 11 32 00C

unrestricted use ~ restricted use

## 14 | Auxiliary products - convectors

#### General information on third-party products:

Not all auxiliary products can be purchased direct from Eberspächer. Where applicable, these products must be ordered from the specified supplier.

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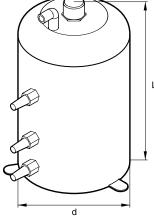
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Hydronic M (8 – 12 kW) / M2
Hydronic L (16 – 35 kW) / L2
app.
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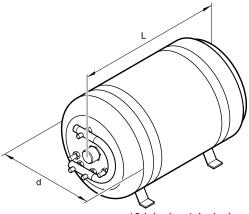
#### Warm water boiler

#### Supplier:

Eberspächer (UK) Ltd. Headlands Business Park Salisbury Road, Ringwood Hampshire BH24 3PB, UK Tel. + 44 14 25 48 01 51 Fax. + 44 14 25 48 01 52



10 I, upright, single coil L = 390 mm, d = 250 mm



22 I, horizontal, single coil \*

22 I, horizontal, double coil \* L = 510 mm, d = 370 mm

30 I, horizontal, single coil \* L = 610 mm, d = 370 mm

30 I, horizontal, double coil \*  $L = 610 \ mm, \ d = 370 \ mm$ 

40 I, horizontal, single coil \* L = 750 mm, d = 370 mm

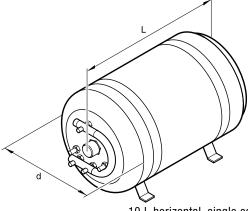
L = 750 mm, d = 370 mm

L = 970 mm, d = 370 mm

75 I, horizontal, single coil \* L = 1130 mm, d = 400 mm

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ک		<u>!</u>
₹	d	

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10 I, horizontal, single coil L = 550 mm, d = 250 mm

L = 510 mm, d = 370 mm

40 I, horizontal, double coil \*

55 I, horizontal, single coil \*

55 I, horizontal, double coil \* L = 970 mm, d = 370 mm

75 I, horizontal, double coil \* L = 1130 mm, d = 400 mm

\* Thermostatic mixing valve

All warm water boilers have an integrated 220 V - 240 V AC heating coil.

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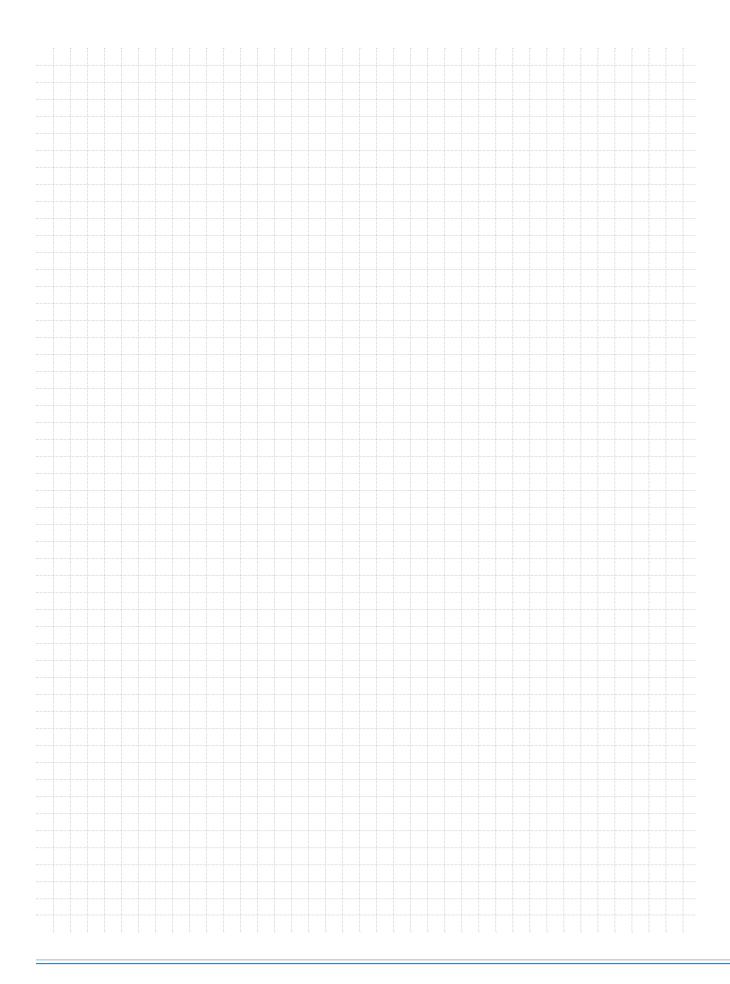
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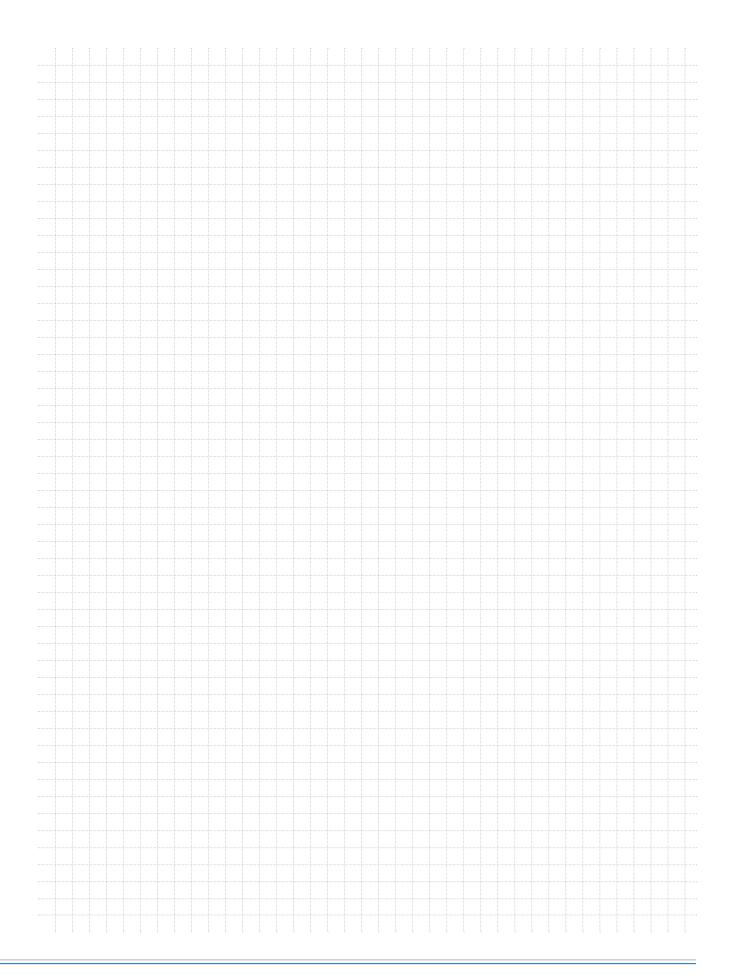
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### Notes





More information is available from any of our 5,000 service partners worldwide.

#### Germany

Eberspächer Heizung Vertriebs-GmbH & Co. KG Wilhelmstrasse 47 17358 Torgelow

Hotline: +49 (0) 3976 2350-235

Fax: +49 (0) 3976 202080
technik-heizung@eberspaecher.com
www.eberspaecher-standheizung.com

#### Austria

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Phone: +43 (0) 2236 677 144-0
Fax: +43 (0) 2236 677 144-42
office-at@eberspaecher.com
www.eberspaecher.at



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Phone: +49 (0) 711 939-00
Fax: +49 (0) 711 939-0634
info@eberspaecher.com
www.eberspaecher.com

