# COMPLETE HEATING SYSTEMS FROM EBERSPAECHER



OCTOBER 2019





## QUICK-REFERENCE GUIDE





Eberspaecher heaters have become one of the most popular money saving products available in the heavy-duty truck market today.

Typical savings using an Airtronic S2 can be as much as \$6,000 per unit per year based on current fuel prices. Below you will find the most popular most popular selling kit numbers for our air and coolant heater models.

For a detailed listing of our complete product line including heater kits, accessories and controllers for heavy truck, light truck, school bus, industrial and oil field markets please see the following pages.

All the heater products mentioned on the Quick-Reference pages are EPA Verified compliant for worry-free operation anywhere in the United States.

#### **AIRTRONIC S2**

#### DIESEL AIR HEATER / TRUCK BUNK HEATER

The Airtronic S2 puts out 7,500 BTU of clean comfortable heat and is ideal for bunk heating in all makes of heavy-duty trucks. It has a higher heat output than competitive models and is equipped with a standard fan-mode for nights when air circulation is preferred instead of heating.

The most popular Airtronic S2 kit is listed below. It comes with everything needed for installation including: Heater, EasyStart Pro, fuel system, mounting hardware kit and all ducting.

#### Airtronic S2 - Install Kit with EasyStart Pro

20 2827 21 02 01

Use of an engine pre-heater reduces cold start wear on internal components, reduces stress on the starting/cranking system, and can help extend DOC/DPF regen and replacement cycles by reducing cold-start white smoke.

#### HYDRONIC S3 ECONOMY (5KW)

PRE-HEATER SYSTEM

Eberspaecher, the leading system developer and supplier of vehicle heaters, is expanding its product portfolio with the new Hydronic S3 Economy (5kW) pre-heater. The water heater impresses thanks to its compact dimensions and flexible installation options for simple retrofitting in a large number of vehicle models. As a ground-breaking all-in-one solution with comprehensive peripheral devices, it offers installation partners many practical advantages. With the new EasyScan, diagnostic and service tool, workshop staff can analyze the operating condition of the pre-heater easily and quickly.

- · Compact, efficient water heater
- Innovative peripheral devices and new diagnostic device
- Simplified installation

#### Hydronic S3 Economy (5kW) Definition:

Hydronic: Water & Electronic, Product line, water heater S3: Size and generation, Size (small) Generation 3 Economy: Marketing appendix, entry model Compact and robust water heater for simple installation

With the third generation of its Hydronic series, Eberspaecher is offering an easy-to-operate preheater with stepless heating power control. The coolant heater works efficiently with all popular types of fuel. Due to its robust construction – with an encapsulated fan motor and the separation of cold and hot components – it is designed for longevity.

A high IP protection class also secures the unit from the ingress of water during high-pressure or steam jet cleaning. The new water spigots are fully rotatable by 360 degrees and are fully replaceable, they ensure convenient and rapid fitting in a range of installation positions. Optimized brackets enable the pre-heater to be mounted anywhere in the smallest possible space and to be attached rapidly and permanently. (See page 16)

#### HEATER INSTALLATION TIPS

For a time saving video showing a typical Class 8 truck installation for each of these products please visit the Eberspaecher website at www.eberspaecher-na.com and see the links along the right side of the main Downloads page.

See your local dealer for special pricing on quantity purchases of money-saving Eberspaecher heaters.

## QUICK-REFERENCE GUIDE

#### INTRODUCTION PAGE

On the following pages you will find the entire offering of Eberspaecher heaters, heater kits, control options and accessories.

Below are some tips on how to best choose the products you are looking for.

#### PAGE LAYOUT

The Product Catalog is a complete listing of the products we sell.

In the heater section, you can trace the heater you are considering straight across to the dots in the columns on the right side of the page.

These columns have a header row showing the items offered - with the dots indicating which of them actually come in the kit being selected.

In the accessory section, you trace the accessory across to the dots on the far right to see what heaters that component is used with.

#### **HEATER CHOICES**

Our heaters come in both 12 and 24 Volt offerings and in Gasoline (B prefix) and Diesel (D prefix) models.

When selecting a heater model, be sure to begin with the right voltage and fuel type for your application. The "Basic" heaters shown are just that, a bare heater, and are usually used as replacements. If a heater price seems too low, compared to other models, be sure it's not a basic kit.

#### ■ RECOMMENDED

There are a variety of kits and components in the catalogue that may look similar. When more than one item is listed, look for the RECOMMENDED label. This indicates that item is one of the more commonly sold products of those that are listed. However, we want to make sure you get the right equipment for the job so if you are in doubt please don't hesitate to call your local regional sales manager or our tech service department (800-387-4800) help@eberspaecher-na.com for assistance.

#### EMMISSIONS

Eberspaecher offers more EPA Verified / CARB Compliant heater choices than any other manufacturer. Look for the EPA label when selecting a heater for specific applications.

#### AIRTRONIC HEATER KITS

Unless specified otherwise these kits are usually sold as complete with installation components. The variables are usually limited to multiple controller and fuel pickup choices. These are all noted in the kit description and in the columns on the right side of the page.

#### HYDRONIC HEATER KITS

Unless otherwise noted these units are typically sold ala-carte — with the heater kit, timer/controller and even installation kits purchased separately to provide maximum installation flexibility. Always check the description and the kit component listing in the columns on the right side of the page.

#### CONTROLLERS

Eberspaecher offers a variety of controllers for almost every heater model and application combination. The most popular air heater controller is the Digi-Max Controller and the EasyStart Timer, while the Programmable (school bus) timers are the most popular for coolant heaters.

School bus and/or industrial applications using coolant heaters may also choose to include the Multi-Function Switch.







## QUICK-REFERENCE GUIDE

#### FUEL PICK-UP / FMP OPTIONS:

Eberspaecher makes a number of fuel pickup and fuel pump mounting options to help streamline installations.

Below you will find a summary of some of those choices.

- UNIVERSAL PICKUP Unless designated otherwise, Eberspaecher heater kits that show to have a fuel pickup tube come with our "Universal Pickup." This offers the flexibility of a typical drill-the-tank installation or the ability for installation in an existing NPT port on the fuel tank (if available).
- NO PICKUP Kits marked "No Pickup" do not have a fuel pickup tube. A variety of pickup tubes, including those for specialty use or to be used with NPT compression fittings, are located in the fuel section. Choosing the right fuel pickup can save time and provide a custom installation.
- VENT PICKUP Kits marked "Vent Pickup" come with a fuel pickup tube made for installation using the trucks fuel system vent port.
- EXTERNAL / INTERNAL FMP The Eberspaecher FMP's, or fuel metering pumps, can pull fuel 6' and push it approximately 20', thus the FMP needs to be located within 6' of the primary fuel source.

  Coolant heater kits with an External FMP typically are used when the heater is located more than 6' from the fuel source.

#### BOXED:

Kits marked "Boxed" means the heater comes installed in a rugged metal enclosure for protection and long-life. The box is usually frame rail mounted but can also be used in a variety of industrial or heavy equipment applications. Eberspaecher's large coolant heater models use a heavy-duty box and carries a direct replacement footprint for many legacy heaters in the field.

#### SPECIALTY KITS:

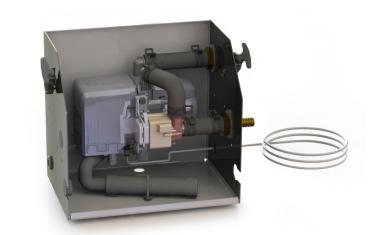
Eberspaecher manufactures several specialty kits to provide the best heater life and maximum levels of reliability and safety for end-users.

HIGH ALTITUDE – Eberspaecher provides a number of options to get the
best performance from units operating at higher altitudes where the air is
thin and heaters tend to run rich. These include: A full heater install kit
- OR - a fuel metering pump adjusted for full-time high altitude operation or
a plug-and/play module for leaning out fuel delivery.

The latter two can be used to modify a standard heater kit for HA operation. All are geared toward heaters in applications spending longer amounts of time operating above 4,900 ft.

#### SPARE PARTS:

For all spare parts information, please reference heater 's "Spare Parts Manual". https://www.eberspaecher-na.com/download-center/technical-manuals.html





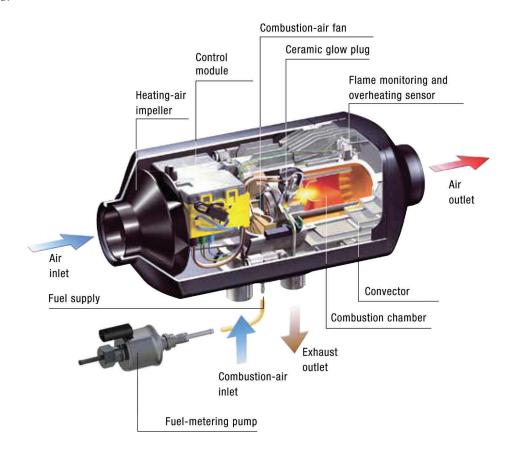


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#### AIRTRONIC: TECHNOLOGY



#### **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 (filament glow plug from 5 kW) 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.

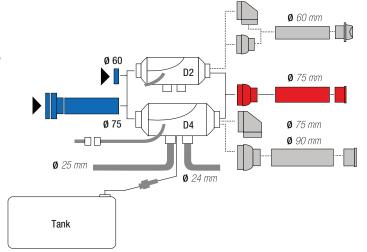
The heating output information provided refers to heating the interior of a cold vehicle to around 20 °C in cold outside temperatures. If the heater only needs to maintain the existing temperature of the interior, less heating power is required. The heating outputs are only guide values. The exact heating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

GUIDE VALUES FOR REQUIRED HE	ATING OUTPUT	Outside temperature				
Example	Volume of interior	< -15 °C	-15 °C to 0 °C	> 0 °C		
Truck cabin	< 8 m <sup>3</sup>	4 kW	3 kW (2 kW)*	2 kW		
Small bus	8 – 12 m <sup>3</sup>	5 kW (4 kW)*	4 kW (3 kW)*	2 kW		
Motor home / van	12 – 20 m <sup>3</sup>	8 kW	4 kW			
Yacht / boat	> 20 m <sup>3</sup>	S	ee documentation: Marine catalog	)		

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

#### **AIRTRONIC FUNCTIONS:**

- Airtronic D2: the smallest air heater on the market, advantageous in cramped installation spaces.
- Airtronic D4: output 4,000 W, air ducting 90 mm, 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 D3: in well insulated vehicles, 3,000 W, 90 mm air ducting, energy-saving benefits of 7 24 W which makes it quiet and fuel-efficient, wide-ranging application 900 3,000 W.
- Airtronic D4 Plus: generally for longer air ducting, with the advantage of a higher air flow volume with 90 and / or 75 mm ducting.



EBERSPÄCHER AIRTRONIC				anni:
Heater		Airtronic S2 D2L	Airtronic S2 D2L	Airtronic M2 B4L
Order no.		25 2721 05 00 00	25 2726 05 00 00	20 1987 05 00 00
Fuel		Diesel	Diesel	Gasoline
Voltage	V	12	24	12
Heating medium		Air	Air	Air
Control / heat settings		off / minimum / maximum	off / minimum / maximum	off / minimum / maximum
Heat output	W	- / 850 / 2,200	- / 850 / 2,200	- / 1,300 / 3,800
Fuel consumption	I/h	<b>- / 0.1 / 0.28</b>	- / 0.1 / 0.28	- / 0.18 / 0.54
Elec. power consumption,				
operation	W	4 / 6 / 31	5 / 8 / 12 / 22 / 34	5 / 7 / 42
Elec. power consumption, start	W	≤ 100	≤ 100	≤ 100
Air flow volume w/hood 75 mm	kg/h	13 / 42 / 105	13 / 42 / 105	24 / 85 / 180
Lower voltage limit	V	10.5	21	10.5
Upper voltage limit	V	16	32	16
Interference suppression		Suppression class 5 to	Suppression class 5 to	Suppression class 5 to
		EN 55025	EN 55025	EN 55025
Dimensions L x W x H	mm	310 x 115 x 122	310 x 115 x 122	376 x 140 x 150
Weight empty	kg	2.7	2.7	4.5
Ventilation mode		possible	possible	possible

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Heater		Airtronic M2 D4L	Airtronic M2 D4L
Order no.		25 2720 05 00 00	25 2729 05 00 00
Fuel		Diesel	Diesel
Voltage	V	12	24
Heating medium		Air	Air
Control / heat settings		off / minimum / maximum	off / minimum / maximum
Heat output	W	- / 900 / 4,000	- / 900 / 4,000
Fuel consumption	I/h	- / 0.11 / 0.51	- / 0.11 / 0.51
Elec. power consumption,			
operation	W	6 / 42	6 / 42
Elec. power consumption, start	W	≤ 100	≤ 100
Air flow volume w/hood 75 mm	kg/h	22 / 60 / 180	22 / 60 / 180
Lower voltage limit	V	10.5	21
Upper voltage limit	V	16	32
Interference suppression		Suppression class 5 to	Suppression class 5 to
		EN 55025	EN 55025
Dimensions L x W x H	mm	376 x 140 x 150	376 x 140 x 150
Weight empty	kg	4.5	4.5
Ventilation mode		possible	possible



#### EBERSPÄCHER AIRTRONIC

EBERSPACHER AIRTRONIC				
Heater		Airtronic B5	Airtronic D5	Airtronic D5
Product package		Heater	Heater	Heater
Techn. designation		Airtronic L (B5)	Airtronic L (D5)	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	Diesel
Voltage	V	12	12	24
Heating medium		Air	Air	Air
Control / heat settings		low / medium / high / power	low / medium / high / power	low / medium / high / power
Heat output	W	2,000 / 2,700 / 4,800 / 5,500	1,600 / 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	0.2 / 0.34 / 0.58 / 0.66
Elec. power consumption,				
operation	W	15 / 30 / 80 / 85	25 / 35 / 80 / 85	25 / 35 / 80 / 85
Elec. power consumption, start	W	250	250	250
Air flow volume w/o backpressure	kg / h	125 / 180 / 275 / 280	155 / 190 / 275 / 280	155 / 190 / 275 / 280
Lower voltage limit	V	10.5	10.5	21
Upper voltage limit	V	16	16	32
Interference suppression		Disturbance class 5 (DIN EN 55025)	Disturbance class 5 (DIN EN 55025)	Disturbance class 5 (DIN EN 55025)
Dimensions L x W x H	mm	530 x 170 x 185	530 x 170 x 185	530 x 170 x 185
Weight empty	kg	9.3	9.3	9.3
Ventilation mode		available	available	available



## EBERSPÄCHER AIRTRONIC

Heater		D8 LC	D8 LC
Product package		Heater	Heater
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 D	iesel	Diesel	
Voltage	V	12	24
Heating medium		Air	Air
Control / heat settings		low / high	low / high
Heat output	W	3,500 / 8,000	3,500 / 8,000
Fuel consumption I	l / h	0.4 / 1.05	0.4 / 1.05
Elec. power consumption,			
operation	W	115	115
Elec. power consumption, start W	330	380	
Air flow volume w/o backpressure kg /	h	310	310
Lower voltage limit	V	10	20
Upper voltage limit	V	14	28
Interference suppression		Long-distance (additional measures possible)	Long-distance (additional measures possible)
Dimensions L x W x H	mm	653 x 260 x 250	653 x 260 x 250
Weight empty	kg	14	14
Ventilation mode		available	available

AIRTRONIC M2 B4 GASOLINE AIR HEATER - 13,600 BTU	Heater	Harness	Fuel System	Ducting	Mounting Bracket	Control Options / Timers	Fuel Pickup Pipe	Hardware Kit	Exhaust Pipe	Intake Pipe	Manuals
AIRTRONIC M2 B4 - GASOLINE											
Gasoline M2 B4L 12V Commercial with fuel pump 20 1987 05 00 0											
AIRTRONIC M2 B4 - GASOLINE											
HEATER WITH INSTALLATION KIT											
M2 B4L 12V Install Kit 20 2819 87 04 0											
RELATED PARTS											
EasyStart Pro with Adaptor 20 2800 70 22 0											
Single Pick-up Pipe 2.0 mm Universal (66 cm or 26") 20 2900 20 20 1											
Automotive Fuel Pick-up Assembly (48 cm or 18.8") 22 1000 20 11 0											
RETURN AIR KIT											
60mm D2 Airtronic 20 2800 50 02 0											
75mm B/D4 Airtronic 20 2800 50 04 0											

Item in the Kit

#### HARDWARE KIT INCLUDES:

Fuel Clamps Mounting Screws
Nuts Ducting Clamps
Cable Ties Washers
Grommets Routing Clamps
Exhaust Clamps End Caps
Exhaust Brackets



#### **FUEL SYSTEM INCLUDES:**

Clamps 5 mm Fuel Line Plastic Fuel Line 3.5 mm Fuel Line

Refer to the Accessories Section for ducting components and additional accessories.

AIRTRONIC L1/B5 GASOLINE AIR HEATER - 18 AIRTRONIC L1/D5 DIESEL AIR HEATER - 18,80	•			tem		Mounting Bracket	Control Options / Timers	cup Pipe	e Kit	Pipe	pe	
		Heater	Harness	Fuel System	Ducting	Mounting	Control (	Fuel Pickup Pipe	Hardware Kit	Exhaust Pipe	Intake Pipe	Manuals
AIRTRONIC L1/B5 - GASOLINE												
Basic Heater 12V with fuel pump with outlet hood	20 1859 05 00 00											
AIRTRONIC L1/D5 - DIESEL												
Basic Heater 12V with fuel pump with outlet hood	25 2361 05 00 00											
Basic Heater 24V with fuel pump with outlet hood	25 2362 05 00 00											
UNIVERSAL INSTALL KITS												
JE Universal Installation Kit 12V and 24V	25 2361 80 00 00	-										
Eberspaecher Universal Installation Kit 12V and 24V	20 2823 61 05 80											
AIRTRONIC D5 TRUCK KITS - DIESEL												
Truck Kit 12V w/Rheostat Switch RECOMMENDED	20 2823 61 05 10											
Truck Kit 12V w/Digi-Max	20 2823 61 05 11											
CARGO KITS												
Cargo Kit 12V w/Thermostat Does Not Include Heater	20 2900 00 05 50					Х				•		
Echo 5 Cargo Kit (See page 9)	20 2823 61 05 18											
	Item in the ki	t	Х	Carg	o bra	icket	:	•	Exh	aust	with	plate



## HARDWARE KIT INCLUDES:

Fuel Clamps Exhaust Clamps
Nuts Mounting Screws
Cable Ties Ducting Clamps

Washers Routing Clamps End Caps **Exhaust Brackets** 

## FUEL SYSTEM INCLUDES:

Clamps 5 mm Fuel Line Plastic Fuel Line 3.5 mm Fuel Line

Refer to the Accessories Section for ducting components and additional accessories.

1

2

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# D8LC DIESEL AIR HEATER - 27,300 BTU

#### PLEASE NOTE:

D8LC

Basic Heater 12 volt

INCLUDES:

Control Unit Fuel Pump

Rheostat Switch

**External Temperature Sensor Combustion Air Tube Shock Mounts** 

Mounting Bracket (large) Mounting Bracket (small)

Basic Heater 24 volt

INCLUDES:

Control Unit Fuel Pump Rheostat Switch

**External Temperature Sensor** 

Combustion Air Tube **Shock Mounts** 

Mounting Bracket (large) Mounting Bracket (small) 25 1890 00 00 00

25 1891 00 00 00

Accessories Harness

External Harness 20 feet

20 2900 70 08 02

20 2900 20 20 50

10 2068 00 90 98

10 2068 01 10 98

10 2114 25 00 00

22 1000 40 02 00

360 75 350 890 31 055

360 75 300

5530013

5670097

5670096

152 09 004

Fuel

Exhaust

Fuel line 5.0mm black rubber, suction side Fuel line 2.0mm white plastic, pressure side Fuel line connector piece 3.5mm for 2mm fuel line

Fuel pick-up pipe 4mm

Clamp 9mm for 3.5mm hose Clamp 11mm for 5mm hose

Flexible stainless steel exhaust 42mm Exhaust clamp

Flexible air intake 30mm SPECIAL ORDER Exhaust end cap for 42"

Thermostat 12 volt Thermostat 24 volt

Cargo Kit

Controls

Echo 8 Cargo kit (see page 11)

20 2818 90 0828

Refer to the Accessories Section for ducting components and additional accessories.

ECHO 5 (AIRTRONIC D5 HEATER Nose Mount)

INCLUDES: Mounting Box

Mounting Bracket Exhaust shield

Fuel metering pump and Mounting box DIGI MAX Controller with remote temp sensor

Heater Harness Fuel lines Air Ducting Fuel Pickup pipe

20 2823 61 05 18

ECHO 8 (D8LC Nose Mount)

INCLUDES:

Mounting Box

Mounting Bracket Exhaust shield

Fuel metering pump and Mounting box DIGI MAX Controller with remote temp sensor

Heater Harness Fuel lines Air Ducting Fuel Pickup pipe 20 2818 90 08 28

REPLACEMENT PARTS

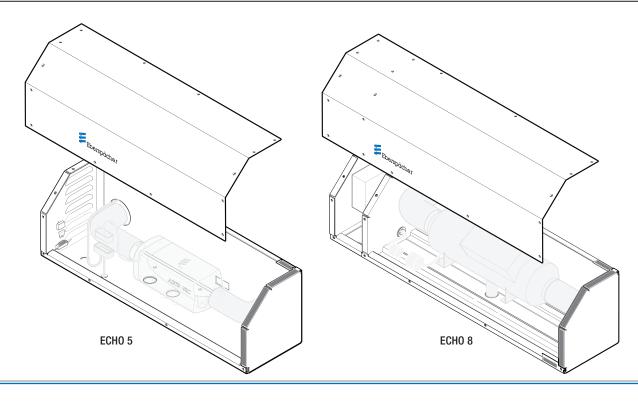
ECHO 8 Mounting Box Base ECHO 8 Mounting Box Lid

Shield SS Mounting Bracket

Power Receptable Box Assy ECHO 8

Base ECHO 5 Box White
Lid ECHO 5 Box White

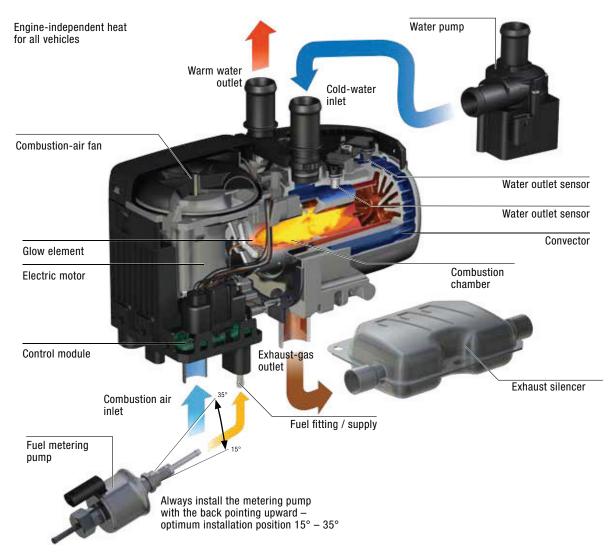
20 2900 40 80 01 20 2900 40 80 02 20 2900 40 80 03 20 2900 40 80 04 20 2900 40 80 05 20 2900 40 05 01 20 2900 40 05 02



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#### HYDRONIC S3 ECONOMY: TECHNOLOGY

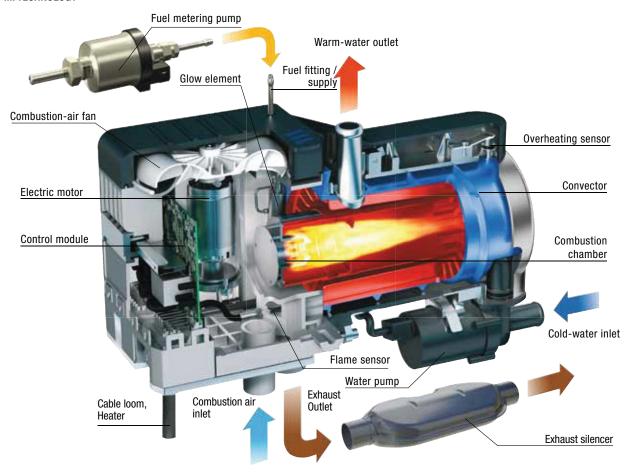


#### **HYDRONIC S3 ECONOMY\* FUNCTIONS:**

- 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. in 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 p.108). The cable harness is included in the universal installation kit for recreational vehicles and boats (order no.: 25 2652 82 00 00).

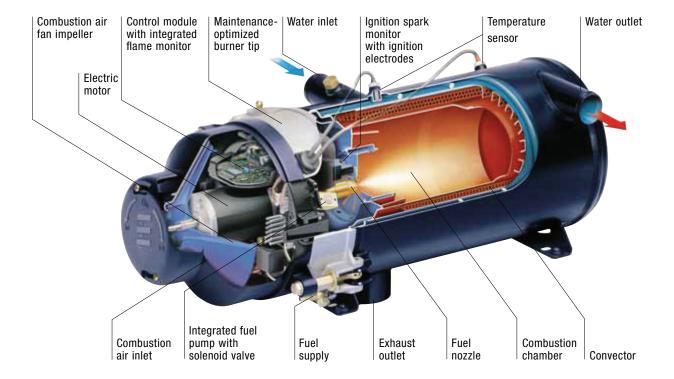
#### HYDRONIC M: TECHNOLOGY



#### **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.

#### 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.



## EBERSPÄCHER HYDRONIC

EDENSI AUNEN IN DITUNO					
Heater		Hydronic S3 Economy	Hydronic S3 Economy	Hydronic S3 Economy	Hydronic S3 Economy
Product package		Heater	Heater	Heater	Heater
Techn. designation		Hydronic HS3 CS Economy B5E	Hydronic HS3 CL Economy B5E	Hydronic HS3 CS Economy D5E	Hydronic HS3 CL Economy D5E
Order no. for <b>heater</b>		20 2008 05 0000	20 1993 05 0000	25 2934 05 0000	25 2912 05 0000
Order no. for heater with AP	RMP*	_	_	_	25 2921 05 0000
Fuel		Gasoline	Gasoline	Diesel	Diesel
Voltage	V	12	12	12	12
Heating medium		Mixture of wa	ter and anti-freeze (Proportion of	antifreeze at least 10 % up to 50	% maximum)
Control / heat settings		Infinitely variable	Infinitely variable	Infinitely variable	Infinitely variable
Heat output	W	1,800 to 5,000	1,800 to 5,000	1,300 to 5,000	1,300 to 5,000
Fuel consumption	I/h	0.23 / 0.67	0.23 / 0.67	0.15 / 0.59	0.15 / 0.59
Power consumption, heater	W	7 / 32	7 / 32	5 / 32	5 / 32
Power consumption, water pum	рW	17	17	17	17
Elec. power consumption, star	t W	135	135	135	135
Minimum water throughput	I/h	300	300	300	300
Lower voltage limit	V	10.5	10.5	10.5	10.5
Upper voltage limit	V	16	16	16	16
Protection rating		Heater: IP5K6K, IP5K9K, Con	itrol module: IP6K6K, IP6K9K	Heater: IP5K6K, IP5K9K, Con	trol module: IP6K6K, IP6K9K
Dimensions L x W x H	mm	215 x 91 x 124	215 x 91 x 124	215 x 91 x 124	215 x 91 x 124
Weight empty	kg	2.0	2.0	2.0	2.0

994	

#### EBERSPÄCHER HYDRONIC

EBERSPACHER HYDRUNIC		
Heater		HS3 CS D6L Commercial
Product package		Heater
Order no. for heater		25 2745 05 00 00
Fuel		Diesel – standard commercially available (EN 590)
		Blending with max. 30 % FAME according to EN 14214 is permitted.
Voltage	V	24
Heating medium		Mixture of water and anti-freeze
		(Proportion of antifreeze at least 10 % up to 50 % maximum)
Control / heat settings		Minimum / Maximum
Heat output	W	1,300 / 5,600
Fuel consumption	I/h	0.15 / 0.65
Power consumption, heater	W	5 / 37
Power consumption, water pump	W	11
Elec. power consumption, start	W	135
Minimum water throughput	I/h	300
Lower voltage limit	V	20.4
Upper voltage limit	V	32
Interference suppression		5 (DIN EN 55025)
Dimensions L x W x H	mm	215 x 91 x 124
Weight empty	kg	2.0



#### EBERSPÄCHER HYDRONIC

EDENOFACHEN HTDNUNIC					
Heater		Hydronic M8 Biodiesel	Hydronic M8 Biodiesel	Hydronic M10	Hydronic M10
Product package		Heater	Heater	Heater	Heater
Techn. designation		Hydronic M-II (D8W)	Hydronic M-II (D8W)	Hydronic M-II (D10W)	Hydronic M-II (D10W)
Order no. for heater		25 2470 05 00 00	25 2471 05 00 00	25 2434 05 00 00	25 2435 05 00 00
Fuel		Diesel and FAME (biodiesel)	Diesel and FAME (biodiesel)	Diesel	Diesel
Voltage	V	12	24	12	24
Heating medium		Water	Water	Water	Water
Control / heat settings		low / medium / high / power			
Heat output	W	1,500 / 3,500 / 5,000 / 8,000	1,500 / 3,500 / 5,000 / 8,000	1,500 / 3,500 / 8,000 / 9,500	1,500 / 3,500 / 8,000 / 9,500
Fuel consumption	I/h	0.18 / 0.4 / 0.65 / 0.9	0.18 / 0.4 / 0.65 / 0.9	0.18 / 0.4 / 0.9 / 1.2	0.18 / 0.4 / 0.9 / 1.2
Power consumption, heater	W	6 / 10 / 17 / 26	6 / 10 / 17 / 26	6 / 10 / 31 / 57	6 / 10 / 31 / 57
Power consumption, water pur	ıp W	29	29	29	29
Elec. power consumption, sta	rt W	200	200	120	120
Minimum water throughput	I/h	500	500	500	500
Lower voltage limit	V	10	20	10	20
Upper voltage limit	V	15	30	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	6.2	6.2	6.2





## EBERSPÄCHER HYDRONIC

Heater	Hydronic M12	Hydronic M12
Product package	Heater	Heater
Techn. designation	Hydronic M-II (D12W)	Hydronic M-II (D12W)
Order no. for heater	25 2472 05 00 00	25 2473 05 00 00
Fuel	Diesel	Diesel
Voltage V	12	24
Heating medium	Water	Water
Control / heat settings	low / medium 1 / medium 2 / medium 3 / high / power	low / medium 1 / medium 2 / medium 3 / high / power
Heat output W	1,200 / 1,500 / 3,500 / 5,000 / 9,500 / 12,000	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	0.15 / 0.18 / 0.4 / 0.65 / 1.2 / 1.5
Power consumption, heater W	5 / 6 / 10 / 17 / 57 / 103	5 / 6 / 10 / 17 / 57 / 103
Power consumption, water pump W	29	29
Elec. power consumption, start W	120	120
Minimum water throughput I / h	500	500
Lower voltage limit V	10	20
Upper voltage limit V	15	30
Interference suppression	5 (DIN EN 55025)	5 (DIN EN 55025)
Dimensions L x W x H mm	331 x 138 x 221	331 x 138 x 221
Weight empty kg	6.2	6.2





EBERSPÄCHER HYDRONIC					
Heater		Hydronic L16	Hydronic L24	Hydronic L30	Hydronic L35
Product package		Heater	Heater	Heater	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 heater		25 2486 02 00 00	25 2487 02 00 00	25 2599 02 00 00	25 2600 02 00 00
Order no. for compact heate	er	_	25 2487 05 00 00	25 2599 05 00 00	25 2600 05 00 00
Fuel		Diesel and fuel oil			
Voltage	V	24	24	24	24
Heating medium	Water	Water	Water	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	np W	104 – 210*	104 – 210*	104 – 210*	104 – 210*
Minimum water throughput	I/h	1,400	2,000	2,600	3,000
Lower voltage limit	٧	20	20	20	20
Upper voltage limit	٧	30	30	30	30
Dimensions L x W x H	mm	600 x 230 x 222			
Weight empty**	kg	18	18	18	18

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

EBERSPÄCHER WATER PUMPS FOR HYDRONIC L				
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
Coolant		Water-glycol mix with	Water-glycol mix with	Water-glycol mix with
		up to max 50 % glycol	up to max 50 % glycol	up to max 50 % glycol
Delivery rate	I/h	5,200 at 0.2 bar	5,200 at 0.2 bar	6,000 at 0.4 bar
Operating pressure	bar	max. 2	max. 2	max. 2
Nominal voltage	٧	24	24	24
Elec. power consumption	W	104	104	210
Protection class		IP5K4	IP54A	IP25 (potted electronics)
Dry running		No	No	Yes – motor switches itself off after 45 minutes
Shaft-impeller connector		Mechanical seal	Magnetic coupling	Magnetic coupling
Weight empty*	kg	2.04	2.2	2.5

22 1000 20 11 00

Item in the kit



Fuel Clamps
Nuts
Cable Ties

Grommets Exhaust Clamps Mounting Screws

Automotive Fuel Pick-up Assembly (48 cm or 18.8")

Ducting Clamps Washers Routing Clamps

End Caps Exhaust Brackets

#### **FUEL SYSTEM INCLUDES:**

Clamps 5 mm Fuel Line Plastic Fuel Line 3.5 mm Fuel Line

Refer to the Accessories Section for ducting components and additional accessories.

Pickup Pipe

# PICK-UP TRUCK KITS HYDRONIC HS3 - 17,100 BTU

						Heat	Harn	Fuel	Mou	Cont	Fuel	Hard	Exha	Intak	Blow	Man
GAS KITS	Make	Model	Engine	M/Y												
Heater HS3 B5E 12V CL					20 1993 05 00 00											
Installation kit ES Dodge	Dodge	RAM	5.7L V8	2017 and up	24 8000 35 00 19											
DIESEL KITS																
Heater HS3 D5E 12V CL w. prep	or. MP				25 2921 05 00 00											
Installation Dodge	Dodge	RAM	6.7L V8	2017 and up	24 8000 35 00 35											
RELATED PARTS																
EasyStart Timer					22 1000 34 15 00											

Item in the kit



#### HARDWARE KIT INCLUDES:

Fuel Clamps Nuts Cable Ties Grommets Exhaust Clamps Mounting Screws Ducting Clamps Washers Routing Clamps

End Caps Exhaust Brackets

## FUEL SYSTEM INCLUDES:

Clamps 5 mm Fuel Line Plastic Fuel Line 3.5 mm Fuel Line

Refer to the Accessories Section for ducting components and additional accessories.

1

2

3

Eberspaecher Universal Install 24V with diagnostic connection

25 2800 90 10 24

Item in the kit



HYDRONIC M II

STEP 1 - SELECT BASIC KITS: HYDRONIC M12 12 volt, Basic assambly

HYDRONIC M12 24 volt, Basic assambly

Heater	Harness	Fuel System	Coolant Hose	Mounting Bracket	Control Options / Timers	Fuel Pickup Pipe	Hardware Kit	Exhaust Pipe	Intake Pipe	Boxed	Manuals	

STEP 2 - SELECT ONE OF THE FOLLOWING CONTROL OPTIONS	
EasyStart Timer	22 1000 34 15 00
Multi Max F-1000 Controller	20 2800 70 16 00
Programmable Timer With LVD	25 2800 70 10 10
Programmable Timer With LVD Dual Input	25 2800 70 20 20
Pro. Timer w/LVD Dual Output Switch	25 2800 70 30 30
STEP 3 - SELECT FUEL PICKUP PIPE OPTIONS	
Fuel Pick Up Pipe 4mm with 1/2 NPT	20 2900 20 20 50
Pick Up Pipe 4mm ID X 16IN	5520001
Fuel Pipe with Vent 4mm ID - 19.5 IN	20 2900 20 40 06

25 2824 72 12 03

25 2824 73 12 01

Item in the kit

Item in the kit



#### HARDWARE KIT INCLUDES:

Fuel Clamps Nuts Cable Ties Grommets Exhaust Clamps Mounting Screws Ducting Clamps Washers Routing Clamps

End Caps Exhaust Brackets

#### **FUEL SYSTEM INCLUDES:**

Clamps 5 mm Fuel Line Plastic Fuel Line 3.5 mm Fuel Line

Refer to the Accessories Section for ducting components and additional accessories.

HYDRONIC L 16	
Basic Heater 24V	25 2486 02 0000
HYDRONIC L 24	
Basic Heater 24 volt	25 2487 02 00 00
HYDRONIC L 30	
Basic Heater 24 volt	25 2599 02 00 00
HYDRONIC L 30 Compact	
Water pump Flowtronic 5000 and fuel filter pre-assembled	25 2599 05 00 00
HYDRONIC L 35	
Basic Heater 24 volt	25 2600 02 00 00
HYDRONIC L 35 Compact	
Water pump Flowtronic 5000 and fuel filter pre-assembled	25 2600 05 00 00

CCESORIES			
HARNESS	Universal Harness	20 2900 70 05 10	
	Compact Heater Harness	20 2900 70 05 11	
FUEL	Nipple and Nut Connectors for compact version (1 required)	20 2900 20 20 71	
	Fuel Line 5.0mm black rubber	360 75 350	
	Clamps 11mm	10 2068 01 10 98	
	Fuel Pick-up with Return	20 2900 20 20 59	
	L-II Filter Base and Bracket	25 2488 05 01 00	
EXHAUST	Flexible Stainless Steel Exhaust Tube 70mm	5530015	
	Muffler Clamp 3"	5530004	
	Exhaust Elbow (70mm exhaust) D30 / D35	22 1000 40 03 00	
PUMPS	Coolant Pump 24volt (5,000 L/hr)	25 2488 26 00 00	
	Flowtronic Coolant Pump 24 volt (6,000 L/hr)	25 2488 25 00 00	
CONTROLS	Multi Max F-1000 Controller	20 2800 70 16 00	
	Programmable Timer With LVD	25 2800 70 10 10	
	Programmable Timer With LVD Dual Input	25 2800 70 20 20	
	Pro. Timer w/LVD Dual Output Switch	25 2800 70 30 30	



	leater	larness	el System	Coolant Hose	Mounting Bracke	Control Options /	el Pickup Pipe	Hardware Kit	Exhaust Pipe	Intake Pipe	Boxed	Manuals
	- ¥	Hai	Fuel	Ö	Mo	Ō	Fuel	Hai	盗	Inte	B0)	Ma
HYDRONIC L-II OFF HIGHWAY												
HYDRONIC 30 L-II Boxed Off-Highway Assembly 12V w/6000 L pump 25 2800 10 3612					*							
HYDRONIC 30 L-II Boxed Off-Highway Assembly 24V w/6000 L pump 25 2800 10 3600					*							
HYDRONIC 35 L-II Boxed Off-Highway Assembly 24V w/6000 L pump 25 2800 10 5624					*							

Item	in	the	ki
110111		LIIO	111

Mounting holes on base. No mounting hardware included

Fuel	
Hose Fuel 5 x 3mm black rubber	360 75 350
Single Pick-up Pipe 4.0 mm with Return (61 cm or 24")	20 2900 20 20 59
Clamp 11mm, 4 qty.	10 2068 01 10 98
Controls	
Multi Max F-1000 Controller	20 2800 70 16 00
Programmable Timer With LVD	25 2800 70 10 10
Programmable Timer With LVD Dual Input	25 2800 70 20 20
Pro. Timer w/LVD Dual Output Switch	25 2800 70 30 30

- Packaged for Off-Highway and oilfield applications
- 12 and 24 volt options
- Eliminate cold starts
- Minimize diesel exhaust emissions

- Rugged, compact
  Versatile fluid pre-heating
  Standard with pre-heated nozzle



# ACCESSORIES PARTS GUIDE





# TIMERS AND CONTROLLERS

	CES-FX	P M 15 135 30°C  Sitematic	E III H		530	
AVAILABLE FUNCTIONS	DIGI-MAX CONTROLLER	EASYSTART TIMER	EASYSTART PRO CONTROLLER	MULTI-MAX F-1000	PROGRAMABLE TIMER	MULTI-FUNCTION
Order number	20 2800 70 15 00	22 1000 34 15 00	20 2800 70 22 00	20 2800 70 16 00	5670433 12V 5670434 24V	25 2800 70 10 10
Heater On/OFF with status Indicator	•	_	_	•		
Run Time limiter with selectable presets	_	_				
Built in diagnostic with fault code display (numerical, verbal or both)			_	Blinking Diagnostic		
Clearing codes and unlocking capability	-	•	_			
Illuminated turn and push control dial						
Programmable Timer						
Multiple Starts - Day / Week		_				
Use of residual heat						
Synchronization and inde- pendency of two parallel controllers (heater switched on one controller may be switched off from the other one, both controllers display same information			•			
Switching heater into the High Altitude Mode (for supported heaters)			_			
Grouping heaters						
Standard Fan Mode						
Programmable LVD						
Low voltage shutdown						
Onboard temperature sensor						
Setpoint switchable between F and C						

# TIMERS AND CONTROLLERS

	Official Williams	P ## \$5 133 - 30°C  Shangara	Supplemental Section 1981	0	1338 1338 1338 1338 1338 1338 1338 1338	
AVAILABLE FUNCTIONS	DIGI-MAX CONTROLLER	EASYSTART TIMER	EASYSTART PRO CONTROLLER	MULTI-MAX F-1000	PROGRAMABLE TIMER	MULTI-FUNCTION
Order number	20 2800 70 15 00	22 1000 34 15 00	20 2800 70 22 00	20 2800 70 16 00	5670433 12V 5670434 24V	25 2800 70 10 10
Hours meter or reader						
"Maintenance required" warning						
External control wire or port for use with external devices		_	_			
Low temperature display						
Computer programming via SD card						
Computer setup via Easy Scan			_			
Multilingual interface						
"Check heater" warning						
Ambient Air Temp Sensor	•		•		Cabin temp sensor	
Diagnostic Code Retrieval	<b>1</b> st			<b>1</b> st		
Standard Fan Mode						
10-Hour Automatic Shutoff						
Manual Start Mode						
Program Memory						
Accepts External Inputs						
AIR HEATERS						
COOLANT HEATERS						

1st only for 1st generation of AIRTRONIC AND HYDRONIC heaters

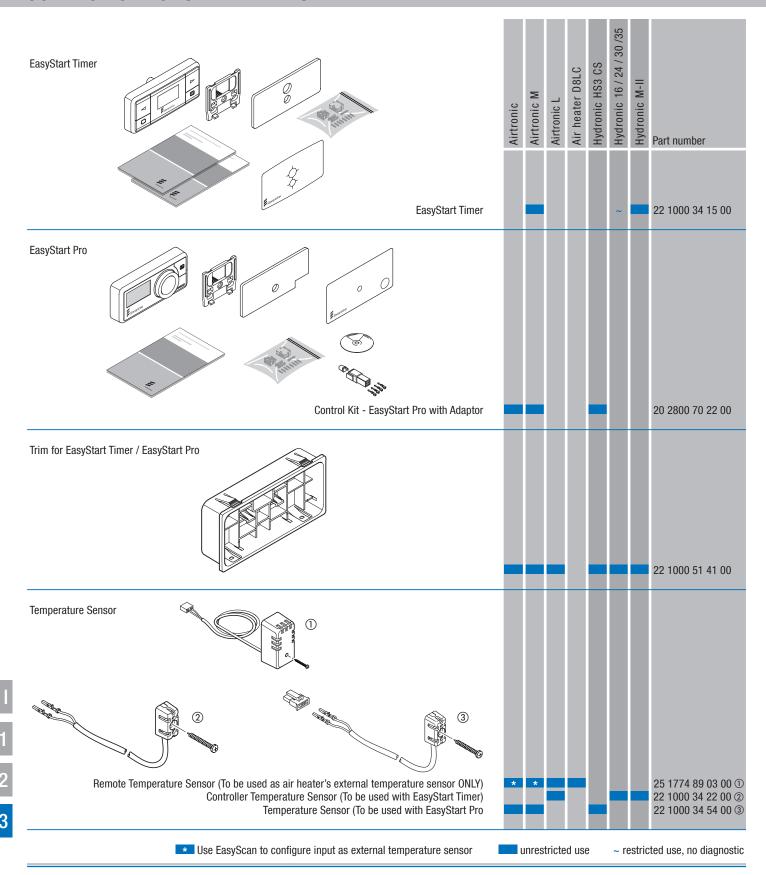
# AIR HEATERS CONTROL OPTIONS AND TIMERS

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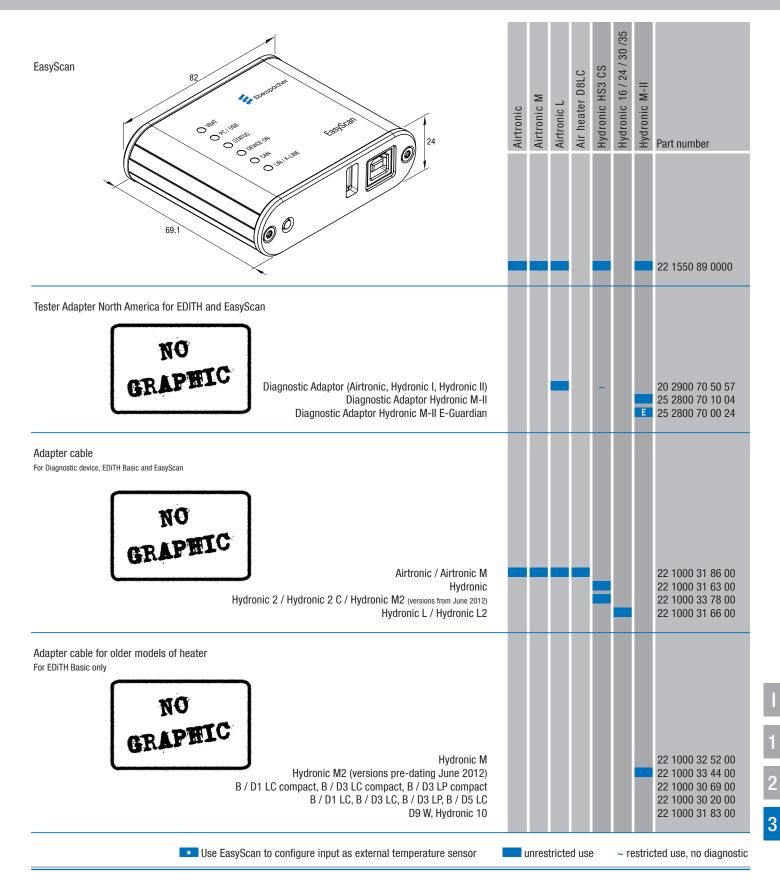
# HYDRONIC HEATERS CONTROL OPTIONS AND TIMERS

Multi-Max 0 Hydronic Part number Airtronic **≨**Espar F1000 with PC Programmability & Diagnostic 12 & 24 V 20 2800 70 16 00 Programmable Timer (No Diagnostic) 12 V 5670433 5670434 24 V Programmable Timer with LVD 25 2800 70 10 10 **Dual Input** 25 2800 70 20 20 Programmable Timer with LVD, Dual Outputs-Detached 25 2800 70 30 30 Push button with 24" leads for 25 2800 70 30 30 25 2800 70 30 35 Push / Pull Switch Push / Pull Switch 12 volt 5670007 Replacement Bulb 12 volt 207 00 005 ~ restricted use no diagnostic unrestricted use

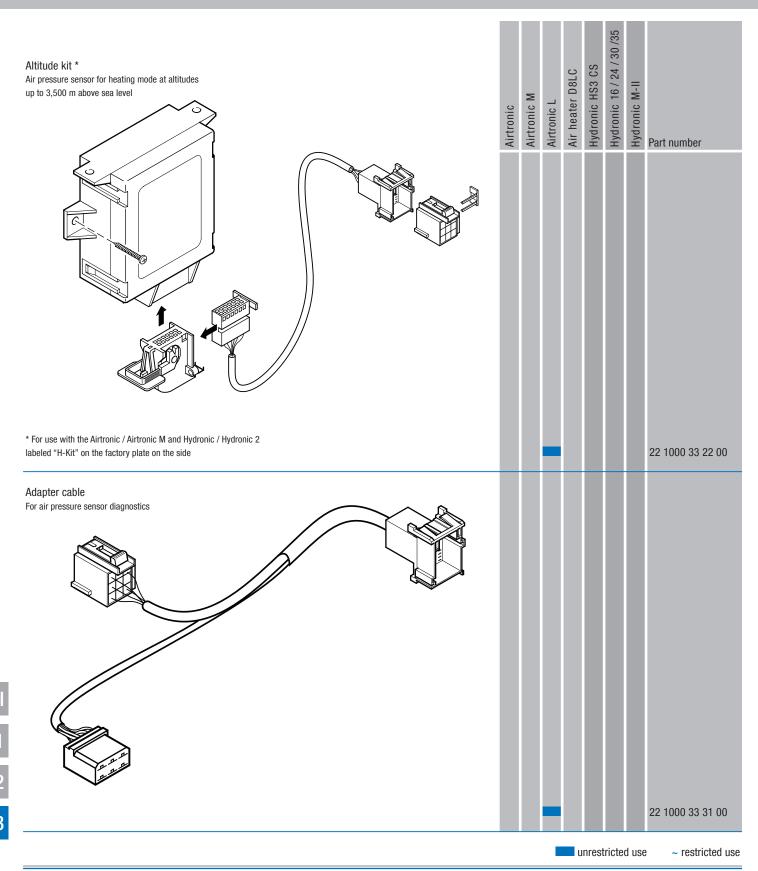
# HYDRONIC HEATERS CONTROL OPTIONS AND TIMERS



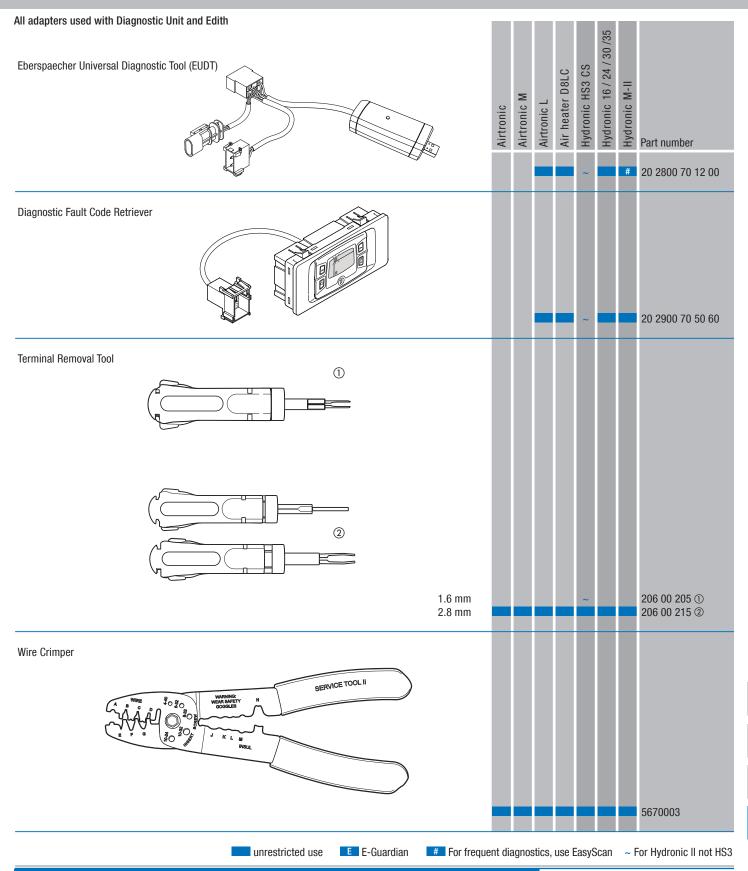
## TESTERS / ADAPTERS / SPECIAL TOOLS

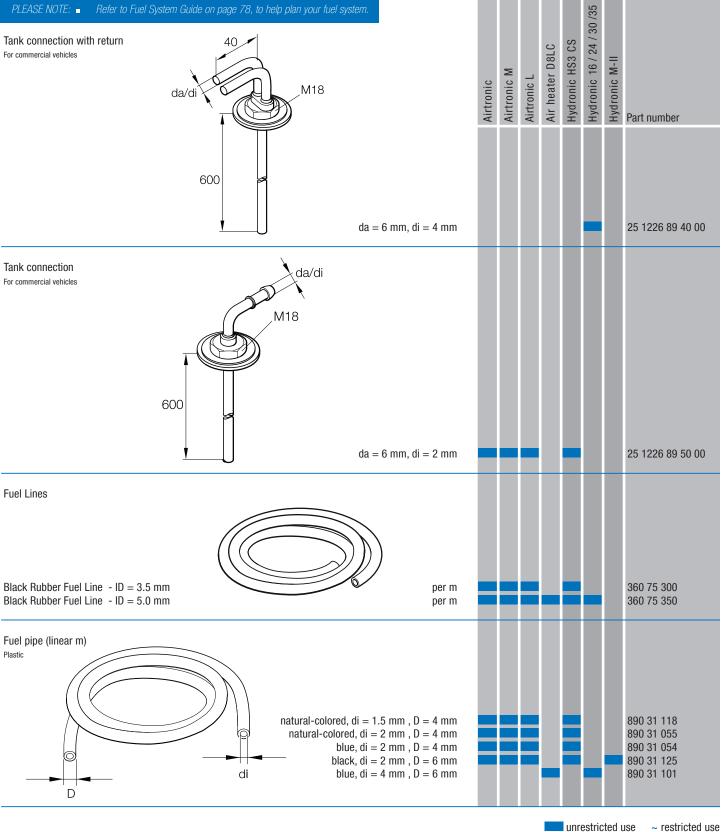


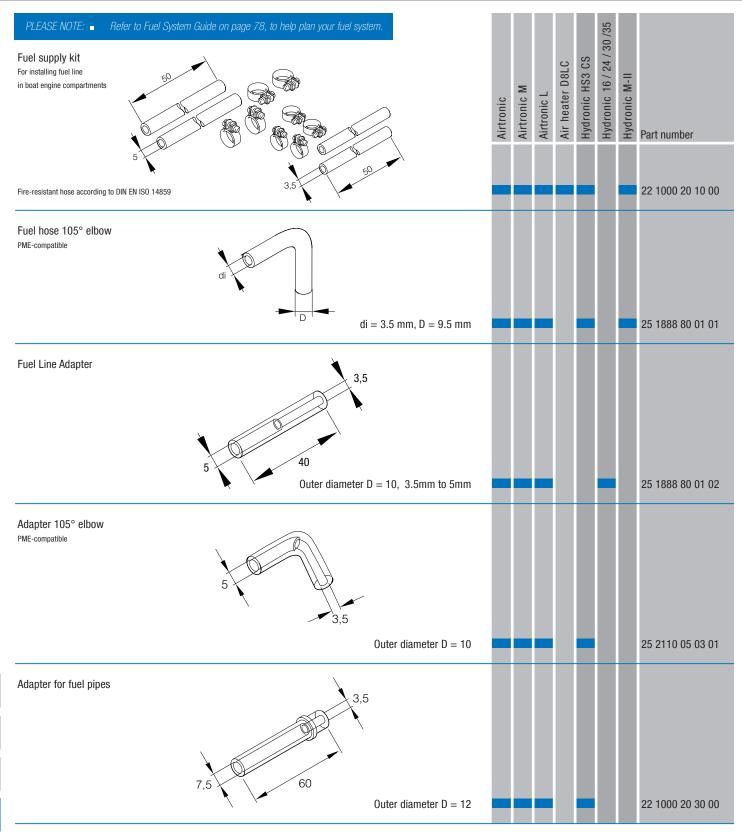
# TESTERS / ADAPTERS / SPECIAL TOOLS

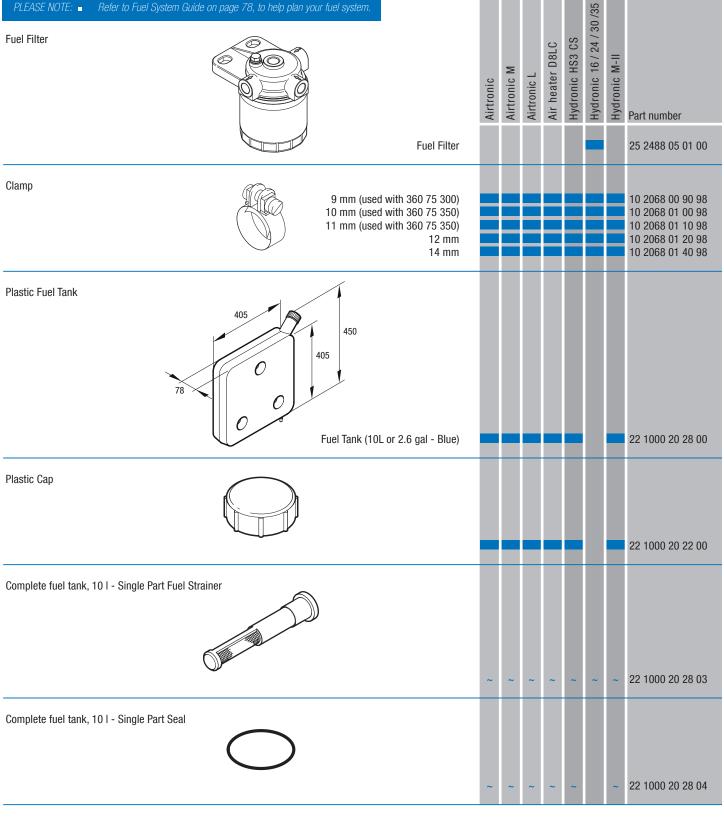


## TESTERS / ADAPTERS / SPECIAL TOOLS

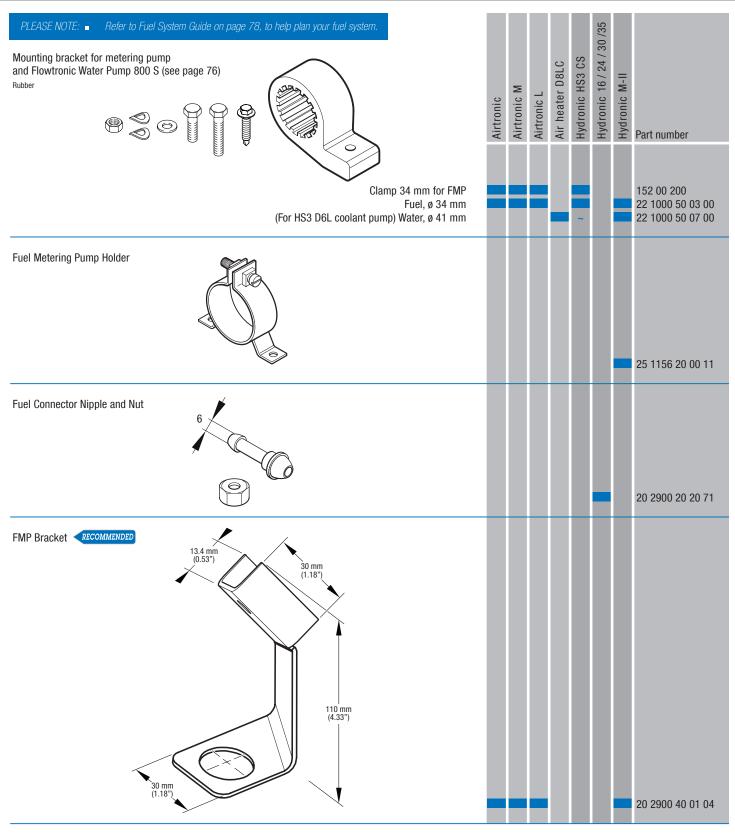








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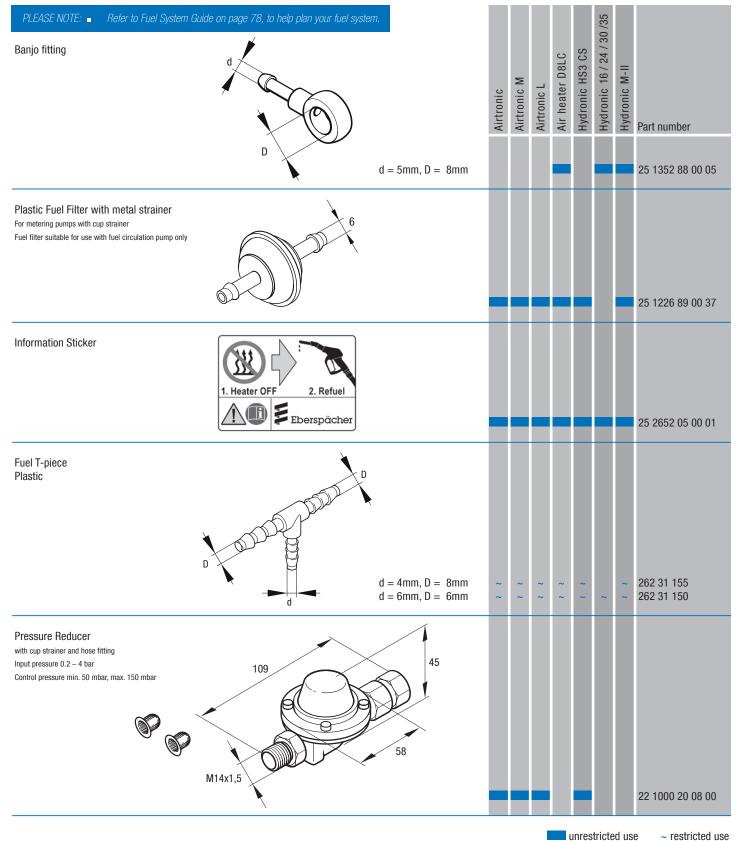


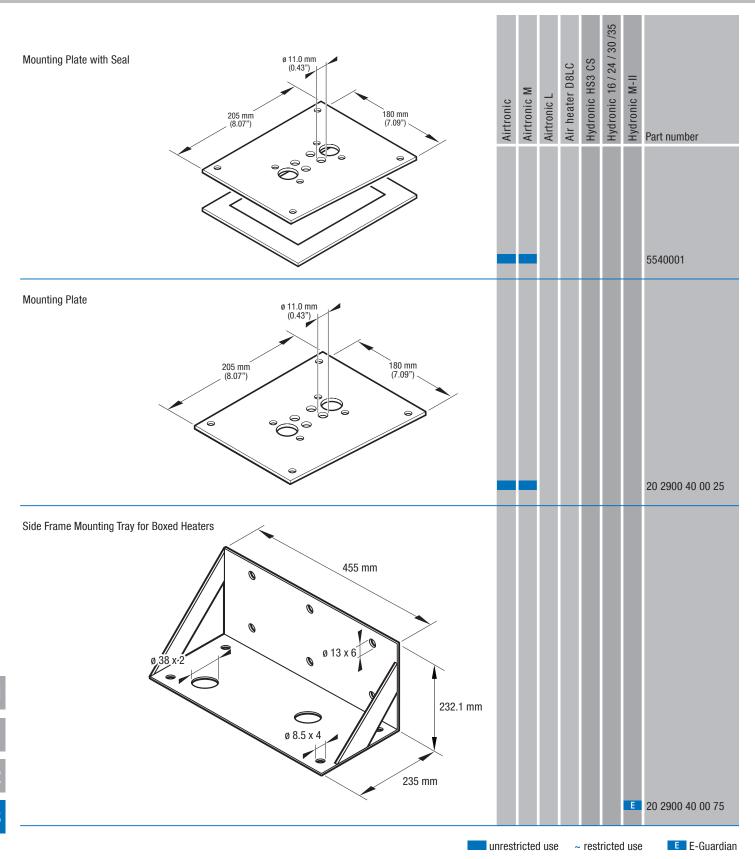
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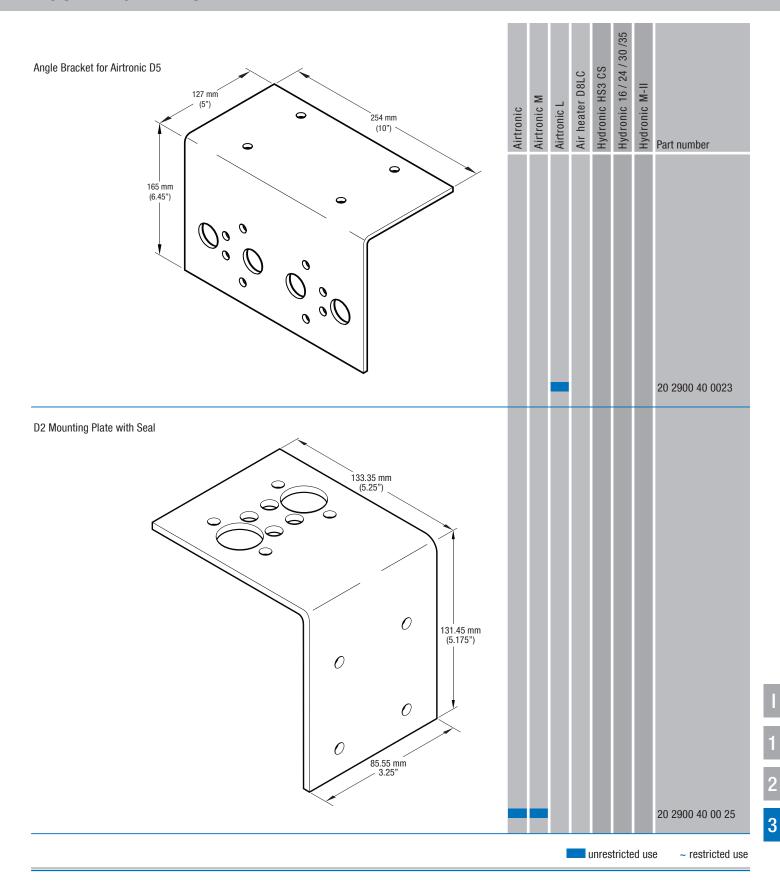
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unrestricted use





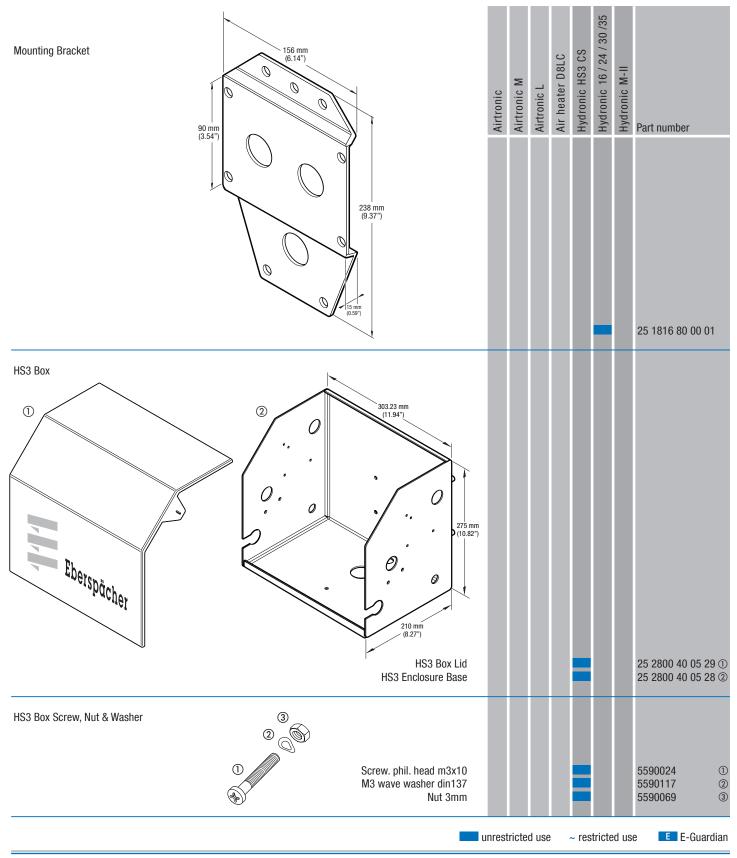
3



Mounting bracket for Hydronic S3 D5E Hydronic M-II Part number 122 mm (4.80") Airtronic M Airtronic 95 mm (3.74") 0 0 0 22 1000 51 42 00 Mounting bracket for Hydronic II D5E 0 0 0 22 1000 51 37 00 Water Pump Bracked Special screw also required: for Economy / Comfort 25 2526 80 01 01 22 1000 51 39 00

3

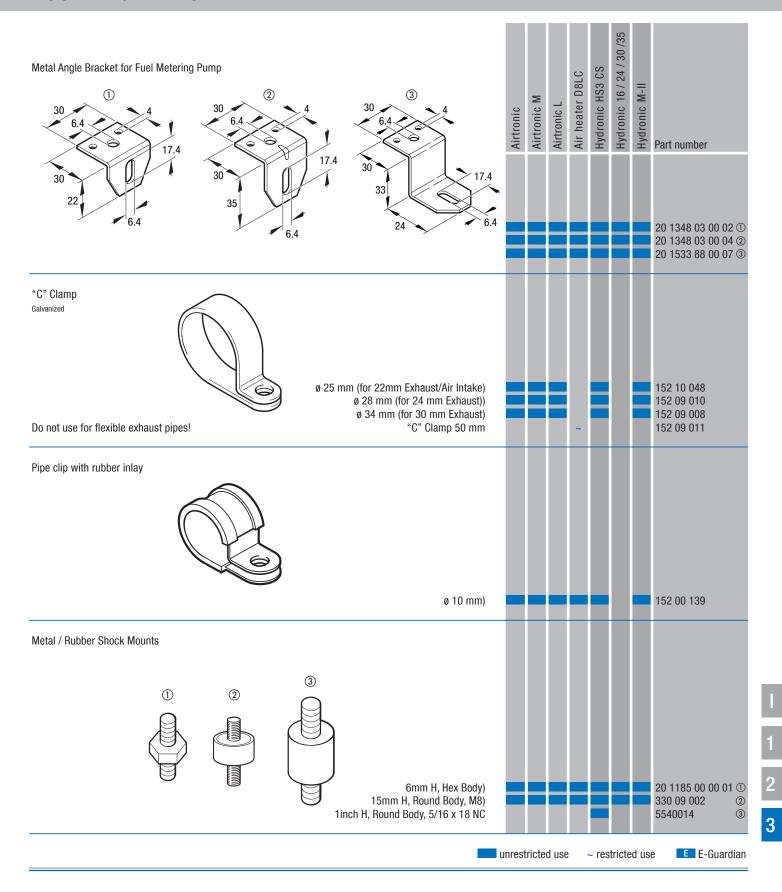
unrestricted use



Hydronic 16 / 24 / 30 /35 M-II Box Hydronic HS3 CS Air heater D8LC Airtronic M Airtronic 12.4" 2 25 2800 40 10 02 ① 25 2800 40 10 03 ② Box Base L2 Enclosure Lid 767.8 mm Desparen 331 mm (13.03)25 2800 40 10 22 M-II With Albany Lid 203 mm 483.25 mm 189.76 mm 25 2800 40 10 26 unrestricted use E E-Guardian ~ restricted use

2

3



# FUSE HOLDERS, FUSES, BREAKERS

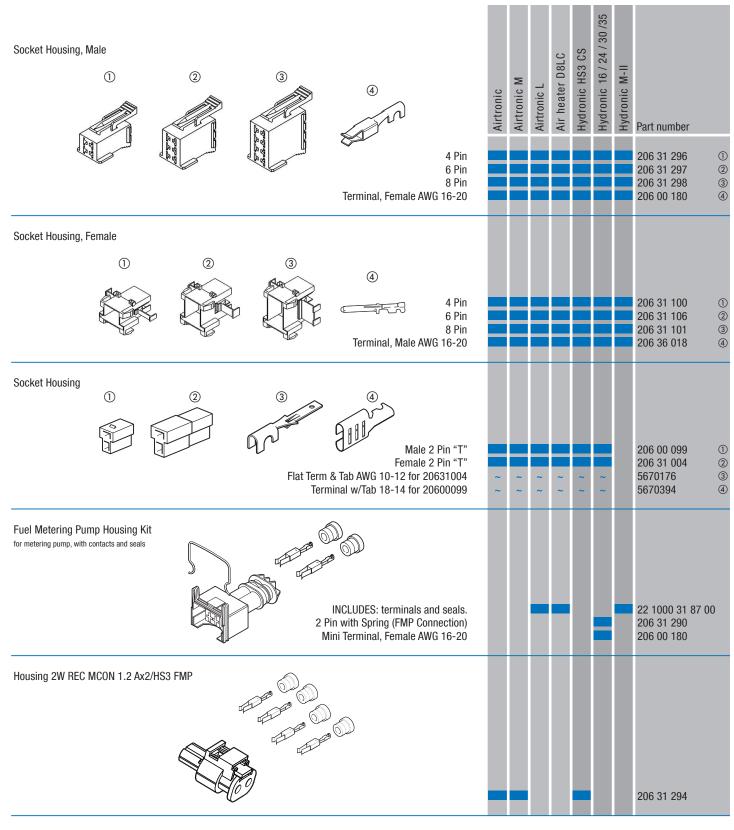
Relay		Airtronic	Airtronic M	Airtronic L	Air heater D8LC	Hydronic HS3 CS	Hydronic 16 / 24 / 30 /35	Hydronic M-II	Part number
	Changeover contact Max. current consumption 40 A - 12v 24v Inc Diode	~	~	~	~	~	~		203 00 097 203 00 066
Base Relay 5 Pin									203 00 085

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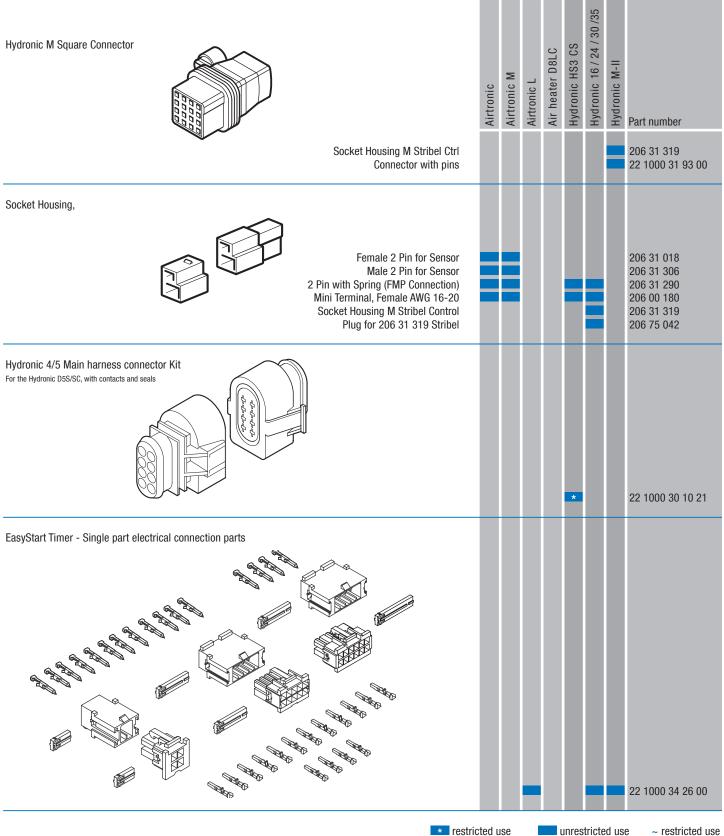
## TERMINALS AND CONNECTORS

#### TERMINALS AND CONNECTORS



unrestricted use

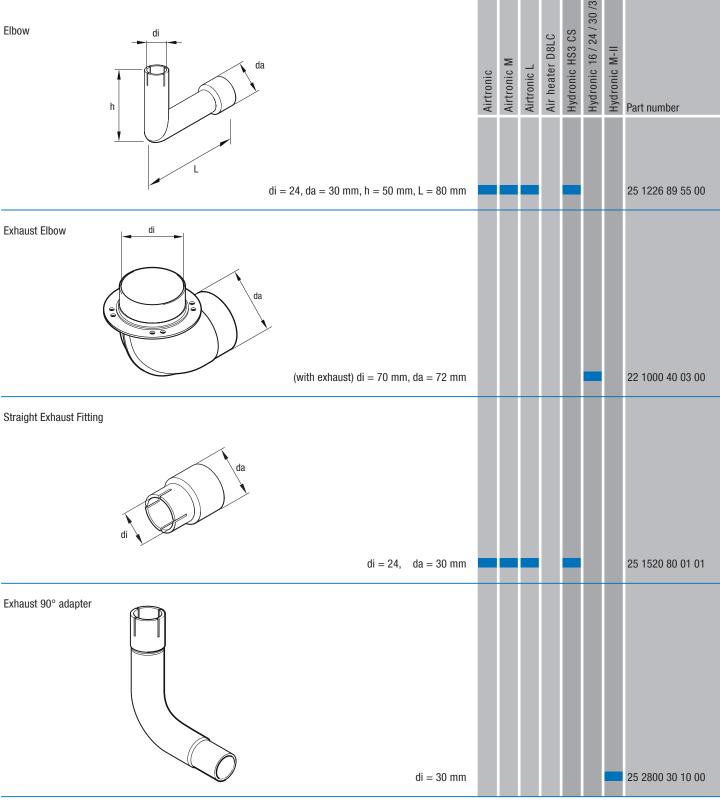
#### TERMINALS AND CONNECTORS

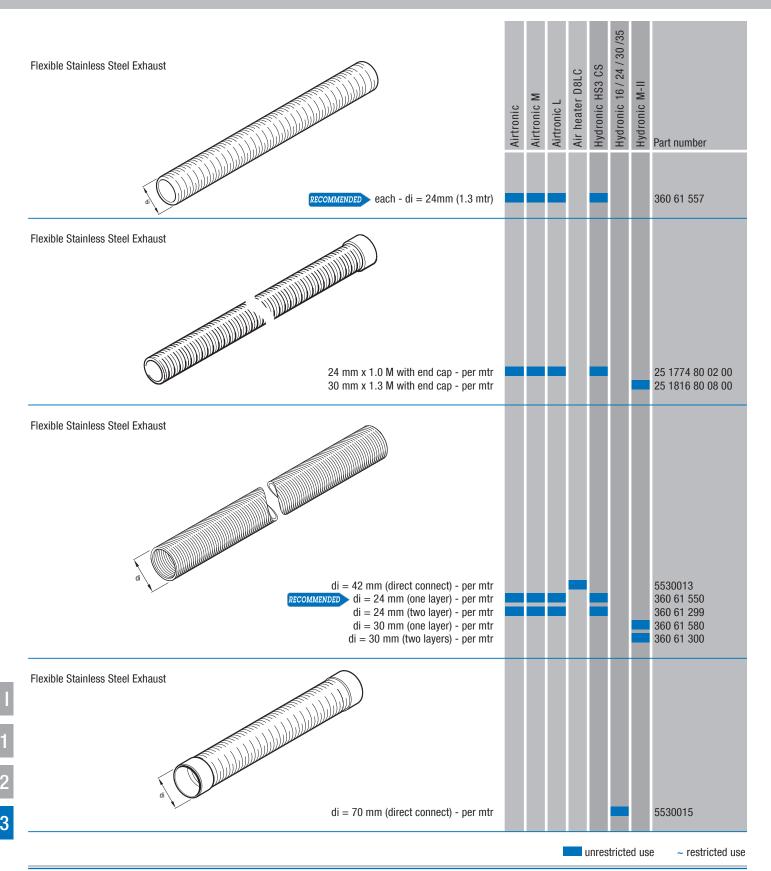


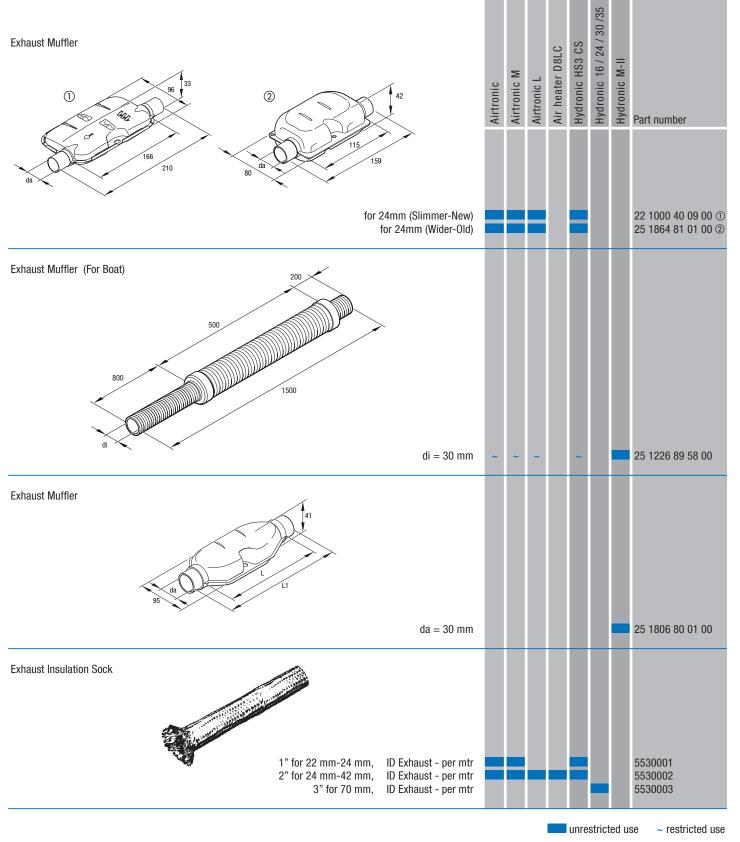
## POWER CONVERTERS 12V TO 24V

Power Converter 12 - 24 480 W 5673601



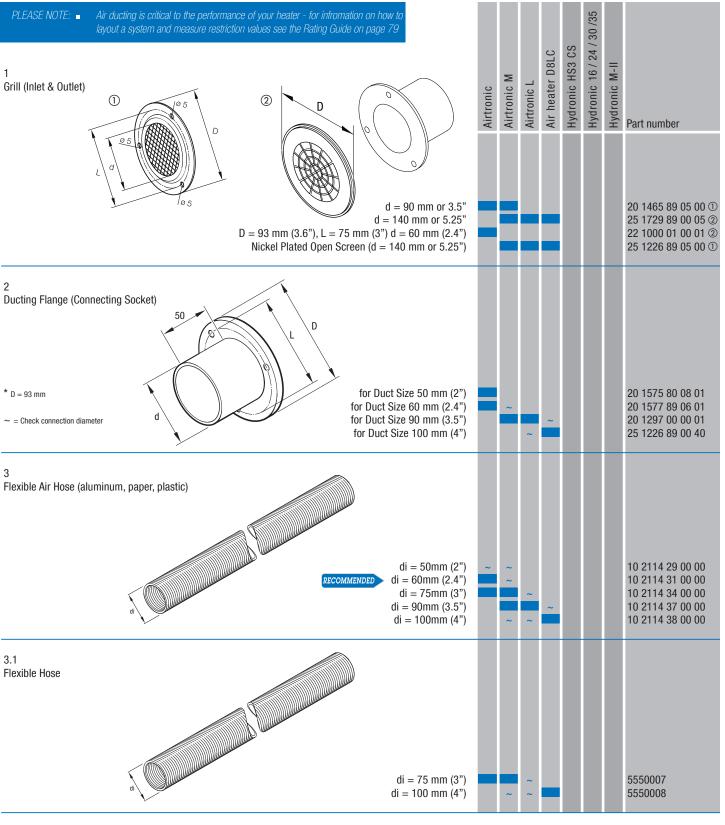


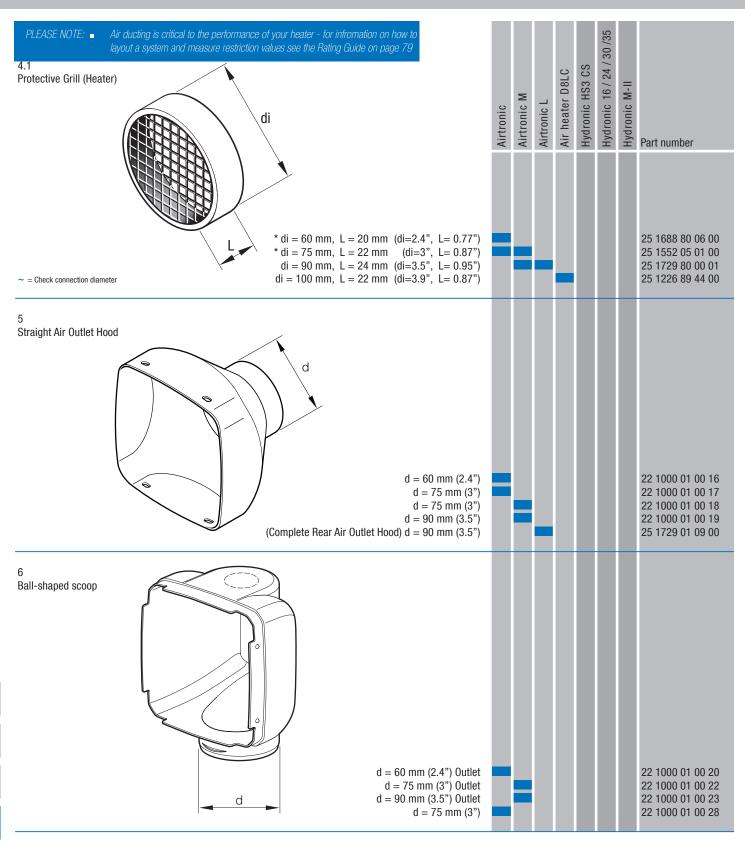




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unrestricted use

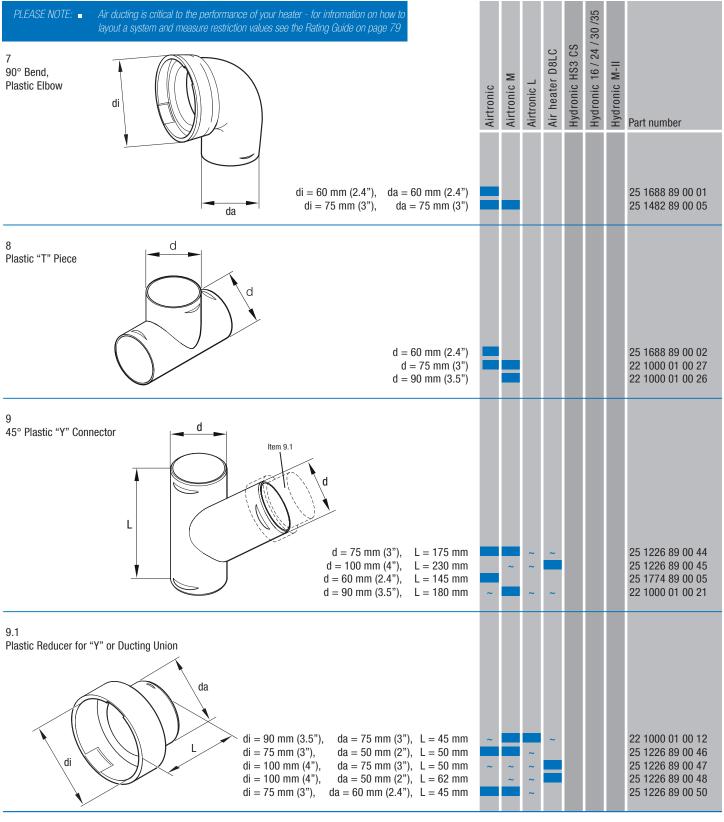


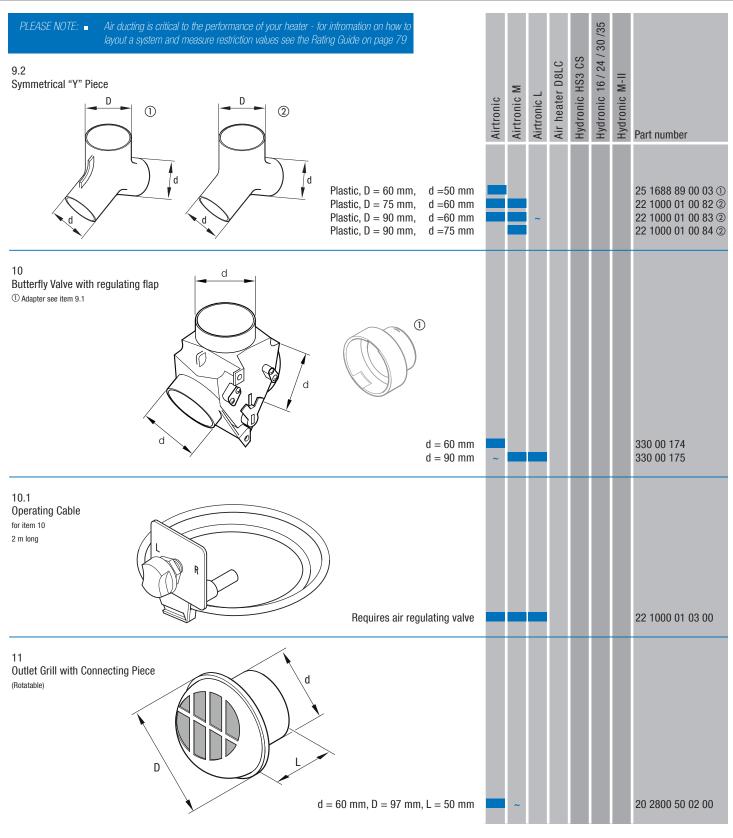


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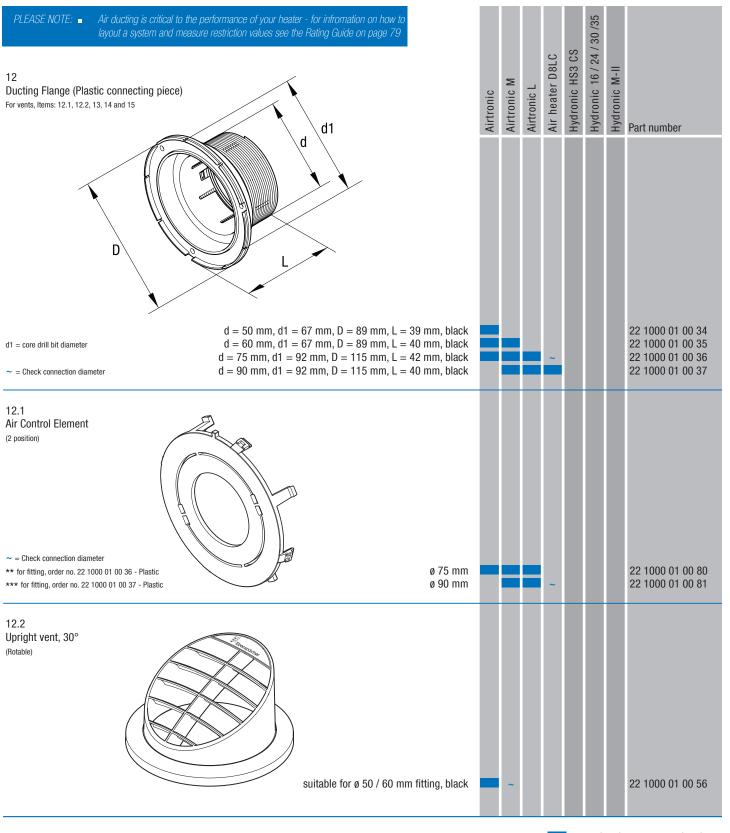
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unrestricted use



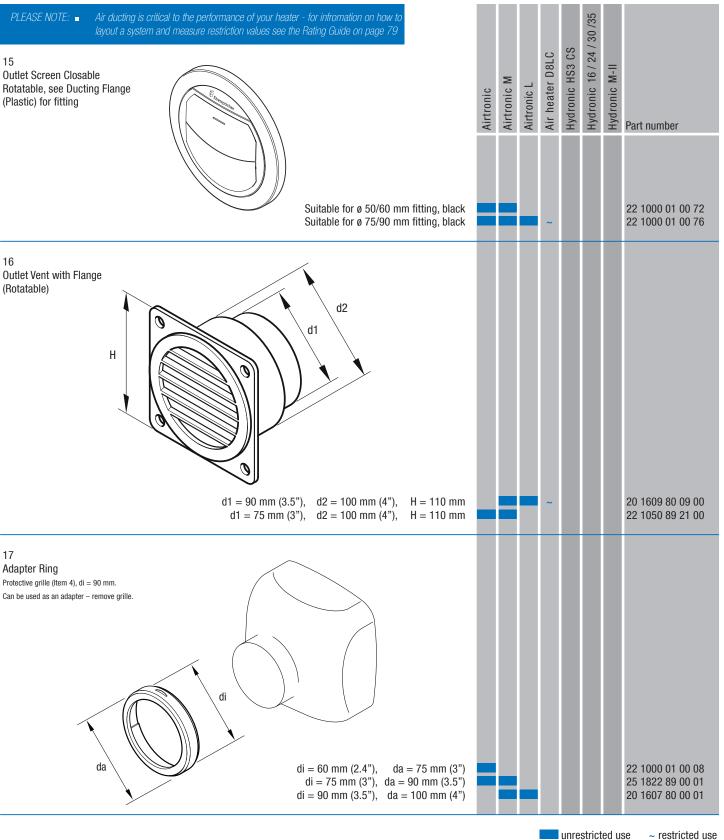


unrestricted use



unrestricted use ~ restricted use

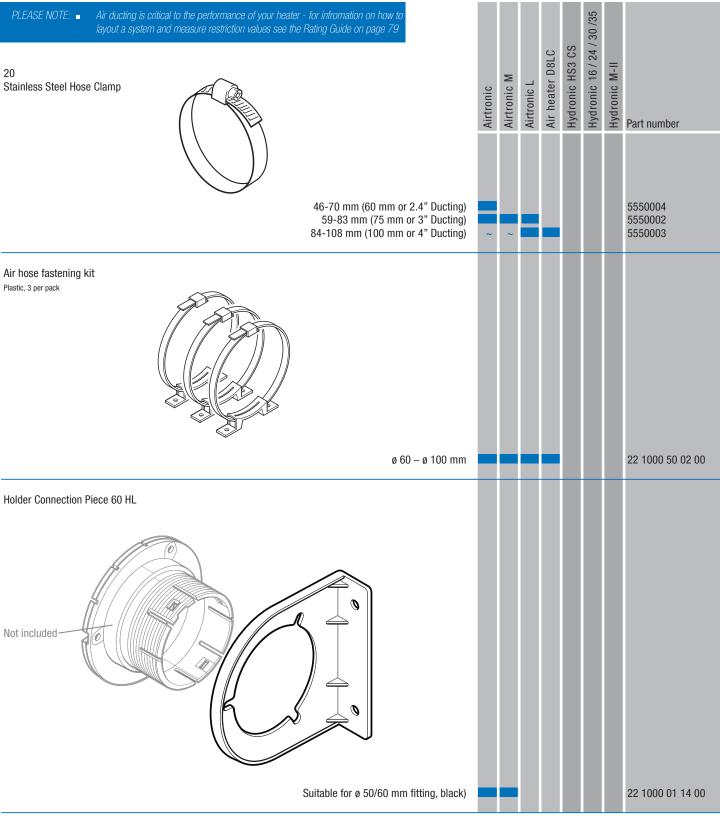
PLEASE NOTE: -Air ducting is critical to the performance of your heater - for infromation on how to layout a system and measure restriction values see the Rating Guide on page 79 Hydronic 16 / 24 / 30 /35 Hydronic HS3 CS Air heater D8LC Hydronic M-I Bart number 90° Upright Vent (Rotatable) Suitable for ø 50/60 mm fitting, black 22 1000 01 00 64 Suitable for ø 75/90 mm fitting, black 22 1000 01 00 68 30° Outlet Screen (Flat) Rotatable, see Item 4 for fitting Suitable for ø 50/60 mm fitting, black) 22 1000 01 00 44 Suitable for ø 75/90 mm fitting, black) 22 1000 01 00 52 14.1 0° Outlet Screen (Flat) (For 75/90mm flange) 22 1000 01 00 48 Suitable for 75/90 mm fitting, black)



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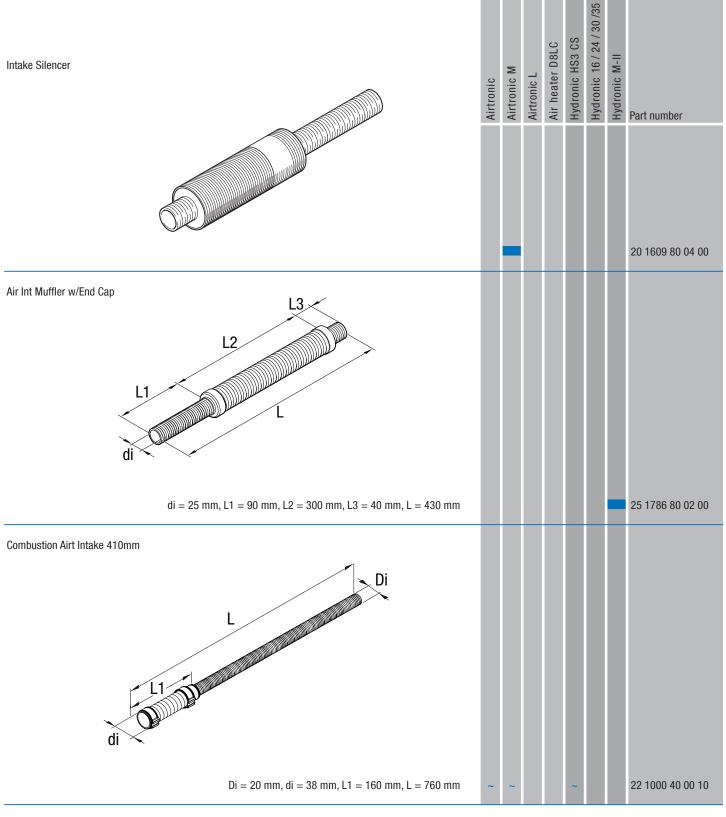
unrestricted use



unrestricted use ~ restricted use

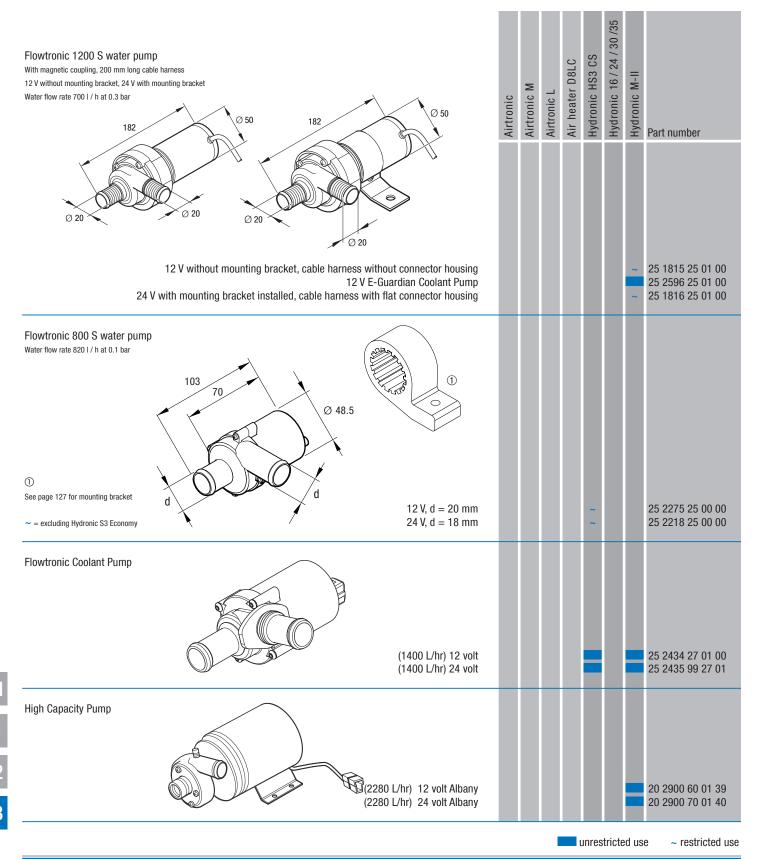
PLEASE NOTE: Air ducting is critical to the performance of your heater - for infromation on how to layout a system and measure restriction values see the Rating Guide on page 79					S	1 / 30 /35		
Air Intake Hood		Airtronic M	Airtronic L	Air heater D8LC	Hydronic HS3 CS	Hydronic 16 / 24 / 30 /35	Hydronic M-II	Part number
d = 60, mm (2.4")								22 1000 40 06 00
Combustion Air Intake Flex Hose								10 0114 05 00 00
per mtr, ID = 30 mm End Cap Hose Comb. Air - 25mm (1m) Hose - 20mm APK Comb Air (1m)								10 2114 25 00 00 25 1480 89 04 00 360 00 006 360 00 099
Plastic Air Intake End Cap with Crossbar								
di								
di = 20 mm di = 25 mm								25 1688 80 12 01 25 1729 89 00 02
Ducting Clamp								
32-50 mm 33-57 mm								10 2067 03 20 50 5550001

## INTAKE (COMBUSTION AIR)



unrestricted use ~ restricted use

#### **COOLANT PUMPS**



## **COOLANT PUMPS**

unrestricted use

## **PLUMBING**

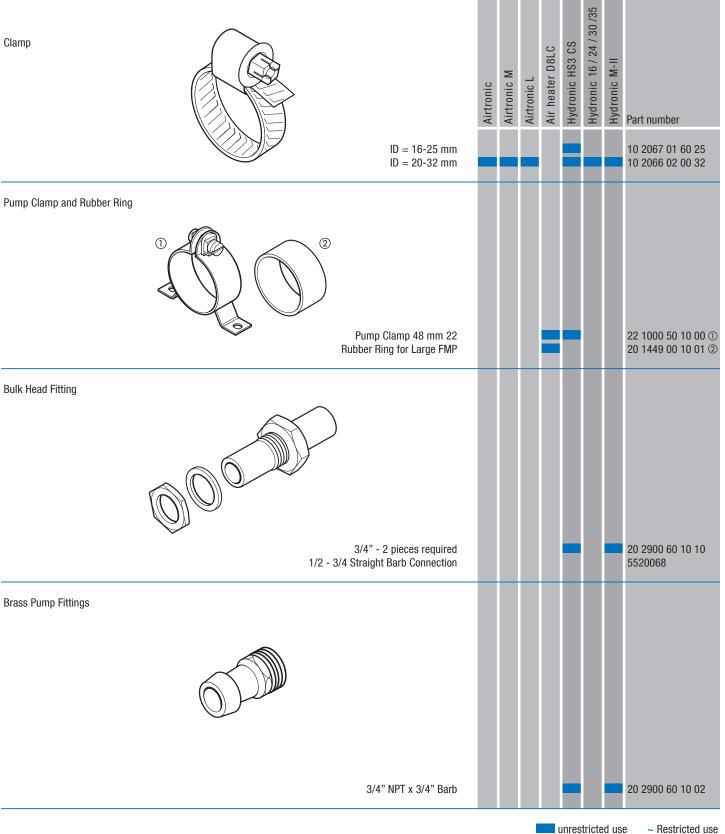
One Way Check Valve Hydronic M-III Part number Airtronic D 22 1000 10 10 00 D = 20 mm, d = 20 mm 22 1000 10 11 00 Non-Return Valve,  $D=20\,$  mm,  $d=18\,$  mm One Way Check Valve d = 20 mm22 1000 10 08 00 **Brass Water Thermostat**  $D = 18mm, d = 18mm (70^{\circ}C-75^{\circ}C) 158^{\circ}F-167^{\circ}F$ 330 00 123 Water Check Valve D = 20 mm, d = 20 mm22 1000 10 07 00

3

unrestricted use

unrestricted use

T-piece Brass	d d	Airtronic	Airtronic M	Airtronic L	Air heater D8LC	Hydronic HS3 CS	Hydronic 16 / 24 / 30 /35	Hydronic M-II	Part number
~ = Check connection diameter	D = 18 mm, d = 15 mm, L = 60 mm D = 20 mm, d = 20 mm, L = 75 mm					~		~	25 1214 89 16 00 20 1673 80 11 00
Connection Pipe	Brass, d = 18 mm, L = 55 mm Plastic, d = 20 mm, L = 60 mm					~	~		20 1528 88 00 03 22 1000 10 01 03
	Brass, d = 22 mm, L = 55 mm					~	~		20 1645 89 00 07
Brass Reducer	D = 20 mm, d = 18 mm								20 1645 89 00 06
Plastic Reducer	D = 20 mm, d = 18 mm, L = 60 mm								22 1000 10 01 04



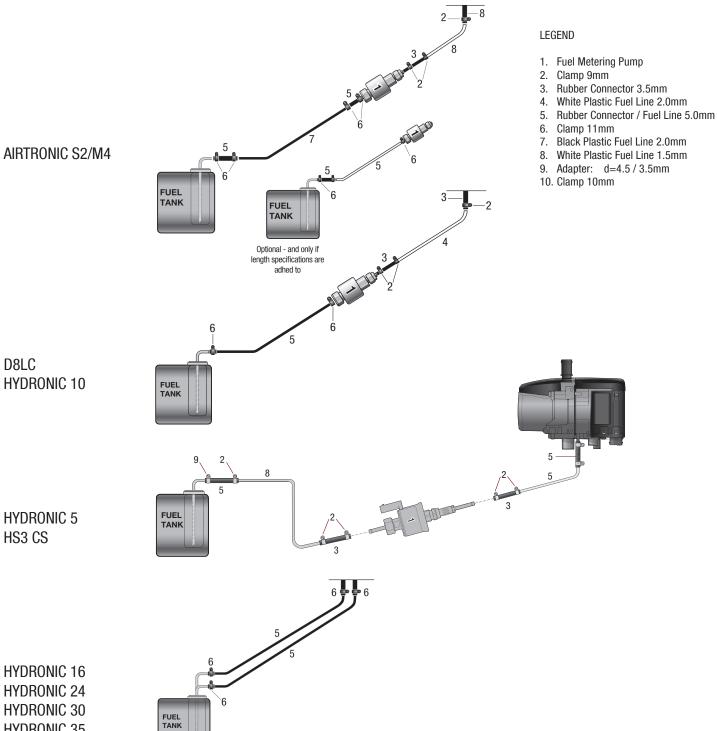
~ Restricted use

# NOTES:

#### FUEL SYSTEM GUIDE

This guide is to help in selecting which size fuel line, rubber hose and clamps are required for a specific heating system. Refer to the Fuel System section of this manual for specific part numbers.

Cross-reference this information with the corresponding heater manual for maximum height and length specifications.



**HYDRONIC 35** 

#### DUCTING RATING GUIDE

#### GENERAL TIPS ON HEATING AIR DUCTING AND COMPONENT RATINGS

A heater has the biggest heating air throughput when it can operate with the air blowing freely. Heating air ducting components reduce the throughput. To enable you to check whether or not the installation you plan reduces the air throughput to an inadmissable degree, we have calculated a heater rating for each heater and a component rating for each heating air ducting component:

0 = no temperature increase

- = no component rating

The sum of component ratings for the heating air ducting components must not exceed the heater rating, otherwise the outlet temperature will become too high and trigger the safety cutout switch. If the sum of the component ratings exceeds the heater rating, it can be reduced by selecting a larger diameter for the air ducting parts.

#### **RULE OF THUMB:**

1-DUCT MEANS:

Double the cross-section or two identical components running parallel = 1/4 of the rating. Example:

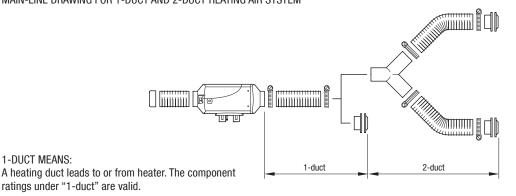
50 diameter hose

A = 19.6 cm2, R rating 1.0

The component rating of smooth welded pipes is only half that of flexible pipe of equal diameter (e.g. double the pipe length).

75 diameter hose A = 44.2 cm2, R rating 0.25

MAIN-LINE DRAWING FOR 1-DUCT AND 2-DUCT HEATING AIR SYSTEM



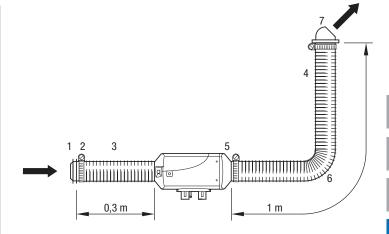
#### 2-duct means:

The heating air line branches into two ducts after the heater. Up to the branch the component ratings under "1-duct" are valid, after the branch they fall under "2-duct". If an adjustable outlet is used in the 2-duct heating system, one duct must be unclosable.

Note: When determining the sum of the component ratings, do not take the closable duct into consideration.

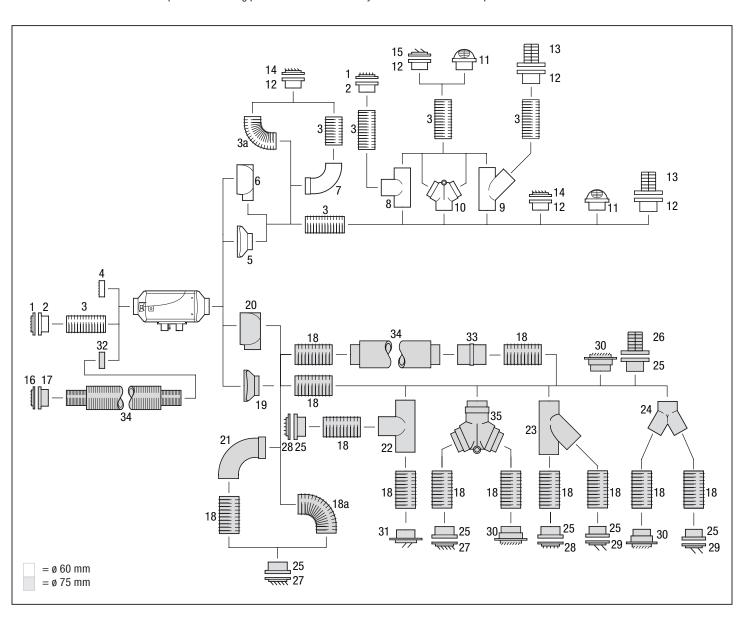
#### EXAMPLE OF HEATING AIR DUCTING FOR AIRTRONIC D2 Heater Rating = 6

ITEM	DESIGNATION	COMPONENT RATING
1	Protective grille	0.5
2	Connection piece 60mm dia.	0
3	Flex. pipe, 60mm dia. 0.3m long	0.3
4	Flex. pipe, 60mm dia, 1.0m long	1.0
5	Reduction hood 60mm straight	0
6	1 x 90° bends of flex. pipe	0.2
7	Swivel outlet	3.2
	Total Component Rating	5.2



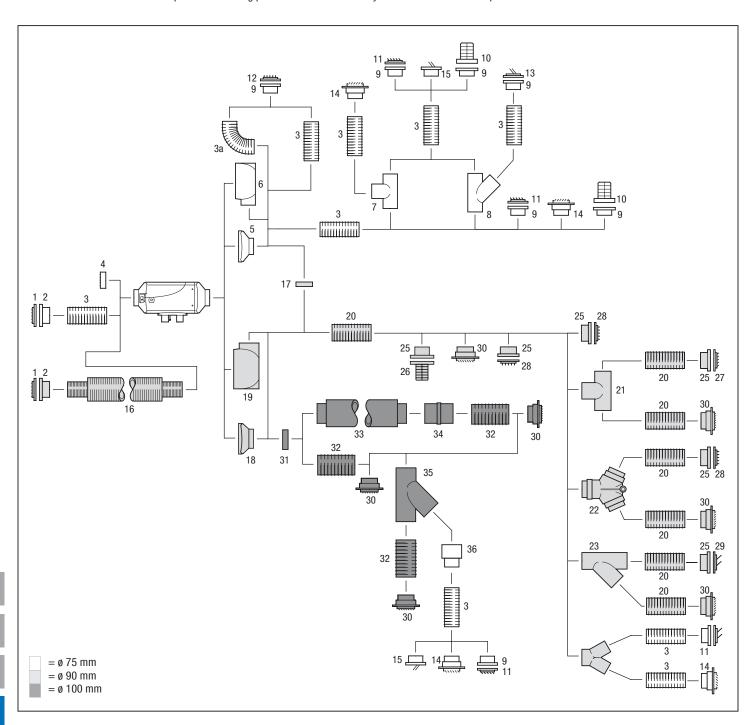
Rating sum = 5.2 and does not exceed the heater rating of 6. The installation is permissable.

Heater Rating 6 - applies with a 60mm dia. outlet hood. Heater Rating 12 - applies with a 75mm dia. outlet hood.



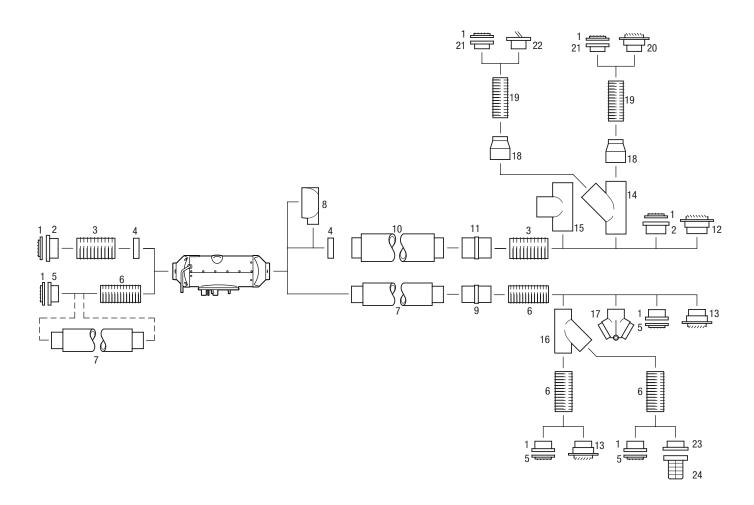
	DESIGNATION (measurements in millimeters)		COMPONENT / DUCT RATING	
	AIRTRONIC D2 WITH REDUCTION HOOD 60 DIA. (HEATER RATING 6)	Single duct	Multi duct	(See page 59)
1	Grille (Inlet & Outlet) ø 60	0.4	0.1	1
2	Connecting socket, ø 60	0	0	2
3	Flexible pipe, ø 60 (per metre)	1	0.25	3
3a	90° Bend, flexible pipe, ø 60	0.2	-	3
4	Protective grille - Heater ø 60	0	-	4.1
5	Reduction hood, (Straight) ø 60	0	0	5
6	Reduction hood, (Spherical, 90°) ø 60	4.8	-	6
7	90° Bend, plastic elbow, ø 60	4	-	7
8	T-piece, ø 60 x ø 60 x ø 60	1.4	0.25	8
9	Y-piece, 45°, ø 60 x ø 60 x ø 60	-	1	9
10	Butterfly valve with regulating flap, ø 60 x ø 60 x ø 60 (Position "right/left")	-	0.6	10
11	Outlet grill with connecting piece (rotatable) ø 60	3.2	0.8	11
12	Ducting flange (plastic connecting piece) ø 60	0	0	12
13	Up right vent 90° (rotatable) ø 60	0.8	0.15	13
14	Outlet screen (flat) 30° (rotatable) ø 60	0.5	0.15	14
15	Outlet screen (closeable, rotatable) ø 60	-	-	15
	AIRTRONIC D2 HEATING AIR DUCTING WITH REDUCTION HOOD, Ø 75 (HEATER RATING 12)			
16	Grille (Inlet & Outlet) ø 75	0.4	0.1	1
17	Connecting socket, ø 75	0	0	2
18	Flexible pipe, ø 75 (per metre)	1	0.25	3
18a	90° Bend, flexible pipe, ø 75	1.2	-	3a
19	Reduction hood, (Straight) ø 75	0	0	5
20	Reduction hood, (Spherical 90°) ø 75	6	-	6
21	90° Bend, plastic elbow, ø 75	4.5	-	7
22	T-piece, ø 75 x ø 75 x ø 75	-	0.8	8
23	Y-piece, 45°, ø 75 x ø 75 x ø 75	-	0.6	9
24	Y-piece, Symmetrical, ø 75 x ø 60 x ø 60	-	0.8	9.2
25	Ducting flange (plastic connecting piece) ø 75	0	0	12
26	Up right vent 90° (rotatable) ø 75	0.8	0.15	13
27	Outlet screen (flat) 30° (rotatable) ø 75	0.5	0.15	14
28	Outlet screen (flat) 0° (rotatable) ø 75	0.5	0.15	14.1
29	Outlet screen (closeable, rotatable) ø 75	-	-	15
30	Outlet vent with flange (rotatable) ø 75 - ø 100	0.6	0.2	16
31	French vent with flange (closeable) ø 75	-	-	-
32	Adaptor ring (ø 60 to ø 75)	-	-	17
33	Ducting union (straight connector) ø 75	0.5	0.1	18
34	Air silencer (inlet and outlet) ø 75	0.7	-	19
35	Butterfly valve with regulating flap, ø 75 x ø 75 x ø 75 (Position "middle / right, left")	-	1.2 / 0.6	10

Heater Rating 3 - applies with a 75mm dia. outlet hood. Heater Rating 10 - applies with a 90mm dia. outlet hood.



	DESIGNATION (measurements in millimeters)	COMPONENT / DUCT RATING				PARTS LIST NUMBER
	AIRTRONIC D4 HEATING AIR DUCTING WITH REDUCTION HOOD 75 DIA. (HEATER RATING 3)	Sin ø 75	gle duct   ø 90	Multi ø 75	duct ø 90	(See page 59)
1	Grille, (inlet & outlet), ø 75	0.4		0.1		1
2	Connecting socket, ø 75	0	-	0	-	2
3	Flexible pipe, ø 75 (per metre)	1	-	0.25	-	3
3a	90° Bend, flexible pipe, ø 75	0.2	-	0	-	3
4	Protective grille - heater, ø 75	2.0	-	-	-	4.1
5	Reduction hood, (Streight) ø 75	0	-	-	-	5
6	Reduction hood, (Spherical, 90°) ø 75	2.0	-	-	-	6
7	T-piece, ø 75 x ø 75 x ø 75	-	-	0.5	-	8
8	Y-piece, 45°, ø 75 x ø 75 x ø 75	-	-	0.6	-	9
9	Ducting flange (connecting piece) ø 75	0	-	0	-	12
10	Up right vent 90° (rotatable) ø 75	1.1	-	0.3	-	13
11	Outlet screen (flat, 30°, rotatable) ø 75	0.3	-	0.1	-	14
12	Outlet screen (flat, 0°, rotatable) ø 75	0.3	-	0.1	-	14.1
13	Outlet screen (closable, rotatable) ø 75	-	-	-	-	15
14	Outlet vent with flange (rotatable) ø 75 - ø 100	0.8	-	-	-	16
15	French vent with flange (closable) ø 75	-	-	-	-	-
16	Air silencer ø 75	0.8	-	-	-	19
17	Adapter ring (ø 75 x ø 90)	0.5	-	-	-	17
	AIRTRONIC D4 WITH REDUCTION HOOD, Ø 90 (HEATER RATING 10)					
18	Reduction hood (straight) ø 90	0	-	-	-	5
19	Reduction hood (spherical 90°) ø 90	-	5.0	-	-	6
20	Flexible pipe, ø 90 (per metre)	-	1	-	2.5	3
21	T-piece, Ø 90 x Ø 90 x Ø 90	-	0	-	-	8
22	Butterfly valve with regulating flap, ø 90 x ø 90 x ø 90 (Position "middle / right, left")	-	1.2 / 1.4	-	-	10
23	Y-piece, 45°, ø 90 x ø 90 x ø 90	-	-	-	-	9
24	Y-piece, Symmetrical, ø 90 x ø 75 x ø 75	-	-	-	0.9	9.1
25	Ducting flange (plastic connecting piece) ø 90	-	2.2	-	0.5	12
26	Up right vent 90° (rotatable) ø 90	-	2.4	-	0.6	13
27	Outlet screen (flat) 30° (rotatable) ø 90	-	2.0	-	0.4	14
28	Outlet screen (flat) 0° (rotatable) ø 90	-	1.1	-	0.3	14.1
29	Outlet screen (closable and rotable) ø 90	-	-	-	-	15
30	Outlet vent with flange (rotatable) ø 90 - ø 100	-	2.2	-	0.5	16
31	Adapter ring (ø 90 to ø 100)	-	0	-	-	17
32	Flexible pipe, ø 100 (per metre)	-	0.4	-	-	3
33	Air silencer (inlet and outlet) ø 100	-	0.5	-	-	19
34	Ducting union (connecter) ø 100	-	0.1	-	0.3	18
35	Y-piece, 45° (ø 100 x ø 100 x ø 100)	-	-	-	0.5	9
36	Plastic reducer (for 4-piece & ducting union) (ø 100 to ø 75)	-	3.2	-	0.8	17

#### Heater Rating 10

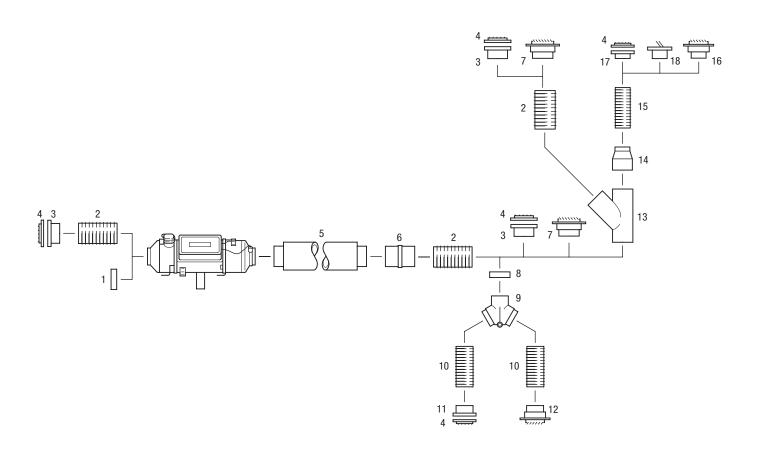


	DESIGNATION (measurements in millimeters)		COMPONENT RATING 1-duct 2-duct		
	Heating air ducting with reduction hood 90 dia. (heater rating 10)	Single duct	Multi duct	(See page 59)	
1	Grille	0.6	0.2	1	
2	Connecting socket, metal, 100 dia.	0	0	2	
3	Flexible pipe, 100 dia. per m	0.6	0.2	3.1	
	Bend, 90° of flexible pipe, 100 dia.	0.6	-	3	
4	Grille, 90x100 dia.*	0	-	4	
5	Connector piece, 90 dia.	0	0	2	
6	Flexible pipe, 90 dia. per m	1.0	0.25	3	
	Bend, 90° of flexible pipe, 90 dia.	0.2	-	3	
7	Silencer, 90 dia.	0.8	-	19	
8	Spherical reduction hood, 90 dia.	8	-	6	
9	Connector, 90 dia.	0.5	0.1	18	
10	Silencer, 100 dia.	0.5	-	19	
11	Connector, 100 dia.	0.4	0.1	18	
12	Outlet grill (rotatable) 100 dia.	2	0.5	16	
13	Outlet grill (rotatable) 90 dia.	2	0.5	16	
14	Y-piece 100x100x100 dia.	-	0.5		
15	T-piece 100x100x100 dia.	-	0.5		
16	Y-piece 90x90x90 dia.	-	0.6	9	
	Regulating valve 90x90x90 dia.			10	
17	Position "middle"	-	1.1		
	Position "right/left"	1	-		
18	Reduction piece, 100 dia 75 dia.	3.2	-	17	
19	Flexible pipe, 75 dia. per m	4	1	3	
	Bend, 90°- of flexible pipe, 75 dia.	-	0.5	3	
20	Outlet grill (rotatable) 75 dia.	-	1.25	16	
21	Connecting socket, metal, 75 dia.	0	0	12	
22	Round outlet, 75 dia., closing	-	-	14	
23	Connector, 90 dia.	0	0	12	
24	Outlet grill	3	0.8	13	

<sup>\*</sup> Pos. 4 - if used as adapter 90 x 100 dia., cut out the mesh.

# **DUCTING RATING GUIDE FOR D8LC**

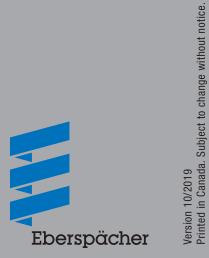
#### Heater Rating 8



# DUCTING RATING GUIDE FOR D8LC

	DESIGNATION (measurements in millimeters)		COMPONENT RATING 1-duct   2-duct		
	Heating air ducting with reduction hood 90 dia. (heater rating 10)	Single duct	Multi Duct	(See page 59)	
1	Grille, 100 dia.	0.1	-	1	
2	Flexible pipe, 100 dia., per m	1.0	0.251	3.1	
-	Pipe bend, 90°, of flex. pipe, 100 dia.	0.5	0.15	3	
3	Connecting socket, metal, 100 dia.	0	0	2	
4	Grille, painted, 100 dia.	1.8	0.1	1	
_	Grille, nickel-plated, 100 dia.	1.8	0.1		
5	Silencer, 100 dia.	1.1	0.25	19	
6	Connector socket, 100 dia.	0.5	0.1	18	
7	Outlet grill (rotatable), 100 dia.	5.5	1.2	16	
8	Grille, 90x100 dia.*	0	-	1	
9	Regulating valve 100x100x100 dia.	-	2.6	10	
10	Flexible pipe, 90 dia., per m	3	0.8	3	
11	Connecting socket, metal, 90 dia.	0	0	12	
12	Outlet grill (rotatable) 90 dia.	-	1.4	13	
13	Y-pipe 100x100x100 dia.	-	0.4	9	
14	Reduction piece, 100 dia 74 dia.	6.1	-	9.1	
15	Flexible pipe 75 dia. per m	-	2	3	
	Pipe bend, 90° of flex. pipe, 75 dia.	-	1.1	3	
16	Outlet grill (rotatable) 75 dia.	-	-	13	
17	Connector socket, 75 dia.	0	0	12	
18	Connecting socket, metal, 75 dia.	-	-	2	

<sup>\*</sup>Pos. 8 - if used as adapter 90x100 dia., cut out the mesh.





**Eberspaecher Climate Control Systems** 

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