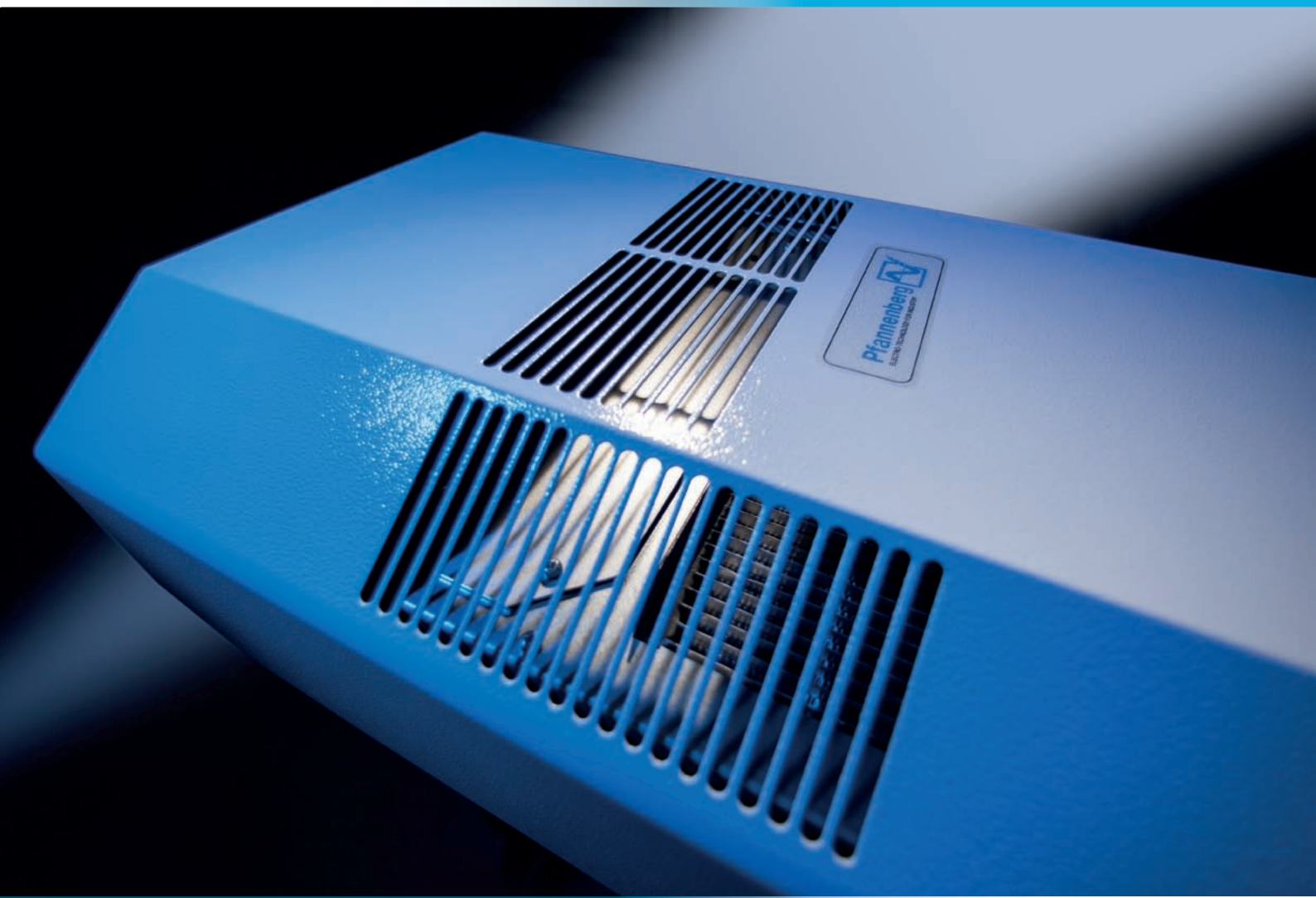
Thermal management of electrical enclosures

Cooling units · Air/water heat exchangers · Chillers
Air/air heat exchangers · Filterfans · Heaters, thermostats and hygrostats

Main catalogue · Edition 13



SHARING COMPETENCE

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

Safety for man, machine and the environment

Thermal management and process cooling of electrical enclosures

Pfannenberg is one of the few companies in the world which develops and manufactures the whole range of industrial thermal management products. Thus, we supply everything “from one hand”. Together with our sales associates and subsidiary companies we are your qualified, competent and flexible partners.

Your ideas are constantly used for product development and we define milestones over and over again for user-friendly products. We have development departments in Germany, Italy, and the USA and since the beginning of 2010, also in China, which makes us one of the leading companies in the area of implementation of market demands.

The efficient use of resources, i.e. energy consumption is a topic our end-users are focusing on more and more. We make our contribution by means of energy-efficient equipment.
Utilize or competencies and contact us. By means of our Global Services we are not only in a position to help you with your customer-specific development, but we are also in the position to accompany you with our products on a global level.

Thank you for your trust!

Yours,

Andreas Pfannenberg
CEO

SHARING COMPETENCE

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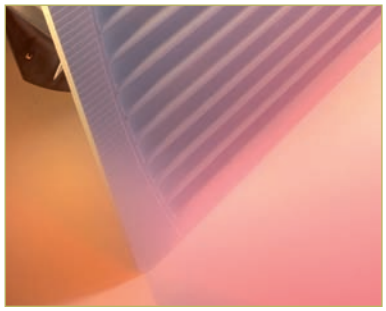
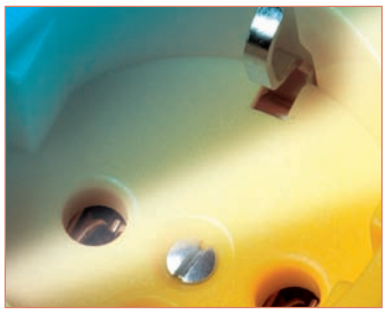




Why reliable cooling units are so important for your electrical enclosure

A Pfannenberg cooling unit for your electrical enclosure is much more than just an accessory. In fact, it is basically the backbone of your entire production process because trouble-free production is only guaranteed if the sensitive climate inside your electrical enclosures is maintained.

Even the slightest overheating of the electronic controller units can result in serious consequences such as long standstills, delivery problems or total breakdown. Therefore, we not only take into account the demands placed on your equipment, but on the cooling unit as well.

As an example, how large are the fluctuations in the ambient temperature? Is the control cabinet placement in an environment where the air is full of dust or oil? Is the equipment to be cooled exposed to the weather, i.e. moisture and sunshine? How large are the designated dimensions of the required cooling units?

Once these questions have been clarified completely, Pfannenberg supplies you with highly efficient air conditioning solutions that guarantee the highest degree of safety and energy efficiency.

Air/water heat exchanger
from the Pfannenberg PWS series

Cooling unit
from the Pfannenberg DTI series

Why you should choose air conditioning products from Pfannenberg

Whereas as most of our competitors offer only ‘off the shelf’ products, we additionally offer customised solutions.

This means that our units or unit combinations are precisely tailored to your needs, i.e. neither over nor under-dimensioned and, therefore, always particularly energy-efficient. This is an aspect that is playing an ever larger part in climate control considerations.

In choosing Pfannenberg products, you additionally benefit from high quality, robustness and precision, as well as simple mounting and service friendliness. Many of our products, such as our patented filterfan, can even be mounted and serviced without tools.

As you can see, many reasons speak in favour of Pfannenberg. Let us know your requirements; we will then supply you with an individual solution at a fair price without delay.

Side mounted cooling units
from the Pfannenberg DTS series

Determine the correct air conditioning products

When can Filterfans be used?

If the ambient temperature is always lower than the temperature required in the electrical enclosure, then filterfans represent an economical solution for thermal management of electrical enclosures.

Important for the use of Filterfans:

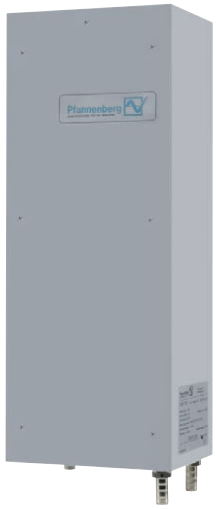
Use filterfans to force the surrounding air into the electrical enclosure, so that a slight overpressure builds up inside the enclosure. The surrounding air enters the electrical cabinet exclusively via the filterfan, which ensures that it is filtered.
Install the filterfan in the lower third of the electrical enclosure and the exhaust filter as close to the top as possible. This assists the natural convection of the air and avoids hot spots within the enclosure.

When are cooling units necessary?

- if cooling cannot be accomplished by the outside air
- if the temperature required inside the electrical cabinet should be equal to or lower than the ambient temperature
- if the ambient air is strongly contaminated with oil or conductive dusts

Important for the use of cooling units:

- ensure a good supply of air intake and outtake from the external circuit of the cooling unit, so that thermal energy can be transferred to the surroundings
- the lowest temperature inside the enclosure may not necessarily be the best. The 35 °C preset by Pfannenberg represents a good compromise between service life and the accumulation of condensation.



When must air/water heat exchangers be used?

- if the thermal energy may not be dispersed to the surroundings
- if aggressive ambient air restricts the use of conventional cooling units
- if a very high IP class is required (up to IP 65)
- if a maintenance-free cooling unit is required

PSS Climatisation – Pfannenberg Sizing Software for the thermal management of electronic enclosures

PSS Climatisation, a new JAVA based software package will help you size filterfans, cooling units, air/water heat exchangers and heaters for your electronic enclosures. The software accounts for both indoor and outdoor applications and can assist you in calculating the heat dissipation within your enclosure, component by component.

Please go to http://pss.pfannenberg.com to download the software.

Combined use as a system solution

Air/water heat exchangers and Chillers

The combination of air/water heat exchangers and chillers offers an ideal system solution for the cooling of your processes, machines and controllers. All cooling tasks in a system or machine and also on a control cabinet can be taken care of simply and economically via a closed pipeline system.

- through the highly economical supply of water as the cooling medium for the air conditioning of control cabinets with air/water heat exchangers
- and 100% independence from the ambient temperature at the installation location

Filterfans and Thermostats

With a combination of filterfans and thermostats you can additionally achieve energy savings, material and time plus a significantly longer service life. This results in an optimised environmental balance as well as greater reliability of your production process:

- through reduced energy consumption and improvement of the filterfan efficiency
- through the reduction of the time required for cleaning the filter mats and
- through a reduction in the consumption of filter mats

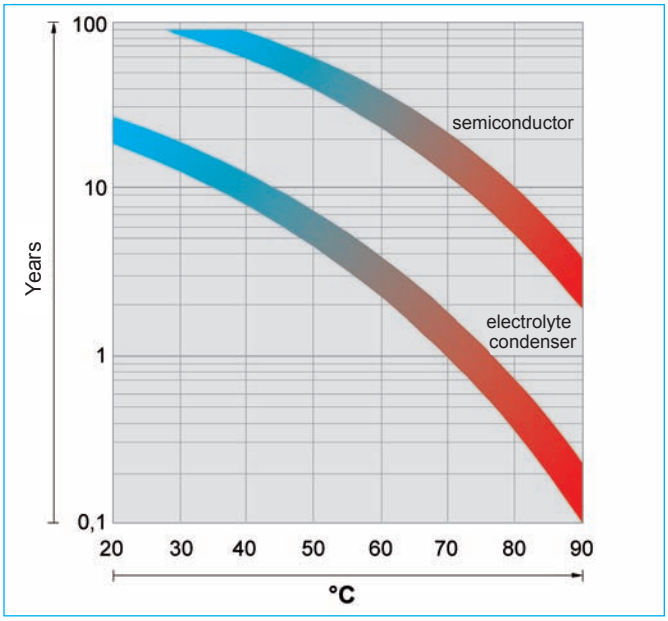
Thermostats, Hygrostats and Heaters

Electrical enclosure heaters in combination with thermostats and hygrostats ensure that the correct temperature is always available. In addition to savings on energy and, therefore, a better environmental balance, the combination of heaters with thermostats and hygrostats offers greater reliability of the production process:

- through pinpoint distribution and constant temperatures in the electrical enclosure
- through reduced energy consumption and improvement of the heater efficiency

The Technology of Cooling

Due to the increasing automation of processes, electro-technical components are used more and more. Therefore, the development of warmth inside the cabinet increases.
The diagram below shows the effects of the increased heat load on random components' service life. The process reliability and keeping service intervals within an economic framework are special challenges thermal management of control cabinets is faced with special challenges such as process reliability and keeping service intervals within an economic framework. Therefore, the choice of the cooling method can be pivotal with regards to it's advantages.



Three basic cooling methods

When selecting a cooling method there are three types to consider:

Natural Convection

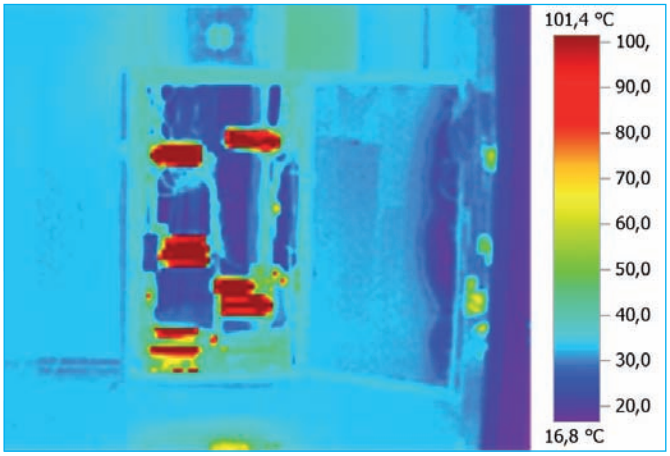
If there is only a minimal heat loss in your application, use of louvers or grills with filters can be effective. This method, however, usually provides less cooling effect than is necessary with today's components.

Forced convection

If the installation will be in a clean, non-hazardous environment with an acceptable ambient (outside the enclosure) temperature range, a simple forced-air cooling system utilizing outside air is usually adequate. Combined with an air filter, such devices generally meet the heat removal needs of typical electronic equipment and many electrical applications. An example of forced convection air cooling is filterfans.

Closed-loop cooling

In harsh environments involving high temperatures, wash-down requirements, heavy particulate matter or the presence of chemicals capable of damaging components (NEMA 4 or 12 environments), ambient air must be kept out of the enclosure. Closed-loop cooling consists of two separate circulation systems. One system seals out the ambient air, cooling and re-circulating clean, cool air throughout the enclosure. The second system uses ambient air or water to remove and discharge the heat. Example of closed-loop cooling equipment employed with electronics and process controls are cooling units and heat exchangers.



Cooling by natural convection

Rules of thumb:

- **limited to roughly + 25 Kelvin rise above ambient -** in general, the temperature rise inside the enclosure would be roughly + 25 Kelvin utilizing natural convection
- **no moving parts -** by eliminating external fans, you create a zero maintenance application
- **no dirt -** utilizing exhaust filters prevents dirt from entering cabinet, dirt can damage electronics as fast as heat!

If the ambient temperature is lower than the temperature inside the electronic cabinet, the dissipated heat escapes into the atmosphere throughout the surface of the electronic cabinet. The following simple equation is used to calculate the level of heat radiated from the electronic cabinet:

$$P_R(W) = C \times A \times \Delta T$$

- **P_R[Watt]: Radiation Power**: Thermal power radiated from the surface area of the electronic cabinet into the ambience into the electronic cabinet
- **C[W/m²K]: Coefficient of heat transmission**: Radiation power per 1 m² surface area and is difference in temperature. This constant is determined by the material:
  sheet steel - 5.5 W/m²K
  stainless steel - 5.5 W/m²K
  aluminium - 12.0 W/m²K
  plastic - 3.5 W/m²K
- **A[m²]: Surface area of electronic cabinet**: Effective surface area of a electronic cabinet measured according to the specifications of VDE 0660, part 500
- **ΔT[K]:** Difference between ambient air temperature and inside air temperature

Cooling with filterfans

Rules of thumb:

- **limited to roughly + 10 Kelvin rise above ambient -** in general, the temperature rise inside the enclosure would be roughly + 10 Kelvin
- **multiple configurations possible -** filterfans can be located in a number of locations within complex enclosure configurations
- **size fans to include static pressure -** understanding how static pressure effects the performance of a fan is very important when sizing filterfans, see chart below!

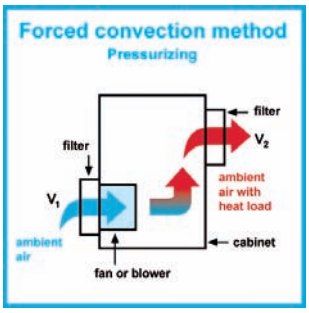
Follow this simple equation for calculating the required airflow:

$$V = \frac{3.1\ (P_D)}{\Delta T}\ [m^3/h]$$

- **V[m³/h]:** Airflow volume of filterfans
- **P_D[Watt]: Dissipation loss**: Thermal power generated inside a cabinet by the dissipation loss of components
- **ΔT:** Difference in temperature between the ambience and inside the electronic cabinet

V_1 - Fan with filter and louver rating (free flow)

V_2 - System rating with exhaust
(includes static pressure drop)



Model	V_1 [m³/h]	V_2 [m³/h]
PF 11.000	25	16
PF 22.000	61	44
PF 32.000	110	82
PF 42.500	156	116
PF 43.000	256	231
PF 65.000	480	370
PF 66.000	640	445
PF 67.000	845	560

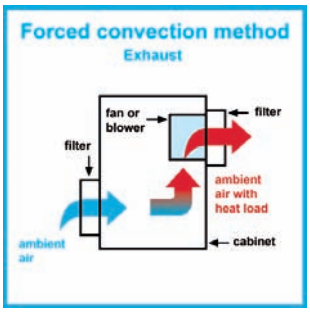
NOTE:
Always calculate cooling capacity of filterfans with the V_2 value.

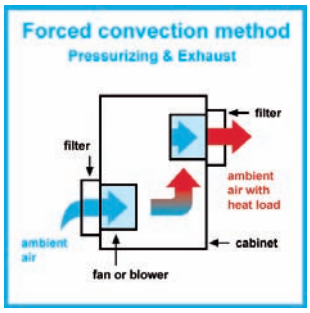
When utilizing filterfans

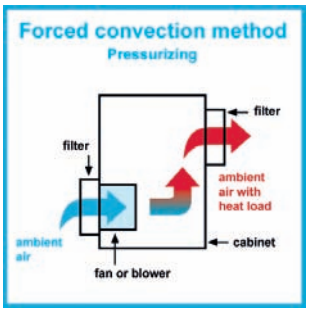
Always use the filterfan to propel the cool ambient air into enclosure. This ensures that slight positive pressure builds up inside the electronic cabinet in comparison to the ambience and that only air filtered by the filterfans flows into the enclosure. The air propelled into the cabinet displaces the warm air which exits through the exhaust filter. If, however, the air is drawn out of the electronic cabinet by suction power, unfiltered air can also enter through poor seals and cable entries.

If you install a combination of filterfan/exhaust filter, fit the filterfan in the lower third of the electronic cabinet if possible. The exhaust filter must be installed as near to the top as possible to prevent heat pockets in the upper part of the cabinet.

Install a FLZ 530 thermostat to control your filterfan. This will increase the life of the fan and decrease the amount of maintenance required to clean the filters.







Cooling with closed loop cooling units

Rules of thumb:

- **only method for reducing cabinet temperature below ambient -** if the ambient temperature is greater than the target internal temperature of the enclosure, active cooling is required
- **applications from NEMA type 12 to 4x -** closed loop systems can maintain the NEMA type rating of the cabinet
- **designer must size per ambient temperatures -** by utilizing performance charts, be sure to correctly size your system!

Pfannenberg cooling units operate on the principle of the Carnot cycle. This means that the cooling unit functions as a heat pump that “pumps” the thermal energy transferred from the electronic cabinet (heat dissipated from the components) up to a higher level of temperature (the ambient temperature can reach levels as high as + 55 °C). The air inside the enclosure is cooled down by the evaporator and at the same time dehumidified.

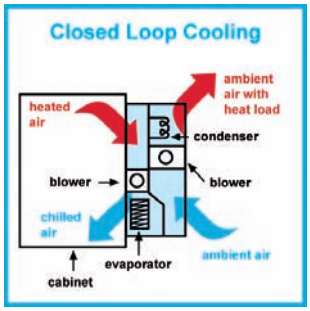
Cooling units are used if:

- the outside air cannot be used for cooling
- the required temperature inside the enclosure should be equal-to or lower-than the required ambient temperature
- the ambient air is extremely oily or dirty

Steps for sizing a cooling unit

Proper selection of a cooling unit is determined by the following criteria:

- required cooling capacity in Watt
- mounting requirements
  (side, integrated or top mount)
- dimensions of cooling unit and enclosure



Follow this simple equation for calculating the required cooling capacity:

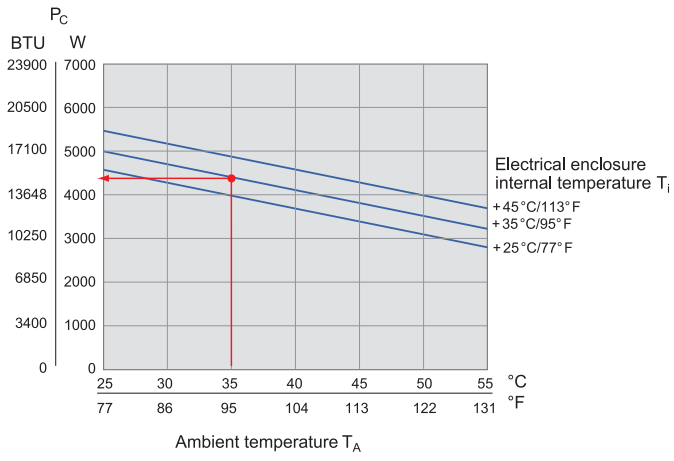
$$P_C = P_D - P_R$$

$$P_R = C \times A \times \Delta T$$

- **P_C[Watt]:** Refrigeration capacity of a cooling unit
- **P_D[Watt]: Dissipation loss**: Thermal power generated inside a cabinet by the dissipation loss of components
- **P_R[Watt]: Radiant heat gain/loss**: Heat transfer through the skin of the enclosure (insulation factor not included)
- **C[W/m²K]: Coefficient of heat transmission**
- **A[m²]: Surface area of electronic cabinet**
- **ΔT[K]:** Difference in temperature between the ambience and inside the electronic cabinet

Utilizing performance curves to properly size cooling units:

Pfannenberg utilizes the DIN standard 35/35 °C when rating our cooling units. Many other companies use 50/50 °C, which provides a higher, non-usable value. Customers should use their own application temperatures to determine the proper cooling capacity of the system.



Important information when utilizing cooling units:

- the refrigeration capacity should exceed the dissipation loss from the installed components by approximately 10%
- the enclosure should be sealed to prevent the inflow of ambient air
- use the door contact switch to impede operation with open doors and consequent excessive accumulation of condensation
- use cooling units with maximum clearance between air inflow and air outflow to prevent poor circulation
- make sure that the air inflow and air outflow in the external circuit is not hindered, preventing proper heat exchanging at the condenser
- when using top-mounted cooling units, make sure that components with their own fans do not expel the air directly into the cooling unit's cool air outflow. Make sure unit is level.
- setting the temperature to the lowest setting is not the optimal solution due to the condensation issues. The value we have preset on the cooling unit is a sound compromise between cooling the inside of the enclosure and the accumulation of condensation.

Use the Pfannenberg-Software-Service, PSS considers self-convection for calculation and demonstrates it. You can download a free version on www.pfannenberg.com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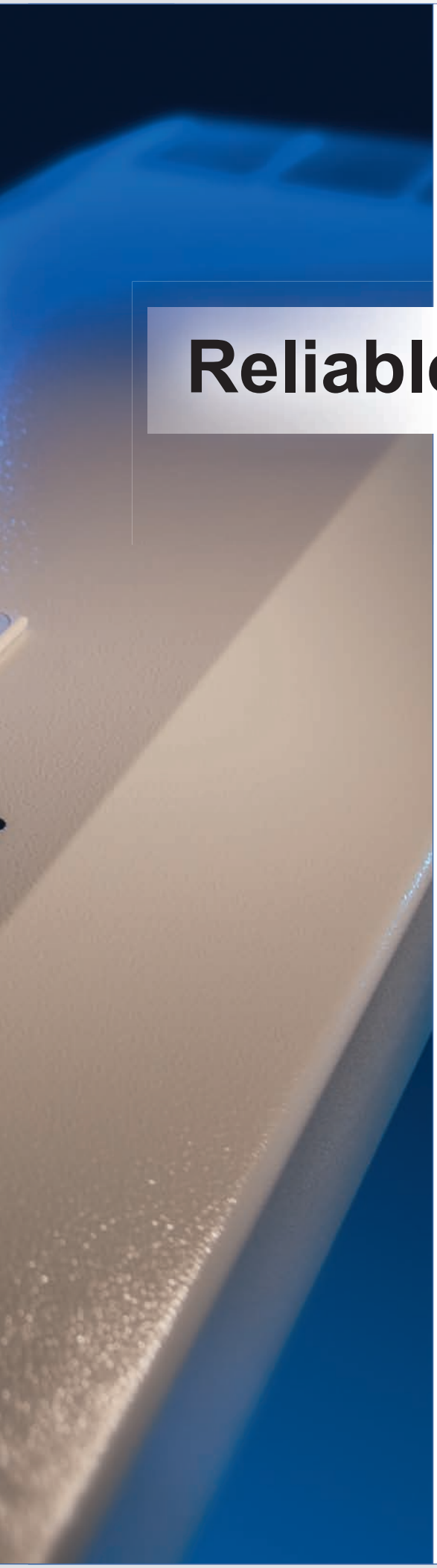


Reliable to the farthest corner

DTS, DTI and DTT Cooling unit series

In addition to quality, function and performance, we have also taken into account the subject of ‘service-friendliness’ while developing our cooling units.

The trouble-free running of your process controller is always at the centre of attention in the realisation phase of our products, as well as optimised energy consumption and usage of materials and time.

The DTI and DTS series are two extraordinary cooling unit product lines available to you. These satisfy all requirements for partially recessed (DTI) and side mounted (DTS) installation for every size of enclosure.

Furthermore, an absolute world innovation: DTT. The top mounted cooling units offer unique security through the innovative, patented condensate management system and it is installable in the most limited of spaces.

The ℰCOOL Family from Pfannenberg

Everywhere you see the new ℰCOOL logo it stands for a Pfannenberg product that distinguishes itself by:
- energy-efficiency
- environment
- easy-handling

ℰCOOL – the standard of the future

With its new product range Pfannenberg is responding to the users' increasing demands and to the growing climate awareness. The aim in developing the **ℰCOOL** series is the largest possible cost efficiency with the best possible performance.

Optimum in energy-efficiency

The **ℰCOOL** series has made an enormous leap in development compared with the tried and tested DTI/DTS units, in particular in energy efficiency.
Especially developed components combined with intelligent electronics of the newest generation reduce the energy consumption by up to 43%; in stand-by mode by a further 10%.

ℰCOOL DTI/DTS und DTT

The time-tested, high-quality industrial standard of the DTI/DTS completely covers the needs for side-mounting and door-mounting, as well as for the partially sunk-in mounting (DTI) of every cabinet size.
Additionally Pfannenberg's DTT series provides, thanks to its innovative, patented condensate management a safety standard for roof-mounted cooling units that has never been attained before.
The **ℰCOOL** series is a role model for a new generation of cooling units.

ℰfficiency

ℰCOOL means cutting-edge technology which provides the users with enormous cost benefits over the entire running term. Records for the energy efficiency and the service factors MTTR and MTBF guarantee a high Return On Investment.

ℰCOOL

The distinctly increased EER (Energy Efficiency Ratio) of the ℰCOOL series is globally market-leading!

$$\varepsilon = \frac{\dot{Q}_K}{P_{el}}$$

The **Energy Efficiency Ratio (EER)** is defined as the quotient of the actual cooling capacity of the cooling unit and its nominal power consumption. The cooling capacity factor ε corresponds therefore to the efficiency ratio. The higher the value, the less energy consumption is needed in order to provide the cooling performance.

Up to 10% less energy consumption in stand-by mode

Up to 43% less energy consumption

Up to 48% less CO_2 emissions

Up to 80% shorter service / repair times

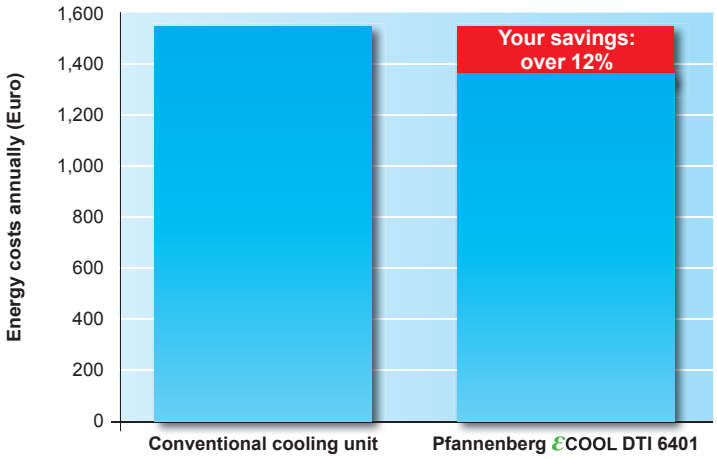
... in comparison to conventional cooling units

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

Effective Cost Savings with Pfannenberg ECOOL Cooling Units

Take a small business with 5 cooling units, which works in two shifts as an example. In comparison to the **ECOOL** DTI 6401 with a 2000 W cooling capacity and a comparable unit available on the market.

Energy savings comparison:
Savings of over 12%



The ECOOL DTI 6401 saves 12% in energy costs in comparison to conventional cooling units.

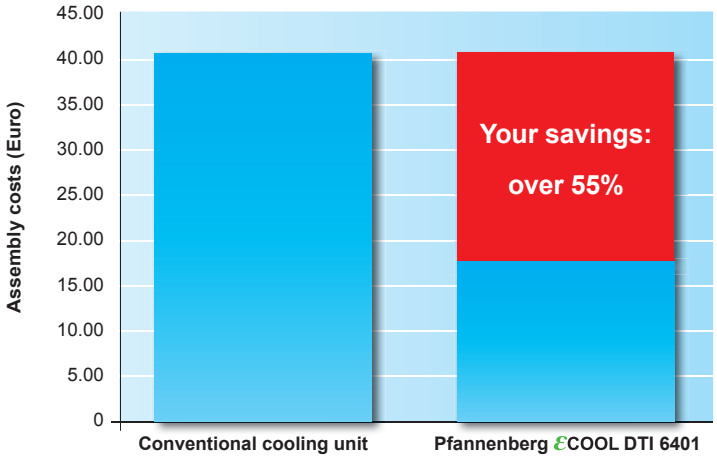
Basic parameter for energy comparison

Uptime at full performance	70%
Uptime at partial performance	30%
Total uptime per day	16 hes
Total uptime per year	240 days
Electricity price in Germany*	0.1233 €/kWh*
Number of units	5 pieces
Cooling capacity	2000 W

*Ø electricity price 2012 according to BDEW

Energy costs	
Conventional cooling units	1554.64 € annually
ECOOL DTI 6401	1359.61 € annually
Your savings	**195.02 € annually**

Assembly cost comparison:
Savings of over 55%



Another large potential for savings is the reduction of service and assembly time (MTTR).

Assembly and service times (MTTR) [min]

	Conventional cooling units	*ECOOL cooling units*
Assembly	25	3
External fan change	6	6
Internal fan change	6	6
Fuse replacement	8	1
Filter change	2	1
Control board change	15	10
Total	**62**	**27**
Calculated hourly wage of technician	40 €	
Number of units	5	

Assembly costs	
Conventional cooling units	206.67 €
ECOOL DTI 6401	90.00 €
Your savings	**116.67 €**

The ECOOL product family unites total savings potential in one unit.

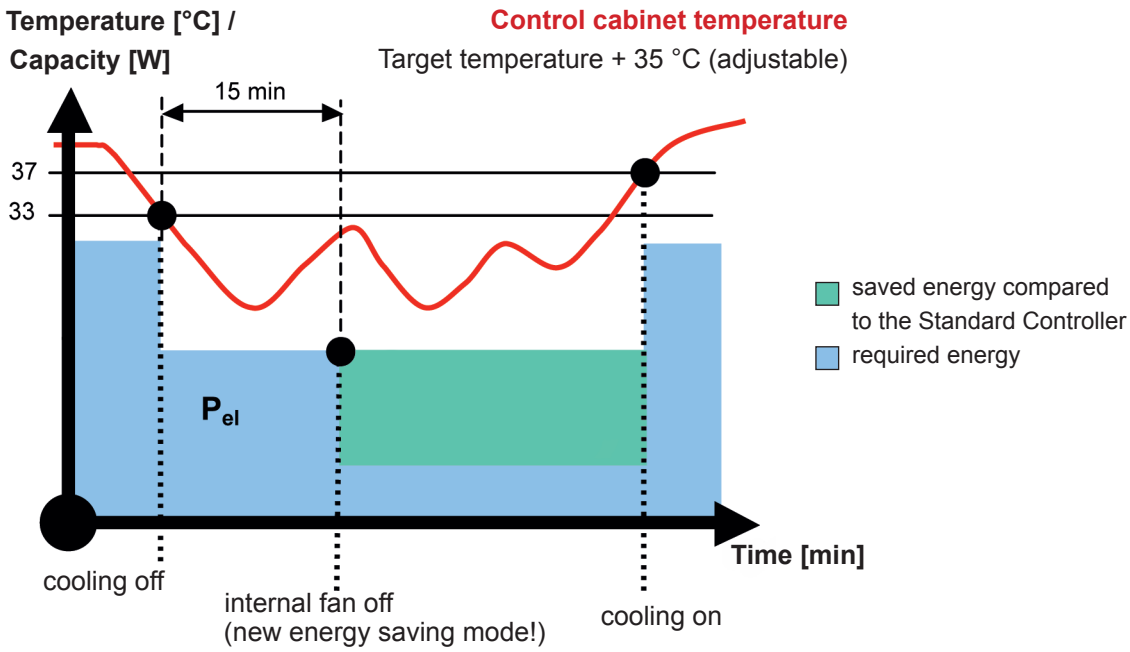
New advantages of the ECOOL Cooling Unit Series

New Filter Adapter

- Optionally available adapter for multiple use and all filter inserts
- Optional filter inserts (aluminum, fleece or fluted filter inserts) depending on the environmental conditions / application
- Patented fluted filter mats extend the service intervals by 300%
- Tool-less installation and tool-less filter replacement
- Filter replacement in less than one minute
- Filter adapter available in several colors

Filter Adapter

New Energy Saving Mode with additional temperature probe



- Pfannenberg „MultiController“ (MC) has now been upgraded with the energy savings mode (ESM) as a standard feature (DTI/DTS 6000 series)
- Internal fan switches off when no temperature increase is registered, condensate evaporator will be deactivated too
- Cooling mode starts automatically upon exceeding the required cabinet temperature
- Additional temperature probe for precise measurement of the internal cabinet temperature and to ensure correct operation of the energy savings mode
- No intermediate start-up of the internal fan necessary for temperature monitoring of the cabinet
- Fan’s length of life is significantly longer

Multi Controller

Easy Handling: perfect service-friendliness decreases routine costs

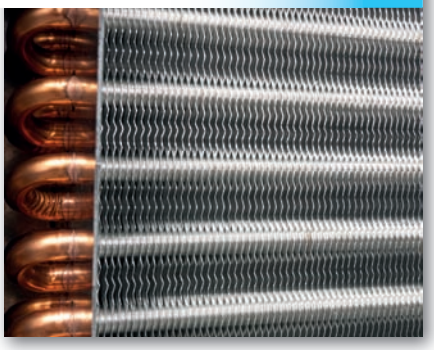
Thought-out solutions for installation and service

From the cut-out compatibility to the flexible software solutions:

Pfannenberg' **ECOOL** series takes excellent accessibility and simple maintenance into consideration.

- Large condenser fin spacing allow for longer maintenance periods, even without an additional Nano coating
- One mounting cut-out for 5 different performances, 1000 W – 4000 W
- Mounting possible by 1 man in a few minutes
- Simple accessibility to all the relevant components
- Plug & Play: fast component replacement
- Integration in established net-work possible
- Versatile voltage supply of 380 – 460 V via built-in transformer
- Integrated condensate evaporation system

Large fin spacing



Simple installation

Time-saving

Efficient assembly; the tool-less, quick and patented mounting method reduces process costs considerably. Don't just take our word for it! See our video demonstration on the web. Follow the „single-handed installation" at **www.pfannenberg.com** to see how you can save time and money.

Condensate evaporation system

Easy mounting

Pfannenberg offers cooling units with the largest possible cut-out compatibility in order to be able to provide a unit replacement with the least possible installation work. Intelligent mounting systems minimize work during unit installation and replacement.

Pfannenberg Sizing Software (PSS)

Pfannenberg's Sizing Software determines your cooling requirements, calculates the necessary cooling capacity and recommends the appropriate equipment components. Thus, you receive a tailor-made solution which gives you the security of a perfect dimensioning and prevents costly over-dimensioning. Download the PSS free of charge or calculate directly online on www.pfannenberg.com/en/support/pss-sizing-software.html.

PSS

Available as an APP:

PSS-APP and

Online PSS

DTT provides 100% protection against condensation for top-mounted devices

All the hazards of the past in standard systems have been effectively eliminated by Pfannenberg by means of the new DTT series.

1st hazard: Condensation build up on the outer area (bottom) of the top-mount cooling units, in which a particular amount ends up within the electrical enclosure.

Pfannenberg solution: In the DTT concept, the condensation build up is in the upper portion of the cooling unit. In contrast to the earlier norm, the „cold“ side is now at the top. Condensate build up is routed safely into the integrated condensate evaporator.

2nd hazard: When the warm and moist air from the enclosure cools down condensation builds up on the vapourizer. A certain amount of condensate droplets can be collected and routed into the flow of cold air and end up in the electrical enclosure.

Pfannenberg solution: The new design of the DTT series leads to an extensive separation of the routing of the air and vapourizer. The air speed at the vapourizer is therefore reduced significantly. This ensures the prevention of condensate turbulence.

3rd hazard: In the cold side of the cooling unit, condensation can form on the ceiling within the electrical enclosure and drip into enclosure. Traditionally, this is located at the bottom portion of the cooling unit and borders with the warm top portion of the electrical enclosure.

Pfannenberg solution: The innovative DTT concept puts the internal air circuits in the reverse order. As a result, a large temperature difference between the surface of the DTT and the electrical enclosure is avoided and the possibility of condensation build up is eliminated.

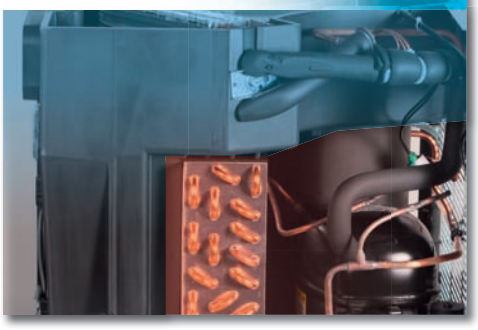
4th hazard: On the outer surfaces of the air routing duct, the cold air leaving the duct and warm air within the enclosure collide with one another and due to a “shock effect” condensation can occur within the electrical enclosure.

Pfannenberg solution: The DTT top mount cooling unit has eliminated the need for an air routing duct. Instead, the DTT uses high performance fans and therefore, due to special air channels, an increase of air speed is achieved and as a result, the cold air routing to the bottom section of the electrical enclosure is guaranteed.

DTT – Safety with 4X condensate protection!

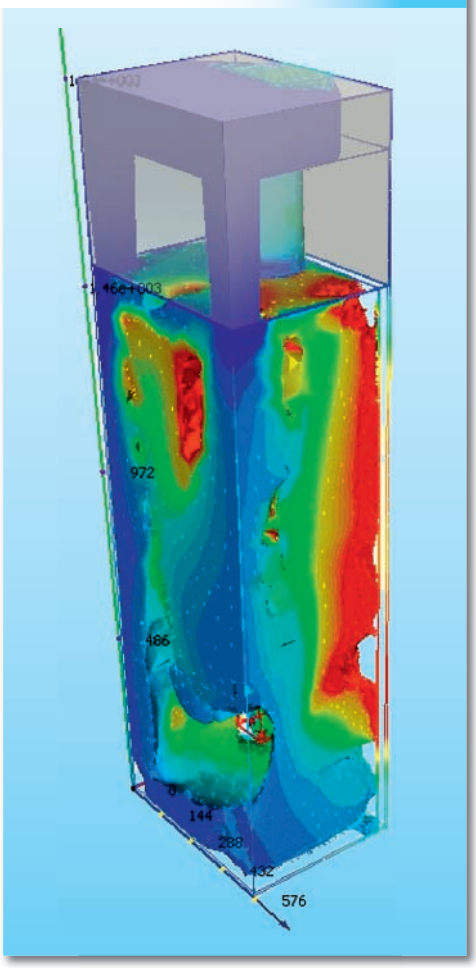
1. **No penetration of condensate into the electrical enclosure**
2. **No condensate turbulence in the air flow**
3. **No condensate build up on the bottom area of the cooling unit**
4. **No condensate-prone air routing duct (hoses)**

DTT Concept



The innovative order of the cold area above the warm parts of the cooling unit ensures the prevention of condensate build up in the enclosure’s interior

Optimised air conduction



A high airflow speed and optimised cold air passage into the electrical enclosure ensures 100% efficient cooling of the enclosure without any additional air routing

Easy andling: Cut costs with the DTT service and maintenance friendliness

An easy assembly, operation and maintenance of the cooling units are an advantage especially in places where there is limited space. The DTT series gives you several beneficial product features at once.

Very long service intervals

The condenser's large fin spacing extends the service intervals significantly, also without an additional nano-coating. Thus, in many application areas no pre-filter is needed at all.

Filter change in seconds

The front cover can be opened with one movement and the pre-filter can be changed in seconds. There is an aluminum filter available for filter operation.

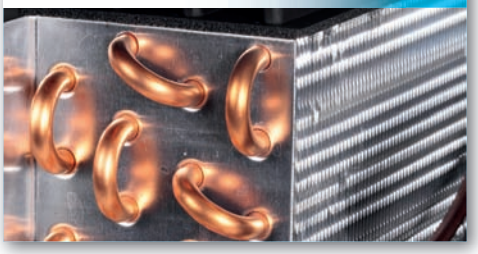
Perfect access to electronics and fan motor

The most important components can be easily accessed using the service panel on the front of the unit. The whole cover can be removed by pulling forward for easy access without disassembling.

Intelligent mounting via Twist & Fit

Mounting without screws using turnbuckle makes a tool-free assembly and exact adjustment by hand possible.

Large fin spacing



Perfect accessibility

Twist & Fit mounting

Environment: Responsibility for the environment and resources

In light of the growing climate and environment problems, Pfannenberg is dedicated more than ever to the safety of man, machine and the environment. That is why environment-friendly production process and careful use of available resources define our actions. Decreasing your thermal management costs through first-class energy efficiency and exemplary Life Cycle Advantage is our foremost goal with the **ECOOL** series.

All cooling units at a glance

Type	Cooling capacity	Rated voltage	Dimensions (HxWxD)	Approvals					Page
				UR	UL	cUL	GOST	CE	
Cooling units from the DTI and DTS series – cooling units in installation and surface mounting variants for side and door mounting									
DTI 6801	4000 W	400 V 3~	1539 x 485 x 372 mm	●		○	●	●	24
DTS 6801			1549 x 485 x 372 mm						
DTI 6501	2500 W	400 V 3~	1536 x 485 x 278 mm	●		○	●	●	25
DTS 6501			1543 x 485 x 278 mm						
DTI 6401	2000 W	230 V / 400 V 3~	1536 x 485 x 278 mm	●		○	●	●	28
DTS 6401			1543 x 485 x 278 mm						
DTI 6301	1500 W	115 V / 230 V / 400 V 2~	1536 x 485 x 218 mm	●		○	●	●	30
DTS 6301			1539 x 485 x 218 mm						
DTI 6201	1000 W	115 V / 230 V / 400 V 2~	1536 x 485 x 218 mm	●		○	●	●	32
DTS 6201			1539 x 485 x 218 mm						
DTI 9141	950 W	115 V / 230 V / 400 V 2~	958 x 410 x 248 mm	●		●	●	●	34
DTS 9141			964x 410 x 248 mm						
DTI 9341C	1500 W	115 V / 230 V / 400 V 2~	958 x 410 x 248 mm	●		●	●	●	34
DTS 9341C			964 x 410 x 248 mm						
DTI 9041	870 W	115 V / 230 V / 400 V 2~	599 x 380 x 231/231/363 mm	●		●	●	●	36
DTS 9041			604 x 380 x 231/231/363 mm						
DTI 9031	510 W	115 V / 230 V / 400 V 2~	562 x 310 x 212/212/353 mm	●		●	●	●	38
DTS 9031			565 x 310 x 212/212/353 mm						
DTFI 9021	320 W	115 V / 230 V / 400 V 2~	326/326/464 x 385 x 252 mm	●		●	●	●	40
DTI 9021	320 W	115 V / 230 V	329 x 385 x 252 mm	●		●	●	●	40
DTS 9011H	300 W	230 V	300 x 495 x 140 mm	●		●		●	42
DTS 7541	2500 W	400 V 3~[2]	1350 x 397 x 270 mm	●		●	●	●	44
DTS 7441	2000 W	400 V 3~ [2]	1350 x 397 x 270 mm	●		●	●	●	44
DTS 7341	1500 W	115 V / 230 V / 400 V 2~[1]	1350 x 390 x 200 mm	●		●	●	●	46
DTS 7241	1000 W	115 V / 230 V	1350 x 390 x 200 mm	●		●	●	●	46
Cooling units from the DTS series – cooling units for side mounting in outdoor areas									
DTS 3661/3681	5500 W	400 V 3~	1667 x 483 x 623 mm		●	●	●	●	48
DTS 3561/3581	4000 W	400 V 3~	1502 x 483 x 534 mm		●	●	●	●	50
DTS 3361/3381	2800 W	400 V 3~	1502 x 403 x 468 mm		●	●	●	●	52
DTS 3265/3285	2900 W	230 V / 400 V 3~	1347 x 411 x 301 mm		●	●	●	●	54
DTS 3261/3281	2000 W	115 V / 230 V / 400 V 3~	1209 x 395 x 326 mm		●	●	●	●	56
DTS 3165/3185	1600 W	230 V / 400 V 3~	914 x 305 x 302 mm		●	●	●	●	58
DTS 3161/3181	1100 W	115 V / 230 V / 400 V 2~	748 x 395 x 294 mm		●	●	●	●	60
DTS 3061/3081	680 W	115 V / 230 V	512 x 256 x 274 mm		●	●	●	●	62

[1] variant without UR
[2] MC variant without UR

● available
○ pending

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ELECTRO-TECHNOLOGY FOR INDUSTRY

All cooling units at a glance

Type	Cooling capacity	Rated voltage	Dimensions (HxWxD)	Approvals					Page
				UR	UL	cUL	GOST	CE	
High temperature cooling units from the DTS series – cooling units for side mounting in outdoor areas									
DTS 3265 HT	2800 W	230 V	1209 x 395 x 326 mm		●	●		●	64
DTS 3165 HT	1600 W		914 x 305 x 302 mm		●	●		●	64
DTS 3061 HT	600 W		512 x 256 x 274 mm		●	●		●	64
Roof-mounted cooling units from the DTT series – cooling units for top mounting									
DTT 6801	4000 W	400 V 3~	485 x 795 x 575 mm	●		●	○	●	66
DTT 6601	3000 W	400 V 3~	485 x 795 x 575 mm	●		●	○	●	66
DTT 6401	2000 W	115 V / 230 V / 400 V 3~	435 x 595 x 495 mm	●		●	○	●	68
DTT 6301	1500 W	115 V / 230 V / 400 V 2~	435 x 595 x 495 mm	●		●	○	●	68
DTT 6201	1000 W	115 V / 230 V / 400 V 2~	435 x 595 x 395 mm	●		●	○	●	70
DTT 6101	500 W	115 V / 230 V	435 x 595 x 395 mm	●		●	○	●	70
Peltier Cooling units									
PTM 100	100 W	24 V DC	367 x 181 x 151 mm					●	72
PTM 150	150 W	24 V DC	495 x 181 x 151 mm					●	72
Accessories									
Pre-filter, aluminium									75
ECOOL filter									75
Filter kits for DTS 3xxx series									74
External condensate evaporation system		230 V							74
Condensate bottle									74
Transport eye bolts									74
Cooling unit controller									74
ECOOL-Plant Software									74
Quick installation frame									75
Internal enclosure fan PEF 180		24 V DC / 115 V AC / 230 V AC							75
Air diverter internal									75
Air baffle internal									75

[1] variant without UL

● available
○ pending

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ECOOL Cooling units 4000 W
DTI/DTS 6801

DTI: for partially recessed mounting of the cooling unit in the door or side
DTS: for outer mounting of the cooling unit on the door or side

- top EER (energy efficiency ratio)
- energy efficient: reduced CO_2 emissions = environment-friendly
- condenser with large fin spacing for highly effective protection in strongly contaminated ambient air
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- exceptional serviceability
- new USB port for easy retrieval of parameter settings/history (Pfannenberg **ECOOL-**Plant software necessary)
- optional filter (easy to retrofit)
- energy-saving mode by default integrated into the Multi Controller

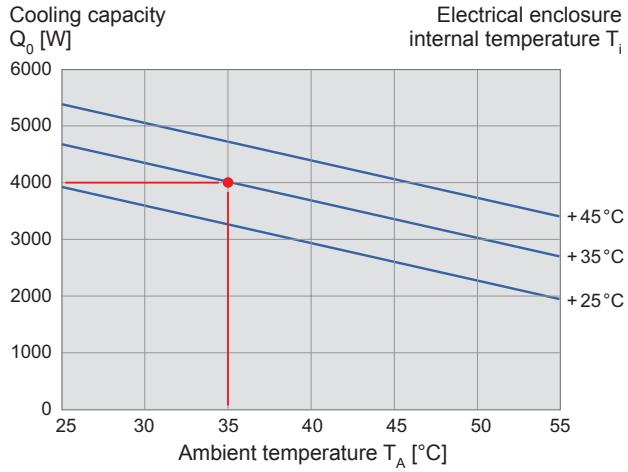
Data		DTI 6801	DTS 6801	Unit
Article number	Standard Controller	13896812055	13886812055	
	Multi Controller	13896822055	13886822055	
	V2A, Standard Controller	13896812015	13886812015	
	V2A, Multi Controller	13896822015	13886822015	
Rated voltage [1] ± 10%		AC 50 / 60		Hz
		400 / 460 3~		V
Cooling performance according to EN 14511	L35/L35	4000		W
	L35/L50	3050		
Power consumption	L35/L35	1918 / 2369		
Current consumption	L35/L35	4.5 / 4.6		A
Starting current	L35/L35	28.3		
Energy efficiency ratio $\varepsilon_{ke} = \frac{Q_0}{P}$ ➝COP		2.09		
Unimpeded airflow (free flow)	internal	1450		m^3/h
	external	1450		
Pre fuse T		16		A
Type of connection		spring-type terminal included with plug		
Noise level according to EN ISO 3741		< 70		dB (A)
Weight (without packaging)		91	95	kg
Ambient temperature range		+ 15 … + 55 / + 59 … + 131		°C / °F
Control range (adjustable)	SC	+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95		
	MC	+ 25 … + 50 / + 77 … + 122; factory setting + 35 / + 95		
Refrigerant	R134a	2000		g
Condensate management		integrated condensate evaporation system with safety overflow		
Protection system according to EN 60529	IP54	towards the electrical enclosure if used as intended by the manufacturer		
	IP34	towards the surroundings if used as intended by the manufacturer		
Design	housing	galvanised sheet steel		
	cover	electrostatically powder coated (200 °C), or stainless steel		
Colour		RAL 7035 (different colours available on request) or stainless steel		

Accessories	Piece	Article number	Information on page
Filter adapter	1	18310000151	75
Aluminium filter	1	18300000149	75
Vlies filter	5	18300000147	75
Fluted filter	5	18300000148	75

[1] Suitable for various supply voltages (see technical data sheet).
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTI/DTS 6801



Dimensions

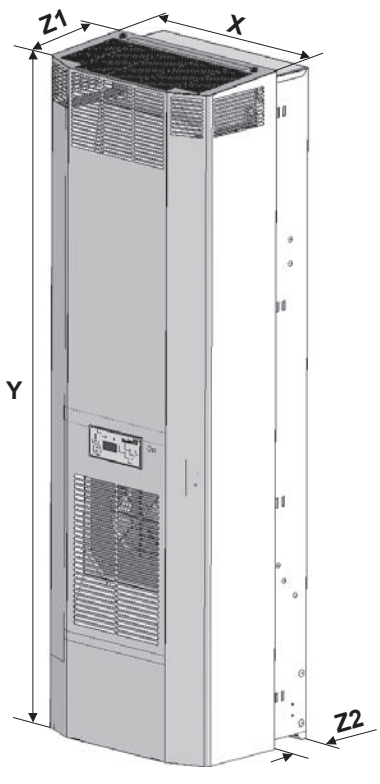
DTI	X	Y	Z1	Z2	K	L
mm	485	1539	252	120	1510	450

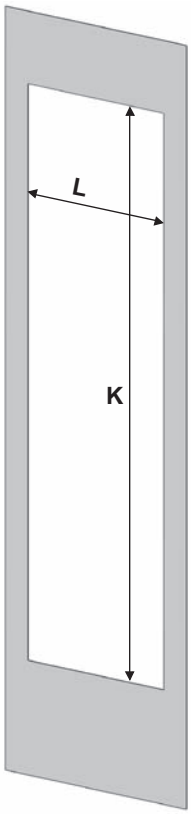
DTI variants partially recessed by 120 mm after installation

DTS	X	Y	Z	A	B	C	D	E	F	G	H	I
mm	485	1549	372	700	282	220	10	450	510	290	315	350

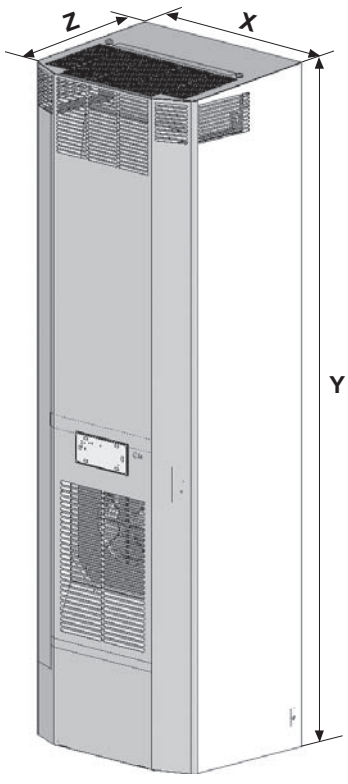
Mounting holes Ø 8 mm and cut-out radii R20

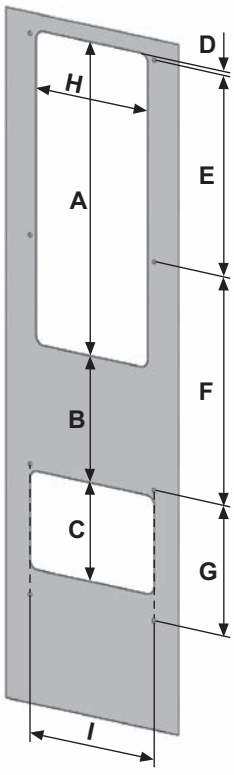
DTI 6801





DTS 6801





ECOOL Cooling units 2500 W
DTI/DTS 6501

DTI: for partially recessed mounting of the cooling unit in the door or side
DTS: for outer mounting of the cooling unit on the door or side

- top EER (energy efficiency ratio)
- energy efficient: reduced CO_2 emissions = environment-friendly
- condenser with large fin spacing for highly effective protection in strongly contaminated ambient air
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- exceptional serviceability
- new USB port for easy retrieval of parameter settings/history (Pfannenberg **ECOOL**-Plant software necessary)
- optional filter (easy to retrofit)
- energy-saving mode by default integrated into the Multi Controller

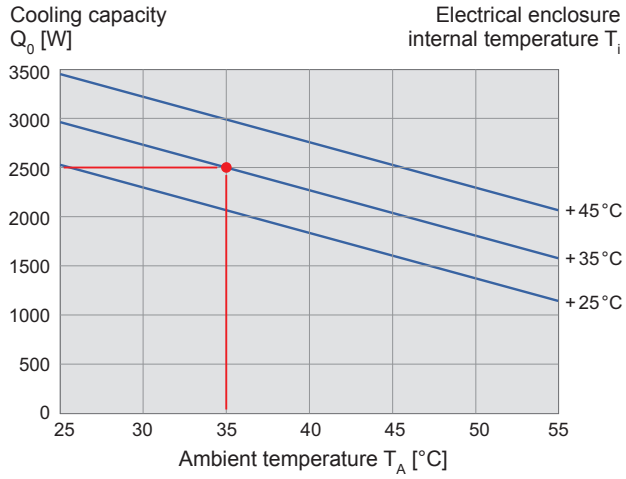
Data		DTI 6501	DTS 6501	Unit
Article number	Standard Controller	13896512055	13886512055	
	Multi Controller	13896522055	13886522055	
	V2A, Standard Controller	13896512015	13886512015	
	V2A, Multi Controller	13896522015	13886522015	
Rated voltage [1] ± 10%		AC 50 / 60		Hz
		400 / 460 3~		V
Cooling performance according to EN 14511	L35/L35	2500		W
	L35/L50	1800		
Power consumption	L35/L35	1048 / 1247		
Current consumption	L35/L35	3.27 / 3.1		A
Starting current	L35/L35	16		
Energy efficiency ratio $\varepsilon_{ke} = \frac{Q_0}{P} \rightarrow$ COP		2.39		
Unimpeded airflow (free flow)	internal	935		m^3/h
	external	1260		
Pre fuse T		16		A
Type of connection		spring-type terminal included with plug		
Noise level according to EN ISO 3741		< 65		dB (A)
Weight (without packaging)		67	71	kg
Ambient temperature range		+ 15 … + 55 / + 59 … + 131		°C / °F
Control range (adjustable)	SC	+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95		
	MC	+ 25 … + 50 / + 77 … + 122; factory setting + 35 / + 95		
Refrigerant	R134a	1400		g
Condensate management		integrated condensate evaporation system with safety overflow		
Protection system according to EN 60529	IP54	towards the electrical enclosure if used as intended by the manufacturer		
	IP34	towards the surroundings if used as intended by the manufacturer		
Design	housing	galvanised sheet steel		
	cover	electrostatically powder coated (200 °C), or stainless steel		
Colour		RAL 7035 (different colours available on request) or stainless steel		

Accessories	Piece	Article number	Information on page
Filter adapter	1	18310000151	75
Aluminium filter	1	18300000149	75
Vlies filter	5	18300000147	75
Fluted filter	5	18300000148	75

[1] Suitable for various supply voltages (see technical data sheet).
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTI/DTS 6501



Dimensions

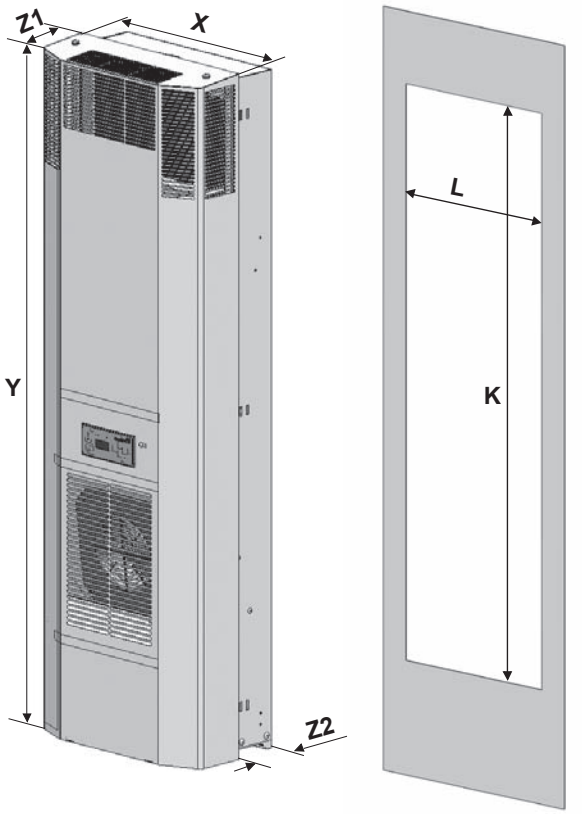
DTI	X	Y	Z1	Z2	K	L
mm	485	1536	158	120	1510	450

DTI variants partially recessed by 120 mm after installation

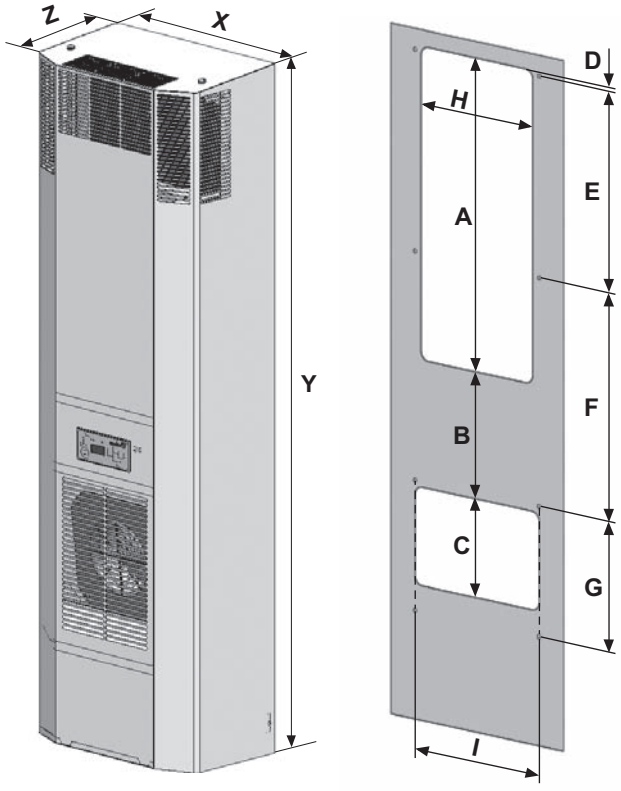
DTS	X	Y	Z	A	B	C	D	E	F	G	H	I
mm	485	1543	278	700	282	220	10	450	510	290	315	350

Mounting holes Ø 8 mm and cut-out radii R20

DTI 6501



DTS 6501



ECOOL Cooling units 2000 W
DTI/DTS 6401

DTI: for partially recessed mounting of the cooling unit in the door or side
DTS: for outer mounting of the cooling unit on the door or side

- top EER (energy efficiency ratio)
- energy efficient: reduced CO_2 emissions = environment-friendly
- condenser with large fin spacing for highly effective protection in strongly contaminated ambient air
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- exceptional serviceability
- new USB port for easy retrieval of parameter settings/history (Pfannenberg **ECOOL-**Plant software necessary)
- optional filter (easy to retrofit)
- energy-saving mode by default integrated into the Multi Controller

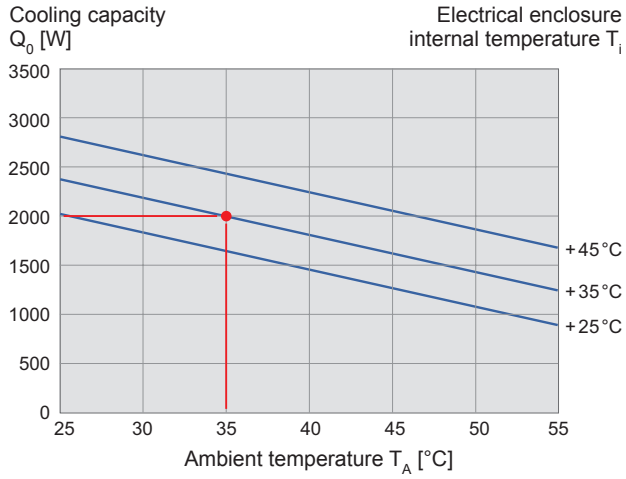
Data		DTI 6401		DTS 6401		Unit
Article number	Standard Controller	13896412055	13896411055	13886412055	13886411055	
	Multi Controller	13896422055	13896421055	13886422055	13886421055	
	V2A, Standard Controller	13896412015	13896411015	13886412015	13886411015	
	V2A, Multi Controller	13896422015	13896421015	13886422015	13886421015	
Rated voltage [1] ± 10%		AC 50 / 60				Hz
		400 / 460 3~	230	400 / 460 3~	230	V
Cooling performance according to EN 14511	L35/L35	2000				W
	L35/L50	1440				
Power consumption	L35/L35	753 / 908	1047 / 1273	753 / 908	1047 / 1273	
Current consumption	L35/L35	2.71 / 2.59	5.45 / 6	2.71 / 2.59	5.45 / 6	A
Starting current	L35/L35	12.0	21.4	12.0	21.4	
Energy efficiency ratio $\varepsilon_{ke} = \frac{Q_0}{P}$ → COP		2.66	1.91	2.66	1.91	
Unimpeded airflow (free flow)	internal	935				m³/h
	external	1260				
Pre fuse T		16				A
Type of connection		spring-type terminal included with plug				
Noise level according to EN ISO 3741		< 65				dB (A)
Weight (without packaging)		67		71		kg
Ambient temperature range		+ 15 … + 55 / + 59 … + 131				°C / °F
Control range (adjustable)	SC	+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95				
	MC	+ 25 … + 50 / + 77 … + 122; factory setting + 35 / + 95				
Refrigerant	R134a	1400	1200	1400	1200	g
Condensate management		integrated condensate evaporation system with safety overflow				
Protection system according to EN 60529	IP54	towards the electrical enclosure if used as intended by the manufacturer				
	IP34	towards the surroundings if used as intended by the manufacturer				
Design	housing	galvanised sheet steel				
	cover	electrostatically powder coated (200 °C), or stainless steel				
Colour		RAL 7035 (different colours available on request) or stainless steel				

Accessories	Piece	Article number	Information on page
Filter adapter	1	18310000151	75
Aluminium filter	1	18300000149	75
Vlies filter	5	18300000147	75
Fluted filter	5	18300000148	75

[1] Suitable for various supply voltages (see technical data sheet).
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTI/DTS 6401



Dimensions

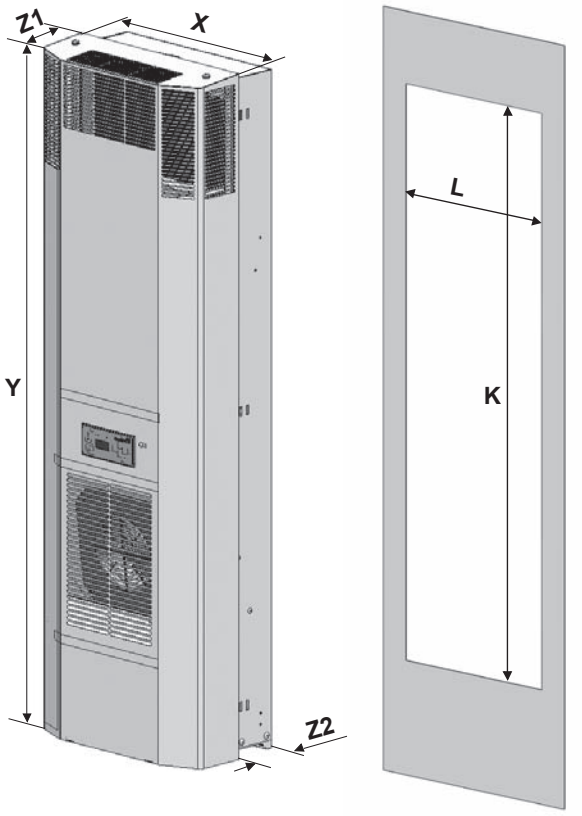
DTI	X	Y	Z1	Z2	K	L
mm	485	1536	158	120	1510	450

DTI variants partially recessed by 120 mm after installation

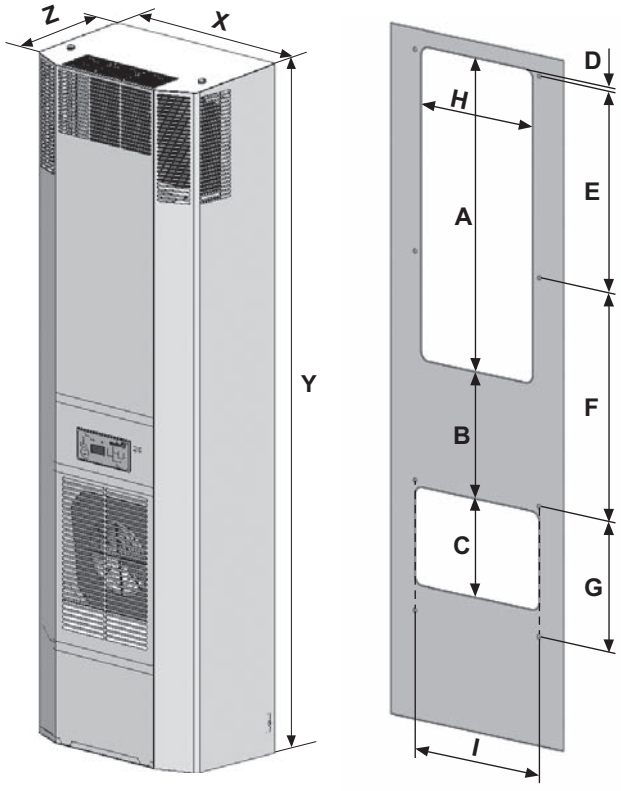
DTS	X	Y	Z	A	B	C	D	E	F	G	H	I
mm	485	1543	278	700	282	220	10	450	510	290	315	350

Mounting holes Ø 8 mm and cut-out radii R20

DTI 6401



DTS 6401



ECOOL Cooling units 1500 W
DTI/DTS 6301

DTI: for partially recessed mounting of the cooling unit in the door or side
DTS: for outer mounting of the cooling unit on the door or side

- top EER (energy efficiency ratio)
- energy efficient: reduced CO_2 emissions = environment-friendly
- condenser with large fin spacing for highly effective protection in strongly contaminated ambient air
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- exceptional serviceability
- new USB port for easy retrieval of parameter settings/history (Pfannenberg **ECOOL-**Plant software necessary)
- optional filter (easy to retrofit)
- energy-saving mode by default integrated into the Multi Controller

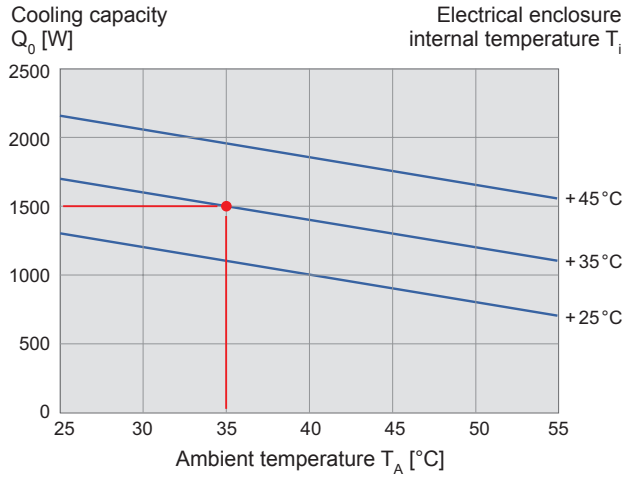
Data		DTI 6301		DTS 6301		Unit
Article number	Standard Controller	13896319055	13896311055	13886319055	13886311055	
	Multi Controller	13896329055	13896321055	13886329055	13886321055	
	V2A, Standard Controller	13896319015	13896311015	13886319015	13886311015	
	V2A, Multi Controller	13896329015	13896321015	13886329015	13886321015	
Rated voltage [1] ± 10%		AC 50 / 60				Hz
		400 / 460 3~	230	400 / 460 3~	230	V
Cooling performance according to EN 14511	L35/L35	1500				W
	L35/L50	1200				
Power consumption	L35/L35	786 / 863	727 / 868	786 / 863	727 / 868	
Current consumption	L35/L35	3.65 / 3.35	5.08 / 5.17	3.65 / 3.35	5.08 / 5.17	A
Starting current	L35/L35	19.7				
Energy efficiency ratio $\varepsilon_{ke} = \frac{Q_0}{P} \frac{\rightarrow}{COP}$		1.91	2.06	1.91	2.06	
Unimpeded airflow (free flow)	internal	935				m³/h
	external	938				
Pre fuse T		6	16	6	16	A
Type of connection		spring-type terminal included with plug				
Noise level according to EN ISO 3741		< 62				dB (A)
Weight (without packaging)		55	50	56	51	kg
Ambient temperature range		+ 15 … + 55 / + 59 … + 131				°C / °F
Control range (adjustable)	SC	+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95				
	MC	+ 25 … + 50 / + 77 … + 122; factory setting + 35 / + 95				
Refrigerant	R134a	600				g
Condensate management		integrated condensate evaporation system with safety overflow				
Protection system according to EN 60529	IP54	towards the electrical enclosure if used as intended by the manufacturer				
	IP34	towards the surroundings if used as intended by the manufacturer				
Design	housing	galvanised sheet steel				
	cover	electrostatically powder coated (200 °C), or stainless steel				
Colour		RAL 7035 (different colours available on request) or stainless steel				

Accessories	Piece	Article number	Information on page
Filter adapter	1	18310000151	75
Aluminium filter	1	18300000149	75
Vlies filter	5	18300000147	75
Fluted filter	5	18300000148	75

[1] 115 V on request, suitable for various supply voltages (see technical data sheet).
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet.
This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTI/DTS 6301



Dimensions

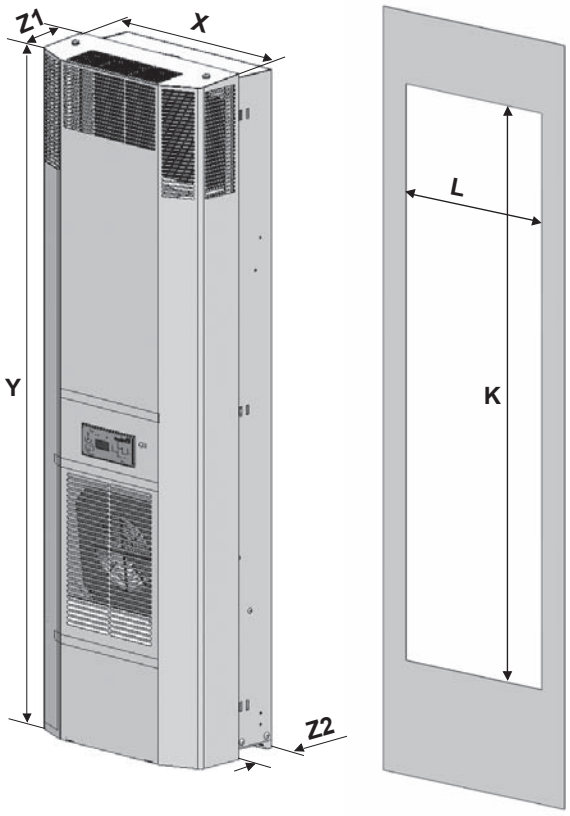
DTI	X	Y	Z1	Z2	K	L
mm	485	1536	158	60	1510	450

DTI variants partially recessed by 60 mm after installation

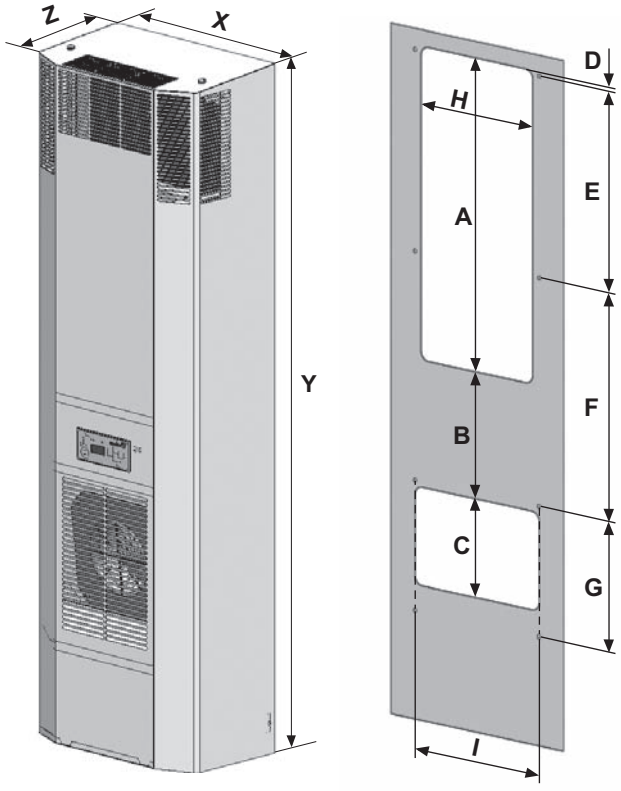
DTS	X	Y	Z	A	B	C	D	E	F	G	H	I
mm	485	1539	218	700	282	220	10	450	510	290	315	350

Mounting holes Ø 8 mm and cut-out radii R20

DTI 6301



DTS 6301



ECOOL Cooling units 1000 W
DTI/DTS 6201

DTI: for partially recessed mounting of the cooling unit in the door or side
DTS: for outer mounting of the cooling unit on the door or side

- top EER (energy efficiency ratio)
- energy efficient: reduced CO_2 emissions = environment-friendly
- condenser with large fin spacing for highly effective protection in strongly contaminated ambient air
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- exceptional serviceability
- new USB port for easy retrieval of parameter settings/history (Pfannenberg **ECOOL-**Plant software necessary)
- optional filter (easy to retrofit)
- energy-saving mode by default integrated into the Multi Controller

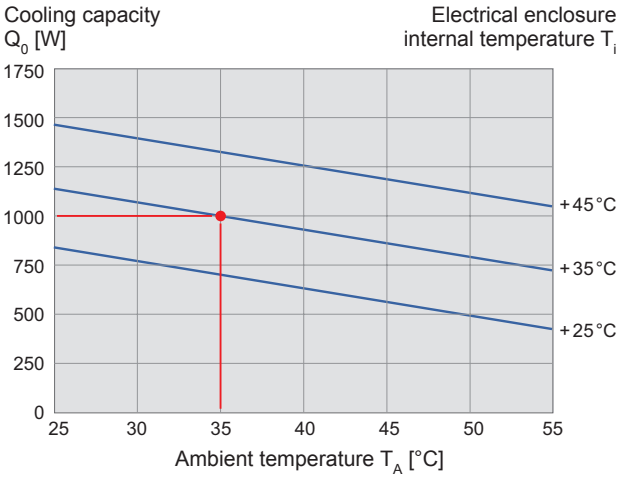
Data		DTI 6201		DTS 6201		Unit
Article number	Standard Controller	13896219055	13896211055	13886219055	13886211055	
	Multi Controller	13896229055	13896221055	13886229055	13886221055	
	V2A, Standard Controller	13896219015	13896211015	13886219015	13886211015	
	V2A, Multi Controller	13896229015	13896221015	13886229015	13886221015	
Rated voltage [1] ± 10%		AC 50 / 60				Hz
		400/460 2~	230	400/460 2~	230	V
Cooling performance according to EN 14511	L35/L35	1000				W
	L35/L50	780				
Power consumption	L35/L35	490 / 570	454 / 567	490 / 570	454 / 567	
Current consumption	L35/L35	2.33 / 2.54	3.08 / 3.65	2.33 / 2.54	3.08 / 3.65	A
Starting current	L35/L35	9.1				
Energy efficiency ratio $\varepsilon_{ke} = \frac{Q_0}{P} \nearrow COP$		2.04	2.2	2.04	2.2	
Unimpeded airflow (free flow)	internal	935				m³/h
	external	938				
Pre fuse T		4	16	4	16	A
Type of connection		spring-type terminal included with plug				
Noise level according to EN ISO 3741		< 62				dB (A)
Weight (without packaging)		55	50	56	51	kg
Ambient temperature range		+ 15 … + 55 / + 59 … + 131				°C / °F
Control range (adjustable)	SC	+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95				
	MC	+ 25 … + 50 / + 77 … + 122; factory setting + 35 / + 95				
Refrigerant	R134a	600				g
Condensate management		integrated condensate evaporation system with safety overflow				
Protection system according to EN 60529	IP54	towards the electrical enclosure if used as intended by the manufacturer				
	IP34	towards the surroundings if used as intended by the manufacturer				
Design	housing	galvanised sheet steel				
	cover	electrostatically powder coated (200 °C), or stainless steel				
Colour		RAL 7035 (different colours available on request) or stainless steel				

Accessories	Piece	Article number	Information on page
Filter adapter	1	18310000151	75
Aluminium filter	1	18300000149	75
Vlies filter	5	18300000147	75
Fluted filter	5	18300000148	75

[1] 115 V on request, suitable for various supply voltages (see technical data sheet).
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet.
This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTI/DTS 6201



Dimensions

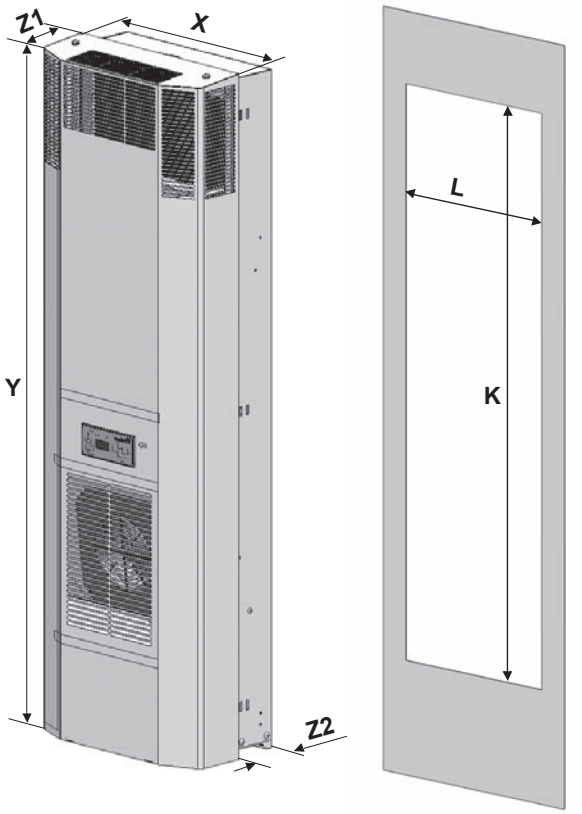
DTI	X	Y	Z1	Z2	K	L
mm	485	1536	158	60	1510	450

DTI variants partially recessed by 60 mm after installation

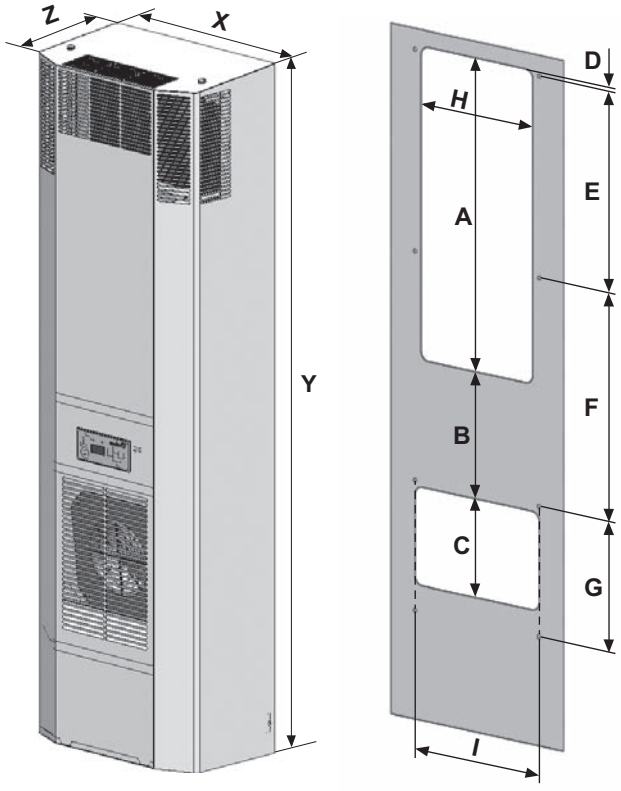
DTS	X	Y	Z	A	B	C	D	E	F	G	H	I
mm	485	1539	218	700	282	220	10	450	510	290	315	350

Mounting holes Ø 8 mm and cut-out radii R20

DTI 6201



DTS 6201



Cooling units 950 / 1500 W
DTI/DTS 9141
DTI/DTS 9341C

DTI: for partially recessed mounting of the cooling unit in the door or side
DTS: for outer mounting of the cooling unit on the door or side

- suitable for use with a door width of 500 mm
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- integrated fault and door contact
- optionally available with integrated condensate evaporation system
- DTI variants: fast mounting without drilling and adhering the electrical enclosure seal

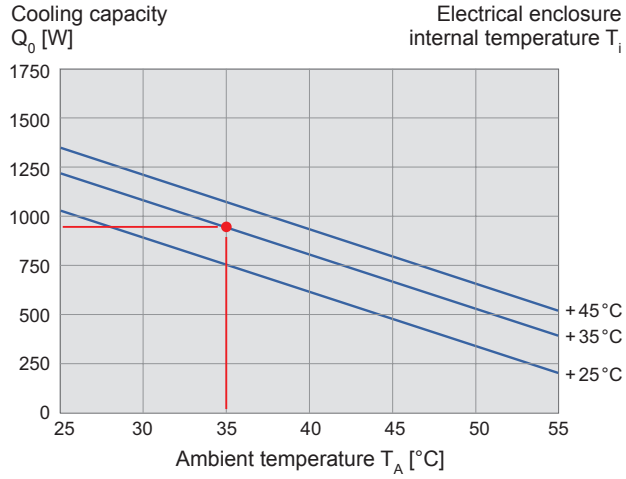
Data		DTI/DTS 9141			DTI/DTS 9341C			Unit
Article number	DTI Standard Controller	13299149055	13299141055	13299144055	13291549055	13291541055	13291544055	
	DTI Multi Controller	13299179055	13299171055	13299174055	13291579055	13291571055	13291574055	
	DTS Standard Controller	13249149055	13249141055	13249144055	13241549055	13241541055	13241544055	
	DTS Multi Controller	13249179055	13249171055	13249174055	13241579055	13241571055	13241574055	
Rated voltage ± 10%		AC 50 / 60		AC 60	AC 50 / 60		AC 60	Hz
		400 2~[1]	230	115	400 2~[1]	230	115	V
Cooling performance according to EN 14511	L35/L35	950			1500			W
	L35/L50	520			750			
Power consumption	L35/L35	576 / 697	515 / 623	842	950	907 / 1047	1220	
Current consumption	L35/L35	2.73 / 2.98	2.98 / 3.25	9.1	3.2	5.4 / 6	13.5	A
Starting current	L35/L35	13.94 / 15.19	23.3 / 25.4	33.2	20	33.2 / 27.6	31.7	
Unimpeded airflow (free flow)	internal	570			885			m^3/h
	external	570			885			
Pre fuse T		4	10	16	6	10	16	A
Type of connection		spring-type terminal included with plug						
Noise level according to EN ISO 3741		< 62						dB (A)
Weight (without packaging)	DTI	43	36		46	39		kg
	DTS	45	38		48	41		
Ambient temperature range		+15 … +55 / +59 … +131						°C / °F
Control range (adjustable)	SC	+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95						
	MC	+ 25 … + 50 / + 77 … + 122; factory setting + 35 / + 95						
Refrigerant	R134a	400						g
Duty cycle		100						%
Condensate management		condensate drain; integrated condensate evaporation system optional						
Protection system according to EN 60529	IP 54	towards the electrical enclosure if used as intended by the manufacturer						
	IP 34	towards the surroundings if used as intended by the manufacturer						
Design	housing	galvanised sheet steel						
	cover	galvanised/electrostatically powder coated (200 °C); stainless steel on request						
Colour (cover)		RAL 7035, different colours available on request						

Accessories	Piece	Article number	Information on page
External condensate evaporation system	1	18314000001	74
Condensate bottle	1	18314000100	74

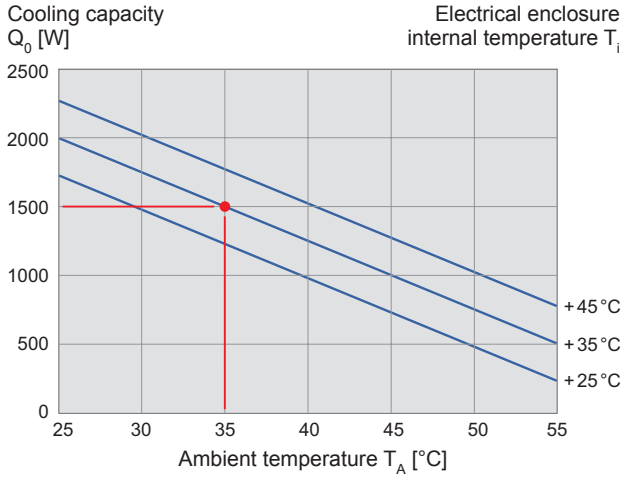
[1] suitable for various supply voltages (see technical specific data sheet)
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTI/DTS 9141



DTI/DTS 9341C

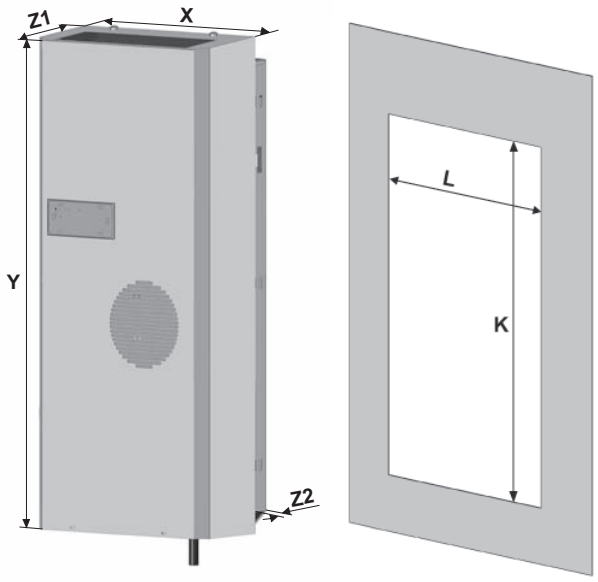


Dimensions

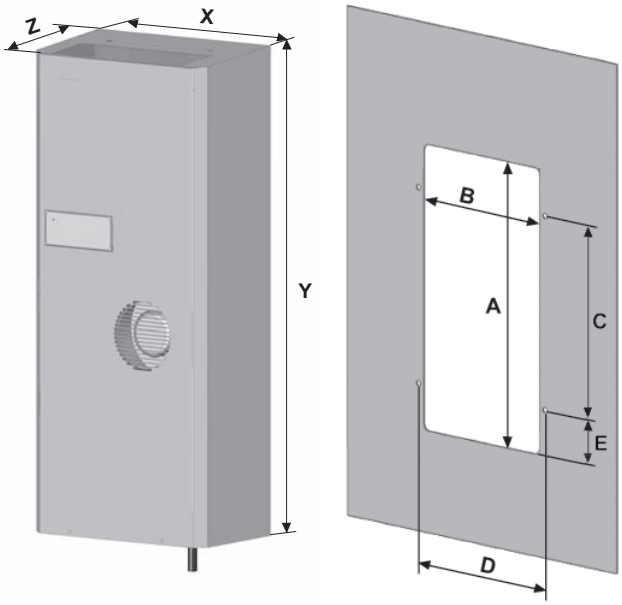
DTI	X	Y	Z1	Z2	K	L
mm	410	958	188	60	900	380
DTI variants partially recessed by 60 mm after installation						

DTS	X	Y	Z	A	B	C	D	E
mm	410	964	248	662	320	562	350	55
Mounting holes Ø 8 mm and cut-out radii R20								

DTI 9141/DTI 9341C



DTS 9141/DTS 9341C



Cooling unit 870 W
DTI/DTS 9041

DTI: for partially recessed mounting of the cooling unit in the door or side
DTS: for outer mounting of the cooling unit on the door or side

- suitable for use with a door width of 400 mm
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- integrated fault and door contact
- optionally available with integrated condensate evaporation system
- DTI variants: fast mounting without drilling and adhering the electrical enclosure seal

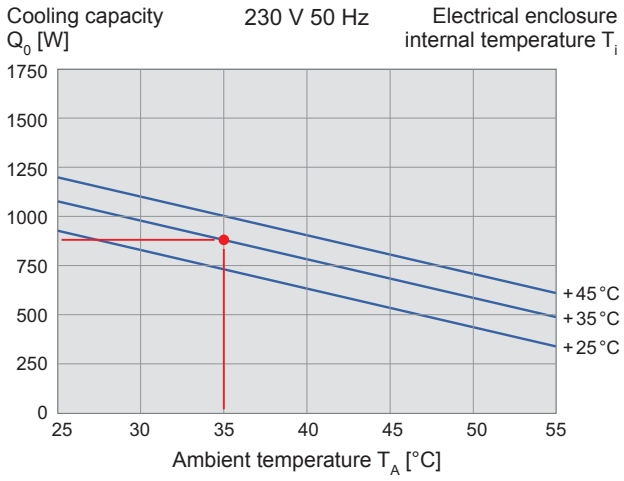
Data		DTI/DTS 9041			Unit
Article number	DTI Standard Controller	13299049055	13299041055	13299044055	
	DTI Multi Controller	13299079055	13299071055	13299074055	
	DTS Standard Controller	13249049055	13249041055	13249044055	
	DTS Multi Controller	13249079055	13249071055	13249074055	
Rated voltage ± 10%		AC 50 / 60		AC 60	Hz
		400 2~[1]	230	115	V
Cooling performance according to EN 14511	L35/L35	810	870	790	W
	L35/L50	483	580	590	
Power consumption	L35/L35	580 / 702	524 / 634	783	
Current consumption	L35/L35	3.2 / 3.49	3.06 / 3.34	7.6	A
Starting current	L35/L35	20.2 / 22.02	22.16 / 24.15	40.1	
Unimpeded airflow (free flow)	internal	570			m^3/h
	external	570			
Pre fuse T		4	10	16	A
Type of connection		spring-type terminal included with plug			
Noise level according to EN ISO 3741		< 63		< 64	dB (A)
Weight (without packaging)	DTI	37	29.5		kg
	DTS	37	29.5		
Ambient temperature range		+ 15 … + 55 / + 59 … + 131			°C / °F
Control range (adjustable)	SC	+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95			
	MC	+ 25 … + 50 / + 77 … + 122; factory setting + 35 / + 95			
Refrigerant	R134a	400			g
Duty cycle		100			%
Condensate management		condensate drain; integrated condensate evaporation system optional			
Protection system according to EN 60529	IP 54	towards the electrical enclosure if used as intended by the manufacturer			
	IP 34	towards the surroundings if used as intended by the manufacturer			
Design	housing	galvanised sheet steel			
	cover	galvanised/electrostatically powder coated (200 °C); stainless steel on request			
Colour (cover)		RAL 7035, different colours available on request			

Accessories	Piece	Article number	Information on page
External condensate evaporation system	1	18314000001	74
Condensate bottle	1	18314000100	74

[1] suitable for various supply voltages (see technical specific data sheet)
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTI/DTS 9041

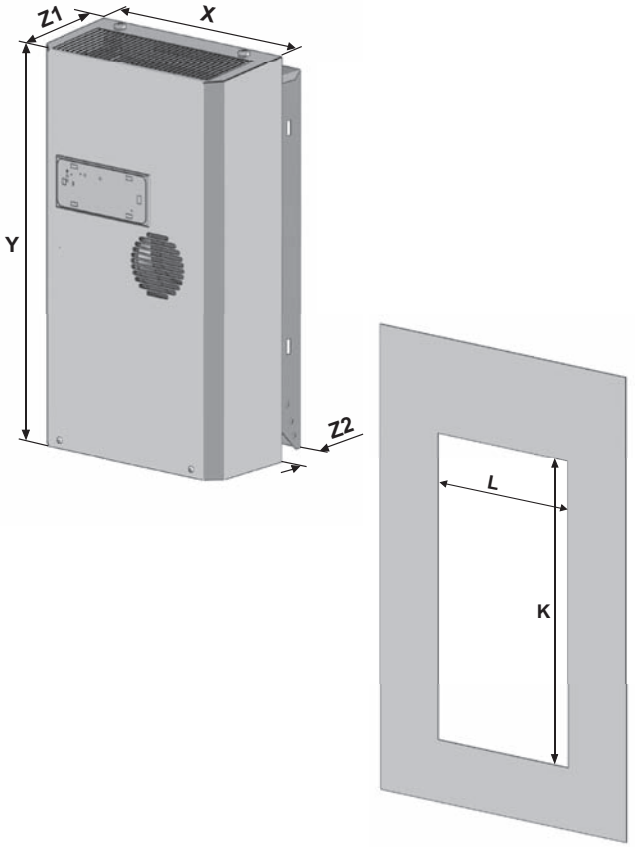


Dimensions

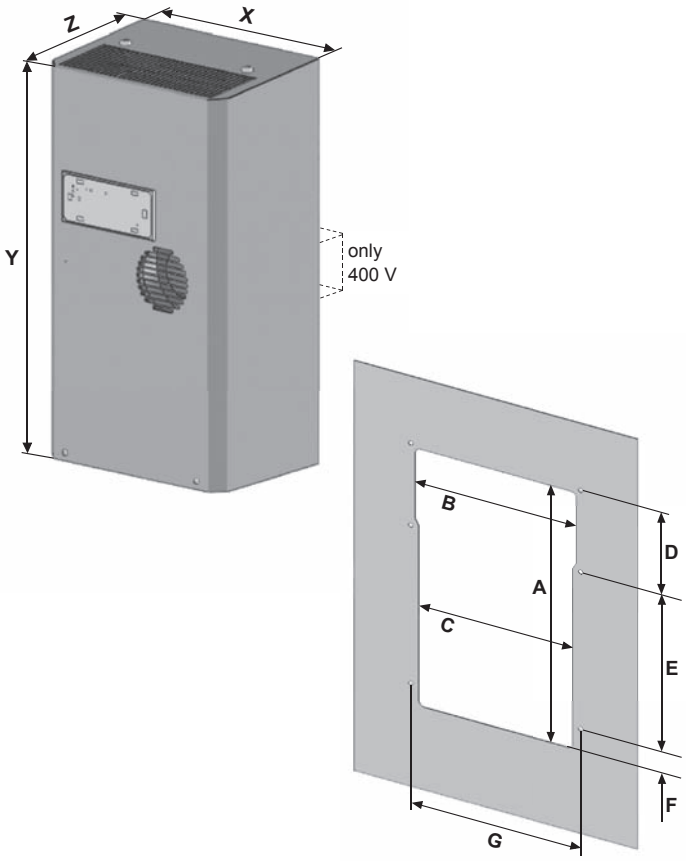
DTI	X	Y	Z1	Z2 115V / 230V	Z2 400V	K	L
mm	380	599	171	60	192	577	350
DTI variants partially recessed by 60 mm after installation							

DTS	X	Y	Z 115V / 230V	Z 400V	A	B	C	D	E	F	G
mm	380	604	231	363	472	285	272	150	288	40	300
Mounting holes Ø 8 mm and cut-out radii R20											

DTI 9041



DTS 9041



Cooling unit 510 W
DTI/DTS 9031

DTI: for partially recessed mounting of the cooling unit in the door or side
DTS: for outer mounting of the cooling unit on the door or side

- suitable for use with a door width of 400 mm
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- integrated fault and door contact
- DTI variants: fast mounting without drilling and adhering the electrical enclosure seal

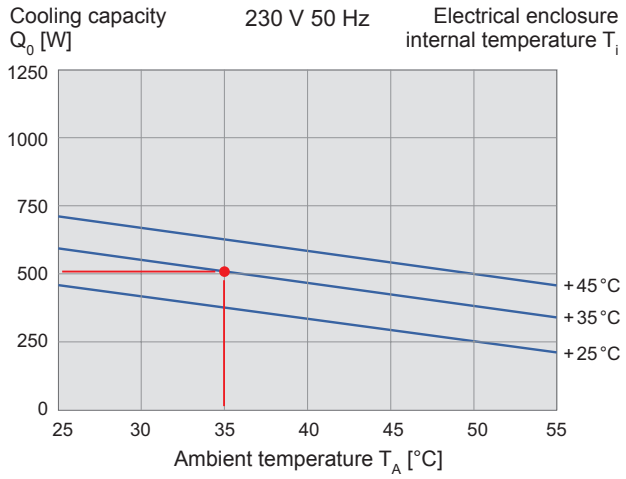
Data		DTI/DTS 9031			Unit
Article number	DTI Standard Controller	13295049055	13295041055	13295044055	
	DTI Multi Controller	13295079055	13295071055	13295074055	
	DTS Standard Controller	13245049055	13245041055	13245044055	
	DTS Multi Controller	13245079055	13245071055	13245074055	
Rated voltage ± 10%		AC 50 / 60		AC 60	Hz
		400 2~[1]	230	115	V
Cooling performance according to EN 14511	L35/L35	410 / 540	510 / 580	585	W
	L35/L50	305 / 360	365 / 395	545	
Power consumption	L35/L35	297 / 354	283 / 337	322	
Current consumption	L35/L35	1.59 / 1.53	1.58 / 1,64	3.29	A
Starting current	L35/L35	8.63 / 7.86	14.31 / 13.8	26.15	
Unimpeded airflow (free flow)	internal	280			m^3/h
	external	345			
Pre fuse T		4	6	10	A
Type of connection		spring-type terminal included with plug			
Noise level according to EN ISO 3741		63			dB (A)
Weight (without packaging)	DTI	26	21		kg
	DTS	27	22		
Ambient temperature range		+ 15 … + 55 / + 59 … + 131			°C / °F
Control range (adjustable)	SC	+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95			
	MC	+ 25 … + 50 / + 77 … + 122; factory setting + 35 / + 95			
Refrigerant	R134a	250			g
Duty cycle		100			%
Condensate management		condensate drain			
Protection system according to EN 60529	IP 54	towards the electrical enclosure if used as intended by the manufacturer			
	IP 34	towards the surroundings if used as intended by the manufacturer			
Design	housing	galvanised sheet steel			
	cover	galvanised/electrostatically powder coated (200 °C); stainless steel on request			
Colour (cover)		RAL 7035, different colours available on request			

Accessories	Piece	Article number	Information on page
External condensate evaporation system	1	18314000001	74
Condensate bottle	1	18314000100	74

[1] suitable for various supply voltages (see technical specific data sheet)
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTI/DTS 9031

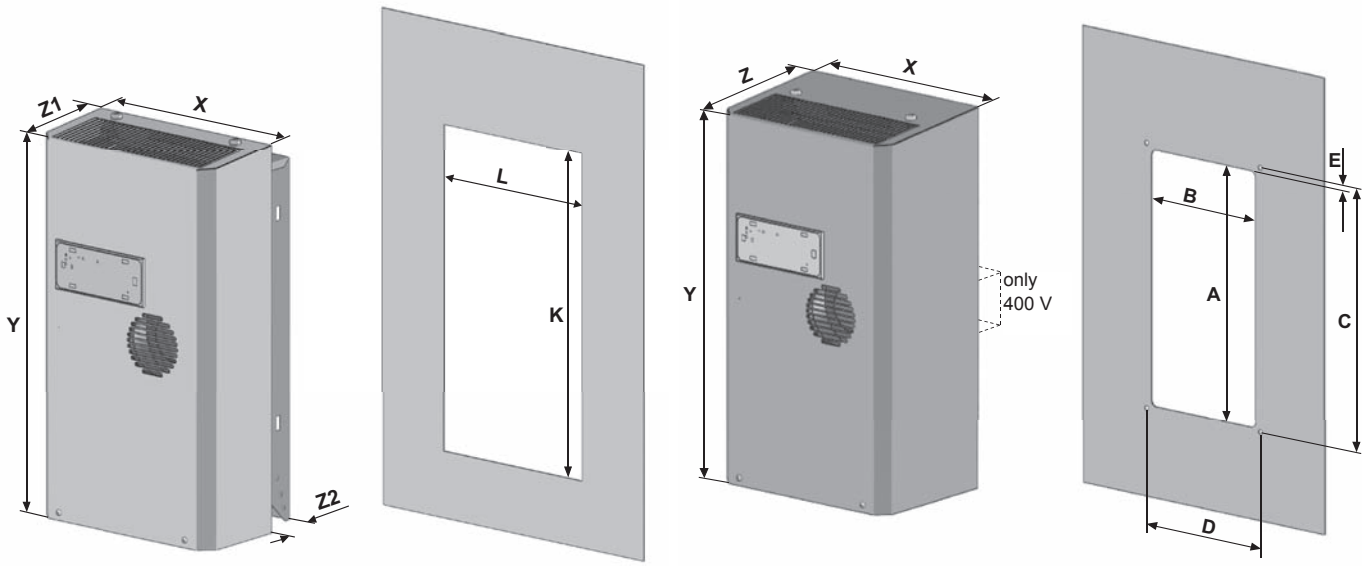


Dimensions

DTI	X	Y	Z1	Z2 115V / 230V	Z2 400V	K	L
mm	310	562	145	67	208	495	265
DTI variants partially recessed by 67 mm after installation							

DTS	X	Y	Z 115V / 230V	Z 400V	A	B	C	D	E
mm	310	565	212	353	422	215	435	235	8
Mounting holes Ø 8 mm and cut-out radii R20									

DTI 9031 | **DTS 9031**



Cooling units 320 W
DTFI 9021
DTI 9021

- compact design, ideal for flat control cabinets, control consoles and operating units
- diagnostic message via operating display
- integrated fault and door contact
- optionally available with integrated condensate evaporation system

DTFI variants:

- simple and fast mounting without drilling
- small structural height for integration in machine control cabinets
- cut-out compatible with 3rd and 4th Generation Filterfans, installation size 6

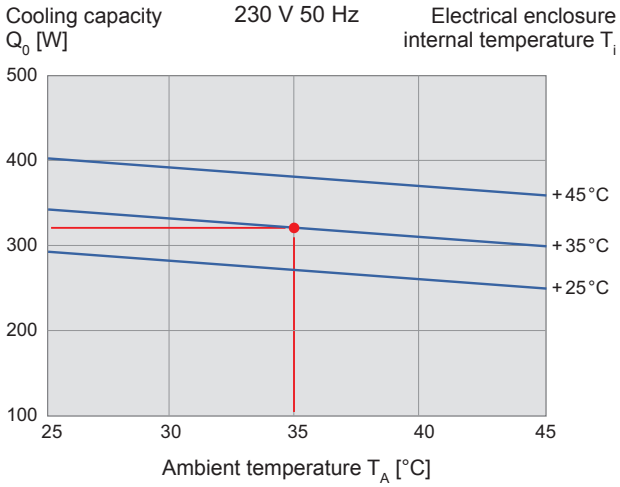
Data		DTFI 9021			DTI 9021		Unit
Article number	Standard Controller	13293149055	13293141055	13293144055	13293041055	13293044055	
Rated voltage ± 10%		AC 50 / 60		AC 60	AC 50 / 60	AC 60	Hz
		400 2~[1]	230	115	230	115	V
Cooling performance according to EN 14511	L35/L35	230 / 290	320 / 340	320	320 / 340	320	W
	L35/L45	220 / 280	300 / 330	250	300 / 330	250	
Power consumption	L35/L35	200 / 200	230 / 240	240	230 / 240	240	
Current consumption	L35/L35	1 / 0.9	1.6	2.7	1.6	2.7	A
Starting current	L35/L35	6.6 / 5.9	11.7 / 10.9	11.4	11.7 / 10.9	11.4	
Unimpeded airflow (free flow)	internal	282					m^3/h
	external	282					
Pre fuse T		4	6	6	6	6	A
Type of connection		spring-type terminal included with plug					
Noise level according to EN ISO 3741		< 62					dB (A)
Weight (without packaging)		22	16		17		kg
Ambient temperature range		+ 15 … + 45 / + 59 … + 113					°C / °F
Control range (adjustable)		+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95					
Refrigerant	R134a	350					g
Duty cycle		100					%
Condensate management		condensate drain; integrated condensate evaporation system optional					
Protection system according to EN 60529	IP 54	towards the electrical enclosure if used as intended by the manufacturer					
	IP 34	towards the surroundings if used as intended by the manufacturer					
Design	housing	galvanised sheet steel					
	cover	galvanised/electrostatically powder coated (200 °C); stainless steel on request					
Colour (cover)		RAL 7035, different colours available on request					

Accessories	Piece	Article number	Information on page
External condensate evaporation system	1	18314000001	74
Condensate bottle	1	18314000100	74

[1] suitable for various supply voltages (see technical specific data sheet)
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTFI 9021 / DTI 9021



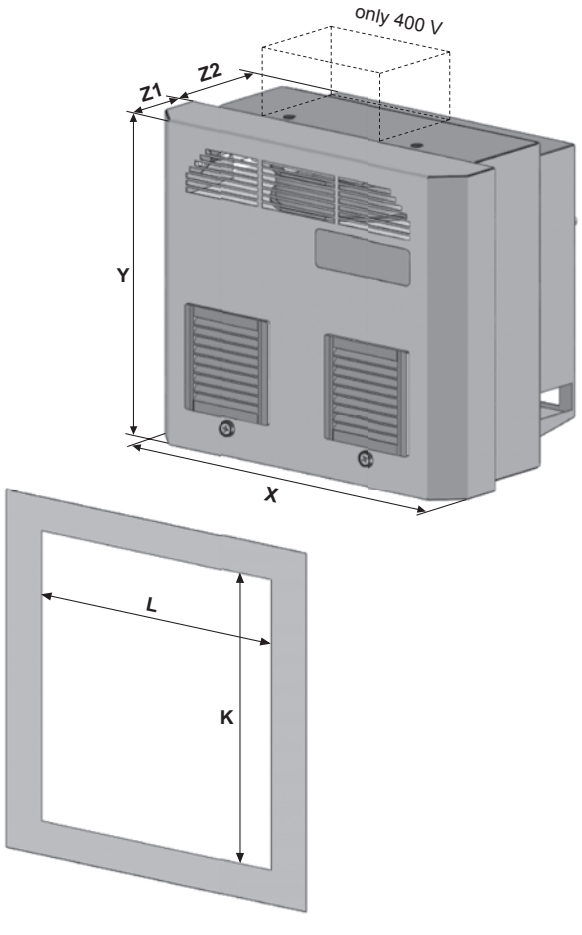
Dimensions

DTFI	X	Y 115V / 230V	Y 400V	Z1	Z2	K	L
mm	385	326	464	75	170	291	291

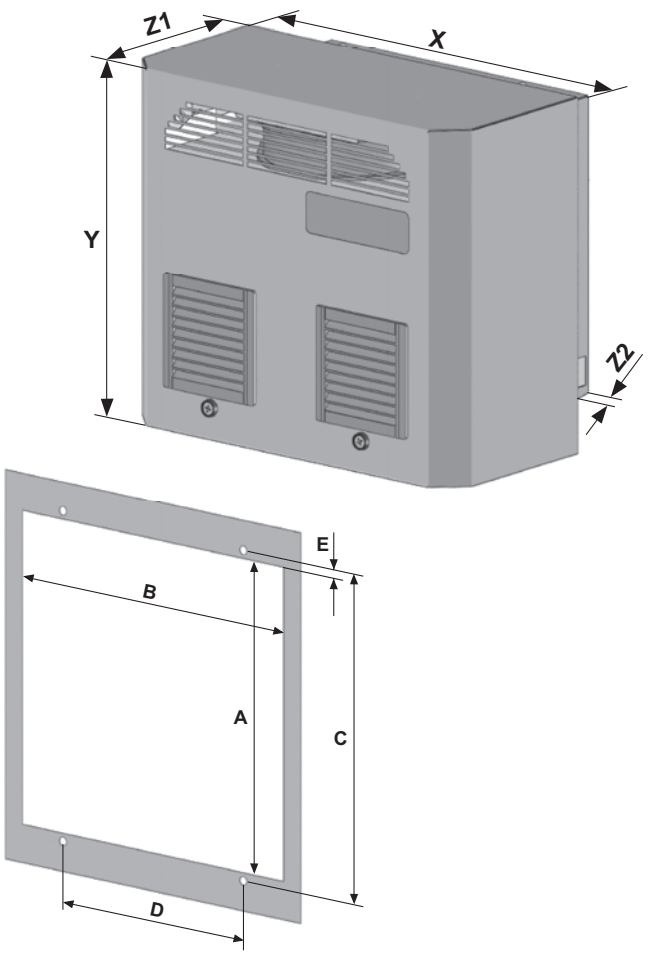
DTI	X	Y 115V / 230V	Z1	Z2	A	B	C	D	E
mm	385	329	178	67	289	304	304	210	7.5

Mounting holes Ø 8 mm and cut-out radii R20

DTFI 9021



DTI 9021



Cooling unit 300 W
DTS 9011H

- service-friendly, compact design
- small mounting area, ideal for small electrical enclosures and larger electrical enclosures for the cooling of hot spots
- simple and fast mounting with brackets for door or side mounting
- powerful radial fans ensure optimum air circulation inside the enclosure
- integrated collective fault and door contact (potential-free)
- 100% reliability with controllers by Pfannenberg

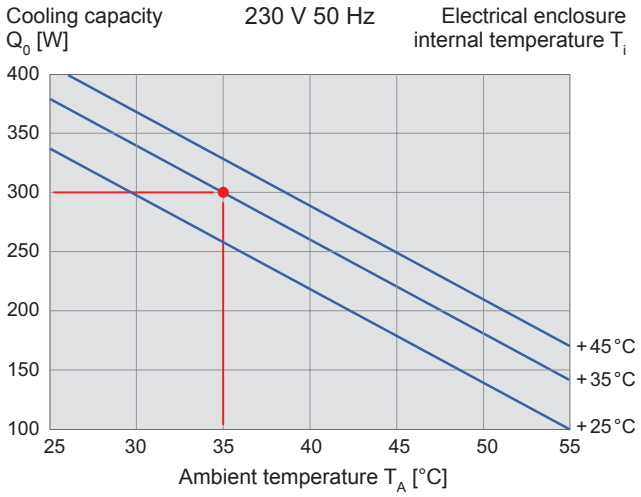
Data		DTS 9011H	Unit
Article number	Standard Controller	13242541055	
Rated voltage ± 10%		AC 50 / 60	Hz
		230	V
Cooling performance according to EN 14511	L35/L35	300	W
	L35/L45	180	
Power consumption	L35/L35	275 / 290	
Current consumption	L35/L35	1.52 / 1.56	A
Starting current	L35/L35	4.52 / 4.66	
Unimpeded airflow (free flow)	internal	160	m^3/h
	external	160	
Pre fuse T		16	A
Type of connection		spring-type terminal included with plug	
Noise level according to EN ISO 3741		< 65	dB (A)
Weight (without packaging)		15	kg
Ambient temperature range		+ 15 … + 45 / + 59 … + 113	°C / °F
Control range (adjustable)		+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95	
Refrigerant	R134a	130	g
Duty cycle		100	%
Condensate management		condensate drain	
Protection system according to EN 60529	IP 54	towards the electrical enclosure if used as intended by the manufacturer	
	IP 34	towards the surroundings if used as intended by the manufacturer	
Design	housing	galvanised sheet steel	
	cover	galvanised/electrostatically powder coated (200 °C); stainless steel on request	
Colour (cover)		RAL 7035, different colours available on request	

Accessories	Piece	Article number	Information on page
External condensate evaporation system	1	18314000001	74
Condensate bottle	1	18314000100	74

Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

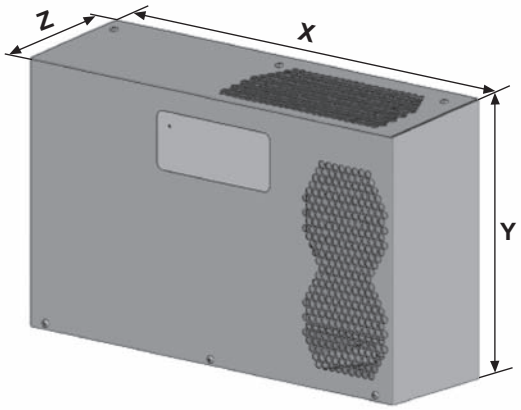
DTS 9011H

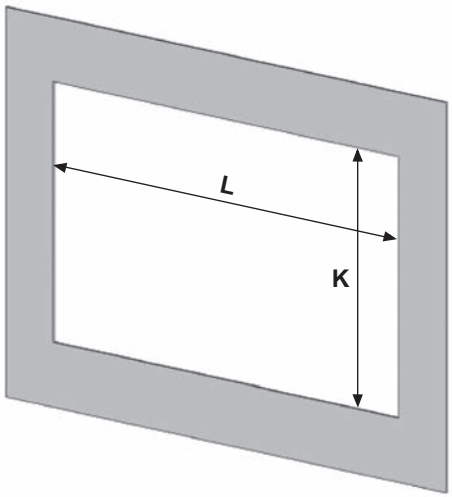


Dimensions

	X	Y	Z	K	L
mm	495	300	140	281	471

DTS 9011H





Cooling units 2500 / 2000 W
DTS 7541
DTS 7441

- powerful radial fans ensure optimum air circulation inside the enclosure
- sealed with protective edging, no extensive work on the installation cut-out necessary
- new standard electronics

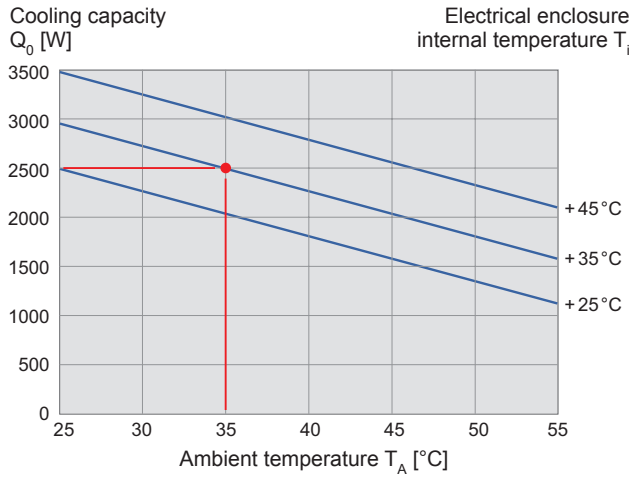
Data		DTS 7541	DTS 7441	Unit
Article number	Standard Controller	13287532055	13287432055	
	Multi Controller	13087562055	13087462055	
Rated voltage [1] ± 10%		AC 50 / 60		Hz
		400 / 460 3~		V
Cooling performance according to EN 14511	L35/L35	2500	2000	W
	L35/L50	1800	1500	
Power consumption	L35/L35	1400	1200	
Current consumption	L35/L35	3.2	2.8	A
Starting current	L35/L35	11.5	10.4	
Unimpeded airflow (free flow)	internal	900	850	m^3/h
	external	1000	1000	
Pre fuse T		10		A
Type of connection		spring-type terminal included with plug		
Noise level according to EN ISO 3741		< 65		dB (A)
Weight (without packaging)		75		kg
Ambient temperature range		+ 15 … + 55 / + 59 … + 131		°C / °F
Control range (adjustable)	SC	+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95		
	MC	+ 25 … + 50 / + 77 … + 122; factory setting + 35 / + 95		
Refrigerant	R134a	850		g
Duty cycle		100		%
Condensate management		condensate drain		
Protection system according to EN 60529	IP 54	towards the electrical enclosure if used as intended by the manufacturer		
	IP 34	towards the surroundings if used as intended by the manufacturer		
Design	housing	galvanised sheet steel		
	cover	galvanised/electrostatically powder coated (200 °C); stainless steel on request		
Colour (cover)		RAL 7035, different colours available on request		

Accessories	Piece	Article number	Information on page
External condensate evaporation system	1	18314000001	74
Condensate bottle	1	18314000100	74

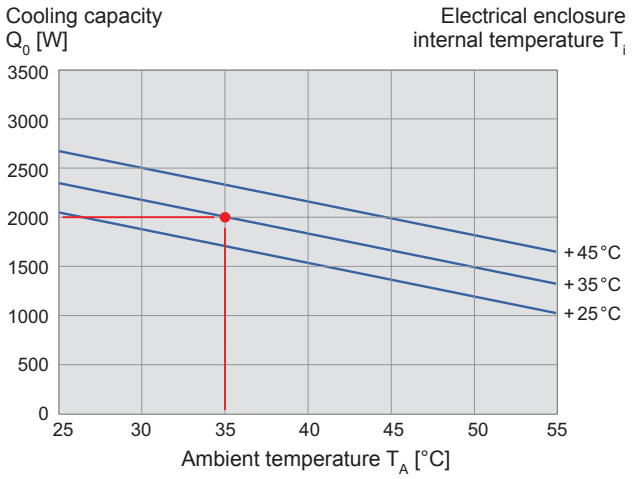
[1] suitable for various supply voltages (see technical specific data sheet)
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTS 7541



DTS 7441

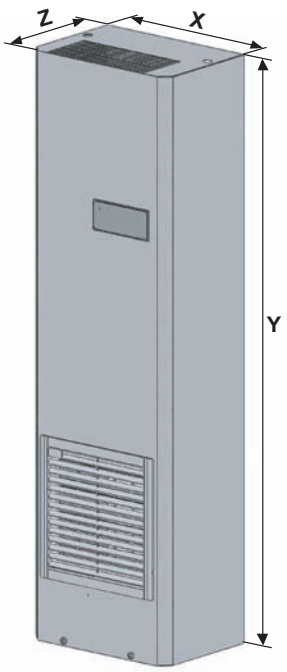


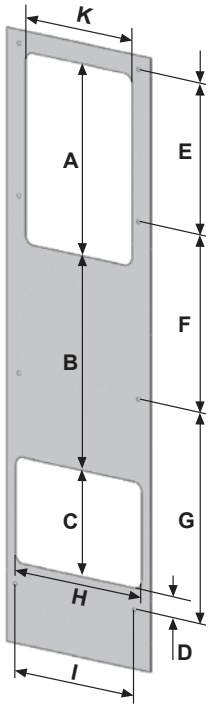
Dimensions

	X	Y	Z	A	B	C	D	E	F	G	H	I	K
mm	397	1350	270	421.5	471.5	234	47.5	335	390	465	350	330	295

Mounting holes Ø 8 mm and cut-out radii R20

DTS 7541 / DTS 7441





Cooling units 1500 / 1000 W
DTS 7341
DTS 7241

- powerful radial fans ensure optimum air circulation inside the enclosure
- sealed with protective edging, no extensive work on the installation cut-out necessary
- temperature regulated by integrated thermostat

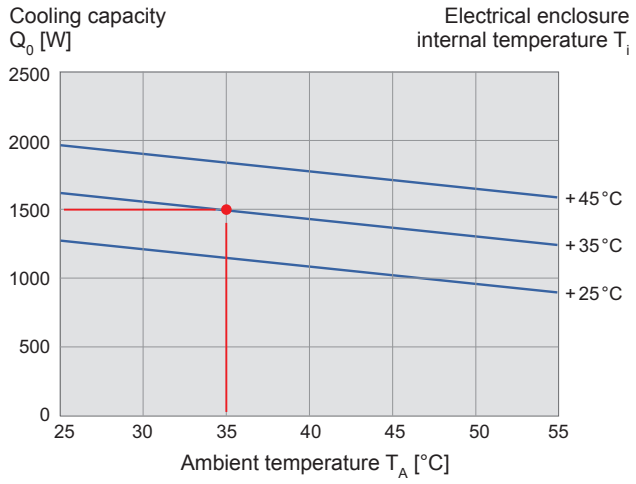
Data		DTS 7341			DTS 7241		Unit
Article number	thermostat control	13087319055	13287311055	13287314055	13287211055	13287214055	
Rated voltage ± 10%		AC 50 / 60		AC 60	AC 50 / 60	AC 60	Hz
		400 2~[1]	230	115	230	115	V
Cooling performance according to EN 14511	L35/L35	1500			1000		W
	L35/L50	1200			780		
Power consumption	L35/L35	920	810	1100	670	780	
Current consumption	L35/L35	2.3	4.3	13.4	3.0	7.4	A
Starting current	L35/L35	9.3	16.5	26.8	14.7	24.9	
Unimpeded airflow (free flow)	internal	560	270		270		m^3/h
	external	760	450		450		
Pre fuse T		6	16				A
Type of connection		connection cable > 2000 mm					
Noise level according to EN ISO 3741		< 62					dB (A)
Weight (without packaging)		58			53		kg
Ambient temperature range		+ 15 … + 55 / + 59 … + 131					°C / °F
Control range (adjustable)		+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95					
Refrigerant	R134a	530			480		g
Duty cycle		100					%
Condensate management		condensate drain					
Protection system according to EN 60529	IP 54	towards the electrical enclosure if used as intended by the manufacturer					
	IP 34	towards the surroundings if used as intended by the manufacturer					
Design	housing	galvanised sheet steel					
	cover	galvanised/electrostatically powder coated (200 °C); stainless steel on request					
Colour (cover)		RAL 7035, different colours available on request					

Accessories	Piece	Article number	Information on page
External condensate evaporation system	1	18314000001	74
Condensate bottle	1	18314000100	74

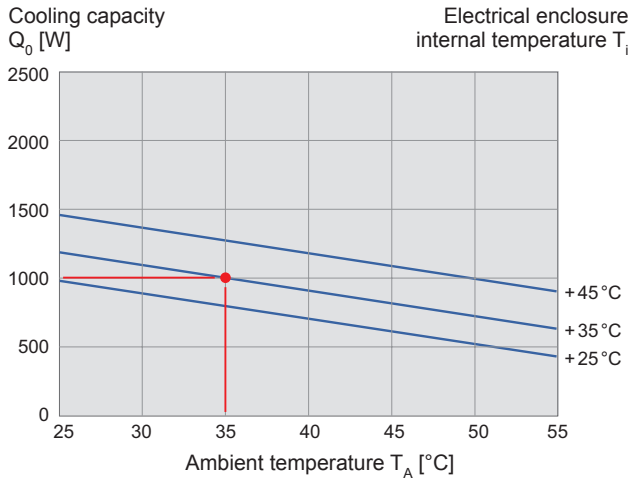
[1] suitable for various supply voltages (see technical specific data sheet)
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTS 7341



DTS 7241

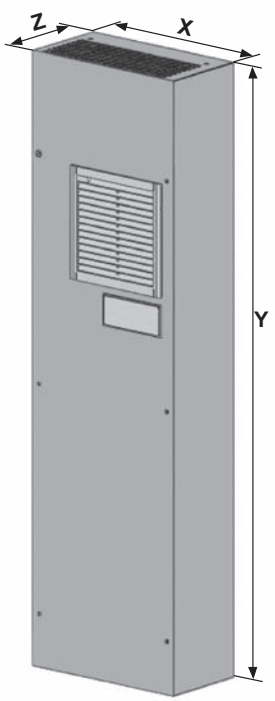


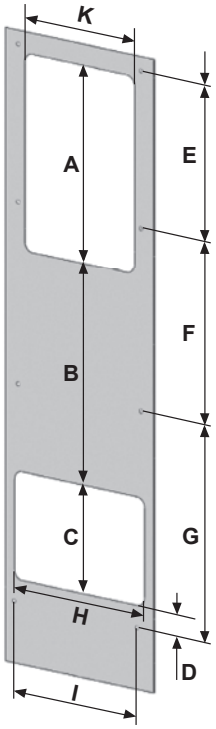
Dimensions

	X	Y	Z	A	B	C	D	E	F	G	H	I	K
mm	390	1350	200	421.5	471.5	234	47.5	335	390	465	350	330	295

Mounting holes Ø 8 mm and cut-out radii R20

DTS 7341 / DTS 7241





Cooling units 5500 W
DTS 3661 (NEMA 3R/4)
DTS 3681 (NEMA 4/4X)

- particularly suitable for the food industry and outdoor applications
- high protection system IP 56, maintenance-free
- maintains a UL tested NEMA type 3R/4 seal against the enclosure
- condenser with 3 mm fin spacing, highly effective protection against strongly contaminated ambient air
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- integrated condensate evaporation system

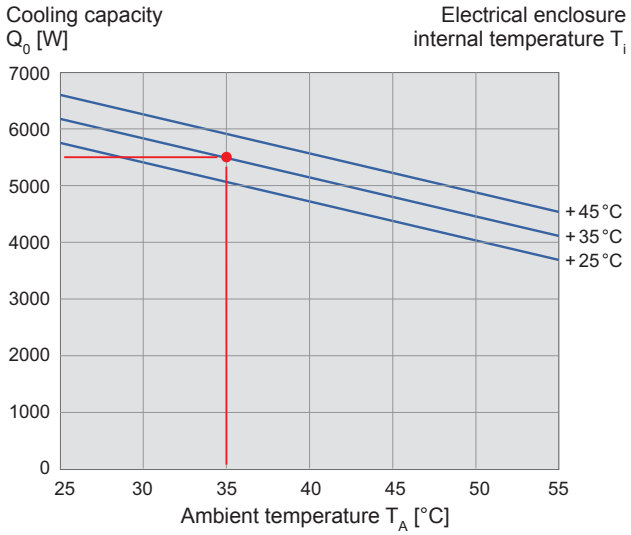
Data		DTS 3661 (NEMA 3R/4)	DTS 3681 (NEMA 4/4X)	Unit
Article number	Standard Controller	13383932355	13383932158	
	LAP [1]	13383936375	13383936178	
Rated voltage ± 10%		AC 50 / 60		Hz
		400 / 460 3~		V
Cooling performance according to EN 14511	L35/L35	5500		W
	L35/L50	4400		
Power consumption	L35/L35	2275 / 2920		
Current consumption	L35/L35	6.3		A
Starting current	L35/L35	25		
Unimpeded airflow (free flow)	internal	2740		m^3/h
	external	2740		
Pre fuse T		10		A
Type of connection		spring-type terminal included with plug		
Noise level according to EN ISO 3741		< 73		dB (A)
Weight (without packaging)		108	109	kg
Ambient temperature range	SC	+ 15 … + 55 / + 59 … + 131		°C / °F
	LAP	- 40 … + 55 / - 40 … + 131		
Control range (adjustable)		+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95		
Refrigerant	R134a	1300		g
Duty cycle		100		%
Condensate management		integrated condensate evaporation system with safety overflow		
Protection system according to NEMA type	3R/4	towards the electrical enclosure if used as intended by the manufacturer	-	
	4/4X	-	towards the electrical enclosure if used as intended by the manufacturer	
	1	towards the surroundings if used as intended by the manufacturer		
Design	housing	galvanised sheet steel		
	cover	galvanised/electrostatically powder coated (200 °C)	304 rust proof stainless steel	
Colour (cover)		RAL 7035, different colours available on request	-	

Accessories	Piece	Article number	Information on page
Condensate bottle	1	18314000100	74
Filter kit	1	18881500004	74

[1] LAP (Low Ambient Package): includes 1400 W enclosure heater and a thermostat to be placed inside the enclosure
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

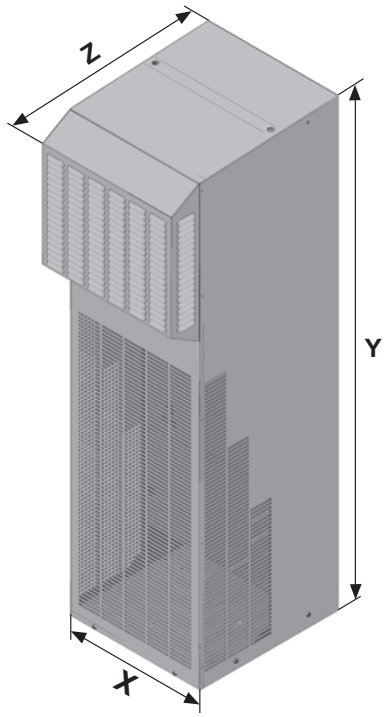
DTS 3661/3681

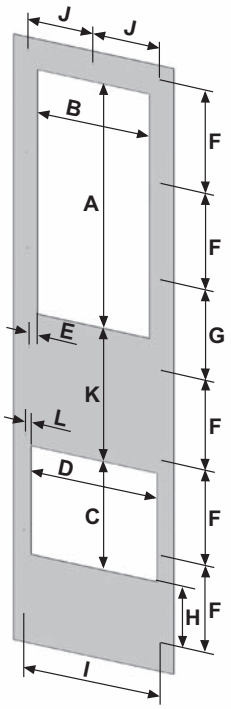


Dimensions

	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L
mm	483	1667	623	635	350	285	360	35	240	350	139	420	210	425	28.5
Mounting holes Ø 10 mm															

DTS 3661/3681





Cooling units 4000 W
DTS 3561 (NEMA 3R/4)
DTS 3581 (NEMA 4/4X)

- particularly suitable for the food industry and outdoor applications
- high protection system IP 56, maintenance-free
- maintains a UL tested NEMA type 3R/4 seal against the enclosure
- condenser with 3 mm fin spacing, highly effective protection against strongly contaminated ambient air
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- integrated condensate evaporation system

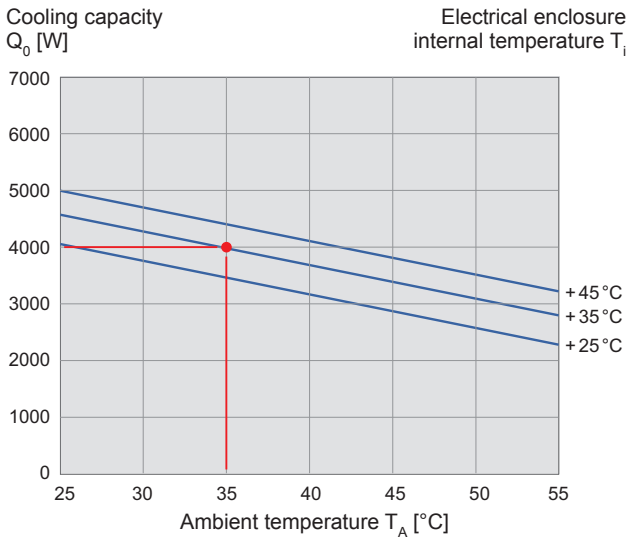
Data		DTS 3561 (NEMA 3R/4)	DTS 3581 (NEMA 4/4X)	Unit
Article number	Standard Controller	13383532355	13383532158	
	LAP [1]	13383536375	13383536178	
Rated voltage ± 10%		AC 50 / 60		Hz
		400 / 460 3~		V
Cooling performance according to EN 14511	L35/L35	4000		W
	L35/L50	3100		
Power consumption	L35/L35	1365 / 1815		
Current consumption	L35/L35	4.4		A
Starting current	L35/L35	16		
Unimpeded airflow (free flow)	internal	1340		m^3/h
	external	2380		
Pre fuse T		10		A
Type of connection		spring-type terminal included with plug		
Noise level according to EN ISO 3741		< 72		dB (A)
Weight (without packaging)		104	105	kg
Ambient temperature range	SC	+ 15 … + 55 / + 59 … + 131		°C / °F
	LAP	- 40 … + 55 / - 40 … + 131		
Control range (adjustable)		+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95		
Refrigerant	R134a	1200		g
Duty cycle		100		%
Condensate management		integrated condensate evaporation system with safety overflow		
Protection system according to NEMA type	3R/4	towards the electrical enclosure if used as intended by the manufacturer	-	
	4/4X	-	towards the electrical enclosure if used as intended by the manufacturer	
	1	towards the surroundings if used as intended by the manufacturer		
Design	housing	galvanised sheet steel		
	cover	galvanised/electrostatically powder coated (200 °C)	304 rust proof stainless steel	
Colour (cover)		RAL 7035, different colours available on request	-	

Accessories	Piece	Article number	Information on page
Condensate bottle	1	18314000100	74
Filter kit	1	18881500003	74

[1] LAP (Low Ambient Package): includes 1400 W enclosure heater and a thermostat to be placed inside the enclosure
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

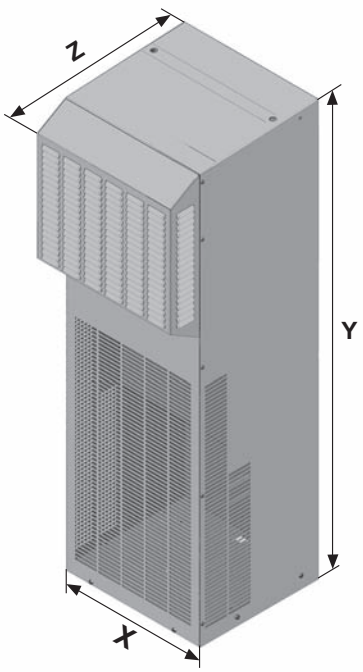
DTS 3561/3581

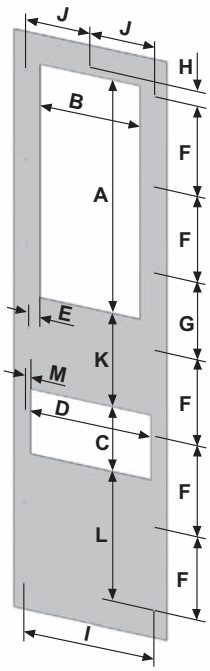


Dimensions

	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M
mm	483	1502	534	590	285	150	380	67.5	216	280	26	420	210	310	320	20
Mounting holes Ø 10 mm																

DTS 3561/3581





Cooling units 2800 W
DTS 3361 (NEMA 3R/4)
DTS 3381 (NEMA 4/4X)

- particularly suitable for the food industry and outdoor applications
- high protection system IP 56, maintenance-free
- maintains a UL tested NEMA type 3R/4 seal against the enclosure
- condenser with 3 mm fin spacing, highly effective protection against strongly contaminated ambient air
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- integrated condensate evaporation system

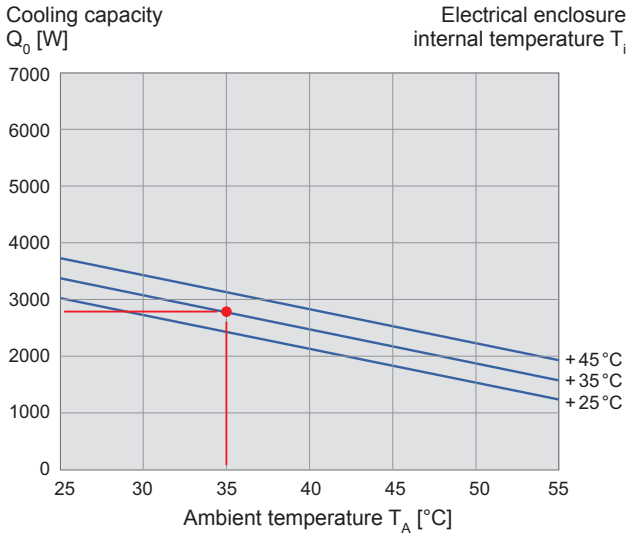
Data		DTS 3361 (NEMA 3R/4)	DTS 3381 (NEMA 4/4X)	Unit
Article number	Standard Controller	13383032355	13383032158	
	LAP [1]	13383036375	13383036178	
Rated voltage ± 10%		AC 50 / 60		Hz
		400 / 460 3~		V
Cooling performance according to EN 14511	L35/L35	2800		W
	L35/L50	1800		
Power consumption	L35/L35	1200 / 1600		
Current consumption	L35/L35	3.6		A
Starting current	L35/L35	16		
Unimpeded airflow (free flow)	internal	1400		m^3/h
	external	1685		
Pre fuse T		6		A
Type of connection		spring-type terminal included with plug		
Noise level according to EN ISO 3741		< 72		dB (A)
Weight (without packaging)		101		kg
Ambient temperature range	SC	+ 15 … + 55 / + 59 … + 131		°C / °F
	LAP	- 40 … + 55 / - 40 … + 131		
Control range (adjustable)		+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95		
Refrigerant	R134a	1000		g
Duty cycle		100		%
Condensate management		integrated condensate evaporation system with safety overflow		
Protection system according to NEMA type	3R/4	towards the electrical enclosure if used as intended by the manufacturer	-	
	4/4X	-	towards the electrical enclosure if used as intended by the manufacturer	
	1	towards the surroundings if used as intended by the manufacturer		
Design	housing	galvanised sheet steel		
	cover	galvanised/electrostatically powder coated (200 °C)	304 rust proof stainless steel	
Colour (cover)		RAL 7035, different colours available on request	-	

Accessories	Piece	Article number	Information on page
Condensate bottle	1	18314000100	74
Filter kit	1	18881500002	74

[1] LAP (Low Ambient Package): includes 1400 W enclosure heater and a thermostat to be placed inside the enclosure
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

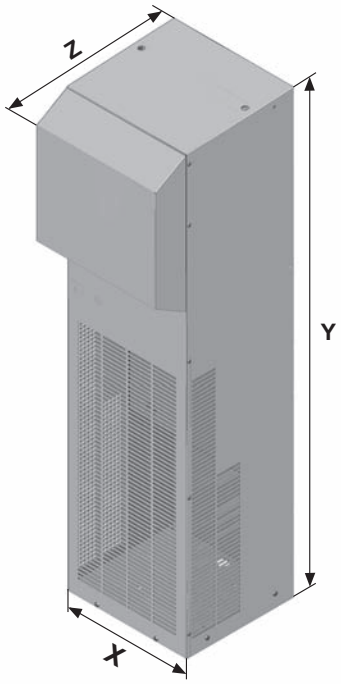
DTS 3361/3381

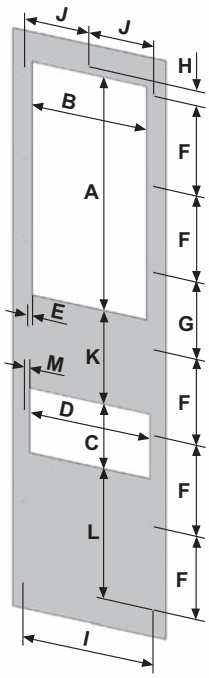


Dimensions

	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M
mm	403	1502	468	590	285	160	310	32.5	216	280	26	350	175	280	340	20
Mounting holes Ø 10 mm																

DTS 3361/3381





Cooling units 2900 W
DTS 3265 (NEMA 3R/4)
DTS 3285 (NEMA 4/4X)

- particularly suitable for the food industry and outdoor applications
- high protection system IP 56, maintenance-free
- maintains a UL tested NEMA type 3R/4 seal against the enclosure
- condenser with 3 mm fin spacing, highly effective protection against strongly contaminated ambient air
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- integrated condensate evaporation system

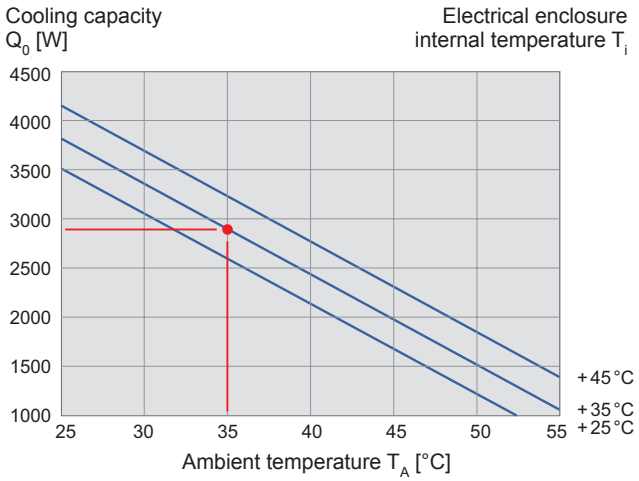
Data		DTS 3265 (NEMA 3R/4)		DTS 3285 (NEMA 4/4X)		Unit
Article number	Standard Controller	13383836355	13383839355	13383836158	13383839158	
	LAP [1]	13383836375	13383839375	13383836178	13383839178	
Rated voltage ± 10%		AC 50 / 60				Hz
		400 / 460 3~	230	400 / 460 3~	230	V
Cooling performance according to EN 14511	L35/L35	2900		2900		W
	L35/L50	1520		1520		
Power consumption	L35/L35	1700	1600	1700	1600	
Current consumption	L35/L35	2.6	7	2.6	7	A
Starting current	L35/L35	8	10	8	10	
Unimpeded airflow (free flow)	internal	1200				m^3/h
	external	1200				
Pre fuse T		5	15	5	15	A
Type of connection		spring-type terminal included with plug				
Noise level according to EN ISO 3741		< 73				dB (A)
Weight (without packaging)		68				kg
Ambient temperature range	SC	+ 15 … + 55 / + 59 … + 131				°C / °F
	LAP	- 40 … + 55 / - 40 … + 131				
Control range (adjustable)		+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95				
Refrigerant	R134a	1200				g
Duty cycle		100				%
Condensate management		integrated condensate evaporation system with safety overflow				
Protection system according to NEMA type	3R/4	towards the electrical enclosure if used as intended by the manufacturer		-		
	4/4X	-		towards the electrical enclosure if used as intended by the manufacturer		
	1	towards the surroundings if used as intended by the manufacturer				
Design	housing	galvanised sheet steel				
	cover	galvanised/electrostatically powder coated (200 °C)		304 rust proof stainless steel		
Colour (cover)		RAL 7035, different colours available on request		-		

Accessories	Piece	Article number	Information on page
Condensate bottle	1	18314000100	74
Filter kit	1	18881500007	74

[1] LAP (Low Ambient Package): includes 900 W enclosure heater and a thermostat to be placed inside the enclosure
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

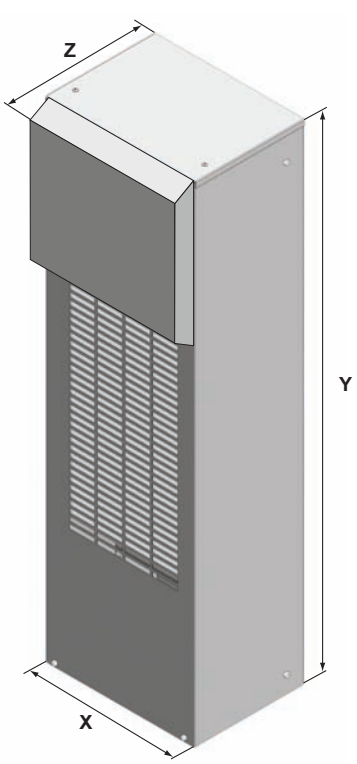
DTS 3265/3285

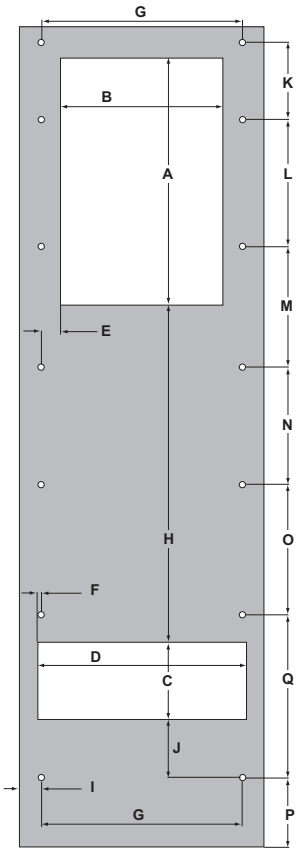


Dimensions

	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
mm	406	1347	367	427	280	135	348	25	9	330	537	35	92	126	209	198	192	214	114	267
Mounting holes Ø 8 mm																				

DTS 3265/3285





Cooling units 2000 W
DTS 3261 (NEMA 3R/4)
DTS 3281 (NEMA 4/4X)

- compact design, ideal for small control cabinets and larger control cabinets for the cooling of hot spots
- particularly suitable for the food industry and outdoor applications
- high protection system IP 56, maintenance-free
- maintains a UL tested NEMA type 3R/4 seal against the enclosure
- condenser with 3 mm fin spacing, highly effective protection against strongly contaminated ambient air
- integrated condensate evaporation system

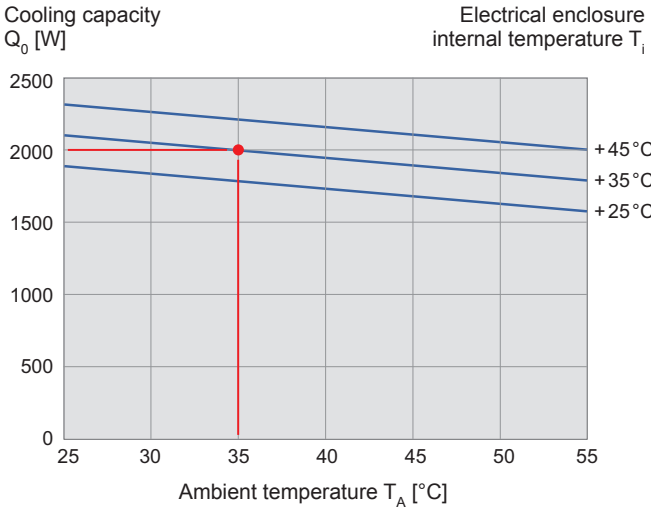
Data		DTS 3261 (NEMA 3R/4)			DTS 3281 (NEMA 4/4X)			Unit
Article number	Standard Controller	13385736355	13385741355	13385744355	13385736158	13385741158	13385744158	
	LAP [1]	13385736375	13385741375	13385744375	13385736178	13385741178	13385744178	
Rated voltage ± 10%		AC 50 / 60		AC 60	AC 50 / 60		AC 60	Hz
		400 / 460 3~	230	115	400 / 460 3~	230	115	V
Cooling performance according to EN 14511	L35/L35	2000						W
	L35/L50	1850						
Power consumption	L35/L35	1400	1425	1680	1400	1425	1680	
Current consumption	L35/L35	3.5	6.3	14.6	3.5	6.3	14.6	A
Starting current	L35/L35	10	21.8	53	10	21.8	53	
Unimpeded airflow (free flow)	internal	985						m^3/h
	external	985						
Pre fuse T		6	10	20	6	10	20	A
Type of connection		spring-type terminal included with plug						
Noise level according to EN ISO 3741		< 73						dB (A)
Weight (without packaging)		54			60			kg
Ambient temperature range	SC	+ 15 … + 55 / + 59 … + 131						°C / °F
	LAP	- 40 … + 55 / - 40 … + 131						
Control range (adjustable)		+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95						
Refrigerant	R134a	700						g
Duty cycle		100						%
Condensate management		integrated condensate evaporation system with safety overflow						
Protection system according to NEMA type	3R/4	towards the electrical enclosure if used as intended by the manufacturer			-			
	4/4X	-			towards the electrical enclosure if used as intended by the manufacturer			
	1	towards the surroundings if used as intended by the manufacturer						
Design	housing	galvanised sheet steel						
	cover	galvanised/electrostatically powder coated (200 °C)			304 rust proof stainless steel			
Colour (cover)		RAL 7035, different colours available on request			-			

Accessories	Piece	Article number	Information on page
Condensate bottle	1	18314000100	74
Filter kit	1	18881500004	74

[1] LAP (Low Ambient Package): includes 900 W enclosure heater and a thermostat to be placed inside the enclosure
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

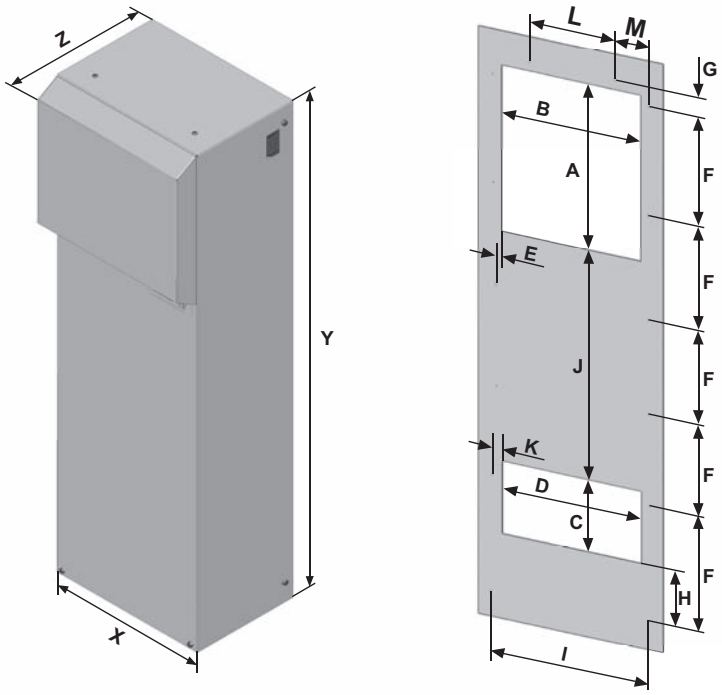
DTS 3261/3281



Dimensions

	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M
mm	395	1209	326	350	330	100	292	15	228.6	38.1	162.3	360	545	34	200	80
Mounting holes Ø 8 mm																

DTS 3261/3281



Cooling units 1600 W
DTS 3165 (NEMA 3R/4)
DTS 3185 (NEMA 4/4X)

- particularly suitable for the food industry and outdoor applications
- high protection system IP 56, maintenance-free
- maintains a UL tested NEMA type 3R/4 seal against the enclosure
- condenser with 3 mm fin spacing, highly effective protection against strongly contaminated ambient air
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- integrated condensate evaporation system

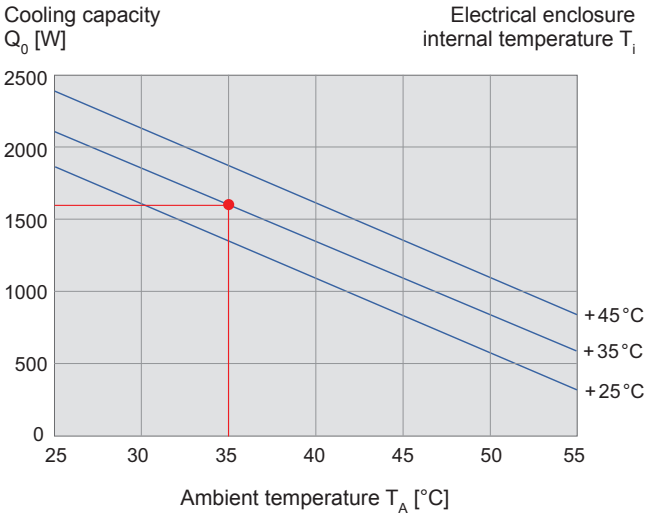
Data		DTS 3165 (NEMA 3R/4)		DTS 3185 (NEMA 4/4X)		Unit
Article number	Standard Controller	13383636355	13383639355	13383636158	13383639158	
	LAP [1]	13383636375	13383639375	13383636178	13383639178	
Rated voltage ± 10%		AC 50 / 60				Hz
		400 / 460 3~	230	400 / 460 3~	230	V
Cooling performance according to EN 14511	L35/L35	1600		1600		W
	L35/L50	832		832		
Power consumption	L35/L35	1283	1020	1283	1020	
Current consumption	L35/L35	3	4.5	3	4.5	A
Starting current	L35/L35	8	10	8	10	
Unimpeded airflow (free flow)	internal	580				m^3/h
	external	1200				
Pre fuse T		5	10	5	10	A
Type of connection		spring-type terminal included with plug				
Noise level according to EN ISO 3741		< 70				dB (A)
Weight (without packaging)		49				kg
Ambient temperature range	SC	+ 15 … + 55 / + 59 … + 131				°C / °F
	LAP	- 40 … + 55 / - 40 … + 131				
Control range (adjustable)		+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95				
Refrigerant	R134a	400		900		g
Duty cycle		100				%
Condensate management		integrated condensate evaporation system with safety overflow				
Protection system according to NEMA type	3R/4	towards the electrical enclosure if used as intended by the manufacturer		-		
	4/4X	-		towards the electrical enclosure if used as intended by the manufacturer		
	1	towards the surroundings if used as intended by the manufacturer				
Design	housing	galvanised sheet steel				
	cover	galvanised/electrostatically powder coated (200 °C)		304 rust proof stainless steel		
Colour (cover)		RAL 7035, different colours available on request		-		

Accessories	Piece	Article number	Information on page
Condensate bottle	1	18314000100	74
Filter kit	1	18881500006	74

[1] LAP (Low Ambient Package): includes 900 W enclosure heater and a thermostat to be placed inside the enclosure
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

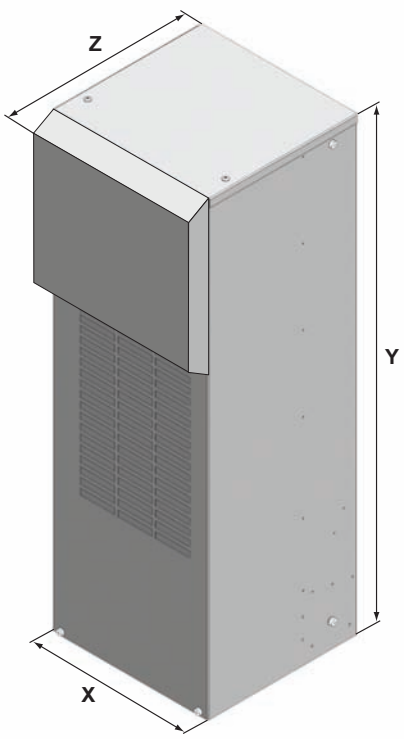
DTS 3165/3185

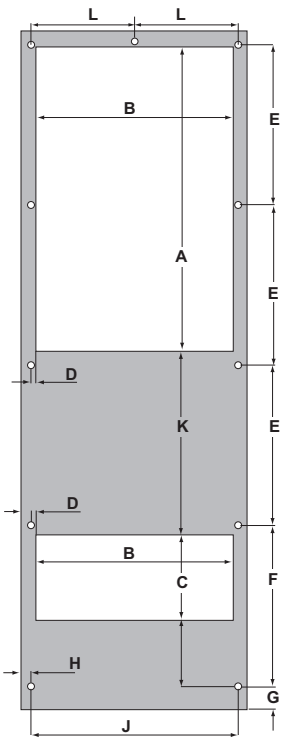


Dimensions

	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L
mm	311	914	367	430	264	118	8	216	216	32	13	80	279	228	139.5
Mounting holes Ø 10 mm															

DTS 3165/3185





Cooling units 1100 W
DTS 3161 (NEMA 3R/4)
DTS 3181 (NEMA 4/4X)

- compact design, ideal for small control cabinets and larger control cabinets for the cooling of hot spots
- particularly suitable for the food industry and outdoor applications
- maintains a UL tested NEMA type 3R/4 seal against the enclosure
- high protection system IP 56, maintenance-free
- condenser with 3 mm fin spacing, highly effective protection against strongly contaminated ambient air
- integrated condensate evaporation system

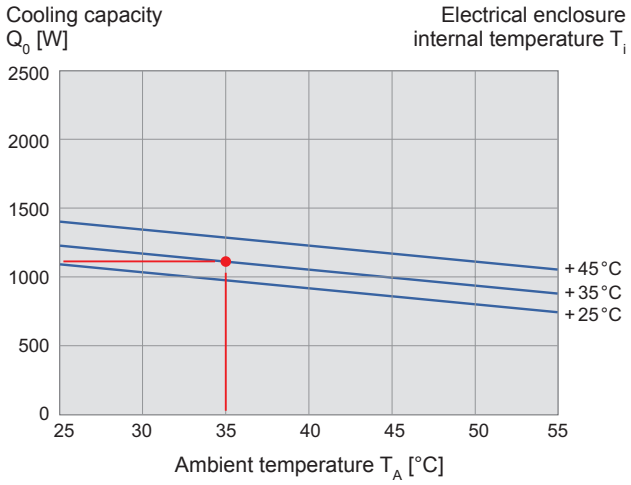
Data		DTS 3161 (NEMA 3R/4)			DTS 3181 (NEMA 4/4X)			Unit
Article number	Standard Controller	13385436355	13385441355	13385444355	13385436158	13385441158	13385444158	
	LAP [1]	13385436375	13385441375	13385444375	13385436178	13385441178	13385444178	
Rated voltage ± 10%		AC 50 / 60		AC 60	AC 50 / 60		AC 60	Hz
		400 2~	230	115	400 2~	230	115	V
Cooling performance according to EN 14511	L35/L35	1100						W
	L35/L50	950						
Power consumption	L35/L35	860	860	950	860	860	950	
Current consumption	L35/L35	1.9	3.9	7.9	1.9	3.9	7.9	A
Starting current	L35/L35	8	14.9	29.9	8	14.9	29.9	
Unimpeded airflow (free flow)	internal	595						m^3/h
	external	595						
Pre fuse T		6	6	10	6	6	10	A
Type of connection		spring-type terminal included with plug						
Noise level according to EN ISO 3741		< 70						dB (A)
Weight (without packaging)		43			45			kg
Ambient temperature range	SC	+ 15 … + 55 / + 59 … + 131						°C / °F
	LAP	- 40 … + 55 / - 40 … + 131						
Control range (adjustable)		+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95						
Refrigerant	R134a	400						g
Duty cycle		100						%
Condensate management		integrated condensate evaporation system with safety overflow						
Protection system according to NEMA type	3R/4	towards the electrical enclosure if used as intended by the manufacturer			-			
	4/4X	-			towards the electrical enclosure if used as intended by the manufacturer			
	1	towards the surroundings if used as intended by the manufacturer						
Design	housing	galvanised sheet steel						
	cover	galvanised/electrostatically powder coated (200 °C)			304 rust proof stainless steel			
Colour (cover)		RAL 7035, different colours available on request			-			

Accessories	Piece	Article number	Information on page
Condensate bottle	1	18314000100	74
Filter kit	1	18881500000	74

[1] LAP (Low Ambient Package): includes 900 W enclosure heater and a thermostat to be placed inside the enclosure
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

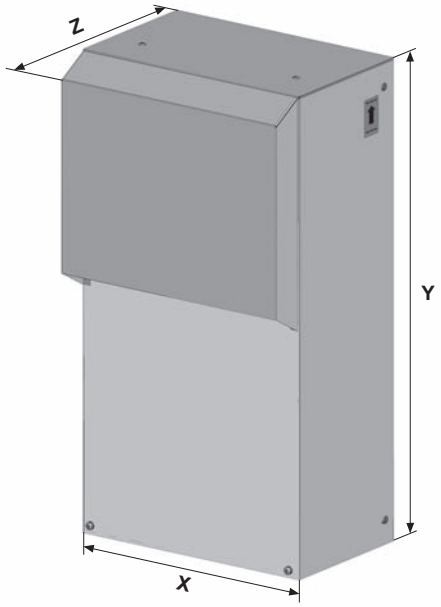
DTS 3161/3181

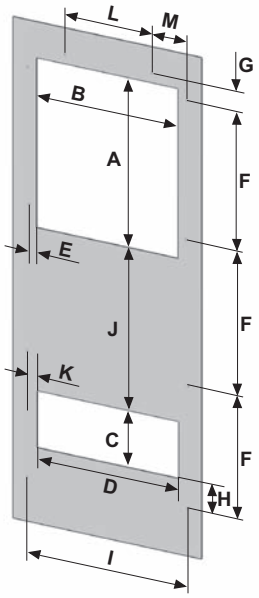


Dimensions

	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M
mm	395	748	294	300	310	56	292	25	228.6	38.1	81	360	265	34	200	80
Mounting holes Ø 8 mm																

DTS 3161/3181





Cooling units 680 W
DTS 3061 (NEMA 3R/4)
DTS 3081 (NEMA 4/4X)

- compact design, ideal for small control cabinets and larger control cabinets for the cooling of hot spots
- particularly suitable for the food industry and outdoor applications
- maintains a UL tested NEMA type 3R/4 seal against the enclosure
- high protection system IP 56, maintenance-free
- condenser with 3 mm fin spacing, highly effective protection against strongly contaminated ambient air

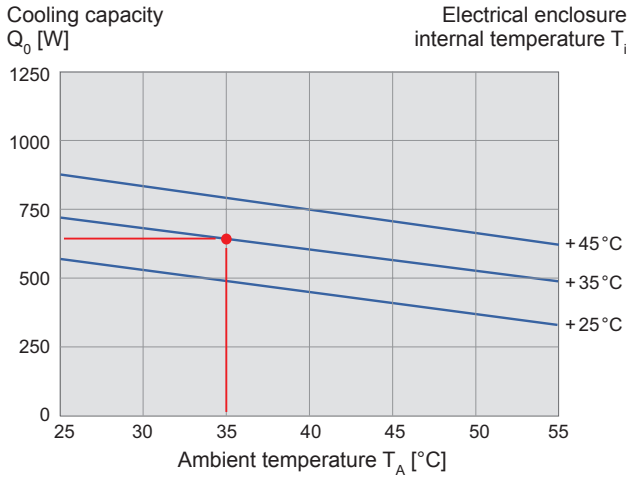
Data		DTS 3061 (NEMA 3R/4)	DTS 3081 (NEMA 4/4X)	Unit
Article number	Standard Controller	13382341355	13382341300	
	LAP [1]	13382341375	13382341178	
Rated voltage ± 10%		AC 50 / 60		Hz
		230		V
Cooling performance according to EN 14511	L35/L35	680		W
	L35/L50	475		
Power consumption	L35/L35	724		
Current consumption	L35/L35	3.3		A
Starting current	L35/L35	14.4		
Unimpeded airflow (free flow)	internal	325		m^3/h
	external	148		
Pre fuse T		16		A
Type of connection		spring-type terminal included with plug		
Noise level according to EN ISO 3741		< 64		dB (A)
Weight (without packaging)		23	25	kg
Ambient temperature range	SC	+ 15 … + 55 / + 59 … + 131		°C / °F
	LAP	- 40 … + 55 / - 40 … + 131		
Control range (adjustable)		+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95		
Refrigerant	R134a	400		g
Duty cycle		100		%
Condensate management		condensate drain		
Protection system according to NEMA type	3R/4	towards the electrical enclosure if used as intended by the manufacturer	-	
	4/4X	-	towards the electrical enclosure if used as intended by the manufacturer	
	1	towards the surroundings if used as intended by the manufacturer		
Design	housing	galvanised sheet steel		
	cover	galvanised/electrostatically powder coated (200 °C)	304 rust proof stainless steel	
Colour (cover)		RAL 7035, different colours available on request	-	

Accessories	Piece	Article number	Information on page
Condensate bottle	1	18314000100	74

[1] LAP (Low Ambient Package): includes 900 W enclosure heater and a thermostat to be placed inside the enclosure
Approvals see page 22. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

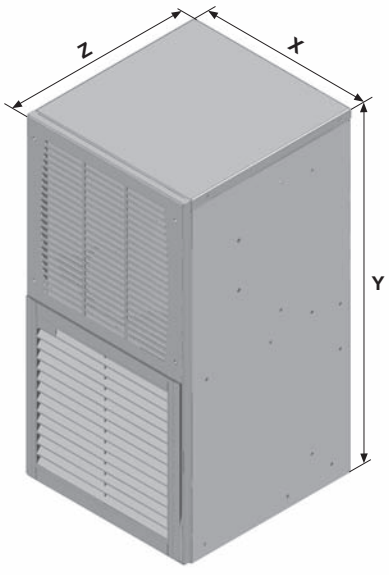
DTS 3061/3081

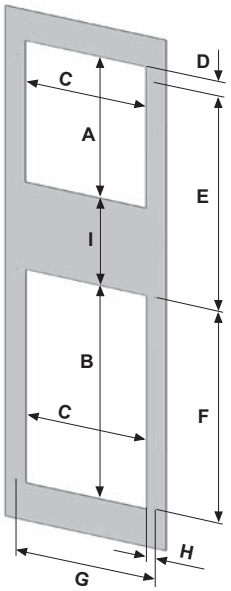


Dimensions

	X	Y	Z	A	B	C	D	E	F	G	H	I
mm	256	512	274	152.4	230.3	209.6	26.1	203.2	225.6	238.1	14.3	76.1
Mounting holes Ø 7.9 mm												

DTS 3061/3081





High temperature cooling units

DTS 3265 HT (NEMA 3R/4)
DTS 3165 HT (NEMA 3R/4)
DTS 3061 HT (NEMA 3R/4)

- suitable for outdoor applications
- operation under extreme high temperature conditions (+ 60 °C)
- maintains a UL tested NEMA type 3R/4 seal against the enclosure
- high protection system IP 56, maintenance-free
- condenser with 3 mm fin spacing, highly effective protection against strongly contaminated ambient air
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated
- integrated condensate evaporation system

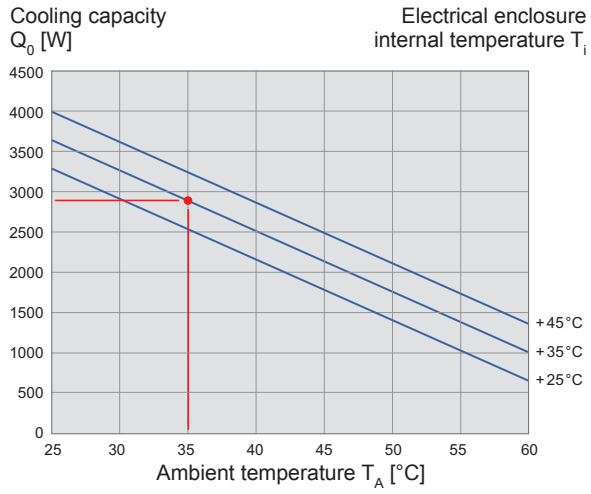
Data		DTS 3265 HT	DTS 3165 HT	DTS 3061 HT	Unit
Article number		13393841001	13393641001	13392341005	
Rated voltage ± 10%		AC 50 / 60			Hz
		230			V
Cooling performance according to EN 14511	L35/L35	2800	1600	680	W
	L40/L60	1250	750	280	
Power consumption	L35/L35	1360	860	360	
Current consumption	L35/L35	7.0	7.8	1.9	A
Starting current	L35/L35	38.0	26.0	6.5	
Unimpeded airflow (free flow)	internal	1200	1200	325	m^3/h
	external	1200	580	150	
Pre fuse T		15	10	10	A
Type of connection		spring-type terminal included with plug			
Noise level according to EN ISO 3741		< 73	< 70	< 64	dB (A)
Weight (without packaging)		68	49	23	kg
Ambient temperature range		0 … + 60 / + 52 … + 140			°C / °F
Control range (adjustable)		+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95			
Refrigerant	R134a	1200	900	400	g
Duty cycle		100			%
Condensate management		integrated condensate evaporation system with safety overflow			
Protection system according to NEMA type	3R/4	towards the electrical enclosure if used as intended by the manufacturer			
	1	towards the surroundings if used as intended by the manufacturer			
Design	housing	galvanised sheet steel			
	cover	galvanised/electrostatically powder coated (200 °C)			
Colour (cover)		RAL 7035, different colours available on request			

Accessories	Piece	Article number	Information on page
Condensate bottle	1	18314000100	74

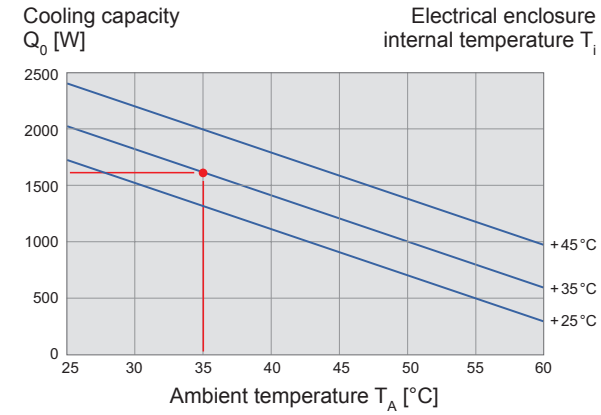
Approvals see page 23. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

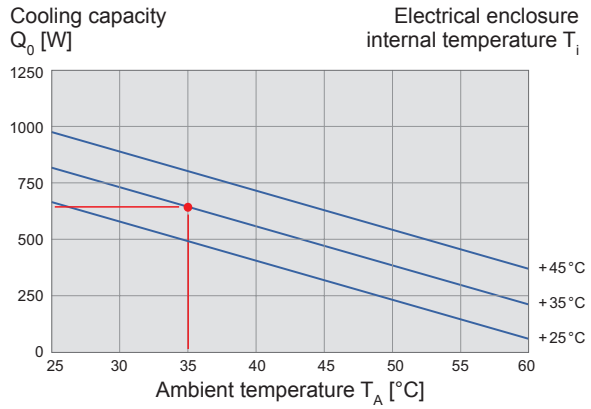
DTS 3265 HT



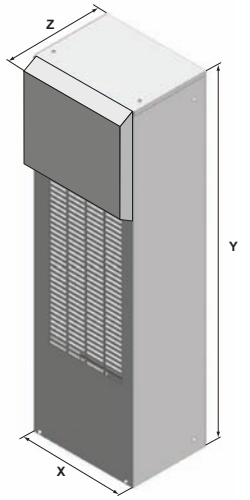
DTS 3165 HT

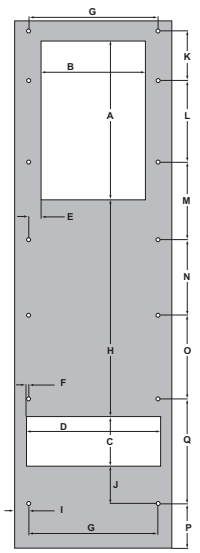


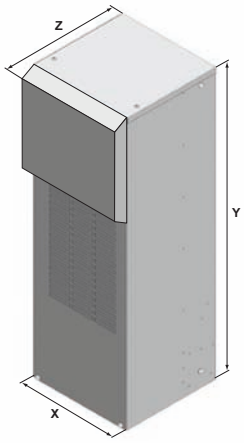
DTS 3061 HT

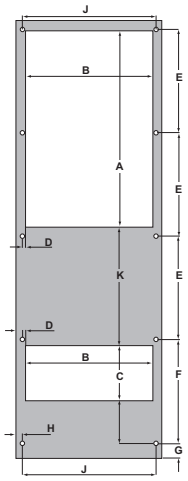


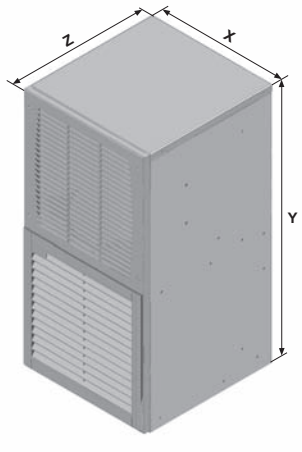
Dimensions

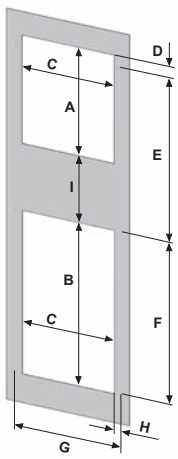












DTS 3265 HT	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
mm	406	1347	367	427	280	135	348	25	9	330	537	35	92	126	209	198	192	214	114	267
Mounting holes Ø 8 mm																				

DTS 3165 HT	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K
mm	311	914	367	430	264	118	8	216	216	32	13	80	279	228
Mounting holes Ø 10 mm														

DTS 3061 HT	X	Y	Z	A	B	C	D	E	F	G	H	I
mm	256	512	274	152.4	230.3	209.6	26.1	203.2	225.6	238.1	14.3	76.1
Mounting holes Ø 7.9 mm												

ECOOL Top mounted Cooling units 4000 / 3000 W

DTT 6801 / DTT 6601

- product variety: 3 installation sizes and 6 performances
- safety: 4-fold protection against condensate thanks to ideal, patented condensate management system
- service-friendly: toolless mounting and maintenance thanks to quick installation frame
- service-friendly: complete cover removable towards the front. Easily accessible filter mats (optional) and control elements in front area.
- energy efficiency: around 20% saving on energy thanks to the use of more effective, lighter components
- energy efficiency: optional multi-controller with energy-saving mode
- design and colour matching: perfect mixture of functionality and design
- available in stainless steel

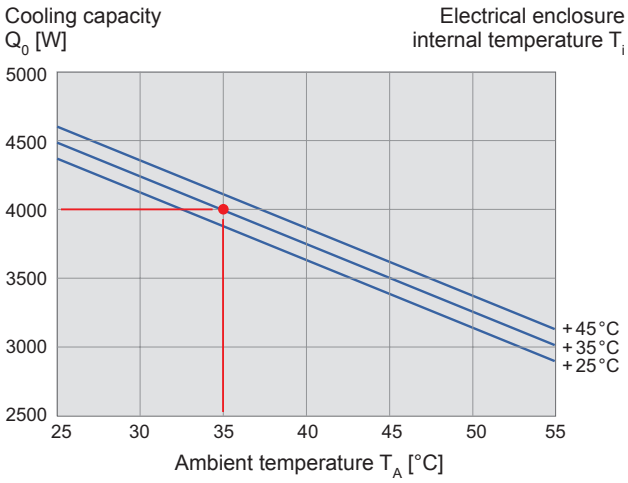
Data		DTT 6801	DTT 6601	Unit
Article number	Standard Controller	13216832055	13216632055	
	Multi Controller	13216862055	13216662055	
	V2A, Standard Controller	13216832015	13216632015	
	V2A, Multi Controller	13216862015	13216662015	
Rated voltage ± 10%		AC 50 / 60		Hz
		400 / 460 3~[1]	400 / 460 3~[1]	V
Cooling performance according to EN 14511	L35/L35	4000 / 4250	3000 / 3200	W
	L35/L50	3260 / 3495	2000 / 2250	
Power consumption	L35/L35	1618 / 2050	1700 / 2100	
Current consumption	L35/L35	7.07 / 5	3.16 / 4.5	A
Starting current	L35/L35	17.1 / 19.5	8.9 / 9.9	
Unimpeded airflow (free flow)	internal	1420 / 1530		m^3/h
	external	1970 / 2180		
Pre fuse T		10	10	A
Type of connection		spring-type terminal included with plug		
Noise level according to EN ISO 3741		< 62		dB (A)
Weight (without packaging)		77	75	kg
Ambient temperature range		+ 15 … + 55 / + 59 … + 131		°C / °F
Control range (adjustable)	SC	+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95		
	MC	+ 25 … + 50 / + 77 … + 122; factory setting + 35 / + 95		
Refrigerant	R134a	1250		g
Duty cycle		100		%
Condensate management		integrated condensate evaporation system with safety overflow		
Protection system according to EN 60529	IP54	towards the electrical enclosure if used as intended by the manufacturer		
	IP34	towards the surroundings if used as intended by the manufacturer		
Design	housing	galvanised sheet steel		
	cover	galvanised/electrostatically powder coated (200 °C), or stainless steel		
Colour (cover)		RAL 7035 (different colours available on request) or stainless steel		

Accessories	Piece	Article number	Information on page
Condensate bottle	1	18314000100	74
Pre-filter, aluminium	1	18311500000	74
Quick installation frame	1	18300000146	75

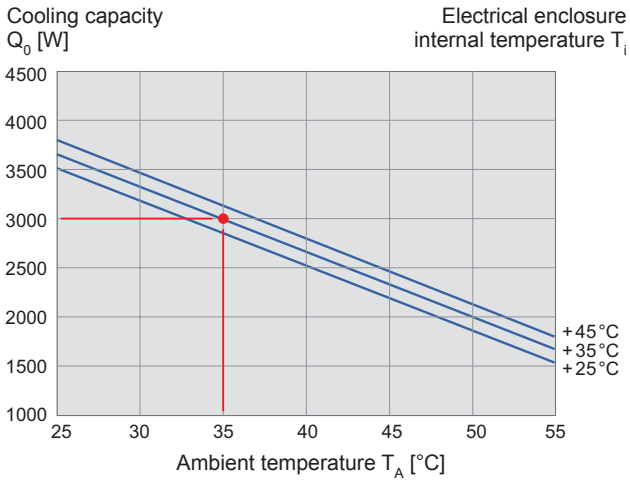
[1] suitable for various supply voltages (see technical specific data sheet)
Approvals see page 23. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTT 6801



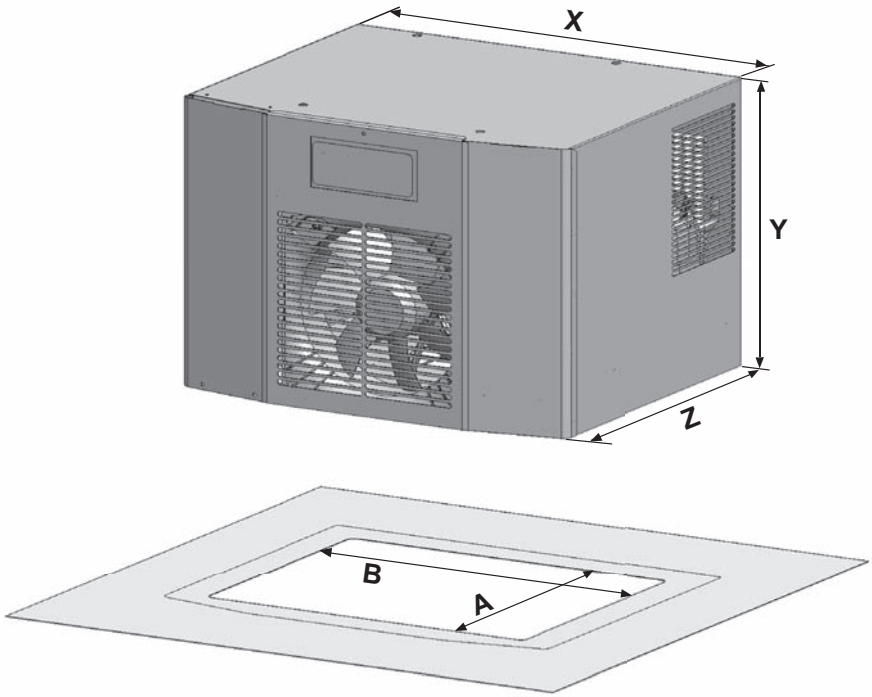
DTT 6601



Dimensions

	X	Y	Z	A	B
mm	795	485	575	392	692

DTT 6801 / DTT 6601



ECOOL Top mounted Cooling units 2000 / 1500 W

DTT 6401 / DTT 6301

- product variety: 3 installation sizes and 6 performances
- safety: 4-fold protection against condensate thanks to ideal, patented condensate management system
- service-friendly: toolless mounting and maintenance thanks to quick installation frame
- service-friendly: complete cover removable towards the front. Easily accessible filter mats (optional) and control elements in front area.
- energy efficiency: around 20% saving on energy thanks to the use of more effective, lighter components
- energy efficiency: optional multi-controller with energy-saving mode
- design and colour matching: perfect mixture of functionality and design
- available in stainless steel

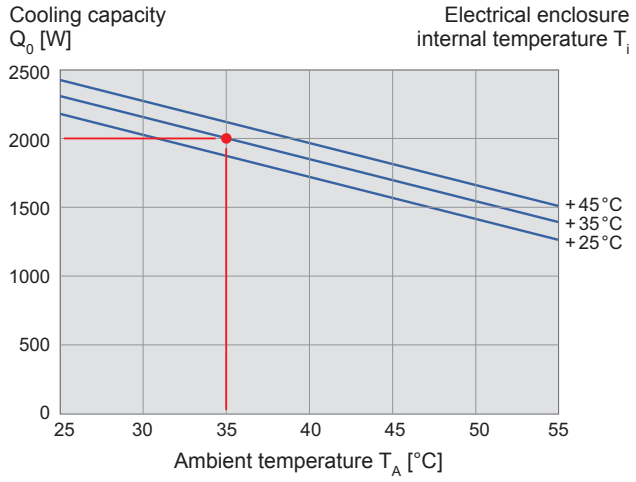
Data		DTT 6401			DTT 6301			Unit
Article number	Standard Controller	13216432055	13216441055	13216444055	13216349055	13216341055	13216344055	
	Multi Controller	13216462055	13216471055	13216474055	13216379055	13216371055	13216374055	
	V2A, Standard Controller	13216432015	13216441015	13216444015	13216349015	13216341015	13216344015	
	V2A, Multi Controller	13216462015	13216471015	13216474015	13216379015	13216371015	13216374015	
Rated voltage ± 10%		AC 50 / 60		AC 60	AC 50 / 60		AC 60	Hz
		400 / 460 3~[1]	230	115	400 2~[1]	230	115	V
Cooling performance according to EN 14511	L35/L35	2000 / 2100			1500 / 1620			W
	L35/L50	1540 / 1600			1000 / 1160			
Power consumption	L35/L35	1300 / 1598	1049 / 1275	1894	962 / 1150	980 / 1140	1027	
Current consumption	L35/L35	3 / 3.3	6.2 / 7	20	3.75 / 3.6	5.73 / 7	15	A
Starting current	L35/L35	10 / 12	16.8 / 20	34	9.8 / 11.6	19.7 / 23.2	32	
Unimpeded airflow (free flow)	internal	885 / 990						m^3/h
	external	1820 / 1970						
Pre fuse T		6	10	20	6	10	20	A
Type of connection		spring-type terminal included with plug						
Noise level according to EN ISO 3741		< 62						dB (A)
Weight (without packaging)		51	46	44	50.5	45	40	kg
Ambient temperature range		+ 15 … + 55 / + 59 … + 131						°C / °F
Control range (adjustable)	SC	+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95						
	MC	+ 25 … + 50 / + 77 … + 122; factory setting + 35 / + 95						
Refrigerant	R134a	750			725			g
Duty cycle		100						%
Condensate management		integrated condensate evaporation system with safety overflow						
Protection system according to EN 60529	IP54	towards the electrical enclosure if used as intended by the manufacturer						
	IP34	towards the surroundings if used as intended by the manufacturer						
Design	housing	galvanised sheet steel						
	cover	galvanised/electrostatically powder coated (200 °C), or stainless steel						
Colour (cover)		RAL 7035 (different colours available on request) or stainless steel						

Accessories	Piece	Article number	Information on page
Condensate bottle	1	18314000100	74
Pre-filter, aluminium	1	18311500000	74
Quick installation frame	1	18300000145	75

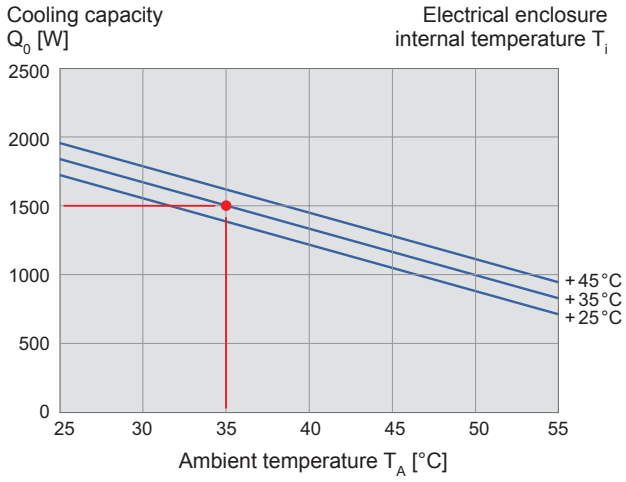
[1] suitable for various supply voltages (see technical specific data sheet)
Approvals see page 23. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTT 6401



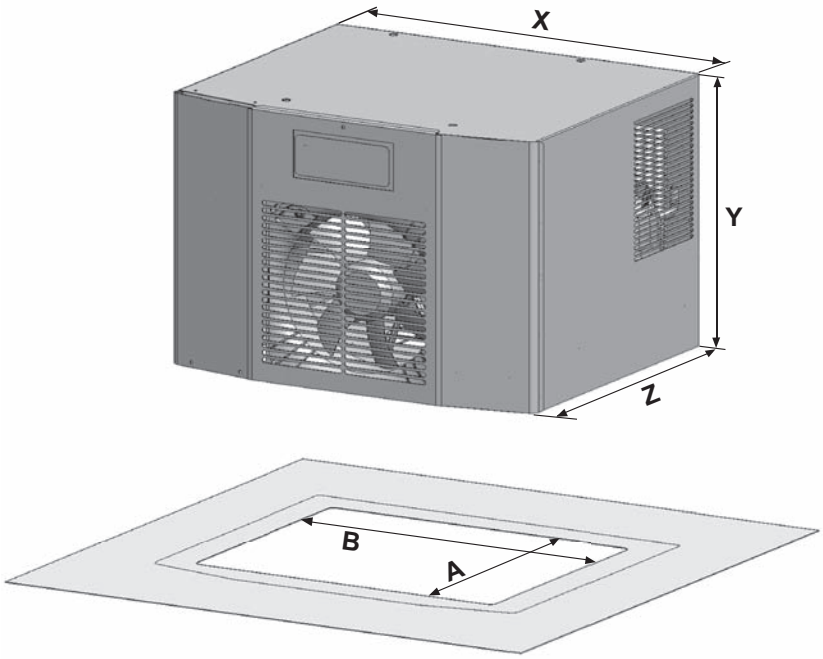
DTT 6301



Dimensions

	X	Y	Z	A	B
mm	595	435	495	390	490

DTT 6401 / DTT 6301



Top mounted Cooling units 1000 / 500 W

DTT 6201 / DTT 6101

- product variety: 3 installation sizes and 6 performances
- safety: 4-fold protection against condensate thanks to ideal, patented condensate management system
- service-friendly: toolless mounting and maintenance thanks to quick installation frame
- service-friendly: complete cover removable towards the front. Easily accessible filter mats (optional) and control elements in front area.
- energy efficiency: around 20% saving on energy thanks to the use of more effective, lighter components
- energy efficiency: optional multi-controller with energy-saving mode
- design and colour matching: perfect mixture of functionality and design
- available in stainless steel

Data		DTT 6201			DTT 6101		Unit
Article number	Standard Controller	13216249055	13216241055	13216244055	13216141055	13216144055	
	Multi Controller	13216279055	13216271055	13216274055	13216171055	13216174055	
	V2A, Standard Controller	13216249015	13216241015	13216244015	13216141015	13216144015	
	V2A, Multi Controller	13216279015	13216271015	13216274015	13216171015	13216174015	
Rated voltage ± 10%		AC 50 / 60		AC 60	AC 50 / 60	AC 60	Hz
		400 2~[1]	230	115	230	115	V
Cooling performance according to EN 14511	L35/L35	1000 / 1100			500 / 665		W
	L35/L50	600 / 640			370 / 400		
Power consumption	L35/L35	706 / 845	663 / 805	877	458 / 532	569	
Current consumption	L35/L35	2.82 / 2.5	3.98 / 4.5	10	2.36 / 3	5.6	A
Starting current	L35/L35	8.5 / 9.3	14.8 / 17.4	17.4	19.7 / 23	23	
Unimpeded airflow (free flow)	internal	570 / 582					m^3/h
	external	1820 / 1970					
Pre fuse T		6	10	20	10	20	A
Type of connection		spring-type terminal included with plug					
Noise level according to EN ISO 3741		< 62					dB (A)
Weight (without packaging)		41	35		33		kg
Ambient temperature range		+ 15 … + 55 / + 59 … + 131					°C / °F
Control range (adjustable)	SC	+ 25 … + 45 / + 77 … + 113; factory setting + 35 / + 95					
	MC	+ 25 … + 50 / + 77 … + 122; factory setting + 35 / + 95					
Refrigerant	R134a	400					g
Duty cycle		100					%
Condensate management		integrated condensate evaporation system with safety overflow					
Protection system according to EN 60529	IP54	towards the electrical enclosure if used as intended by the manufacturer					
	IP34	towards the surroundings if used as intended by the manufacturer					
Design	housing	galvanised sheet steel					
	cover	galvanised/electrostatically powder coated (200 °C), or stainless steel					
Colour (cover)		RAL 7035 (different colours available on request) or stainless steel					

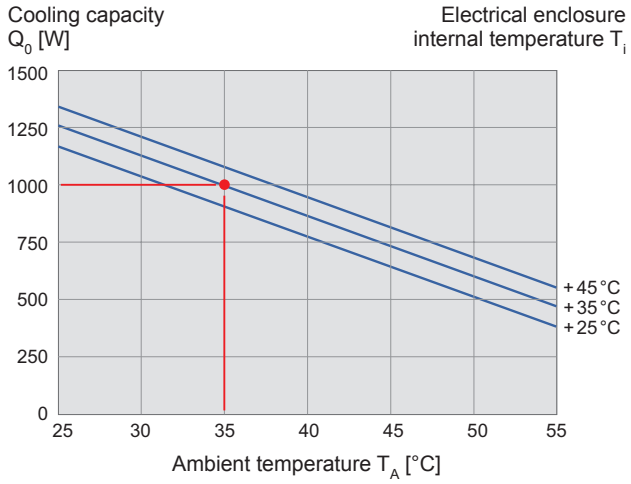
Accessories	Piece	Article number	Information on page
Condensate bottle	1	18314000100	74
Pre-filter, aluminium	1	18311500000	74
Quick installation frame	1	18300000144	75

[1] suitable for various supply voltages (see technical specific data sheet)

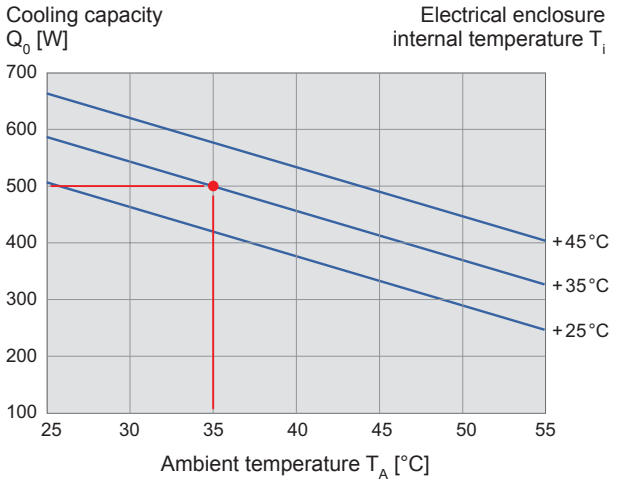
Approvals see page 23. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

DTT 6201



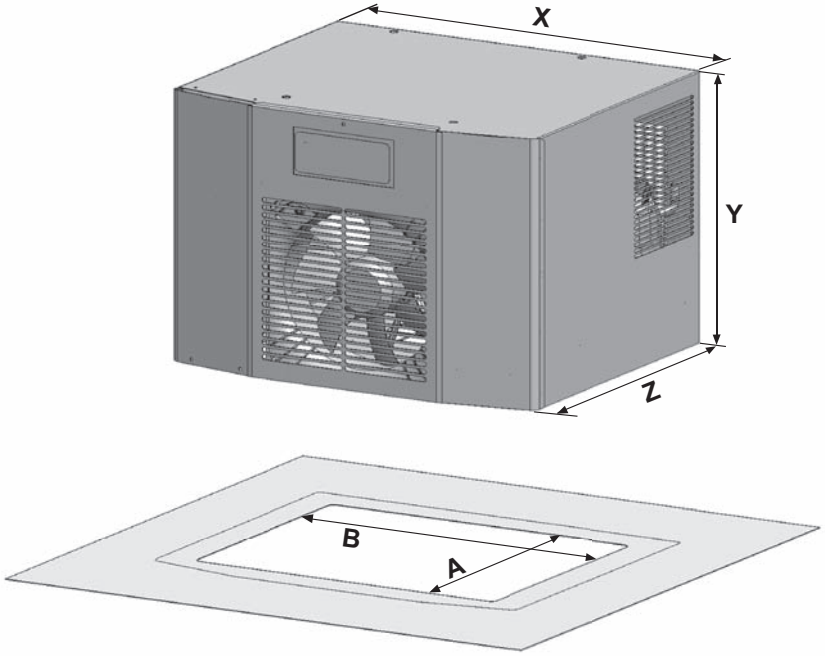
DTT 6101



Dimensions

	X	Y	Z	A	B
mm	595	435	395	260	475

DTT 6201 / DTT 6101



Peltier Cooling units 100–150 W
PTM 100 / PTM 150

Peltier cooling unit product line for use in sensitive areas, circuitry and small control cabinets.

- ideal for the cooling of operating and control elements
- particularly suitable for support arm systems
- vibration-free, also usable for precision processes
- pinpoint cooling of hotspots

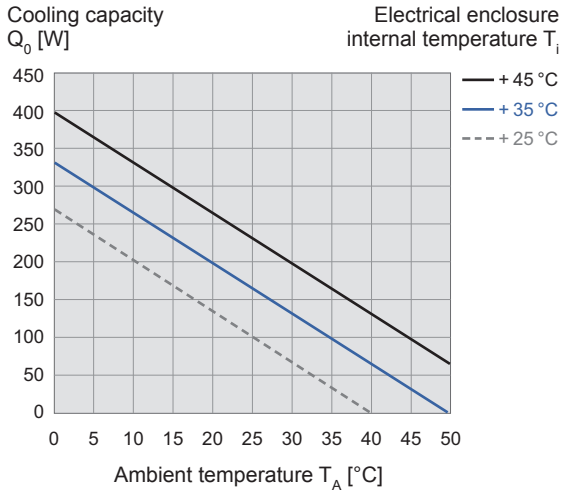
Data		PTM 100	PTM150	Unit
Article number	horizontal	15310080055	15315080055	
	vertical	15310180055	15315180055	
Rated voltage ± 10%		24 DC	24 DC	V
Cooling performance according to EN 14511	L35/L35	100	150	W
Power consumption	L35/L35	102	240	
Current consumption	L35/L35	4.25	10	A
Unimpeded airflow (free flow)	internal	76	114	m^3/h
	external	156	234	
Pre fuse T		6	16	A
Type of connection		connection via terminal strip, max. 2.5 mm² / AWG 16		
Sensor cable length		1200		mm
Noise level according to EN ISO 3741		47		dB (A)
Weight (without packaging)		6.7	9.16	kg
Ambient temperature range		- 40 … + 50 / - 40 … + 122		°C / °F
Control range (adjustable)		+ 0 … + 50 / + 32 … + 122		
Duty cycle		100		%
Condensate management		condensate drain		
Protection system according to EN 60529	IP 54	towards the electrical enclosure if used as intended by the manufacturer		
	IP 24	towards the surroundings if used as intended by the manufacturer		
Design	housing	galvanised sheet steel		
	cover	galvanised/electrostatically powder coated (200 °C)		
Installation location		H - horizontal / V - vertical		
Colour (cover)		RAL 7035, different colours available on request		

Accessories	Piece	Article number	Information on page
External condensate evaporation system	1	18314000001	74
Condensate bottle	1	18314000100	74

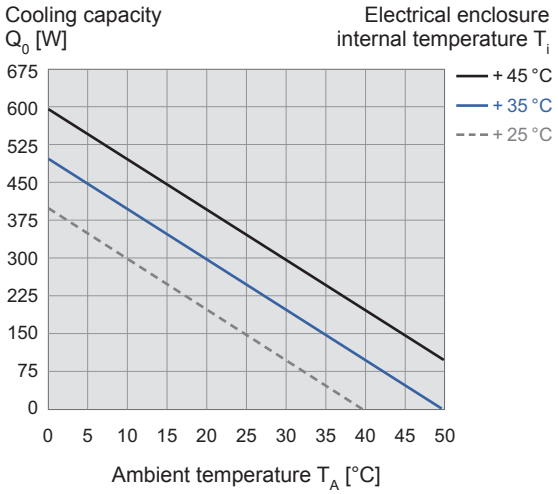
Approvals see page 23. For additional information to ensure the accurate setting of the motor protection switch, please see technical specific data sheet. This information is included with the delivery of the unit or can be found at www.pfannenberg.com.

Cooling capacity performance curves

PTM 100

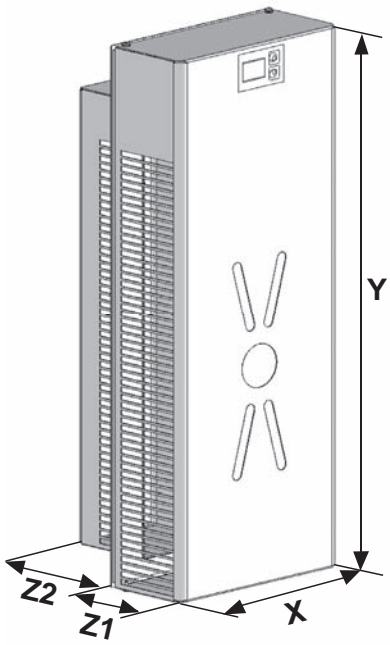


PTM 150



Dimensions

mm	PTM 100	PTM 150
X	181	181
Y	367	495
Z1	151	151
Z2	75	75



Accessories

Filter kit

Aluminium mesh.

Suitable for ...	Article number
DTS 3161/3181	18881500000
DTS 3261/3281	18881500001
DTS 3361/3381	18881500002
DTS 3561/3581	18881500003
DTS 3661/3681	18881500004
DTS 3165/3185	18881500006
DTS 3265/3285	18881500007

External condensate evaporation system 230V 50/60 Hz

External condensate evaporator for the accumulated condensed water.

Suitable for ...	Article number
all units	18314000001

Condensate bottle

External container for collecting the accumulating condensed water.

Suitable for ...	Article number
all units	18314000100

Transport eye bolts

Eye bolts to lift the cooling unit with cranes or lifters.

Suitable for ...	Article number
all unit of the 6000 series	18310000154

External temperature probe

For positioning of the ESM temperature probe inside the enclosure. Cable length 2.9 m.

Suitable for ...	Article number
DTI/DTS 6000 with Multi Controller	18310000153

Cooling unit controller with energy-saving mode

Cooling unit PCB with integrated energy-saving function.

Suitable for ...	Article number
all multi-controller capable units	note when ordering

ECOOL-Plant Software

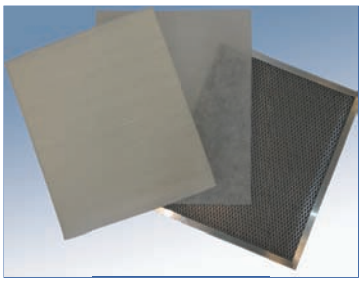
Cooling unit software for external diagnosis and parameterisation of the cooling units (incl. USB cable).

Suitable for ...	Article number
all multi-controller capable units	18310000002

Pre-filter, aluminium

Retrofittable pre-filter.

Suitable for ...	Article number
all DTT units	18311500000



ECOOL Filter

3 different type of filters for the different environmental conditions.

Product	Article number
Vlies filter for DTI/DTS 6201-6801	18300000147
Vlies filter for PAI/PAS 6043-6133	18066100001
Fluted filter for DTI/DTS 6201-6801	18300000148
Aluminium filter for DTI/DTS 6201-6801	18300000149
Filter adapter [1] for DTI/DTS 6201-6801 (RAL 7035, different colours available on request)	18310000151

[1] filter adapter only needed one time, all filters fits to the adapter

Quick installation frame

For quick and easy installation or replacement.

Suitable for ...	Article number
DTT 61/6201	18300000144
DTT 63/6401	18300000145
DTT 66/6801	18300000146

Internal enclosure fan

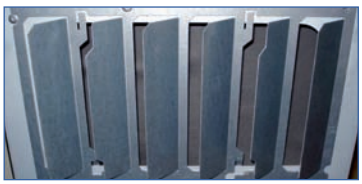
Distribution of cold air inside the control cabinet.

Product	Article number
PEF 180 mounting bracket 230 V AC	18110000000
PEF 180 mounting bracket 115 V AC	18110000001
PEF 180 mounting bracket 24 V DC	18110000002

Air diverter internal

For diverting the cold air downwards.

Suitable for ...	Article number
DTI/DTS 6201–6801	18300000201



Air baffle internal

For diverting the cold air optionally to the right or to the left.

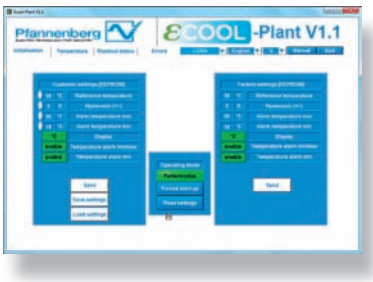
Suitable for ...	Article number
DTI/DTS 6201–6801	18300000141

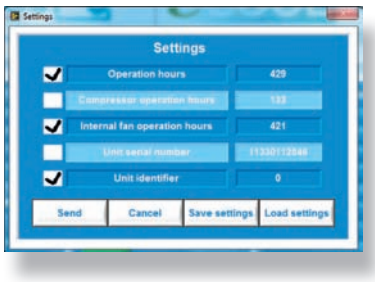
ECOOL-Plant Software

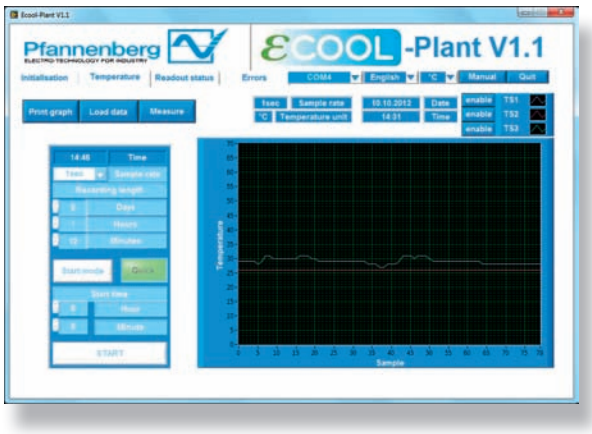
Pfannenberg cooling units with electronic control, which are designed as **Pfannenberg Multi Controller**, can be configured and interrogated by means of a remote optical interface with a scanner head with magnetic holder or by means of an integrated USB connection (DTI/DTS 6000 series) and the program **ECOOL-Plant**.

The following parameters can be set using this program:

- **Nominal value for switch cabinet interior temperature**
- **Switching hysteresis and nominal temperature of switch cabinet**
- **Upper temperature limit T_{max} above which an error message is issued**
- **Lower temperature limit T_{min} below which an error message is issued**
- **Changeover of temperature indication on display of the Pfannenberg Multi Controller between °C / °F**
- **Suppression of error message when lower temperature limit T_{min} is reached, and when upper temperature limit T_{max} is reached**
- **Suppression of error message when lower temperature limit T_{min} is reached**
- **Input of operating hours, including operating hours of compressor and internal fan, as well as appliance serial number and ID designation**

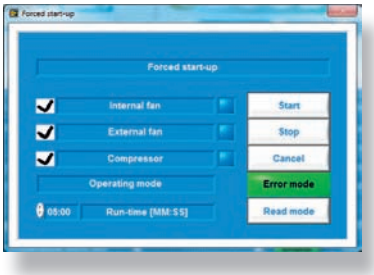


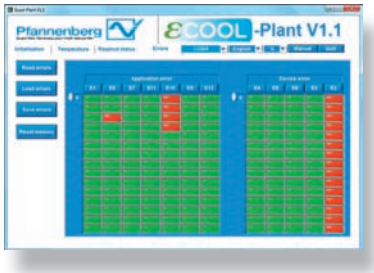


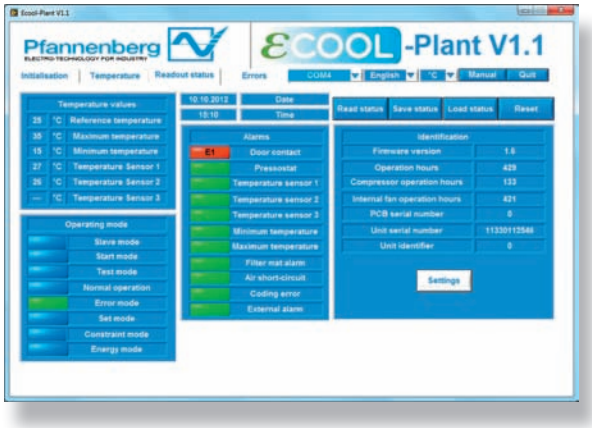


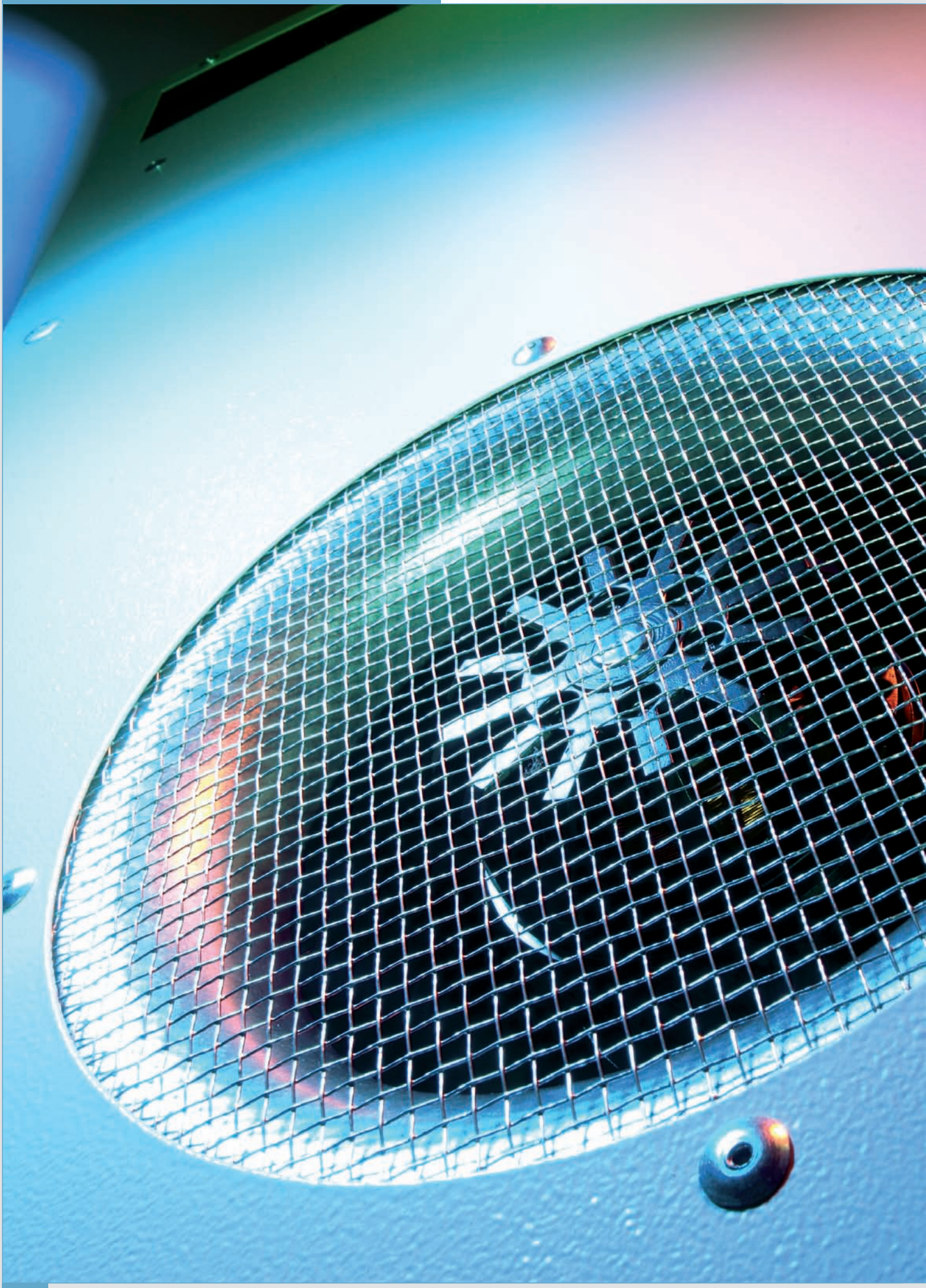
The following actions can be triggered using this program:

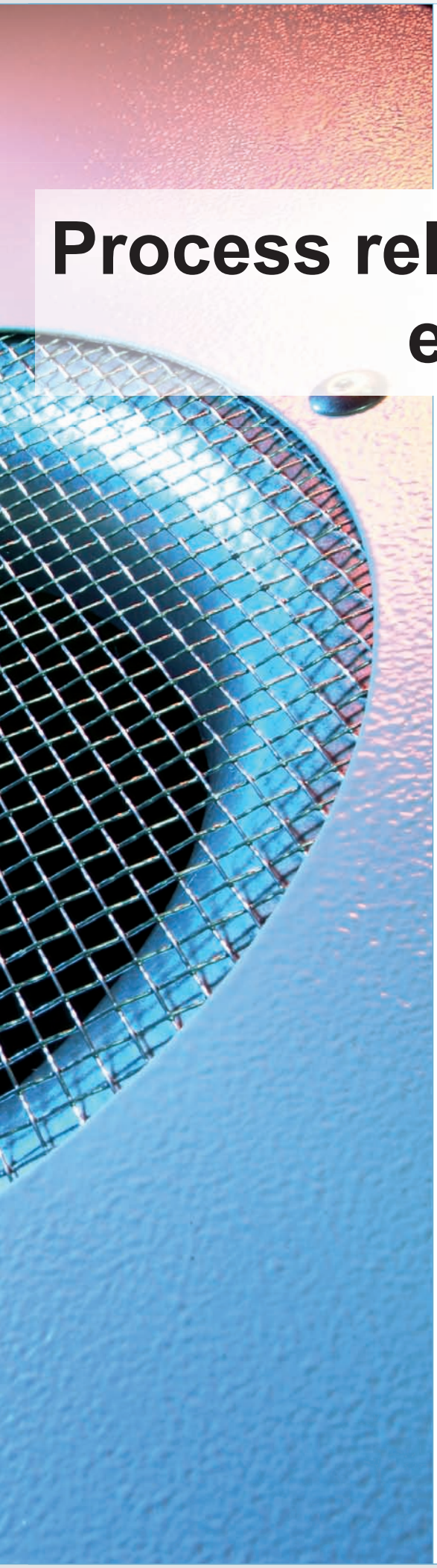
- Reset of electronic feedback (closed loop) controller
- Interrogating and restoring the factory setting
- Saving and loading the customer settings
- Recording, saving, loading and printing temperature profiles
- Interrogating current errors
- Interrogating the firmware version, operating hours, PCB serial number and appliance serial number
- Interrogating the current operating status
- Interrogating temperature sensor readings
- Saving the current status
- Loading a status
- Interrogating and saving the last 31 application errors
- Loading 31 application errors
- Interrogating and saving the last 31 appliance/device errors
- Loading 31 appliance/device errors
- Deleting the cyclical error memory with application and appliance/ device errors
- Saving and loading operating hours, including operating hours of compressor and internal fan, as well as appliance serial number and ID designation into and/or from a file
- Switching on the components of internal fans, external fans and compressors (forced start-up) and automatic shut-down after a specified period of time











Process reliability even under extreme conditions

Air/Water Heat exchangers from the PWS and PWD series

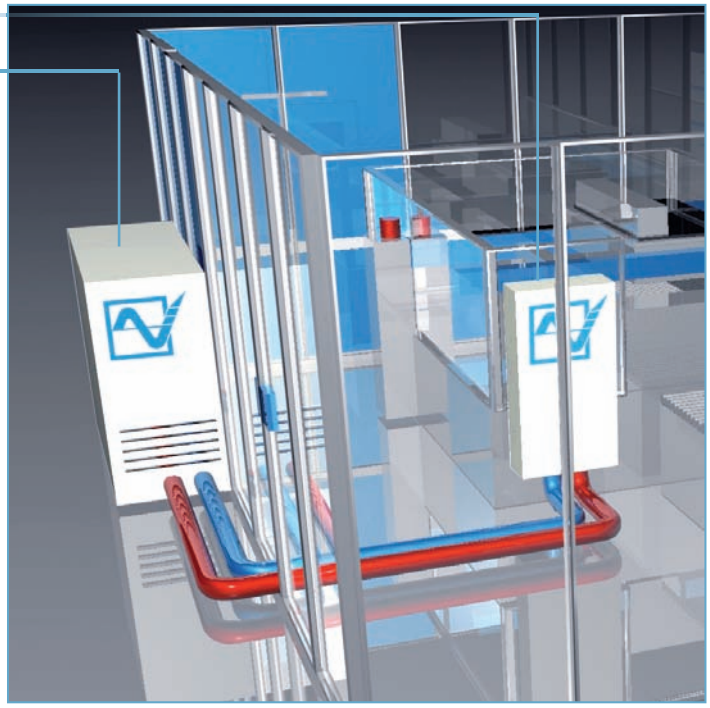
The use of Pfannenberg air/water heat exchangers is particularly suitable where ambient temperatures are high or the atmosphere proves to be particularly oily or aggressive.
Their main advantages over other air conditioner units for control cabinets are their maintenance-free operation and extremely low noise emission.

Ideal areas of use for air/water heat exchangers are wherever machines or production processes are cooled by tempered water and water is thus already provided.

The biggest advantage of water cooling is the 100% system solution

The combination of air/water heat exchangers and chillers offers an ideal system solution for the cooling of your processes, machines and controllers.

Chillers ensure central, economic cooling and provision of water as the cooling medium. All cooling tasks in a system or machine and also on a control cabinet can be accomplished simply and economically via a closed pipeline system.



The special product characteristics of the PWS series

Economy

- system-compatible with chillers
- can be integrated in existing cooling circuits
- integrated thermostat and solenoid valve for energy-efficient temperature control

Process reliability

- high airflow rate and cooling capacity
- any power losses that occur are not given off into the room
- integrated temperature monitoring with alarm contact

Resilience

- very high IP protection (up to IP 65)
- usable under aggressive environmental conditions
- independent from the ambient temperature at the place of installation

Service and mounting-friendliness

- compact design
- seal requires no elaborate reworking of the mounting cut-out
- maintenance-free

All air/water heat exchangers at a glance

Type	Cooling capacity	Rated voltage	Dimensions (HxWxD)	Approvals					Page
				UR	cUL	GOST	CSA	CE	
Heat exchangers from the PWS series – air/water heat exchangers for side and door mounting									
PWS 71002	10000 W	230 V / 400 V[1]	1800 x 600 x 315 mm	●	●	●		●	82
PWS 7702	7000 W	230 V / 400 V[1]	1800 x 460 x 310 mm	●	●	●		●	84
PWS 7702 SL	7000 W	230 V / 400 V	1800 x 460 x 255 mm	●	●	○		●	84
PWS 7502	5200 W	115 V / 230 V	1400 x 460 x 235 mm	●	●	●		●	86
PWS 7332	3150 W	115 V / 230 V	950 x 400 x 190 mm	●	●	●		●	88
PWS 7332 L	3150 W	115 V / 230 V	1350 x 400 x 190 mm	●	●	●		●	90
PWS 7152	1500 W	115 V / 230 V	950 x 400 x 115 mm	●	●	●		●	88
PWS 7102	950 W	115 V / 230 V	500 x 200 x 150 mm	●	●	●		●	92
PWS 7062	600 W	115 V / 230 V	500 x 200 x 100 mm	●	●	●		●	92
Roof-mounted heat exchangers from the PWD series – air/water heat exchangers for roof mounting									
PWD 5402	3400 W	230 V	190 x 720 x 465 mm			●		●	94
PWD 5302	2150 W	230 V	140 x 600 x 390 mm			●		●	94
Accessories									
Internal enclosure fan PEF 180		24 V DC / 115 V AC / 230 V AC							96
External condensate evaporation system		230 V							96
Condensate bottle									96
Device-side water connection with G3/8“ internal thread									96

[1] variant without UL

● available
○ pending

Further information can be found on the Internet:
www.pfannenberg.com · **www.pfannenberg-spareparts.com**
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newsletter.pfannenberg.com

Air/Water Heat Exchanger 10000 W
PWS 71002

- maintenance-free
- mounting-friendly seal, no elaborate reworking of the mounting cut-out
- integrated thermostat and solenoid valve for temperature control
- integrated temperature monitoring with alarm contact

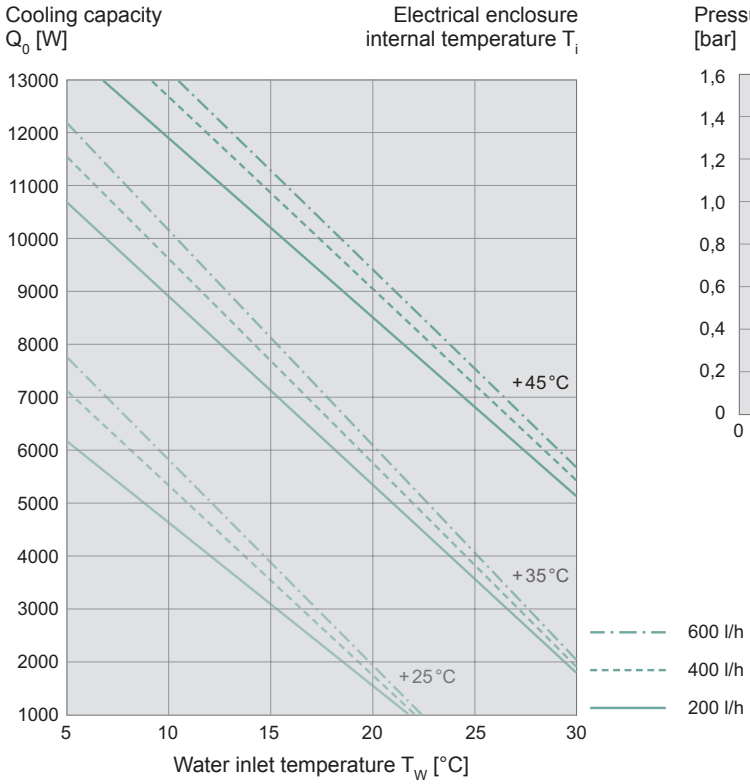
Data		PWS 71002		Unit
Article number		12057802055	12057810055	
Rated voltage ± 10 %		AC 50 Hz / 60 Hz	AC 50 Hz / 60 Hz	
		400 3~	230	V
Cooling capacity at 600 l/h	W10/L35	10000		W
Power consumption	W10/L35	1050 / 1450	820 / 1200	
Current consumption	W10/L35	1.9 / 2.2	3.8 / 5.2	A
Starting current	W10/L35	8.3 / 9.4	13.5 / 18.8	
Unimpeded airflow (free flow)	internal	5900	6250	m³/h
Pre fuse T		10		A
Type of connection	electro	spring-type terminal included with plug		
	fluid	13 mm hose nozzle; other connectors on request		
Noise level (according to EN ISO 3741)		66		dB (A)
Weight (without packaging)		73	75	kg
Ambient temperature range		> + 1 … + 70 / > + 34 … + 158		°C / °F
Control range (adjustable)		+ 8 … + 50 / + 47 … + 122; factory setting + 35 / + 95		
Water outlet temperature		> + 1 … + 35 / > + 34 … + 95		
Permissible operating pressure		max. 10		bar
Duty cycle		100%		
Condensate management		condensate drain		
System of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer		
	IP 65	on request		
Design	housing	galvanised steel/electrostatically powder-coated (200 °C); on request: stainless steel		
	heat exchanger	copper pipe with aluminium fins; stainless steel piping on request		
Colour (cover)		RAL 7035, different colours available on request		

Accessories	Piece	Article number	Informationen on page
External condensate evaporation system	1	18314000001	96
Condensate bottle	1	18314000100	96

Approvals see page 81

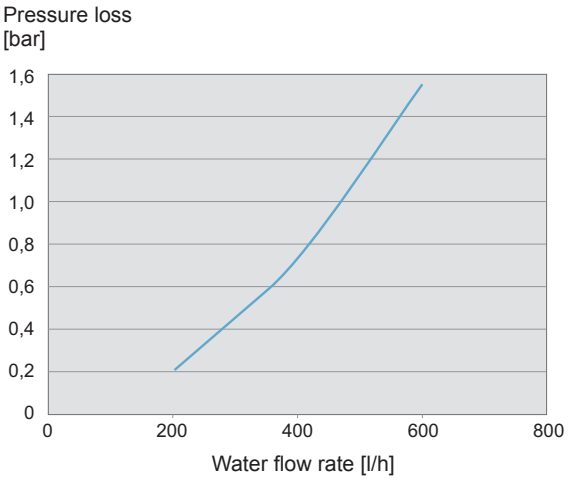
Cooling capacity performance curves

PWS 71002



Pressure loss performance curve

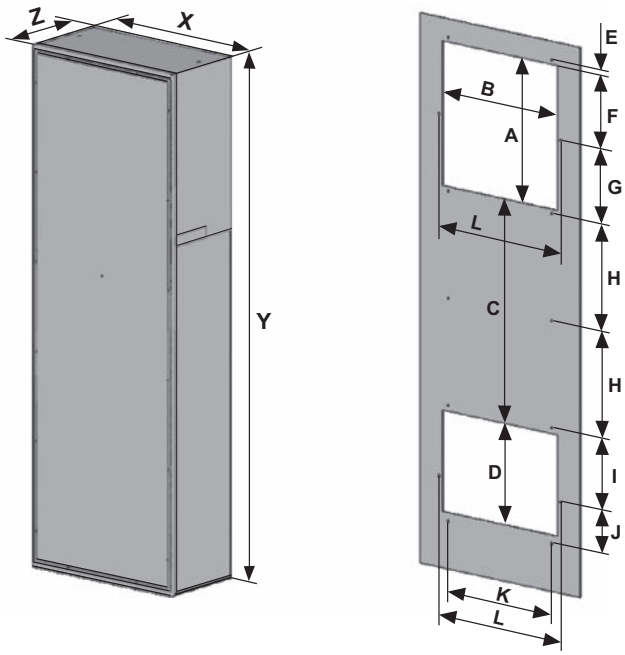
PWS 71002



Dimensions

	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L
mm	600	1800	315	500	500	775	350	15	270	260	370	250	150	450	530
Mounting holes Ø 8 mm															

PWS 71002



Air/Water Heat Exchanger 7000 W
PWS 7702
Slim Line Air/Water Heat Exchanger 7000 W
PWS 7702 SL

- maintenance-free
- mounting-friendly seal, no elaborate reworking of the mounting cut-out
- integrated thermostat and solenoid valve for temperature control
- integrated temperature monitoring with alarm contact

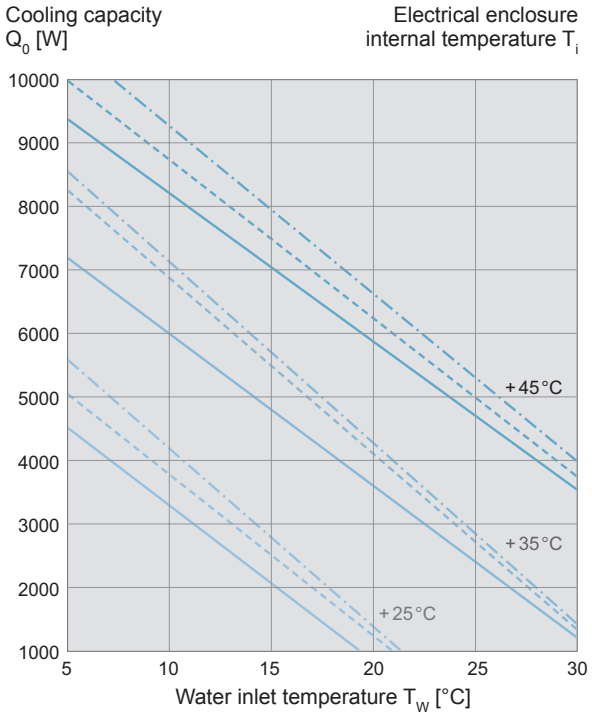
Data		PWS 7702		PWS 7702 SL		Unit
Article number		12057702055	12057710055	12057702155	12057710155	
Rated voltage ± 10 %		AC 50 Hz / 60 Hz				
		400 3~	230	400 3~	230	V
Cooling capacity at 500 l/h	W10/L35	7000				W
Power consumption	W10/L35	550 / 790	520 / 680	550 / 790	520 / 680	
Current consumption	W10/L35	0.8 / 0,95	2.4 / 3.2	0.8 / 0.95	2.4 / 3.2	A
Starting current	W10/L35	3.0 / 3.8	9.2 / 12	3.0 / 3.8	9.2 / 12	
Unimpeded airflow (free flow)	internal	3630	4600	3630	4600	m^3/h
Pre fuse T		10				A
Type of connection	electro	spring-type terminal included with plug				
	fluid	13 mm hose nozzle; other connectors on request				
Noise level (according to EN ISO 3741)		63				dB (A)
Weight (without packaging)		58		57		kg
Ambient temperature range		> + 1 … + 70 / > + 34 … + 158				°C / °F
Control range (adjustable)		+ 8 … + 50 / + 47 … + 122; factory setting + 35 / + 95				
Water outlet temperature		> + 1 … + 35 / > + 34 … + 95				
Permissible operating pressure		max. 10				bar
Duty cycle		100%				
Condensate management		condensate drain				
System of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer				
	IP 65	on request				
Design	housing	galvanised steel/electrostatically powder-coated (200 °C); on request: stainless steel				
	heat exchanger	copper pipe with aluminium fins; stainless steel piping on request				
Colour (cover)		RAL 7035, different colours available on request				

Accessories	Piece	Article number	Informationen on page
External condensate evaporation system	1	18314000001	96
Condensate bottle	1	18314000100	96

Approvals see page 81

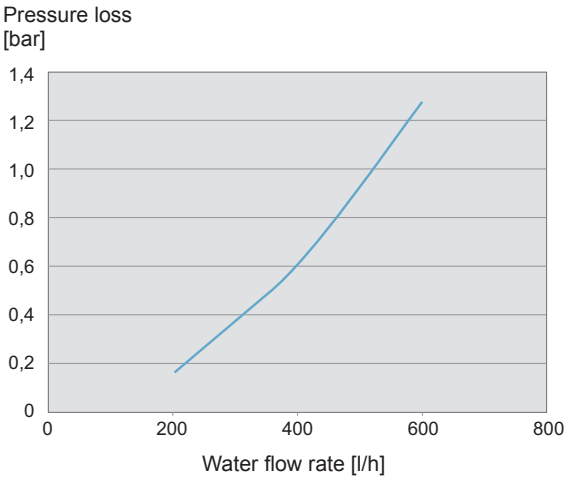
Cooling capacity performance curves

PWS 7702 / 7702 SL



Pressure loss performance curve

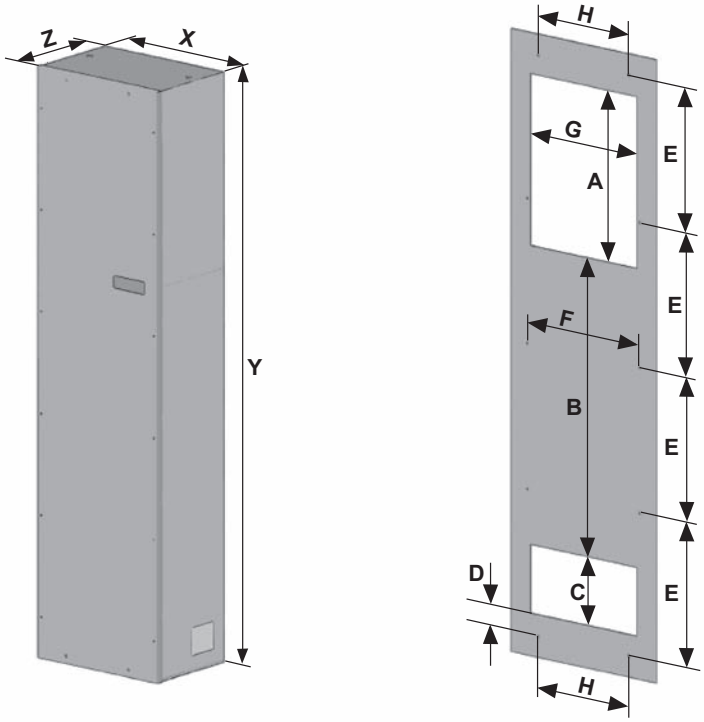
PWS 7702 / 7702 SL



Dimensions

PWS 7702	X	Y	Z	A	B	C	D	E	F	G	H
mm	460	1800	310	525	910	210	65	442.5	433.5	410	350
PWS 7702 SL	**X**	**Y**	**Z**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
mm	460	1800	255								
Mounting holes Ø 8 mm											

PWS 7702 / 7702 SL



Air/Water Heat Exchanger 5200 W
PWS 7502

- maintenance-free
- mounting-friendly seal, no elaborate reworking of the mounting cut-out
- integrated thermostat and solenoid valve for temperature control
- integrated temperature monitoring with alarm contact

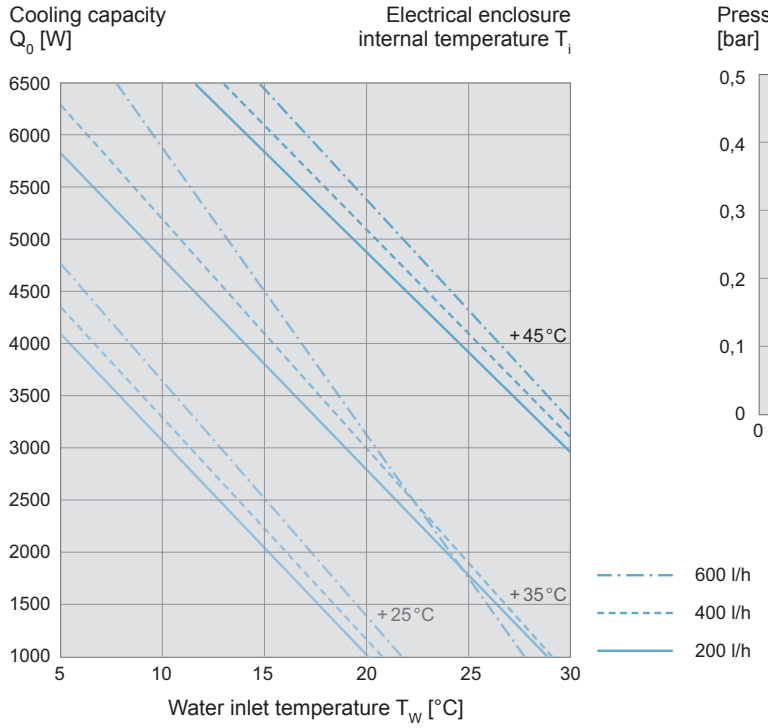
Data		PWS 7502		Unit
Article number		12055010055	12055017055	
Rated voltage ± 10 %		AC 50 Hz / 60 Hz	AC 60 Hz	
		230	115	V
Cooling capacity at 400 l/h	W10/L35	5200		W
Power consumption	W10/L35	295 / 385	384	
Current consumption	W10/L35	1.3 / 1.7	3.45	A
Starting current	W10/L35	5.8 / 6.6	8.33	
Unimpeded airflow (free flow)	internal	1670		m^3/h
Pre fuse T		6		A
Type of connection	electro	spring-type terminal included with plug		
	fluid	13 mm hose nozzle; other connectors on request		
Noise level (according to EN ISO 3741)		57		dB (A)
Weight (without packaging)		39		kg
Ambient temperature range		> + 1 … + 70 / > + 34 … + 158		°C / °F
Control range (adjustable)		+ 8 … + 50 / + 47 … + 122; factory setting + 35 / + 95		
Water outlet temperature		> + 1 … + 35 / > + 34 … + 95		
Permissible operating pressure		max. 10		bar
Duty cycle		100%		
Condensate management		condensate drain		
System of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer		
	IP 65	on request		
Design	housing	galvanised steel/electrostatically powder-coated (200 °C); on request: stainless steel		
	heat exchanger	copper pipe with aluminium fins; stainless steel piping on request		
Colour (cover)		RAL 7035, different colours available on request		

Accessories	Piece	Article number	Informationen on page
External condensate evaporation system	1	18314000001	96
Condensate bottle	1	18314000100	96

Approvals see page 81

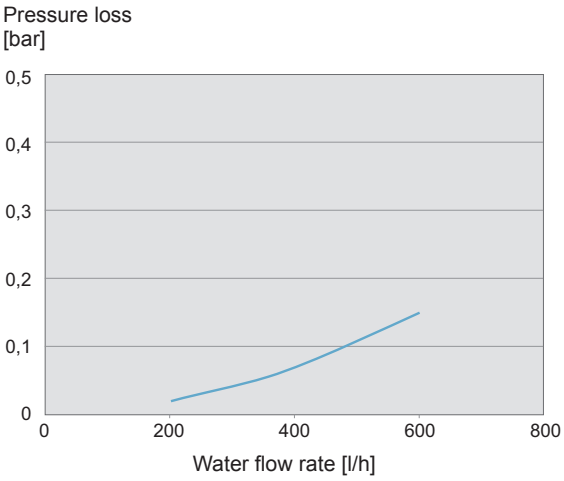
Cooling capacity performance curves

PWS 7502



Pressure loss performance curve

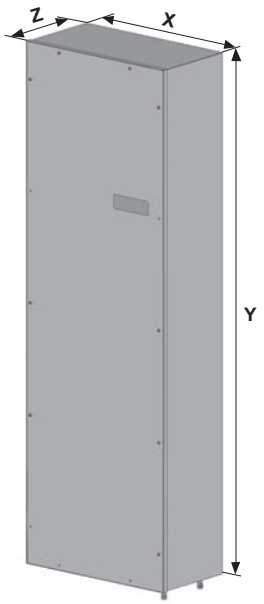
PWS 7502

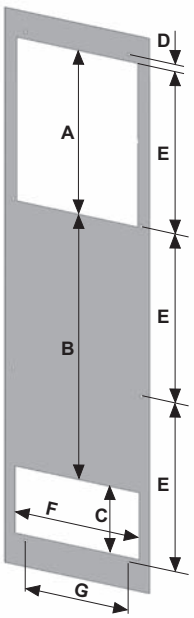


Dimensions

	X	Y	Z	A	B	C	D	E	F	G
mm	460	1400	239	440	711.5	180	20	455	420	350
Mounting holes Ø 8 mm										

PWS 7502





Air/Water Heat Exchanger 3150 W / 1500 W

PWS 7332
PWS 7152

- two performance classes, cut-out compatible
- completely installable or mountable externally and internally
- maintenance-free
- mounting-friendly seal, no elaborate reworking of the mounting cut-out
- integrated thermostat and solenoid valve for temperature control
- integrated temperature monitoring with alarm contact

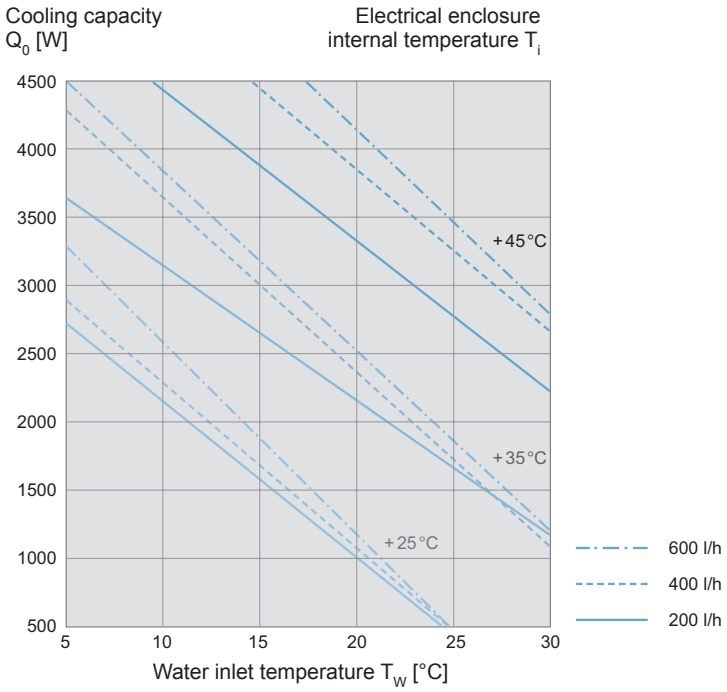
Data		PWS 7332		PWS 7152		Unit
Article number		12053010055	12053017055	12051510055	12051517055	
Rated voltage ± 10 %		AC 50 Hz / 60 Hz	AC 60 Hz	AC 50 Hz / 60 Hz	AC 60 Hz	
		230	115	230	115	V
Cooling capacity at 200 l/h	W10/L35	3150		1500		W
Power consumption	W10/L35	295 / 385	453	125 / 182	186	W
Current consumption	W10/L35	1.3 / 1.7	4.1	0.55 / 0.75	1.5	A
Starting current	W10/L35	5.8 / 6.6	8.62	2 / 2	3.9	A
Unimpeded airflow (free flow)	internal	1670		850		m³/h
Pre fuse T		6	16	4	6	A
Type of connection	electro	spring-type terminal included with plug				
	fluid	13 mm hose nozzle; other connectors on request				
Noise level (according to EN ISO 3741)		54		53		dB (A)
Weight (without packaging)		23		21		kg
Ambient temperature range		> + 1 … + 70 / > + 34 … + 158				°C / °F
Control range (adjustable)		+ 8 … + 50 / + 47 … + 122; factory setting + 35 / + 95				
Water outlet temperature		> + 1 … + 35 / > + 34 … + 95				
Permissible operating pressure		max. 10				bar
Duty cycle		100%				
Condensate management		condensate drain				
System of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer				
	IP 65	on request				
Design	housing	galvanised steel/electrostatically powder-coated (200 °C); on request: stainless steel				
	heat exchanger	copper pipe with aluminium fins; stainless steel piping on request				
Colour (cover)		RAL 7035, different colours available on request				

Accessories	Piece	Article number	Informationen on page
External condensate evaporation system	1	18314000001	96
Condensate bottle	1	18314000100	96

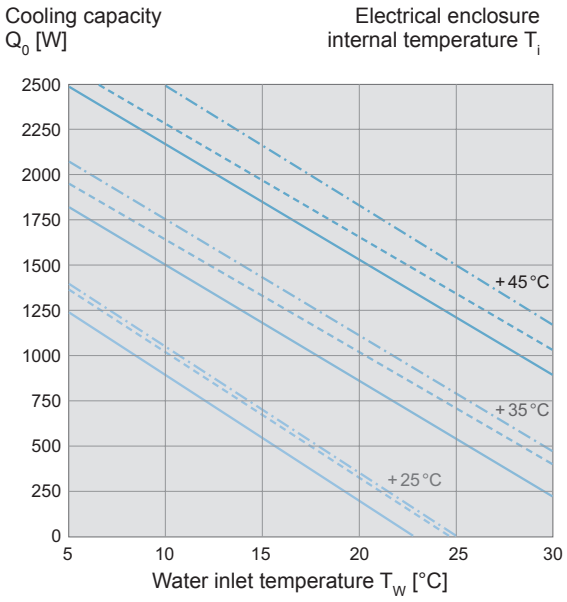
Approvals see page 81

Cooling capacity performance curves

PWS 7332

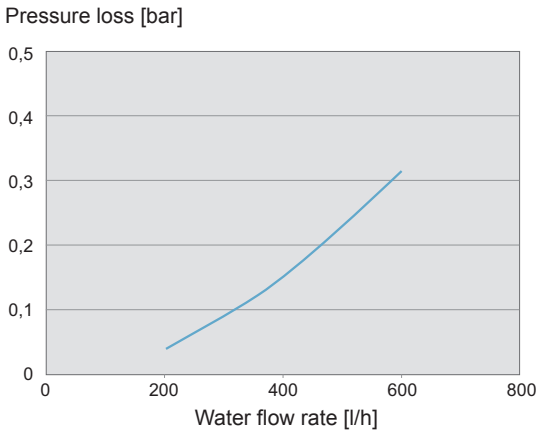


PWS 7152

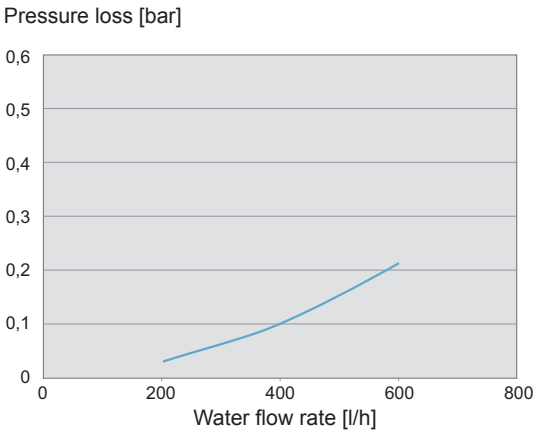


Pressure loss performance curves

PWS 7332

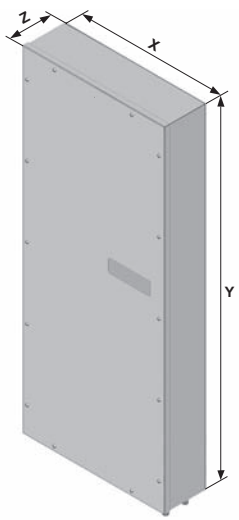


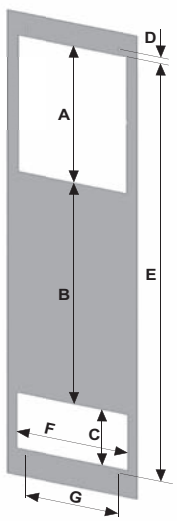
PWS 7152



Dimensions

mm	PWS 7332	PWS 7152
X	400	
Y	950	
Z	190	115
A	280	
B	463	
C	112	
D	37	
E	904	
F	340	
G	280	
Mounting holes Ø 8 mm		





Air/Water Heat Exchanger 3150 W
PWS 7332 L

- long passage of air
- compatible with DTS 9x41 cooling unit series
- maintenance-free
- mounting-friendly seal, no elaborate reworking of the mounting cut-out
- integrated thermostat and solenoid valve for temperature control
- integrated temperature monitoring with alarm contact

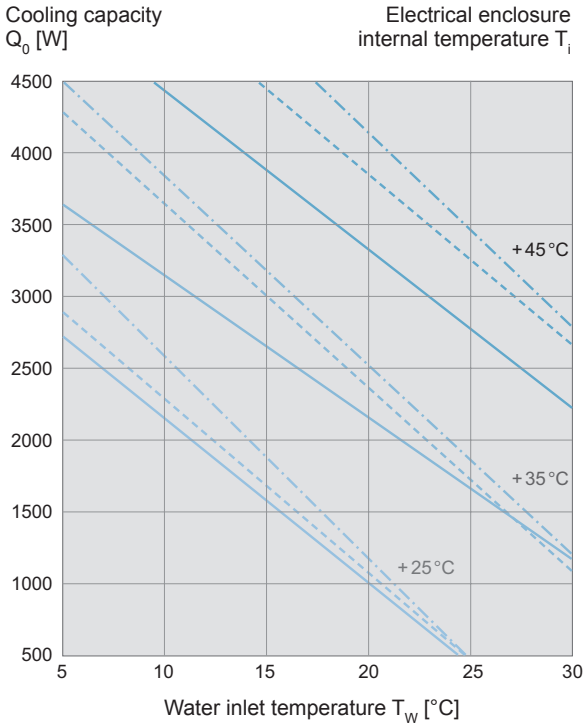
Data		PWS 7332 L		Unit
Article number		12053010063	12053017063	
Rated voltage ± 10 %		AC 50 Hz / 60 Hz	AC 60 Hz	
		230	115	V
Cooling capacity at 200 l/h	W10/L35	3150		W
Power consumption	W10/L35	161 / 226	193	
Current consumption	W10/L35	0.7 / 1	1.7	A
Starting current	W10/L35	2.6 / 2	3	
Unimpeded airflow (free flow)	internal	1200		m^3/h
Pre fuse T		6		A
Type of connection	electro	spring-type terminal included with plug		
	fluid	13 mm hose nozzle; other connectors on request		
Noise level (according to EN ISO 3741)		54		dB (A)
Weight (without packaging)		35		kg
Ambient temperature range		> + 1 … + 70 / > + 34 … + 158		°C / °F
Control range (adjustable)		+ 8 … + 50 / + 47 … + 122; factory setting + 35 / + 95		
Water outlet temperature		> + 1 … + 35 / > + 34 … + 95		
Permissible operating pressure		max. 10		bar
Duty cycle		100%		
Condensate management		condensate drain		
System of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer		
	IP 65	on request		
Design	housing	galvanised steel/electrostatically powder-coated (200 °C); on request: stainless steel		
	heat exchanger	copper pipe with aluminium fins; stainless steel piping on request		
Colour (cover)		RAL 7035, different colours available on request		

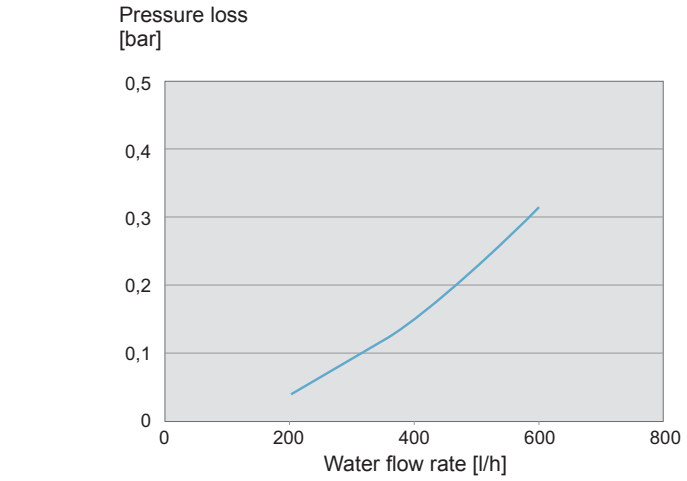
Accessories	Piece	Article number	Informationen on page
External condensate evaporation system	1	18314000001	96
Condensate bottle	1	18314000100	96

Approvals see page 81

Cooling capacity performance curves

PWS 7332 L





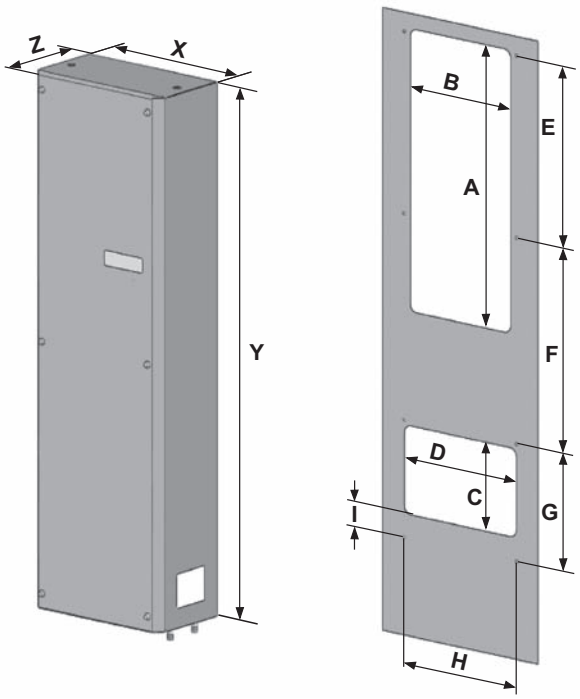
Pressure loss performance curve

PWS 7332 L

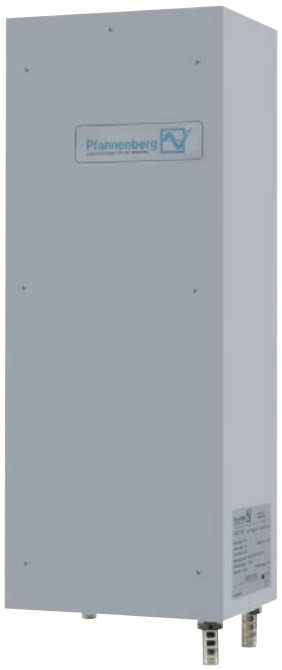
Dimensions

	X	Y	Z	A	B	C	D	E	F	G	H	I
mm	400	1350	190	700	315	220	350	450	510	290	350	58
Mounting holes Ø 8 mm and cut-out radii R20												

PWS 7332 L



Air/Water Heat Exchanger 950 W / 600 W
PWS 7102
PWS 7062



- two performance classes, cut-out compatible
- completely installable or mountable externally and internally
- maintenance-free
- mounting-friendly seal, no elaborate reworking of the mounting cut-out
- integrated thermostat and solenoid valve for temperature control
- integrated temperature monitoring with alarm contact

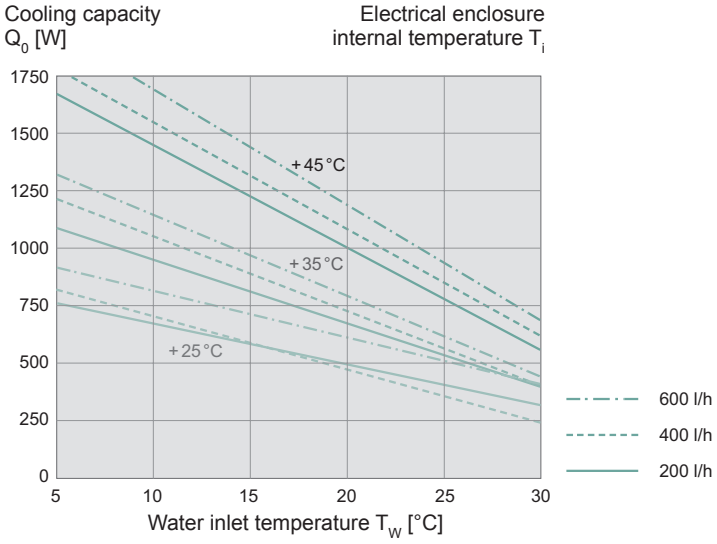
Data		PWS 7102		PWS 7062		Unit
Article number		12051010055	12051017055	12050610055	12050617055	
Rated voltage ± 10 %		AC 50 Hz / 60 Hz	AC 60 Hz	AC 50 Hz / 60 Hz	AC 60 Hz	
		230	115	230	115	V
Cooling capacity at 200 l/h	W10/L35	950		600		W
Power consumption	W10/L35	82 / 84	82	68 / 70	60	
Current consumption	W10/L35	0.35 / 0.4	0,69	0.35 / 0.38	0.65	A
Starting current	W10/L35	1.7 / 1.95	1.4	1.5 / 1.8	1.3	
Unimpeded airflow (free flow)	internal	570		440		
Pre fuse T		4				A
Type of connection	electro	spring-type terminal included with plug				
	fluid	13 mm hose nozzle; other connectors on request				
Noise level (according to EN ISO 3741)		≤ 48				dB (A)
Weight (without packaging)		7.5		6		kg
Ambient temperature range		> + 1 … + 70 / > + 34 … + 158				°C / °F
Control range (adjustable)		+ 8 … + 50 / + 47 … + 122; factory setting + 35 / + 95				
Water outlet temperature		> + 1 … + 35 / > + 34 … + 95				
Permissible operating pressure		max. 10				bar
Duty cycle		100%				
Condensate management		condensate drain				
System of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer				
	IP 65	on request				
Design	housing	galvanised steel/electrostatically powder-coated (200 °C); on request: stainless steel				
	heat exchanger	copper pipe with aluminium fins				
Colour (cover)		RAL 7035, different colours available on request				

Accessories	Piece	Article number	Informationen on page
External condensate evaporation system	1	18314000001	96
Condensate bottle	1	18314000100	96

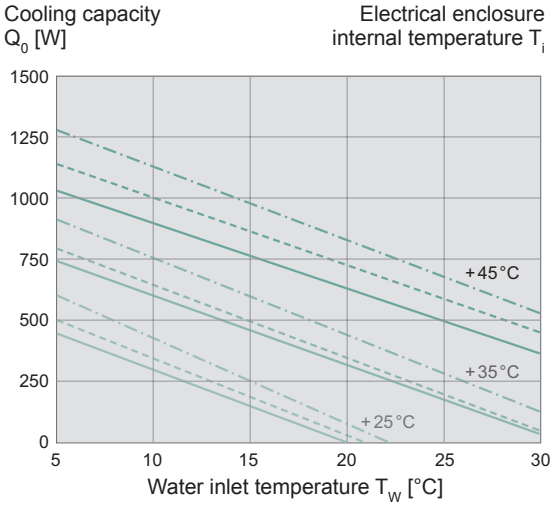
Approvals see page 81

Cooling capacity performance curves

PWS 7102

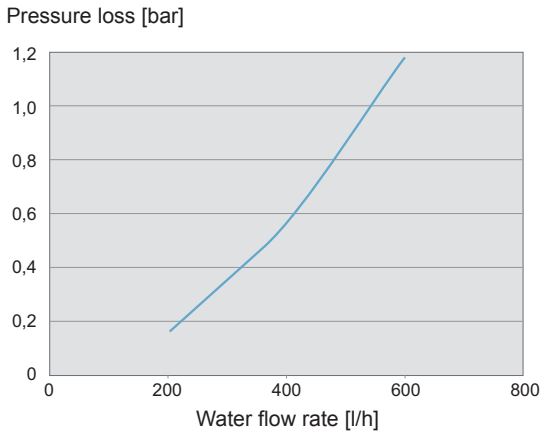


PWS 7062

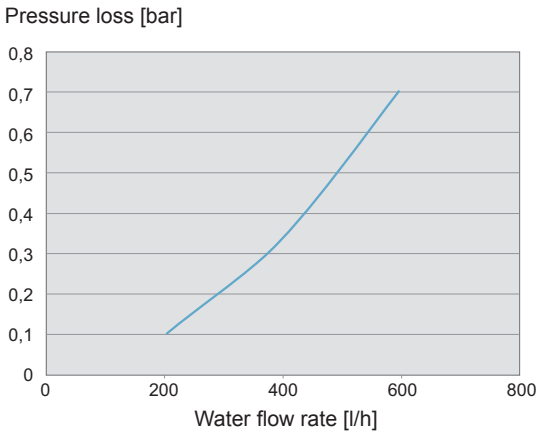


Pressure loss performance curves

PWS 7102

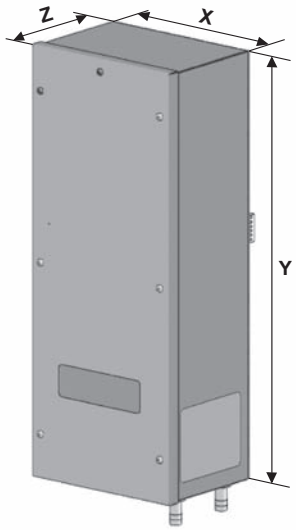


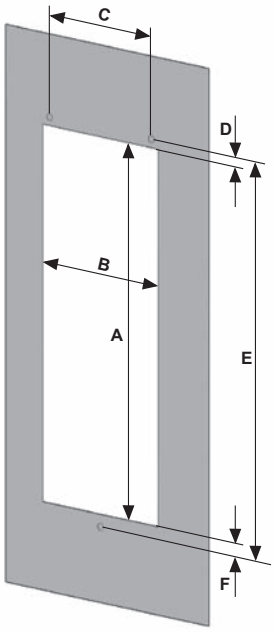
PWS 7062



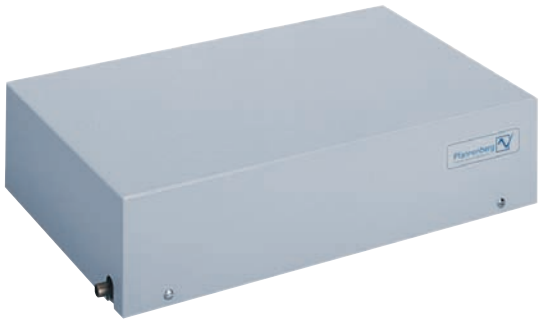
Dimensions

mm	PWS 7102	PWS 7062
X	200	
Y	500	
Z	150	100
A	440	
B	170	
C	150	
D	10	
E	465	
F	15	
Mounting holes Ø 8 mm		





Air/Water Heat Exchanger 3400 W / 2150 W
PWD 5402
PWD 5302



- water circuit pressure-tested to 30 bar
- surface seal to protect against the penetration of water via the roof surface of the control cabinet
- simple temperature control with integrated thermostat and solenoid valve
- 10 bar maximum operating pressure
- piping and heat exchanger optionally available in V4A (1.4571)

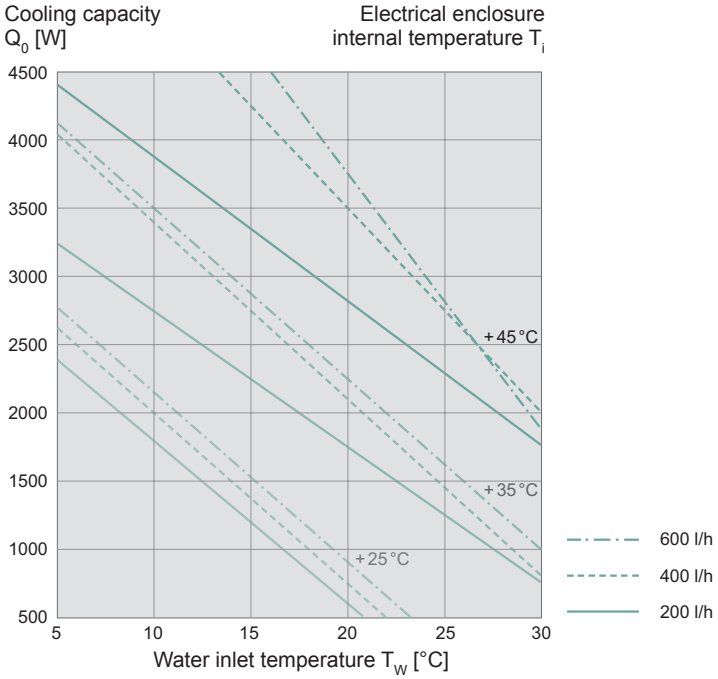
Data		PWD 5402	PWD 5302	Unit
Article number		12065410055	12065310055	
Rated voltage ± 10 %		AC 50 Hz / 60 Hz		
		230		V
Cooling capacity at 400 l/h	W10/L35	3400	2150	W
Power consumption	W10/L35	115 / 165	85 / 100	
Current consumption	W10/L35	0.84	0.4	A
Starting current	W10/L35	4	3	
Unimpeded airflow (free flow)	internal	720	500	m³/h
Pre fuse T		6		A
Type of connection	electro	3.5 metres of cable 3 x 0.75 mm²		
	fluid	13 mm hose nozzle; other connectors on request		
Noise level (according to EN ISO 3741)		64	54	dB (A)
Weight (without packaging)		30	21	kg
Ambient temperature range		> + 1 … + 70 / > + 34 … + 158		°C / °F
Control range (adjustable)		+ 8 … + 50 / + 47 … + 122; factory setting + 35 / + 95		
Water outlet temperature		> + 1 … + 35 / > + 34 … + 95		
Permissible operating pressure		max. 10		bar
Duty cycle		100%		
Condensate management		condensate drain		
System of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer		
	IP 65	on request		
Design	housing	galvanised steel/electrostatically powder-coated (200 °C); on request: stainless steel		
	heat exchanger	copper pipe with aluminium fins; stainless steel piping on request		
Colour (cover)		RAL 7035, different colours available on request		

Accessories	Piece	Article number	Informationen on page
External condensate evaporation system	1	18314000001	96
Condensate bottle	1	18314000100	96

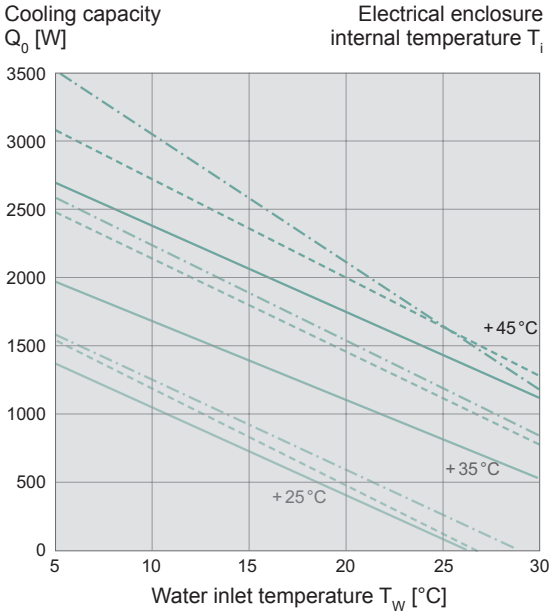
Approvals see page 81

Cooling capacity performance curves

PWD 5402

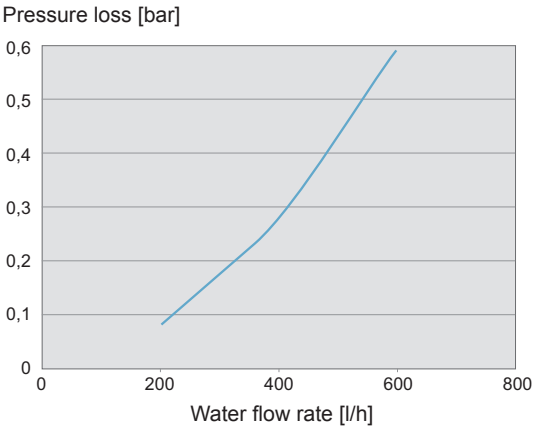


PWD 5302

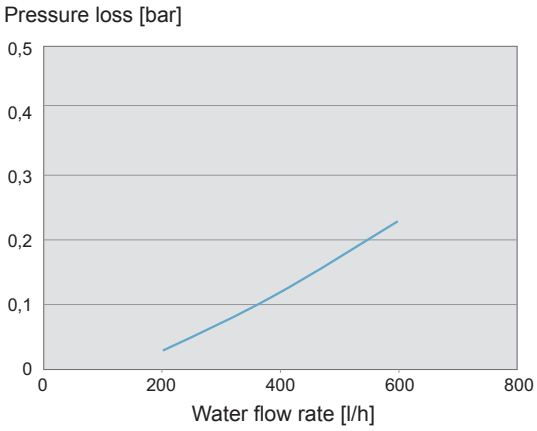


Pressure loss performance curves

PWD 5402

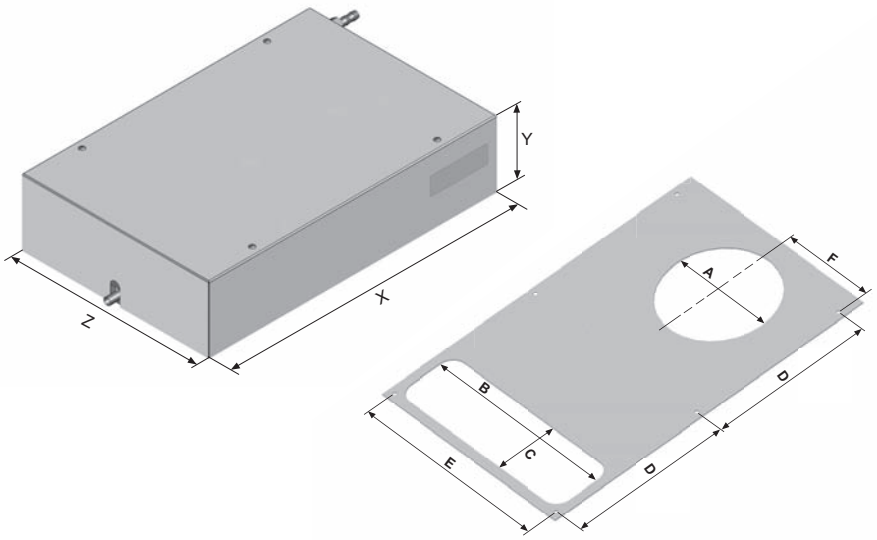


PWD 5302



Dimensions

mm	PWD 5402	PWD 5302
X	720	600
Y	190	140
Z	465	390
A	230	230
B	425	360
C	128	105
D	330	270
E	434	358
F	191	143
Cut-out radii R30		



Accessories

Internal enclosure fan

Distribution of cold air inside the control cabinet

Product	Article number
PEF 180 mounting bracket 230 V	18110000000
PEF 180 mounting bracket 115 V	18110000001
PEF 180 mounting bracket 24 V DC	18110000002

External condensate evaporation system 230 V 50/60 Hz

External condensate evaporator for the accumulated condensed water

Suitable for ...	Article number
all units	18314000001

Condensate bottle

External container for collecting the accumulating condensed water

Suitable for ...	Article number
all units	18314000100

Device-side water connection with G 3/8” internal thread

variable connection possibilities:

e.g.
- hose nozzle 3/8“ x 12 with o-ring
- double nipple 3/8“
- quick-coupling 12 mm
- quick-coupling 10 mm

etc.

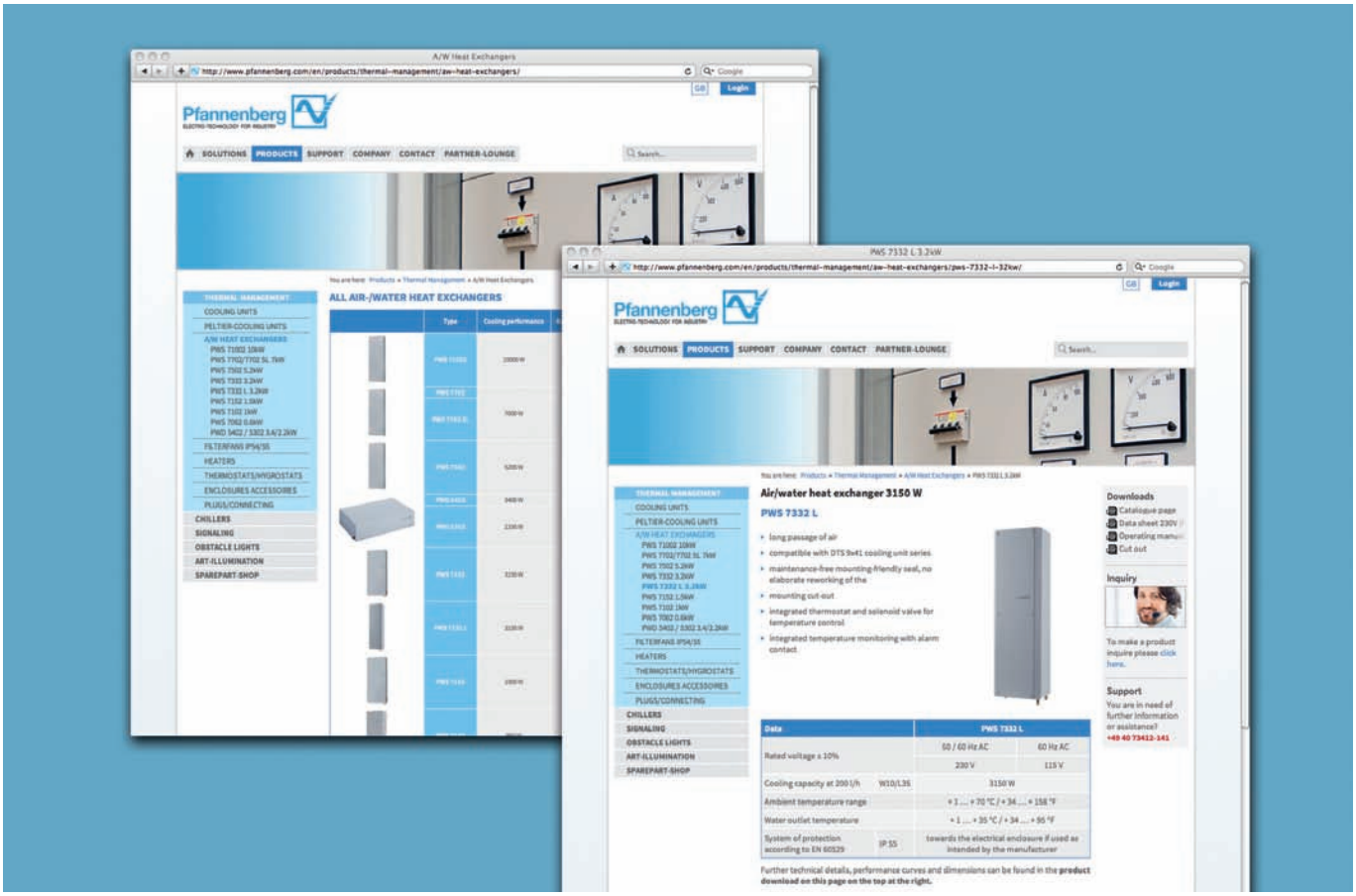
Suitable for ...	Article number
all heat exchangers	on request

Air/water heat exchangers on the Internet

As with all of our products, you can find a large amount of online information about the air/water heat exchangers. At **www.pfannenberg.com**, just click ‘Products’ in the menu bar. This will open a sub-menu on the left-hand side with all categories. With a few clicks you can find all of the important information about the individual air/water heat exchangers that you need.

Our special service to you: the download area!
With a mouse click you can conveniently download data sheets, operating manuals, drilling templates and construction drawings to your PC and print them out.

www.pfannenberg.com




Pfannenberg

When it's about economy and long service life

Chillers from the Rack, CC, EB, HK, AR and PWW series

Pfannenberg's chillers – including the new CC chillers from the **ECOOL** series – guarantee both a central and economic provision and cooling of the media water, emulsion and oil. All the cooling tasks are realized with devices which are both compact and maintenance friendly. The areas of applications for Pfannenberg's chillers range from machine tools, lasers, plastic processing and alternative energy to the food, drinks and pharmaceutical industry.

The Pfannenberg group offers a variety of designs for your specific tasks:

- Air or water chillers
- Pressurized chillers
- Passive chillers
- Outdoor for low and high temperature conditions
- Stand-alone design
- Enclosure chillers

Expertise in process cooling!

In this day and age, if you want to be the best in process cooling, you have offer more than just superior quality. The ability to partner with customers and sharing competence, as well as offer excellent service is an absolute must - and that requires the highest level of innovation and technology.

From the idea to the product

No matter whether it is a question of air conditioners or large projects, standard solutions or individual developments, your problems and avtivities will be in good hands with us. We can guarantee you a face to face meeting on site. Using successful solutions, we would like to introduce our company as a solid, flexible and reliable partner.

Everything from a single source

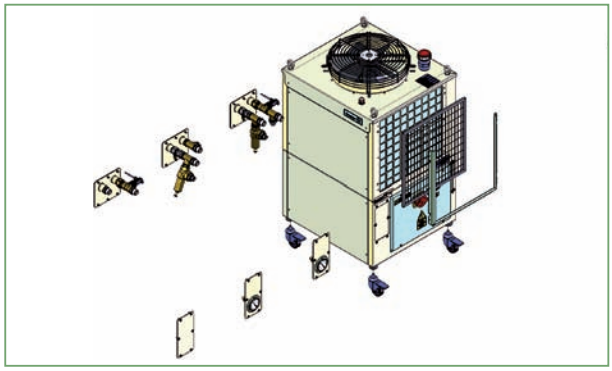
Within a prescribed period, innovative technology is developed and successfully implemented. For target markets, we not only carry out development together with our customers, but also provide consulting for installation and project management.

Process chiller design

Pfannenberg process chillers are designed based on three main areas: the refrigeration circuit, the hydraulic circuit and controls.

Refrigeration circuit

The refrigeration circuit‘s main purpose is to guarantee the heat transfer from the medium, which is passing through the evaporator and therefore, to cool the particular medium down to the desired temperature for the particular application. The heat, which is transferred from the medium to the refrigerant is then carried back to a compressor and then passes on to the different phases of the refrigeration cycle. This is an continuous cycle, which we are rejecting heat (condenser) and in wich we are absorbing heat (evaporator).



Hydraulic circuit

The hydraulic circuit is specifically designed to deliver a certain medium at a calculated flow rate, temperaure and pressure to the consumers‘s application. The flow rate, temperature and pressure varies based on the particular application.

Controls

In order to guarantee the accurate delivery of the medium to the consumer‘s application, proper controls are necessary.

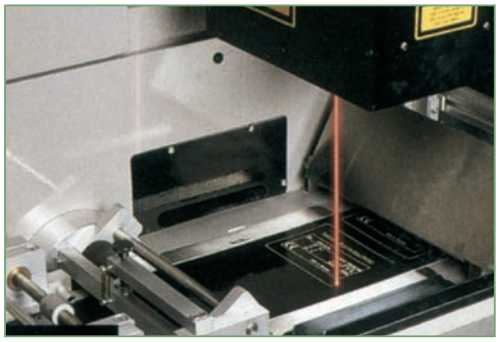
For example, a standard method of controlling a temperature is by using a digital controller with a medium sensor and based on the set-point, will control the refrigeration circuit in order to maintain the accurate temperature for the particular application.

There are many methods of providing accurate controlling of the refrigeration and hydraulic circuits and these are based on the application criteria. At Pfannenberg, we have the competence to provide consultation to determine sizing and ensure proper configuration of a process chiller in order to meet your application needs.

The perfect solution...

High-tech machines need high-tech components and systems, such as:

- spindle, linear and torque motors
- all types of motors
- laser souces
- print systems
- x-ray tubes



Heat is created wherever these items are in use, in addition to the ambient termperature which in some areas can be very high during certain seasons. This must be controlled since too much heat leads to machine failure or shutdown, in turn causing a loss of production.

Wherever precise, exact temperatures are required, water is a proven cooling agent and it is impossible to imagine cooling whithout it. This is where chillers are used. Chillers produce cold water (10 °C – 35 °C) as a cooling agent - or bring water, oil and emulsions to the exact temperature required.

...whatever the application

Our many years of experience from across such varied industries as the cooling of complex machine tools anc machining centers, colour systems for printing presses, glue and colour cooling for wood working machines, welding systems for plastic film for packaging machines, laser sources for marking lasers, x-ray tubes for measuring systems all combine to guarantee precision and quality. Our successful engineering team is constantly developing and improving chiller technology. We are also your competent partner for custom-made and special solutions.

Cost-efficiency Master Plan

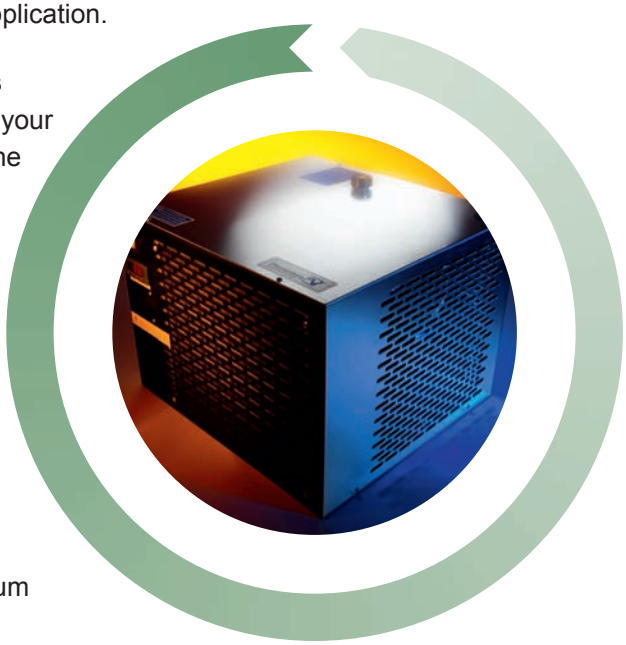
We secure your future with our modern philosophy

Pfannenberg subscribes to a corporate philosophy which focuses on the concerns and objectives of the users with respect to cost efficiency. This starts during the planning phase and extends far beyond the operation phase. Furthermore, Pfannenberg is one of the few suppliers who can supply a complete solution, i.e. a chiller solution as well as the complete handling and maintenance of your cabinet thermal management.

Pre-sales The right product at the right time – at Pfannenberg, service starts even before delivery. An analysis of the business environment, of the objectives and of the technology which the user has available is our investment in a sustainably successful cooperation.

Concept design Design that is perfectly adjusted to your application.

Installation and start-up operation Pfannenberg offers support in the installation and start-up operation of the chiller at your site. This ensures a smooth start and contributes to extending the long service life of the chiller.



Coaching and service Training courses by Pfannenberg experts, in combination with customised maintenance and repair packages, ensure that your production processes run smoothly and guarantee longer service life.

Energy efficiency Our chillers achieve top grades in energy consumption.

Reliability More than 20 years of experience in the field of recooling and the use of high-quality components ensure optimum long-term stability and top MTBF (mean time between failures).

Service friendliness Minimum MTTR (mean time to repair) and the shortest time needed to replace units thanks to perfect accessibility, standardised parts and a carefully thought-through plug-and-play concept minimise your repair costs and downtimes.

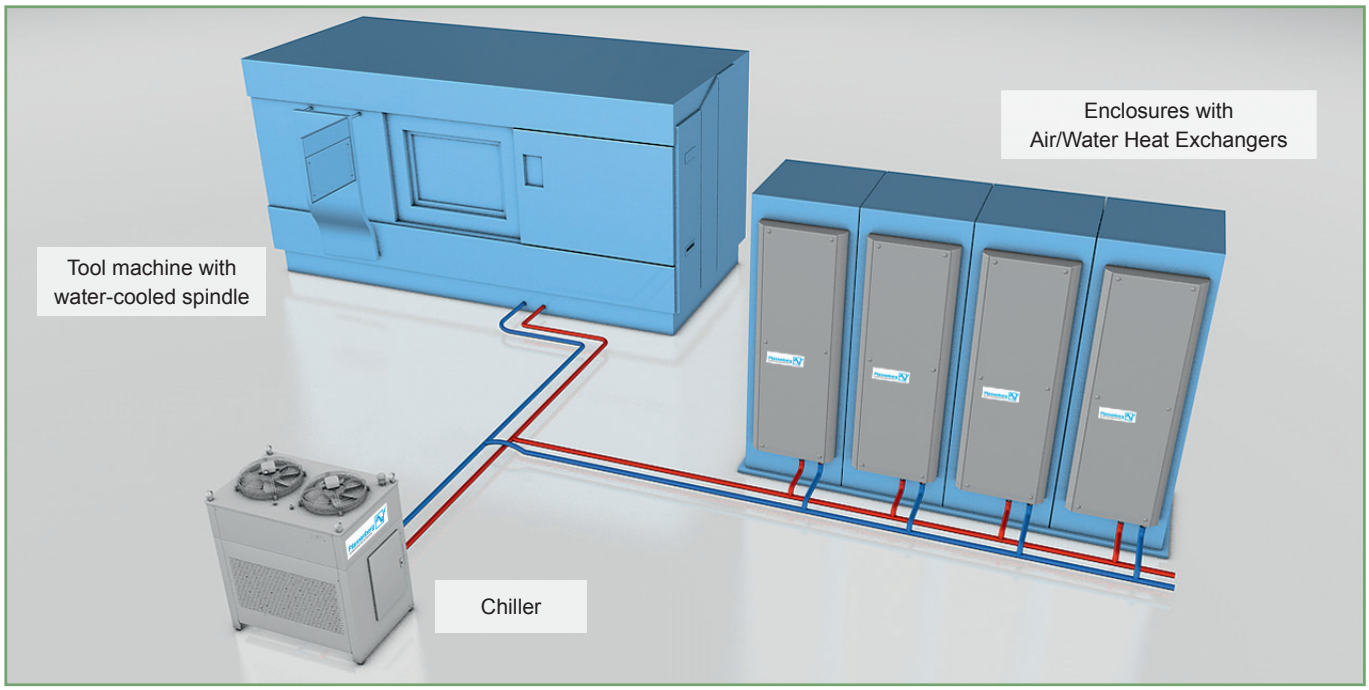
Benefits: risk minimisation and cost savings

Pfannenberg's master plan as described above spells crucial benefits for manufacturers and users. After all, Pfannenberg makes sure that the total cost of ownership (TCO) of your components is considerably reduced while your return on investment (ROI) receives a powerful boost.

The 100% system solution for all branches of industry

The Pfannenberg chillers offer decisive advantages in combination with the Pfannenberg air/water heat exchangers:

- in applications where power losses must not enter the surrounding space
- if aggressive ambient air restricts the use of conventional cooling units
- if a very high IP class is required (up to IP 65)
- if maintenance-free cooling units are necessary



Planning on making new acquisitions for your production or thinking about expanding? Then you'll definitely be on the safe side with solutions for water-cooling.

Every change in production conditions involves, first and foremost, medium or long-term investments. Despite the rather high purchase price, the use of chillers normally pays off – owing to the long durability, low maintenance costs and high energy efficiency.

Pfannenberg Sizing Software (PSS):
Calculation software for your customized solution

The Pfannenberg sizing software determines your cooling requirements, calculates the necessary cooling capacity and recommends the correct device components. Thus, you get a customized solution which gives you the security of a perfect dimensioning and prevents expensive over-dimensioning. Download PSS free of charge or calculate directly online on **www.pfannenberg.com/support**.

Six series for every application

Rack
The compact design of the unit allows it to be attached to the widest variety of machine types. This unit is used in the fields of laboratory equipment, pharmaceutical and medical equipment, laser equipment, automation equipment and also in industrial automation for work spindles.

NEW

CC
The chillers of the CC-series are available in 6 power classes and their compact design makes them especially space-saving. The chillers, which can also be installed as top-mounting devices, are safe and an installation in compact plants is made easier by their design. Additionally, they reach an especially high coefficient of performance (COP). And the UL 1995 certification makes them particularly interesting for machine manufacturers who work internationally.
6 different performance classes in just 2 sizes make it possible to make a flexible and late adjustment in the device you choose. This change can be effected in the planning phase and also during the operation of the plant without you having to dimension the essential connections or floor space again. Due to the number of available options, the CC chillers can be configured flexibly, this enables them to be used in virtually all industry sectors. The high system of protection IP 54 also supports the operation of the devices in harsh ambient conditions.

EB
The EB series has been specially developed for applications that require stable temperature control. Equipped with a programmable control module, these units can be used to realise small hystereses of the fluid temperature. For monitoring the functions of the chiller, a control module is optionally available that indicates the individual function statuses via an LED display.

HK
The HK series has been designed for indoor and outdoor applications for the cooling of water, oil and emulsions. These units have a ‘stand-alone’ design for automatic operation. They can be used throughout the entire range of industries. The cooling circuit is controlled by a programmable temperature module; this ensures high temperature accuracy.

AR
The AR series arose from the requirements of the application area of the mechanical engineering sector as well as the cigarette and packaging industry. The characteristic feature of this series is the implementation of the housing, which is based on standard control cabinet sizes. This allows optimum integration of the cooler in switchgear.

PWW
The PWW series is a new generation of cooling units based on the passive cooling principle. It has been specially designed for applications where process water is already available. Process water flowing through the integrated heat exchanger on the primary side will be regulated to keep the cooling water on the secondary side at a stable temperature. Due to the smart design of the closed loop circuit the PWW can be easily adapted to the existing water supply.

All Chillers at a glance

Type	Cooling capacity [1]	Rated voltage [2]	Dimensions (HxWxD)	Approvals					Page
				UL	cUL	GOST	CSA	CE	
Rack Chillers (water)									
Rack 1100	1100 W	230 V AC	395 x 450 x 480 mm	◉	◉	◉		●	106
Rack 1700	1700 W			◉	◉	◉		●	106
Rack 2400	2400 W		500 x 580 x 580 mm	◉	◉	◉		●	106
CC Chillers									
CC 6101	1100 W	115 V / 230 V	626 x 600 x 480 mm	●	◉	◉		●	108
CC 6201	1700 W			●	◉	◉		●	108
CC 6301	2400 W			●	◉	◉		●	108
CC 6401	3500 W	400 V / 460 V 3 ~	984 x 601 x 670 mm	●	◉	◉		●	110
CC 6501	5000 W			●	◉	◉		●	110
CC 6601	6500 W			●	◉	◉		●	110
EB Chillers (water)									
EB 30 WT	3000 W	400 V / 460 V 3 ~	955 x 550 x 610 mm	◉	◉	◉		●	112
EB 43 WT	4300 W			◉	◉	◉		●	112
EB 60 WT	6000 W			◉	◉	◉		●	112
EB 75 WT	7500 W		1290 x 705 x 765 mm	◉	◉	◉		●	114
EB 90 WT	9000 W			◉	◉	◉		●	114
EB 130 WT	13000 W			◉	◉	◉		●	114
EB 150 WT	15000 W			◉	◉	◉		●	114
EB 190 WT	19000 W		1410 x 1230 x 790 mm	◉	◉	◉		●	116
EB 250 WT	25000 W			◉	◉	◉		●	116
EB 300 WT	30000 W		1410 x 1680 x 790 mm	◉	◉	◉		●	118
EB 350 WT	35000 W			◉	◉	◉		●	118
EB 400 WT	40000 W			◉	◉	◉		●	118
EB Chillers (oil)									
EB 30 (oil)	3000 W	400 V / 460 V 3 ~	955 x 550 x 610 mm	◉	◉	◉		●	120
EB 43 (oil)	4300 W			◉	◉	◉		●	120
EB 60 (oil)	6000 W			◉	◉	◉		●	120
EB 75 (oil)	7500 W		1290 x 705 x 765 mm	◉	◉	◉		●	122
EB 90 (oil)	9000 W			◉	◉	◉		●	122
EB 130 (oil)	13000 W			◉	◉	◉		●	122
EB 150 (oil)	15000 W			◉	◉	◉		●	122
EB 190 (oil)	19000 W		1410 x 1230 x 790 mm	◉	◉	◉		●	124
EB 250 (oil)	25000 W			◉	◉	◉		●	124
EB 300 (oil)	30000 W		1410 x 1680 x 790 mm	◉	◉	◉		●	126
EB 350 (oil)	35000 W			◉	◉	◉		●	126
EB 400 (oil)	40000 W			◉	◉	◉		●	126
HK Chillers (WT)									
HK 55 (WT)	55000 W	400 V / 460 V 3 ~	1800 x 2500 x 1110 mm	◉	◉	◉		●	128
HK 62 (WT)	62000 W			◉	◉	◉		●	128
HK 70 (WT)	70000 W			◉	◉	◉		●	128
AR Chillers (WT)									
AR 10 WT	10000 W	400 V / 460 V 3 ~	2000 x 1000 x 600 mm	◉	◉	◉		●	130
AR 12 WT	12000 W			◉	◉	◉		●	130
AR 15 WT	15000 W		2001 x 1000 x 800 mm	◉	◉	◉		●	130
AR 18 WT	18000 W			◉	◉	◉		●	130
PWW Chillers									
PWW 9.000	9000 W	230 V AC	500 x 580 x 580 mm	◉	◉	◉		●	132
PWW 12.000	12000 W			◉	◉	◉		●	132
PWW 18.000	18000 W			◉	◉	◉		●	132
PWW 24.000	24000 W			◉	◉	◉		●	132

[1] performance data based on 50Hz operation
[2] different voltages available on request

● available
○ pending
◉ upon request

Further information can be found on the Internet:
www.pfannenberg.com · **www.pfannenberg-spareparts.com**
Keep up to date. Subscribe to the newsletter now:
newsletter.pfannenberg.com

Chillers 1100–2400 W
Rack 1100 / Rack 1700
Rack 2400

- stand-alone chiller
- fluid cooling with water, water/glycol mixtures and low-viscosity oils*
- anodised aluminium housing cover
- basic housing made of powder-coated sheet steel
- robust laboratory and industry standard in 3 performance classes
- integration of project-specific additional components is possible on request

Further options for the Rack series chillers can be found on page 134.

* maximum viscosity 10 cSt (10 mm²/s) @ + 40 °C

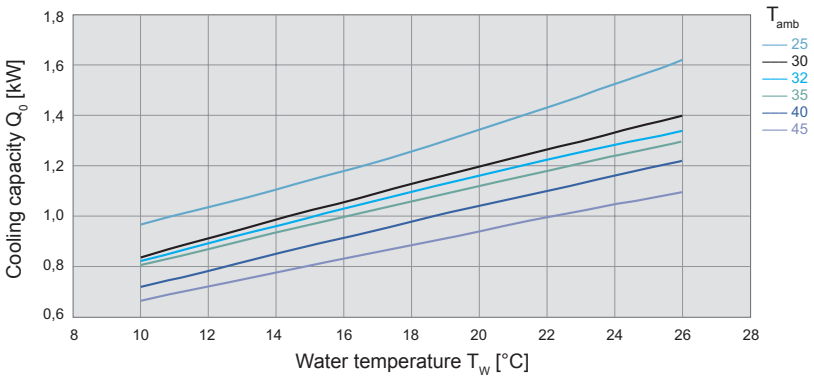
Data		Rack 1100	Rack 1700	Rack 2400	Unit
Article number		42010110003	42010170008	42010240001	
Rated voltage ± 10%		AC 50 / 60			Hz
		230 1~			V
Cooling capacity (with pump)[1]	W18/L32	1.1 / 1.35	1.7 / 2.05	2.4 / 2.7	kW
	W10/L32	0.82 / 1.01	1.28 / 1.61	1.92 / 2.14	
Flow rate (pump)[2]		12		14	l/min
Pressure (head) (pump)		2		2.5	bar
Ambient temperature range		+ 15 … + 45 / + 59 … + 113		+ 15 … + 40 / + 59 … + 104	°C / °F
Control range (refrigerant outlet temperature)		+ 10 … + 35 / + 50 … + 95; factory setting + 18 / + 64			
Target value tolerance		± 2			K
Refrigerant	type	R134a		R404A	
	quantity	700	800	1000	g
Power consumption	W18/L32	0.632 / 0.782	0.724 / 0.826	1.8 / 2.12	kW
Current consumption	W18/L32	4.16 / 3.97	3.8 / 3.94	11.22 / 11.72	A
Starting current	W18/L32	14.67 / 16.3	23.58 / 26.2	33.57 / 37.3	A
Control voltage		230			V
Pre fuse T		10	10	on request	A
Volumetric airflow	external	806	1182	1000	m³/h
Tank volume		5		10	l
Connections (medium)	IG	3/8"			BSPP
Noise level according to EN ISO 3741		< 66		68	dB (A)
Weight (without packaging)		42		61	kg
System of protection (electrical equipment)		IP 20			
Colour		RAL 9005 (different colours on request); cover: aluminium			

Accessories		Article number
Overflow valve (internal)		48000009680
Flow monitor		48000009682
Casters		45000009678
20% Propyleneglycol pre-mix	20 l	45783000123
20% Ethyleneglycol pre-mix	20 l	45783000125

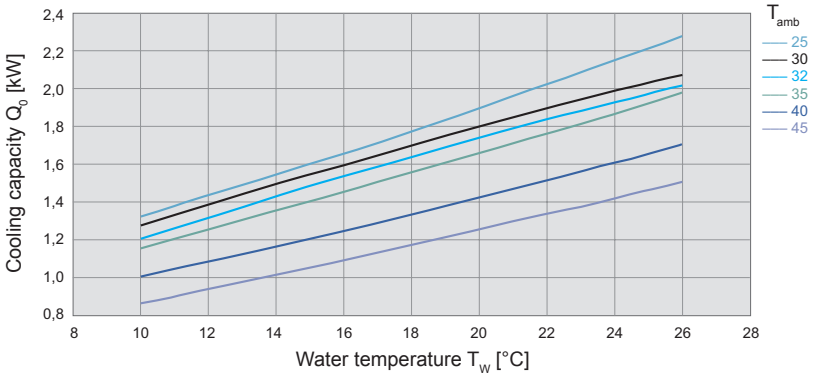
[1] cooling capacity incl. power loss in the pump, refrigerant outlet temperature + 18 °C, ambient temperature + 32 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

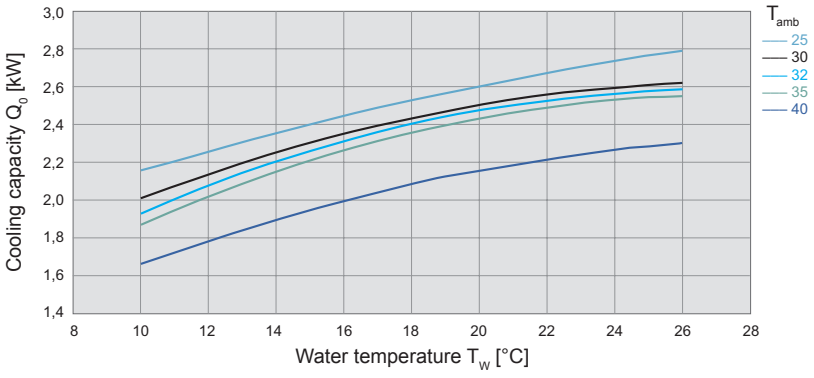
Rack 1100 (50 Hz)[1]



Rack 1700 (50 Hz)[1]

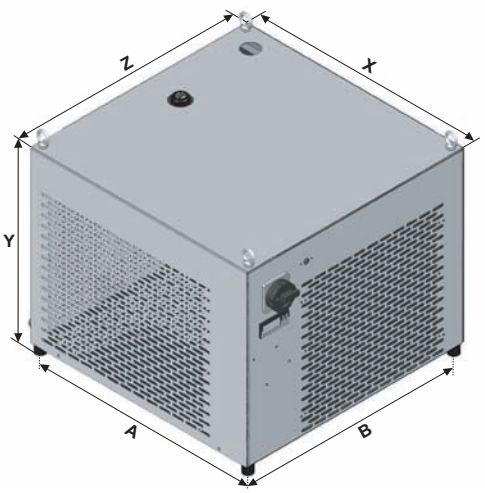


Rack 2400 (50 Hz)[1]



Dimensions

mm	Rack 1100/1700	Rack 2400
X	450	580
Y	395	500[2]
Z	480	580
A	425	555
B	450	550



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] without eye bolts

Chillers 1100–2400 W
CC 6101 / CC 6201 / CC 6301

- stand-alone chiller
- fluid cooling with water, water/glycol mixtures and low-viscosity oils*
- steel housing with thick powder coating
- robust industry standard
- mounting on top of the enclosure is possible
- integration of project-specific additional components is possible on request
- separate cooling circuit and hydraulic circuit
- equipped with a programmable control module that allows small hystereses of the temperature of the cooling medium

Further options for the CC series chillers can be found on page 134.

* maximum viscosity 10 cSt (10 mm²/s) @ + 40 °C

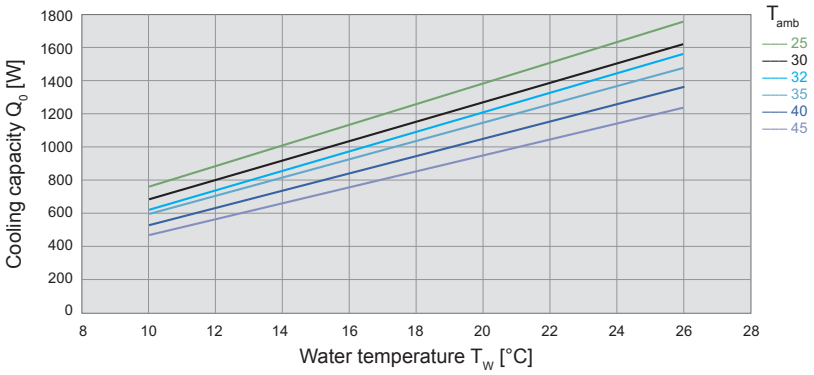
Data		CC 6101		CC 6201		CC 6301		Unit
Article number		42630115200	42630115100	42630175200	42630175100	42630245200	42630245100	
Rated voltage ± 10%		AC 50 / 60	AC 60	AC 50 / 60	AC 60	AC 50 / 60	AC 60	Hz
		230 1~	115 1~	230 1~	115 1~	230 1~	115 1~	V
Cooling capacity (with pump)[1]	W18/L32	1.1	1.3	1.7	1.92	2.4	2.68	kW
	W20/L32	0.64	0.753	0.99	1.165	1.396	1.642	
Flow rate (pump)[2]		12						l/min
Pressure (head) (pump)		3						bar
Ambient temperature range		+ 15 … + 45 / + 59 … + 113						°C / °F
Control range (refrigerant outlet temperature)		+ 10 … + 35 / + 50 … + 95; factory setting + 18 / + 64						
Target value tolerance		± 2						K
Refrigerant	R134a	650						g
Power consumption	W18/L32	1.15	1.38	1.325 / 1.59	1.59	2.926 / 3.511	3.511	kW
Current consumption	W18/L32	5 / 6.1	12.8	5.7 / 7.1	13.8	7.4 / 8.9	30.5	A
Starting current	W18/L32	17.5 / 21.35	32	20 / 24.9	34.5	25.9 / 31.15	54.9	A
Control voltage		230 AC						V
Pre fuse T		15		15	20	20	25	A
Volumetric airflow	external	1300 / 1450	1450	1300 / 1450	1450	1300 / 1450	1450	m³/h
Tank volume		10						l
Connections (medium)	IG	1/2"						BSPP
Noise level according to EN ISO 3741		< 62						dB (A)
Weight (without packaging)		67		67		72		kg
System of protection (electrical equipment)		IP 54						
Colour		RAL 7035, different colours available on request						

Accessories		Article number
Overflow valve (internal)		48700956146
Flow monitor		48700956148
Aluminium pre-filter (condenser)		45700956150
20% Propyleneglycol pre-mix	20 l	45783000123
20% Ethyleneglycol pre-mix	20 l	45783000125

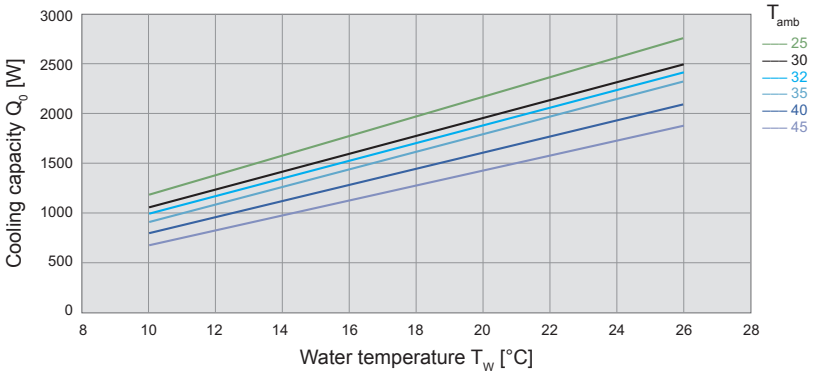
[1] cooling capacity incl. power loss in the pump, refrigerant outlet temperature + 18 °C, ambient temperature + 32 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

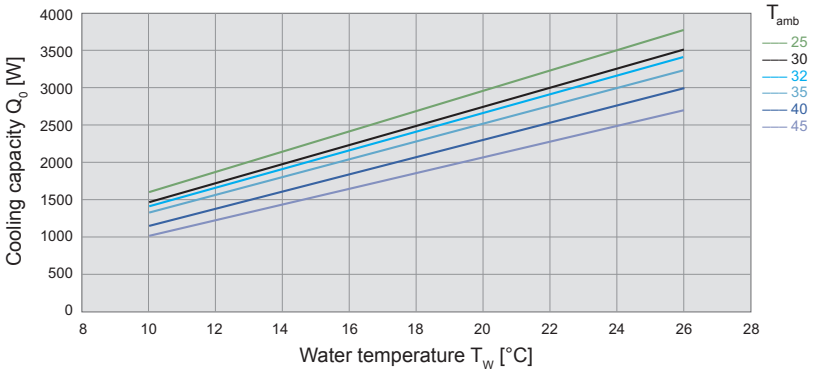
CC 6101 (50 Hz)[1]



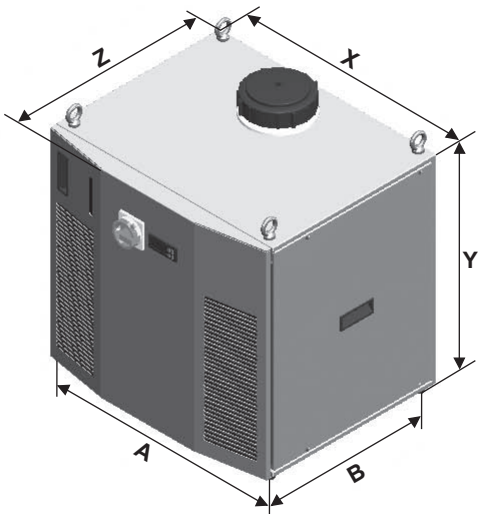
CC 6201 (50 Hz)[1]



CC 6301 (50 Hz)[1]



Dimensions	
mm	CC 6101/6201/6301
X	600
Y	626[2]
Z	480
A	540
B	412



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] without eye bolts

Chillers 3500–6500 W
CC 6401 / CC 6501 / CC 6601

- stand-alone chiller
- fluid cooling with water, water/glycol mixtures and low-viscosity oils*
- steel housing with thick powder coating
- robust industry standard
- mounting on top of the enclosure is possible
- integration of project-specific additional components is possible on request
- separate cooling circuit and hydraulic circuit
- equipped with a programmable control module that allows small hystereses of the temperature of the cooling medium

Further options for the CC series chillers can be found on page 134.

* maximum viscosity 10 cSt (10 mm²/s) @ + 40 °C

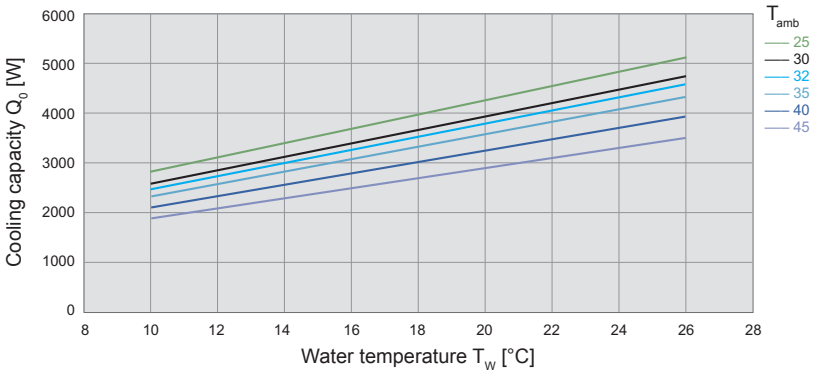
Data		CC 6401	CC 6501	CC 6601	Unit
Article number		42630355300	42630505300	42630655300	
Rated voltage ± 10%		AC 50 / 60	AC 50 / 60	AC 50 / 60	Hz
		400 / 460 3~	400 / 460 3~	400 / 460 3~	V
Cooling capacity (with pump)[1]	W18/L32	3.5	5	6.5	kW
	W20/L32	2.45	3.5	4.55	
Flow rate (pump)[2]		22			l/min
Pressure (head) (pump)		3			bar
Ambient temperature range		+ 15 … + 45 / + 59 … + 113			°C / °F
Control range (refrigerant outlet temperature)		+ 10 … + 35 / + 50 … + 95; factory setting + 18 / + 64			
Target value tolerance		± 2			K
Refrigerant	R134a	1400		1500	g
Power consumption	W18/L32	2.178	2.962	3.294	kW
Current consumption	W18/L32	3.6	4.5	5.3	A
Starting current	W18/L32	12.6	15.75	18.55	A
Control voltage		24 AC			V
Pre fuse T		9		12	A
Volumetric airflow	external	2300			m³/h
Tank volume		30			l
Connections (medium)	IG	3/4"			BSPP
Noise level according to EN ISO 3741		< 62			dB (A)
Weight (without packaging)		109	111	114	kg
System of protection (electrical equipment)		IP 54			
Colour		RAL 7035, different colours available on request			

Accessories		Article number
Overflow valve (internal)		48700956147
Flow monitor		48700956149
Aluminium pre-filter (condenser)		45700956151
20% Propyleneglycol pre-mix	20 l	45783000123
20% Ethyleneglycol pre-mix	20 l	45783000125

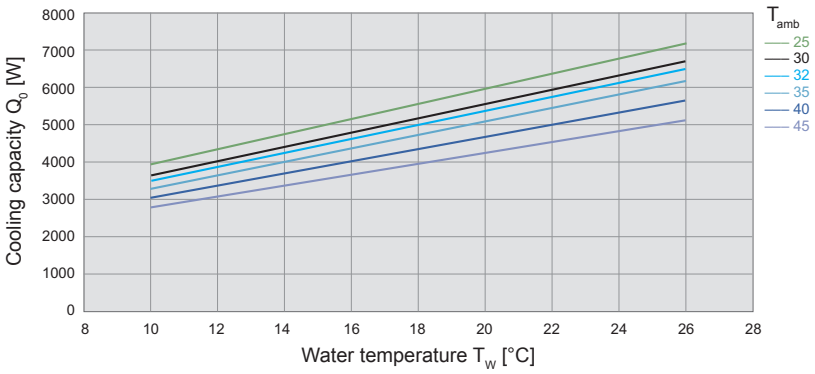
[1] cooling capacity incl. power loss in the pump, refrigerant outlet temperature + 18 °C, ambient temperature + 32 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

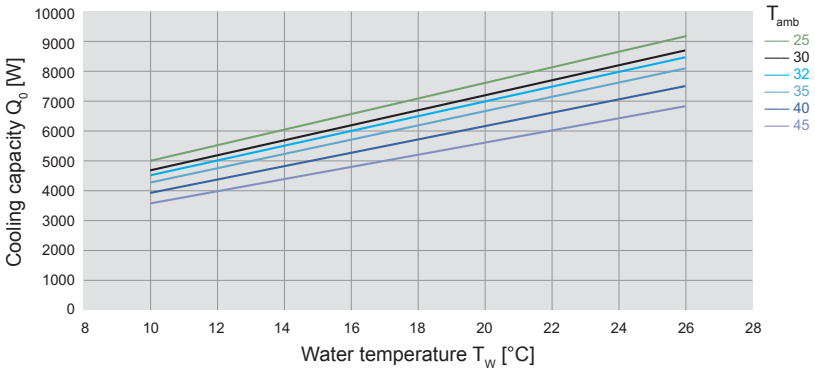
CC 6401 (50 Hz)[1]



CC 6501 (50 Hz)[1]

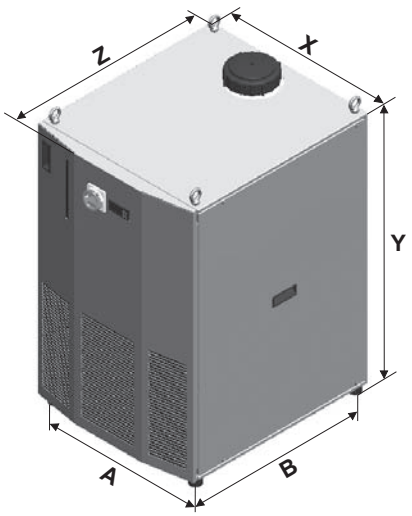


CC 6601 (50 Hz)[1]



Dimensions

mm	CC 6401/6501/6601
X	601
Y	984
Z	670
A	540
B	612



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] without eye bolts

Chillers 3000– 6000 W
EB 30 WT / EB 43 WT / EB 60 WT

- robust industry standard
- fluid cooling with water, water/glycol mixtures and low-viscosity oils*
- steel housing with thick powder coating
- identical basic housing for oil and water cooling
- separate cooling circuit and hydraulic circuit
- equipped with a programmable control module that allows small hystereses of the temperature of the cooling medium
- integration of project-specific additional components is possible on request

Further options for the EB series chillers can be found on page 135.

* maximum viscosity 10 cSt (10 mm²/s) @ + 40 °C

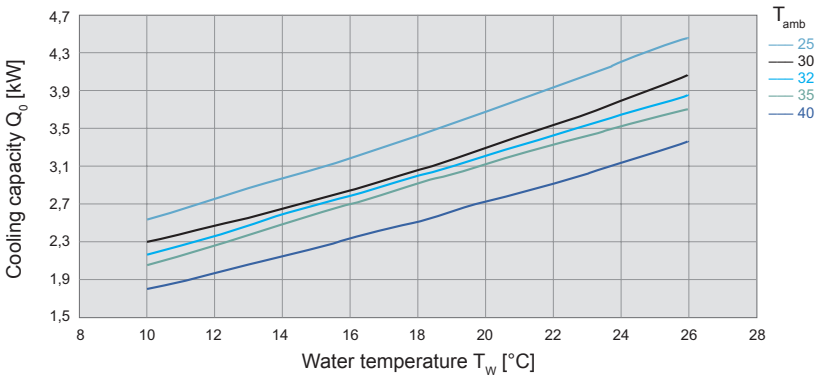
Data		EB 30 WT	EB 43 WT	EB 60 WT	Unit
Article number		42030300003	42030430003	42030600022	
Rated voltage ± 10%		AC 50 / 60			Hz
		400 / 460 3~			V
Cooling capacity (with pump) [1]	W18/L32	3 / 3.3	4.3 / 4.7	6 / 6.5	kW
	W10/L32	2.1 / 2.3	3 / 3.2	3.8 / 3.8	
Flow rate (pump)[2]		14			l/min
Pressure (head) (pump)		2.5			bar
Ambient temperature range		+ 15 … + 40 / + 59 … + 104			°C / °F
Control range (refrigerant outlet temperature)		+ 10 … + 35 / + 50 … + 95; factory setting + 18 / + 64			
Target value tolerance		± 2			K
Refrigerant	R404A	1100	1200	1600	g
Power consumption	W18/L32	2.08 / 2.43	2.78 / 3.25	3.4 / 4.1	kW
Current consumption	W18/L32	4.7 / 4.8	6.5 / 6.8	7.2 / 7.2	A
Starting current	W18/L32	18.7 / 20.8	20.4 / 22.5	28.7 / 30.2	A
Control voltage		24 V AC			V
Pre fuse T		20	20	25	A
Volumetric airflow	external	2000		3000	m³/h
Tank volume		30			l
Connections (medium)	IG	3/4"			BSPP
Noise level according to EN ISO 3741		< 66		< 70	dB (A)
Weight (without packaging)		95	120	150	kg
System of protection (enclosure electrical components)		IP 56			
Colour		RAL 7035, different colours available on request			

Accessories		Article number
Overflow valve (internal)		48000012266
Flow monitor		48000012268
Aluminium pre-filter (condenser)		45000012286
Casters		45000012284
20% Propyleneglycol pre-mix	20 l	45783000123
20% Ethyleneglycol pre-mix	20 l	45783000125

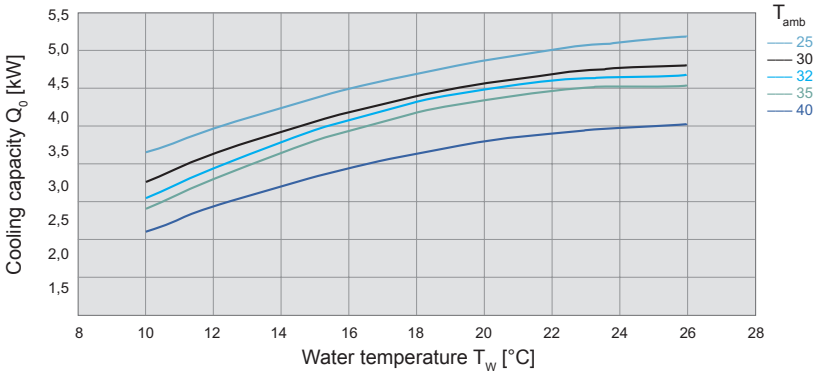
[1] cooling capacity incl. power loss in the pump, refrigerant outlet temperature + 18 °C, ambient temperature + 32 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

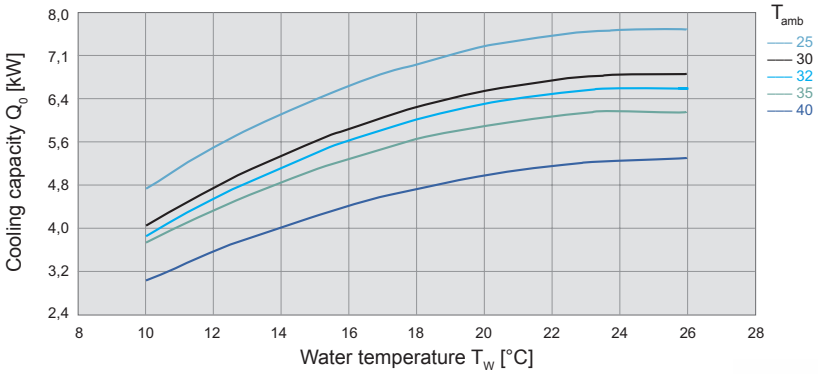
EB 30 WT (50 Hz)[1]



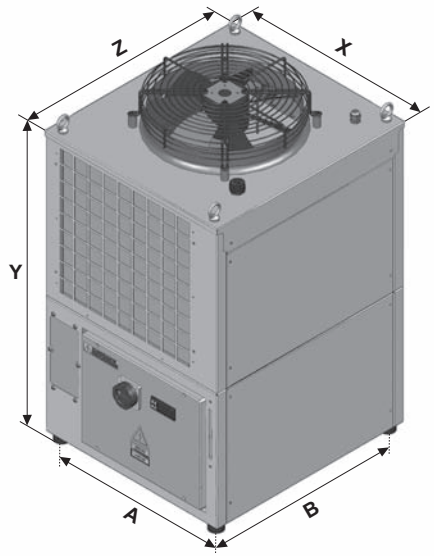
EB 43 WT (50 Hz)[1]



EB 60 WT (50 Hz)[1]



Dimensions	
mm	EB 30/43/60 WT
X	555
Y	955[2]
Z	610
A	495
B	550



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] incl. fan

Chillers 7500 – 15000 W
EB 75 WT / EB 90 WT / EB 130 WT / EB 150 WT

- robust industry standard
- fluid cooling with water, water/glycol mixtures and low-viscosity oils*
- steel housing with thick powder coating
- identical basic housing for oil and water cooling
- separate cooling circuit and hydraulic circuit
- equipped with a programmable control module that allows small hystereses of the temperature of the cooling medium
- integration of project-specific additional components is possible on request

Further options for the EB series chillers can be found on page 135.

* maximum viscosity 10 cSt (10 mm²/s) @ + 40 °C

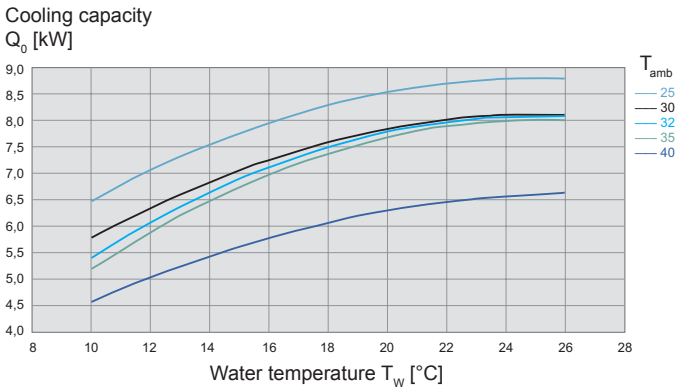
Data		EB 75 WT	EB 90 WT	EB 130 WT	EB 150 WT	Unit
Article number		42030750003	42030900009	42031300001	42031500001	
Rated voltage ± 10%		AC 50 / 60				Hz
		400 / 460 3~				V
Cooling capacity (with pump)[1]	W18/L32	7.5 / 8.3	9 / 10	13 / 14.3	15 / 16.6	kW
	W10/L32	5.4 / 5.7	6.9 / 7.5	10.5 / 11.4	11.8 / 12.8	
Flow rate (pump)[2]		35				l/min
Pressure (head) (pump)		3				bar
Ambient temperature range		+ 15 … + 40 / + 59 … + 104				°C / °F
Control range (refrigerant outlet temperature)		+ 10 … + 35 / + 50 … + 95; factory setting + 18 / + 64				
Target value tolerance		± 2				K
Refrigerant	R404A	2000	2300	3500	3400	g
Power consumption	W18/L32	4.87 / 5.76	6.48 / 7.1	8 / 10	8.86 / 11.01	kW
Current consumption	W18/L32	9.7 / 9.7	13.17 / 13	14.5 / 15.8	16.39 / 17.91	A
Starting current	W18/L32	30.6 / 31.4	42.5 / 46.6	65.4 / 68.9	72.8 / 75.9	A
Control voltage		24 V AC				V
Pre fuse T		25	25	on request	on request	A
Volumetric airflow	external	3000	5000			m³/h
Tank volume		50				l
Connections (medium)	IG	1"				BSPP
Noise level according to EN ISO 3741		< 72				dB (A)
Weight (without packaging)		160	180	205	225	kg
System of protection (enclosure electrical components)		IP 56				
Colour		RAL 7035, different colours available on request				

Accessories		Article number
Overflow valve (internal)		48000012267
Flow monitor		48000012269
Aluminium pre-filter (condenser)		45000012287
Casters		45000012285
20% Propyleneglycol pre-mix	20 l	45783000123
20% Ethyleneglycol pre-mix	20 l	45783000125

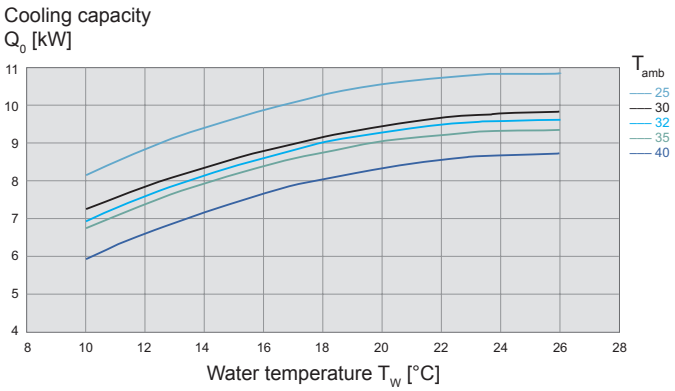
[1] cooling capacity incl. power loss in the pump, refrigerant outlet temperature + 18 °C, ambient temperature + 32 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

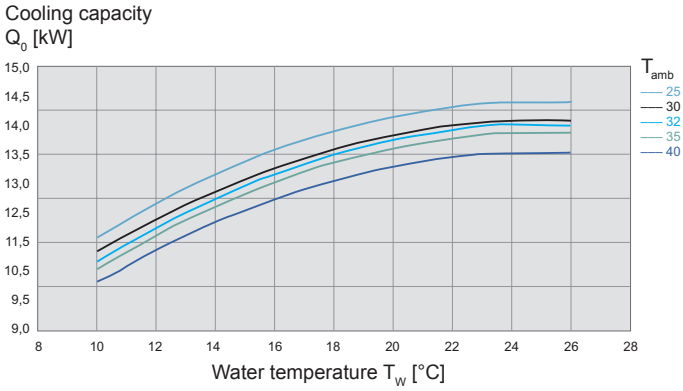
EB 75 WT (50 Hz)[1]



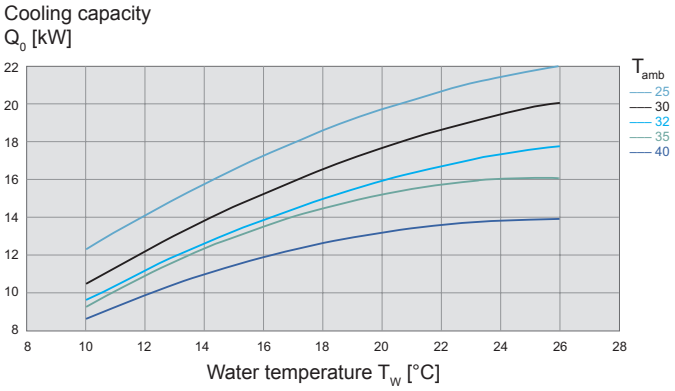
EB 90 WT (50 Hz)[1]



EB 130 WT (50 Hz)[1]

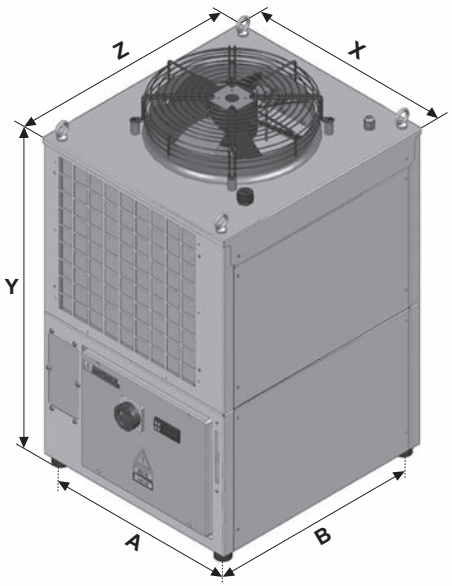


EB 150 WT (50 Hz)[1]



Dimensions

mm	EB 75/90/130/150 WT
X	705
Y	1290[2]
Z	765
A	645
B	700



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] incl. fan

Chillers 19000–25000 W
EB 190 WT
EB 250 WT

- robust industry standard
- fluid cooling with water, water/glycol mixtures and low-viscosity oils*
- steel housing with thick powder coating
- identical basic housing for oil and water cooling
- separate cooling circuit and hydraulic circuit
- equipped with a programmable control module that allows small hystereses of the temperature of the cooling medium
- integration of project-specific additional components is possible on request

Further options for the EB series chillers can be found on page 135.

* maximum viscosity 10 cSt (10 mm²/s) @ + 40 °C

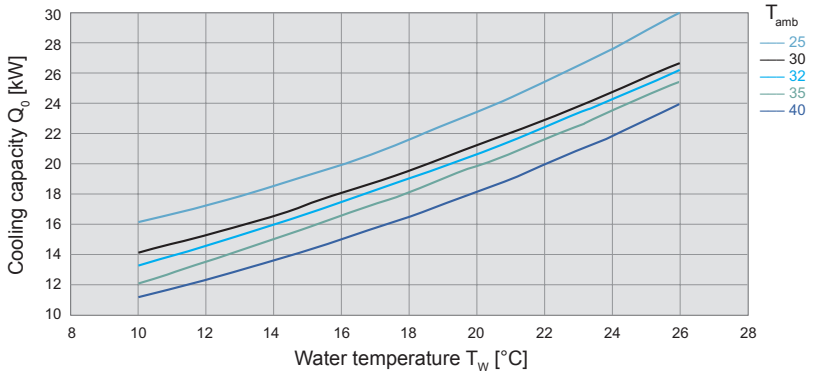
Data		EB 190 WT	EB 250 WT	Unit
Article number		42031900001	42032500001	
Rated voltage ± 10%		AC 50 / 60		Hz
		400 / 460 3~		V
Cooling capacity (with pump)[1]	W18/L32	19 / 21	25 / 27.7	kW
	W10/L32	13.3 / 14.8	17.7 / 19.7	
Flow rate (pump)[2]		50		l/min
Pressure (head) (pump)		3		bar
Ambient temperature range		+ 15 … + 40 / + 59 … + 104		°C / °F
Control range (refrigerant outlet temperature)		+ 10 … + 35 / + 50 … + 95; factory setting + 18 / + 64		
Target value tolerance		± 2		K
Refrigerant	R407C	10000		g
Power consumption	W18/L32	10.7 / 13.7	12.3 / 15.7	kW
Current consumption	W18/L32	20.2 / 21.1	22.5 / 23.1	A
Starting current	W18/L32	123.9 / 126.2	148.2 / 152.8	A
Control voltage		24 V AC		V
Pre fuse T		on request		A
Volumetric airflow	external	11800 / 12980		m³/h
Tank volume		70	70	l
Connections (medium)	IG	1"		BSPP
Noise level according to EN ISO 3741		< 73		dB (A)
Weight (without packaging)		389	403	kg
System of protection (enclosure electrical components)		IP 56		
Colour		RAL 7035, different colours available on request		

Accessories		Article number
Overflow valve (internal)		48000012865
Flow monitor		48000012866
Aluminium pre-filter (condenser)		45000012763
Casters		45000012867
20% Propyleneglycol pre-mix	20 l	45783000123
20% Ethyleneglycol pre-mix	20 l	45783000125

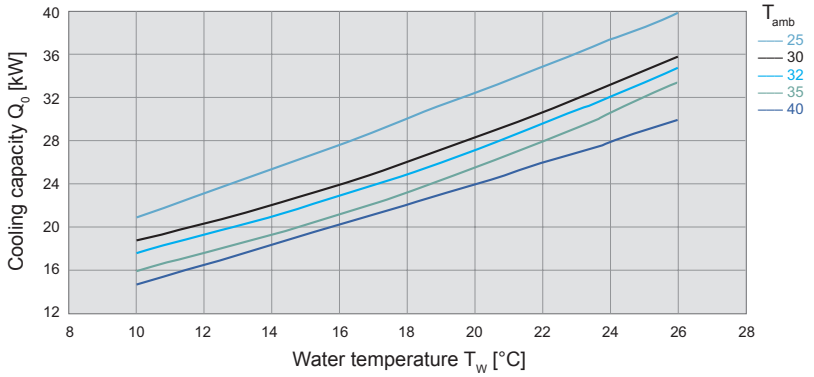
[1] cooling capacity incl. power loss in the pump, refrigerant outlet temperature + 18 °C, ambient temperature + 32 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

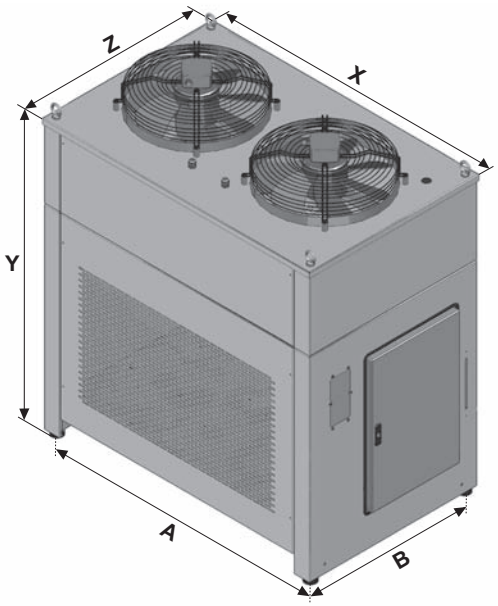
EB 190 WT (50 Hz)[1]



EB 250 WT (50 Hz)[1]



Dimensions	
mm	EB 190/250 WT
X	1230
Y	1410[2]
Z	790
A	1145
B	695



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] incl. fan

Chillers 30000–40000 W
EB 300 WT / EB 350 WT / EB 400 WT

- robust industry standard
- fluid cooling with water, water/glycol mixtures and low-viscosity oils*
- steel housing with thick powder coating
- identical basic housing for oil and water cooling
- separate cooling circuit and hydraulic circuit
- equipped with a programmable control module that allows small hystereses of the temperature of the cooling medium
- integration of project-specific additional components is possible on request

Further options for the EB series chillers can be found on page 135.

* maximum viscosity 10 cSt (10 mm²/s) @ + 40 °C

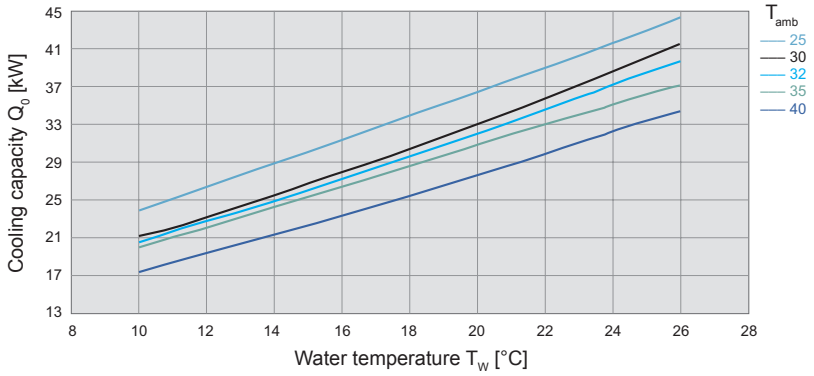
Data		EB 300 WT	EB 350 WT	EB 400 WT	Unit
Article number		42033000001	42033500001	42034000001	
Rated voltage ± 10%		AC 50 / 60			Hz
		400 / 460 3~			V
Cooling capacity (with pump)[1]	W18/L32	30 / 32.8	35 / 38.3	40 / 44.4	kW
	W10/L32	20.6 / 22.9	23.4 / 26	27.6 / 30.6	
Flow rate (pump)[2]		80			l/min
Pressure (head) (pump)		3.5			bar
Ambient temperature range		+ 15 … + 40 / + 59 … + 104			°C / °F
Control range (refrigerant outlet temperature)		+ 10 … + 35 / + 50 … + 95; factory setting + 18 / + 64			
Target value tolerance		± 2			K
Refrigerant	R407C	13000	12000	13000	g
Power consumption	W18/L32	14.8 / 18.5	17.3 / 22.0	19.5 / 24.4	kW
Current consumption	W18/L32	27.8 / 28.1	31.3 / 32.2	35.4 / 36.4	A
Starting current	W18/L32	157.8 / 161.1	182.8 / 191.1	212.9 / 216.1	A
Control voltage		24 V AC			V
Pre fuse T		on request			A
Volumetric airflow	external	14100 / 15510			m³/h
Tank volume		120			l
Connections (medium)	IG	1-1/2"			BSPP
Noise level according to EN ISO 3741		< 73			dB (A)
Weight (without packaging)		434	448	476	kg
System of protection (enclosure electrical components)		IP 56			
Colour		RAL 7035, different colours available on request			

Accessories		Article number
Overflow valve (internal)		48000012869
Flow monitor		48000012870
Aluminium pre-filter (condenser)		45000012868
Casters		45000012867
20% Propyleneglycol pre-mix	20 l	45783000123
20% Ethyleneglycol pre-mix	20 l	45783000125

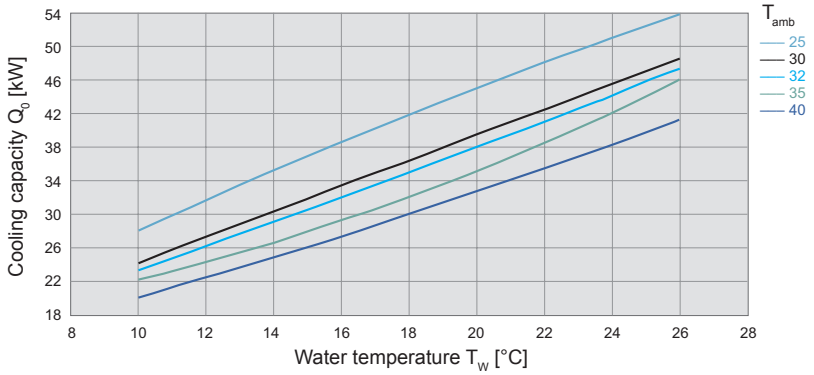
[1] cooling capacity incl. power loss in the pump, refrigerant outlet temperature + 18 °C, ambient temperature + 32 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

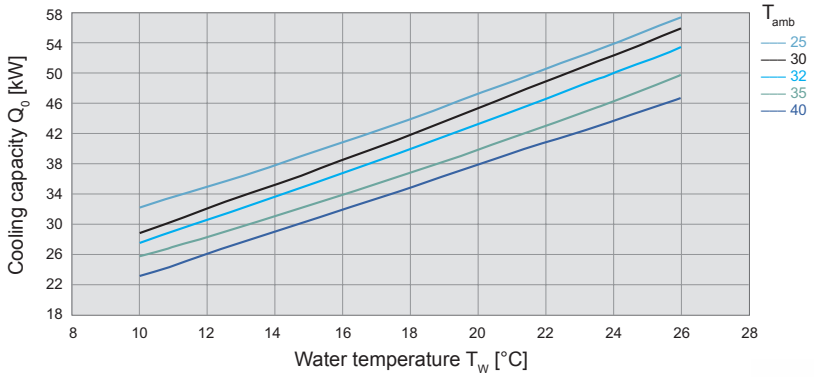
EB 300 WT (50 Hz)[1]



EB 350 WT (50 Hz)[1]

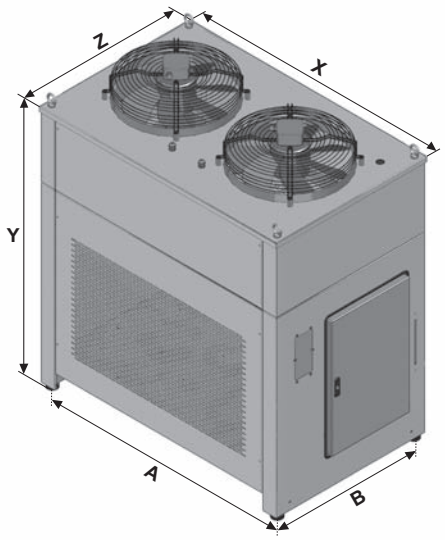


EB 400 WT (50 Hz)[1]



Dimensions

mm	EB 300/350/400 WT
X	1680
Y	1410[2]
Z	790
A	1595
B	695



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] incl. fan

Chillers 3000–6000 W
EB 30 (oil) / EB 43 (oil) / EB 60 (oil)

- robust industry standard
- fluid cooling with oil*
- steel housing with thick powder coating
- identical basic housing for oil and water cooling
- separate cooling circuit and hydraulic circuit
- equipped with a programmable control module that allows small hystereses of the temperature of the cooling medium
- integration of project-specific additional components is possible on request

Further options for the EB series chillers can be found on page 135.

* viscosity in the standard 10 cSt (10 mm²/s) to 32 cSt (32 mm²/s) @ + 40 °C

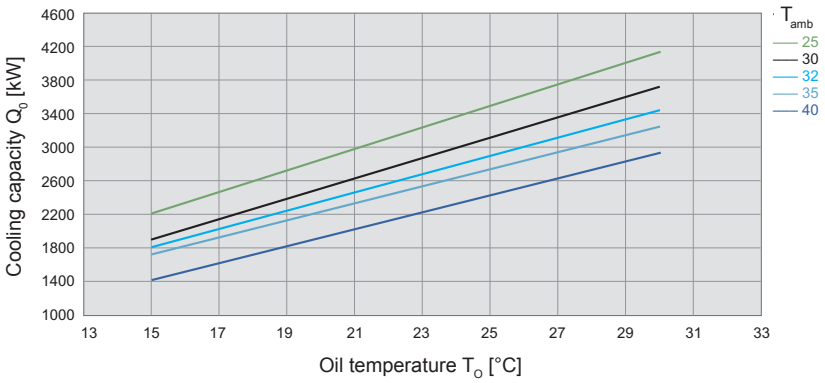
Data	EB 30 (oil)	EB 43 (oil)	EB 60 (oil)	Unit
Article number	43030300003	43030430003	43030600001	
Rated voltage ± 10%	AC 50 / 60			Hz
	400 / 460 3~			V
Cooling capacity (with pump)[1] O26/L32	3 / 3.3	4.3 / 4.7	6 / 6.5	kW
Flow rate (pump)[2]	10	25	25	l/min
Pressure (head) (pump)	10			bar
Ambient temperature range	+ 15 … + 40 / + 59 … + 104			°C / °F
Control range (refrigerant outlet temperature)	+20 … + 35 / + 68 … + 95; factory setting + 26 / + 79			
Target value tolerance	± 2			K
Refrigerant R404A	1100	1200	1600	g
Power consumption O26/L32	2.38 / 2.73	3.08 / 3.55	3.00 / 3.72	kW
Current consumption O26/L32	5.17 / 5.9	7.18 / 7.48	5.44 / 5.76	A
Starting current O26/L32	19.5 / 21.5	20.9 / 23.2	29.5 / 31.5	A
Control voltage	24 V AC			V
Pre fuse T	20	20	25	A
Volumetric airflow external	2000		3000	m³/h
Tank volume	–			l
Connections (medium) IG	3/4"			BSPP
Noise level according to EN ISO 3741	< 66		< 70	dB (A)
Weight (without packaging)	95	120	150	kg
System of protection (enclosure electrical components)	IP 56			
Colour	RAL 7035, different colours available on request			

Accessories	Article number	
Overflow valve (internal)	48700956059	48700956067
Flow monitor	48000012875	
Oil filter (90 µm)	45700956063	
Aluminium pre-filter (condenser)	45000012286	
Casters	45000012284	

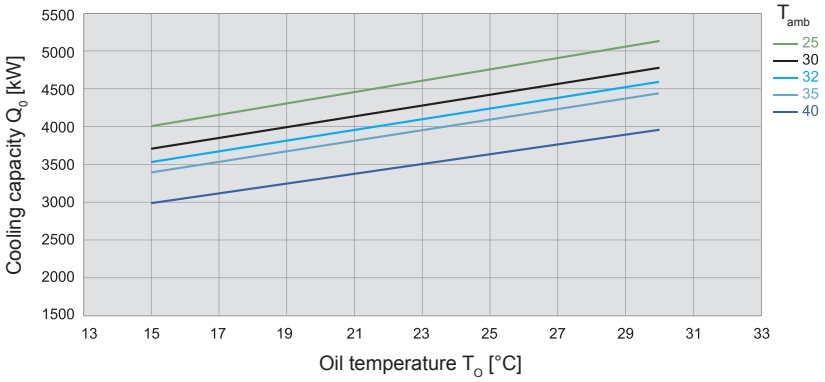
[1] cooling capacity incl. power loss in the pump, oil outlet temperature + 26 °C, ambient temperature + 32 °C, oil viscosity 22 cSt @ + 40 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

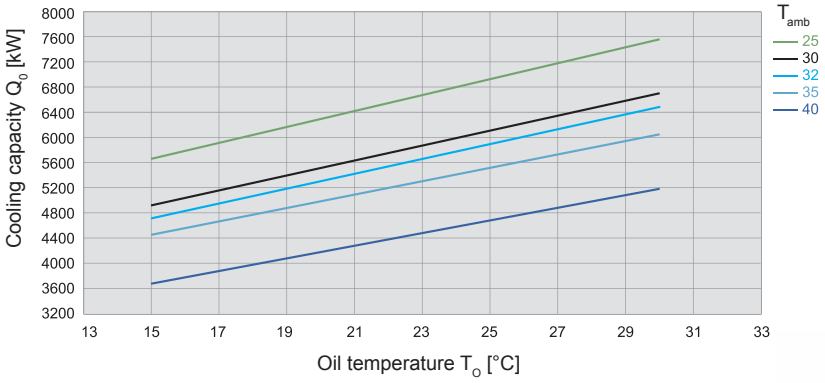
EB 30 (oil) (50 Hz)[1]



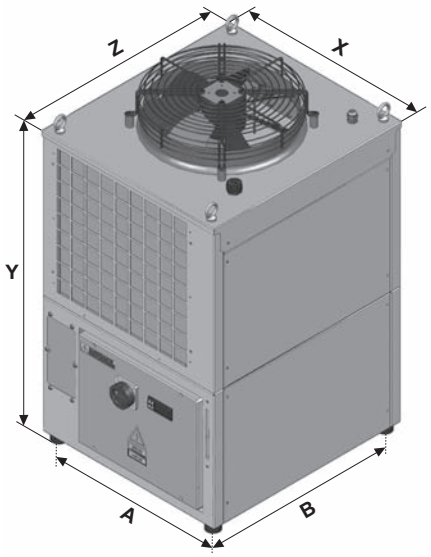
EB 43 (oil) (50 Hz)[1]



EB 60 (oil) (50 Hz)[1]



Dimensions	
mm	EB 30/43/60 (oil)
X	555
Y	955[2]
Z	610
A	495
B	550



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] incl. fan

Chillers 7500–15000 W
EB 75 (oil) / EB 90 (oil) / EB 130 (oil) / EB 150 (oil)

- robust industry standard
- fluid cooling with oil*
- steel housing with thick powder coating
- identical basic housing for oil and water cooling
- separate cooling circuit and hydraulic circuit
- equipped with a programmable control module that allows small hystereses of the temperature of the cooling medium
- integration of project-specific additional components is possible on request

Further options for the EB series chillers can be found on page 135.

* viscosity in the standard 10 cSt (10 mm²/s) to 32 cSt (32 mm²/s) @ + 40 °C

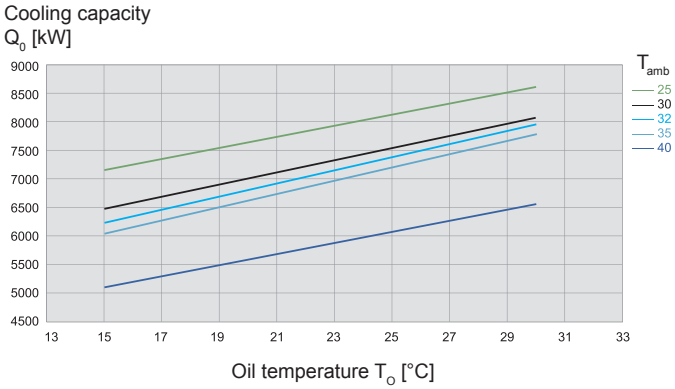
Data	EB 75 (oil)	EB 90 (oil)	EB 130 (oil)	EB 150 (oil)	Unit
Article number	43030750001	43030900001	43031300001	43031500001	
Rated voltage ± 10%	AC 50 / 60				Hz
	400 / 460 3~				V
Cooling capacity (with pump)[1] O26/L32	7.5 / 8.3	9 / 10	13 / 14.3	15 / 16.6	kW
Flow rate (pump)[2]	35	35	60	60	l/min
Pressure (head) (pump)	10				bar
Ambient temperature range	+ 15 … + 40 / + 59 … + 104				°C / °F
Control range (refrigerant outlet temperature)	+20 … + 35 / + 68 … + 95; factory setting + 26 / + 79				
Target value tolerance	± 2				K
Refrigerant R404A	2000	2300	3500	3400	g
Power consumption O26/L32	5.27 / 6.26	6.88 / 8.11	8.4 / 10.5	9.36 / 12.61	kW
Current consumption O26/L32	10.6 / 11.1	14.07 / 14.4	15.4 / 17.2	17.79 / 19.31	A
Starting current O26/L32	31.3 / 31.4	43.94 / 48.6	67.0 / 70.1	74.1 / 77.3	A
Control voltage	24 V AC				V
Pre fuse T	25	25	on request	on request	A
Volumetric airflow external	3000	5000			m³/h
Tank volume	–				l
Connections (medium) IG	1"				BSPP
Noise level according to EN ISO 3741	< 72				dB (A)
Weight (without packaging)	160	180	205	225	kg
System of protection (enclosure electrical components)	IP 56				
Colour	RAL 7035, different colours available on request				

Accessories	Article number	
Overflow valve (internal)	48700956060	48700956061
Flow monitor	48000012873	
Oil filter (90 µm)	45700956064	
Aluminium pre-filter (condenser)	45000012287	
Casters	45000012285	

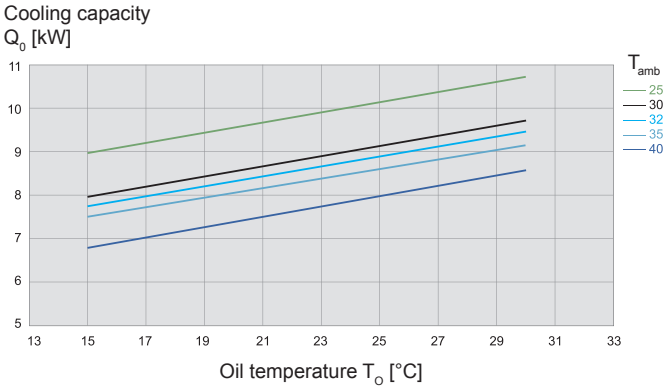
[1] cooling capacity incl. power loss in the pump, oil outlet temperature + 26 °C, ambient temperature + 32 °C, oil viscosity 22 cSt @ + 40 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

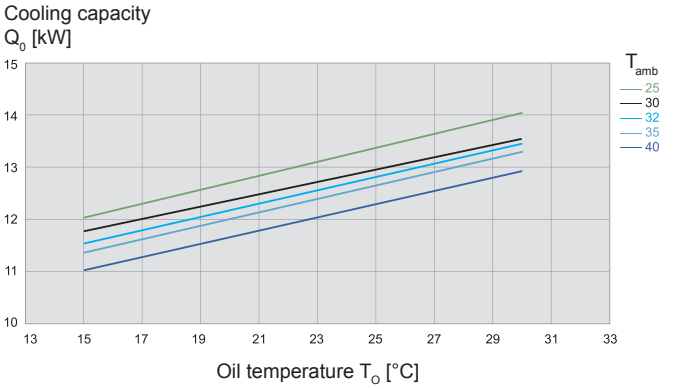
EB 75 (oil) (50 Hz)[1]



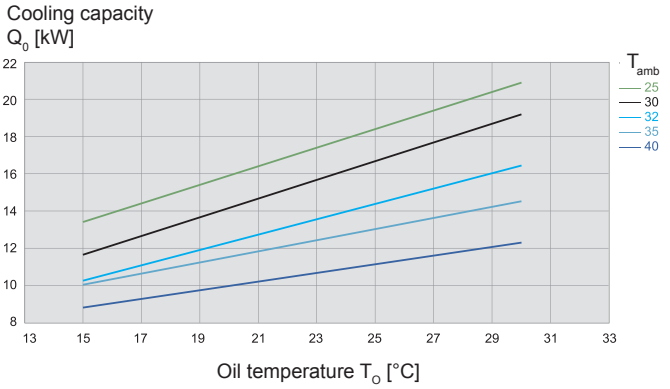
EB 90 (oil) (50 Hz)[1]



EB 130 (oil) (50 Hz)[1]

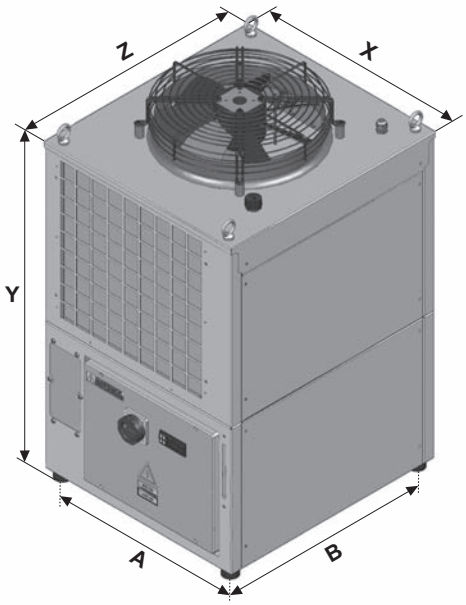


EB 150 (oil) (50 Hz)[1]



Dimensions

mm	EB 75/90/130/150 (oil)
X	705
Y	1290[2]
Z	765
A	645
B	700



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] incl. fan

Chillers 19000–25000 W
EB 190 (oil) / EB 250 (oil)

- robust industry standard
- fluid cooling with oil*
- steel housing with thick powder coating
- identical basic housing for oil and water cooling
- separate cooling circuit and hydraulic circuit
- equipped with a programmable control module that allows small hystereses of the temperature of the cooling medium
- integration of project-specific additional components is possible on request

Further options for the EB series chillers can be found on page 135.

* viscosity in the standard 10 cSt (10 mm²/s) to 32 cSt (32 mm²/s) @ + 40 °C

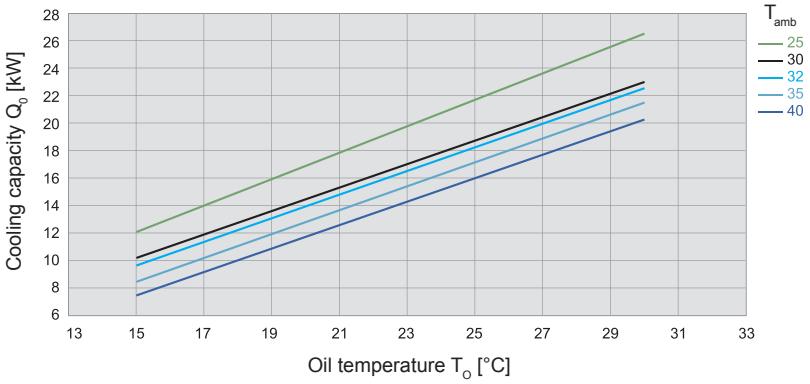
Data		EB 190 (oil)	EB 250 (oil)	Unit
Article number		43031900001	43032500001	
Rated voltage ± 10%		AC 50 / 60		Hz
		400 / 460 3~		V
Cooling capacity (with pump)[1]	O26/L32	19 / 21	25 / 27.7	kW
Flow rate (pump)[2]		60		l/min
Pressure (head) (pump)		10		bar
Ambient temperature range		+ 15 … + 40 / + 59 … + 104		°C / °F
Control range (refrigerant outlet temperature)		+20 … + 35 / + 68 … + 95; factory setting + 26 / + 79		
Target value tolerance		± 2		K
Refrigerant	R407C	10000		g
Power consumption	O26/L32	12.0 / 14.2	14.7 / 17.6	kW
Current consumption	O26/L32	20.8 / 20.8	24.7 / 25.1	A
Starting current	O26/L32	125.6 / 126.7	151.3 / 153.2	A
Control voltage		24 V AC		V
Pre fuse T		on request		A
Volumetric airflow	external	11800 / 12980		m³/h
Tank volume		–		l
Connections (medium)	IG	1"		BSPP
Noise level according to EN ISO 3741		< 73		dB (A)
Weight (without packaging)		350	390	kg
System of protection (enclosure electrical components)		IP 56		
Colour		RAL 7035, different colours available on request		

Accessories	Article number
Overflow valve (internal)	48000012873
Flow monitor	48000012871
Aluminium pre-filter (condenser)	45000012763
Casters	45000012867

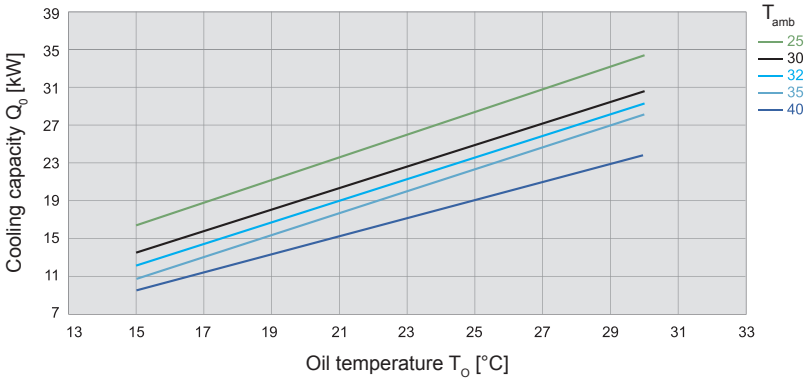
[1] cooling capacity incl. power loss in the pump, oil outlet temperature + 26 °C, ambient temperature + 32 °C, oil viscosity 22 cSt @ + 40 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

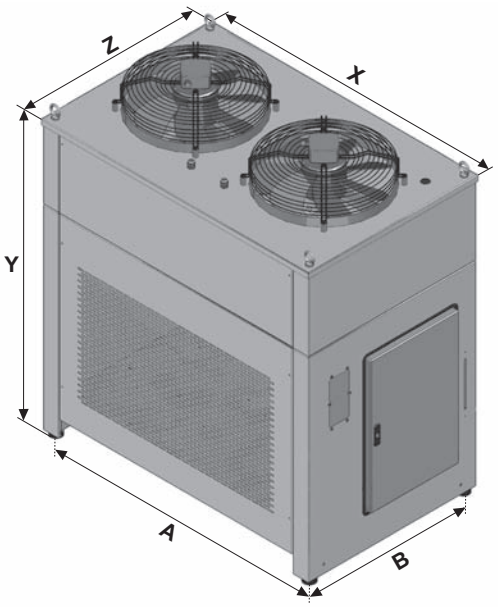
EB 190 (oil) (50 Hz)[1]



EB 250 (oil) (50 Hz)[1]



Dimensions	
mm	EB 190/250 (oil)
X	1230
Y	1410[2]
Z	790
A	1145
B	695



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] incl. fan

Chillers 30000–40000 W
EB 300 (oil) / EB 350 (oil) / EB 400 (oil)

- robust industry standard
- fluid cooling with oil*
- steel housing with thick powder coating
- identical basic housing for oil and water cooling
- separate cooling circuit and hydraulic circuit
- equipped with a programmable control module that allows small hystereses of the temperature of the cooling medium
- integration of project-specific additional components is possible on request

Further options for the EB series chillers can be found on page 135.

* viscosity in the standard 10 cSt (10 mm²/s) to 32 cSt (32 mm²/s) @ + 40 °C

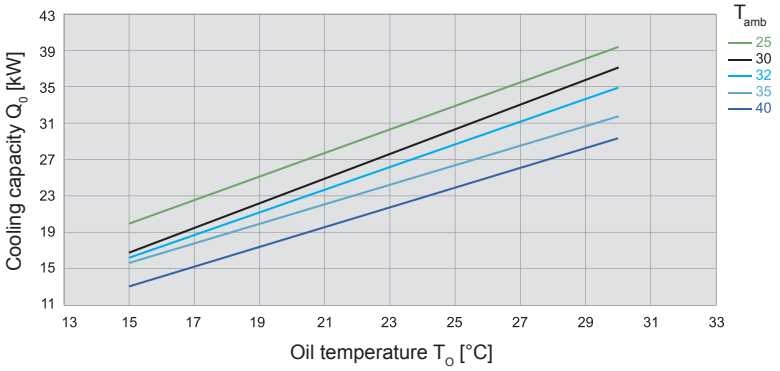
Data	EB 300 (oil)	EB 350 (oil)	EB 400 (oil)	Unit
Article number	43033000001	43033500001	43034000001	
Rated voltage ± 10%	AC 50 / 60			Hz
	400 / 460 3~			V
Cooling capacity (with pump)[1] O26/L32	30 / 32.8	35 / 38.3	40 / 44.4	kW
Flow rate (pump)[2]	80			l/min
Pressure (head) (pump)	10			bar
Ambient temperature range	+ 15 … + 40 / + 59 … + 104			°C / °F
Control range (refrigerant outlet temperature)	+20 … + 35 / + 68 … + 95; factory setting + 26 / + 79			
Target value tolerance	± 2			K
Refrigerant R407C	13000	12000	13000	g
Power consumption O26/L32	14.8 / 18.3	19.4 / 22.3	21.3 / 25.6	kW
Current consumption O26/L32	27.2 / 28.1	33.1 / 34.5	38.3 / 39.2	A
Starting current O26/L32	159.1 / 164.1	184.2 / 193.5	214.6 / 219.2	A
Control voltage	24 V AC			V
Pre fuse T	on request			A
Volumetric airflow external	14100 / 15510			m³/h
Tank volume	–			l
Connections (medium) IG	1 1/2"			BSPP
Noise level according to EN ISO 3741	< 73			dB (A)
Weight (without packaging)	424	438	466	kg
System of protection (enclosure electrical components)	IP 56			
Colour	RAL 7035, different colours available on request			

Accessories	Article number
Overflow valve (internal)	48000012874
Flow monitor	48000012872
Aluminium pre-filter (condenser)	45000012868
Casters	45000012867

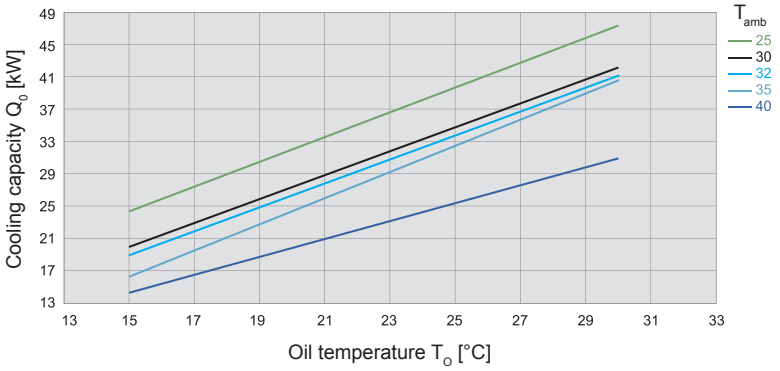
[1] cooling capacity incl. power loss in the pump, oil outlet temperature + 26 °C, ambient temperature + 32 °C, oil viscosity 22 cSt @ + 40 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

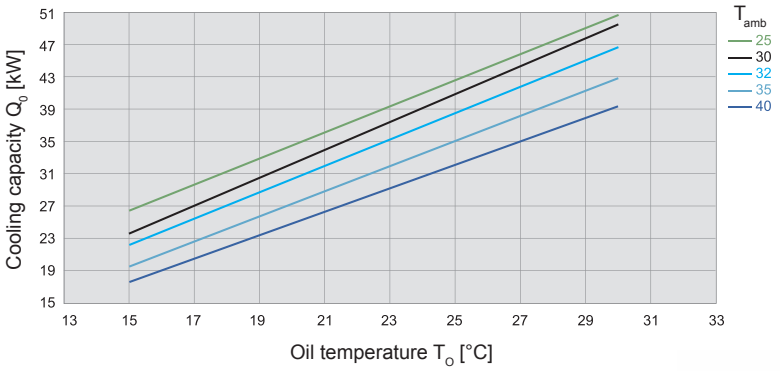
EB 300 (oil) (50 Hz)[1]



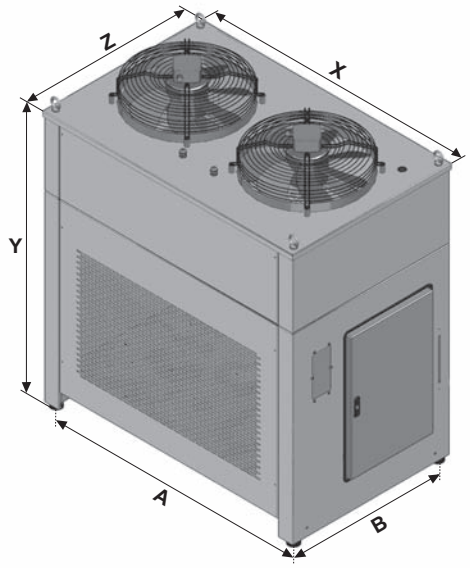
EB 350 (oil) (50 Hz)[1]



EB 400 (oil) (50 Hz)[1]



Dimensions	
mm	EB 300/350/400 (oil)
X	1680
Y	1410[2]
Z	790
A	1595
B	695



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] incl. fan

Chillers 55000–70000 W
HK 55 WT / HK 62 WT / HK 70 WT

- stand-alone chiller, automatic operation
- fluid cooling with water, water/glycol mixtures, emulsions and low-viscosity oils*
- particularly suitable for outdoors and aggressive environmental conditions
- powder-coated steel housing
- cooling circuit controlled via a programmable temperature module
- anti-freeze thermostat
- transport eye bolts on housing
- integration of project-specific additional components is possible on request
- fluid cooling with oil on request

Further options for the HK series chillers can be found on page 135.

* maximum viscosity 10 cSt (10 mm²/s) @ + 40 °C

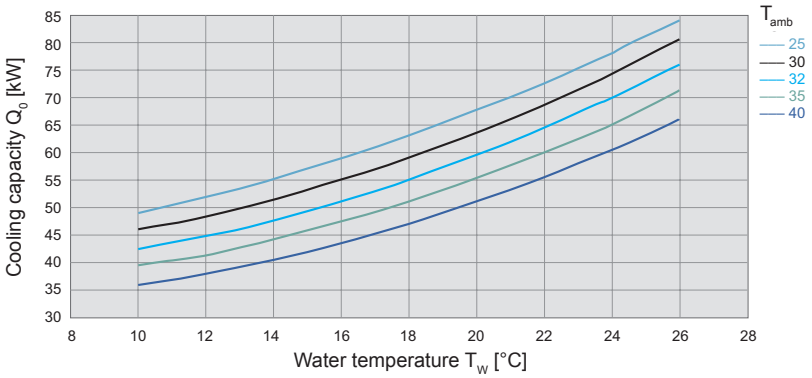
Data		HK 55 WT	HK 62 WT	HK 70 WT	Unit
Article number		42105500002	42106200001	42107000001	
Rated voltage ± 10%		AC 50 / 60			Hz
		400 / 460 3~			V
Cooling capacity (with pump)[1]	W18/L32	55 / 72.5	62 / 72.5	70 / 89	kW
	W10/L32	42.5 / 51.5	49.5 / 58	53 / 63	
Flow rate (pump)[2]		85	160	160	l/min
Pressure (head) (pump)		3			bar
Ambient temperature range		+ 15 … + 40 / + 59 … + 104			°C/°F
Control range (refrigerant outlet temperature)		+ 10 … + 35 / + 50 … + 95; factory setting + 18 / + 64			
Target value tolerance		± 2			K
Refrigerant	R407C	14500	16000	19000	g
Power consumption	W18/L32	19.7 / 25.9	23.8 / 28.0	28.5 / 33.3	kW
Current consumption	W18/L32	37.4 / 46.5	40.5 / 50.4	48.8 / 56.7	A
Starting current	W18/L32	220.8 / 266.8	232.6 / 267.5	311.7 / 334.6	A
Control voltage		24 V AC			V
Pre fuse T		on request			A
Volumetric airflow	external	14100 / 15510			m³/h
Tank volume		300			l
Connections (medium)	IG	1 1/2“			BSPP
Noise level according to EN ISO 3741		< 73			dB (A)
Weight (without packaging)		1081	1210	1315	kg
System of protection (enclosure electrical components)		IP 56			
Colour		RAL 7035, different colours available on request			

Accessories		Article number	
Overflow valve (internal)		48000012877	48000012884
Differential thermostat + 2 m sensor		48000012878	48000012885
Aluminium pre-filter (condenser)		45000012291	
20% Propyleneglycol pre-mix	20 l	45783000123	
20% Ethyleneglycol pre-mix	20 l	45783000125	

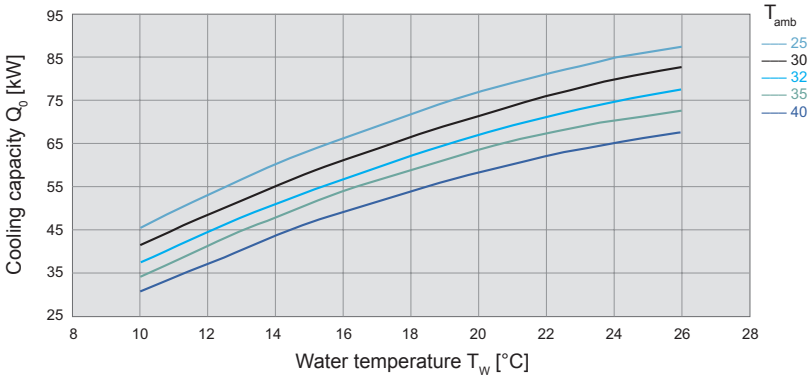
[1] cooling capacity incl. power loss in the pump, refrigerant outlet temperature + 18 °C, ambient temperature + 32 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

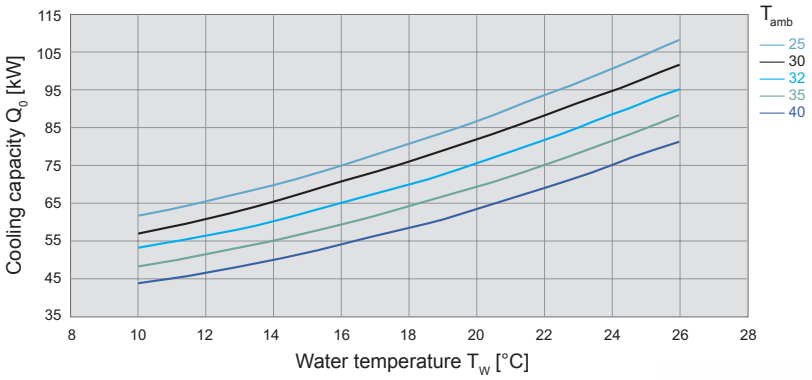
HK 55 WT (50 Hz)[1]



HK 62 WT (50 Hz)[1]

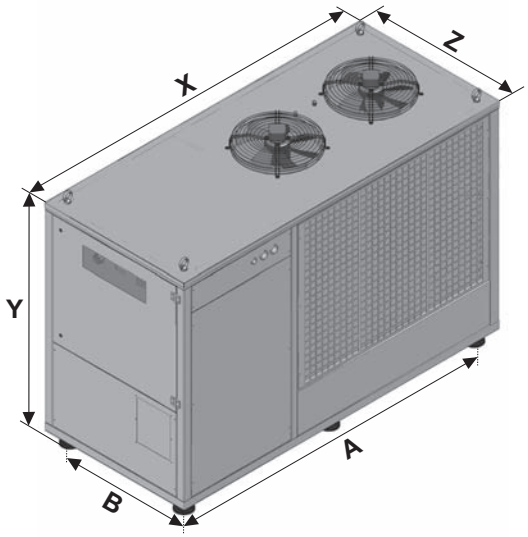


HK 70 WT (50 Hz)[1]



Dimensions

mm	HK 55/62/70 WT
X	2500
Y	1800[2]
Z	1110
A	2295
B	900



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] incl. fan

Chillers 10000–18000 W
AR 10 WT / AR 12 WT / AR 15 WT / AR 18 WT

- housing concept based on standard control cabinets
- optimum integration in switchgear
- fluid cooling with water, water/glycol mixtures, emulsions and low-viscosity oils*
- steel housing with thick powder coating
- condenser with 3 mm fin spacing, highly effective protection against strongly contaminated and aggressive ambient air
- transport eye bolts on housing
- integration of project-specific additional components is possible on request
- fluid cooling with oil on request

Further options for the AR series chillers can be found on page 135.

* maximum viscosity 10 cSt (10 mm²/s) @ + 40 °C

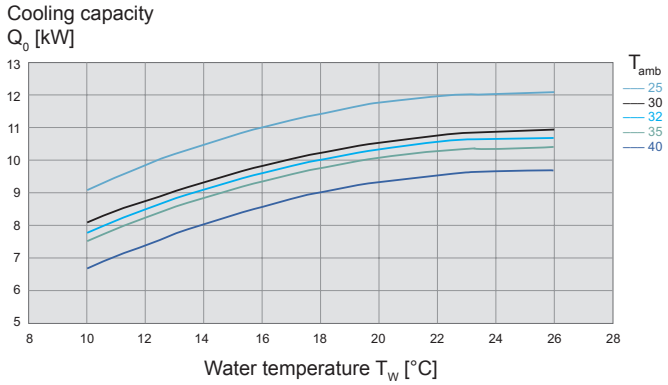
Data		AR 10 WT	AR 12WT	AR 15WT	AR 18 WT	Unit
Article number		42051000004	42051200004	42051500005	42051800003	
Rated voltage ± 10%		AC 50 / 60				Hz
		400 / 460 3~				V
Cooling capacity (with pump)[1]	W18/L32	10 / 11.1	12 / 15.7	15 / 16.6	18 / 21	kW
	W10/L32	7.7 / 8.3	9.7 / 12.5	11.8 / 12.8	16.6 / 18.8	
Flow rate (pump)[2]		35	35	50	50	l/min
Pressure (head) (pump)		3				bar
Ambient temperature range		+ 15 … + 40 / + 59 … + 104				°C/°F
Control range (refrigerant outlet temperature)		+ 10 … + 35 / + 50 … + 95; factory setting + 18 / + 64				
Target value tolerance		± 2				K
Refrigerant	R404A	2600	3300	3400	9300	g
Power consumption	W18/L32	7.1 / 7.7	7.4 / 8.0	8.3 / 10.4	10.4 / 12.3	kW
Current consumption	W18/L32	13.0 / 13.5	14.57 / 15.8	16.39 / 17.91	18.8 / 19.0	A
Starting current	W18/L32	49.3 / 51.1	63.8 / 65.1	67.2 / 71.5	71.2 / 75.4	A
Control voltage		24 V AC				V
Pre fuse T		25	32	on request	on request	A
Volumetric airflow	external	5000		5800		m³/h
Tank volume		50				l
Connections (medium)	IG	1"				BSPP
Noise level according to EN ISO 3741		< 73				dB (A)
Weight (without packaging)		250	265	285	300	kg
System of protection (enclosure electrical components)		IP 56				
Colour		RAL 7035, different colours available on request				

Accessories		Article number	
Overflow valve (internal)		48000012881	48000012886
Flow monitor		48000012882	48000012887
Aluminium pre-filter (condenser)		45000012883	45000012888
Casters			
20% Propyleneglycol pre-mix	20 l	45783000123	
20% Ethyleneglycol pre-mix	20 l	45783000125	

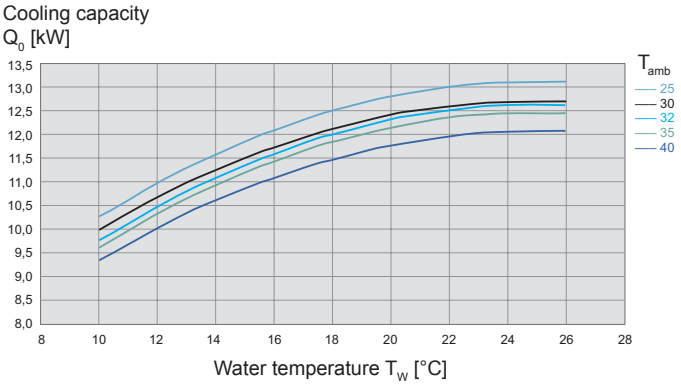
[1] cooling capacity incl. power loss in the pump, refrigerant outlet temperature + 18 °C, ambient temperature + 32 °C
[2] performance data based on 50 Hz operation
Approvals see page 105

Cooling capacity performance curves

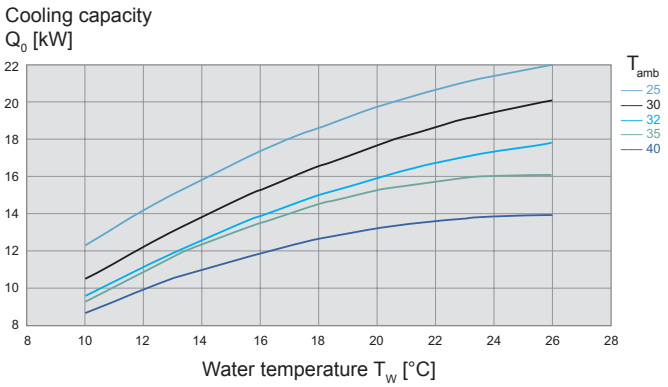
AR 10 WT (50 Hz)[1]



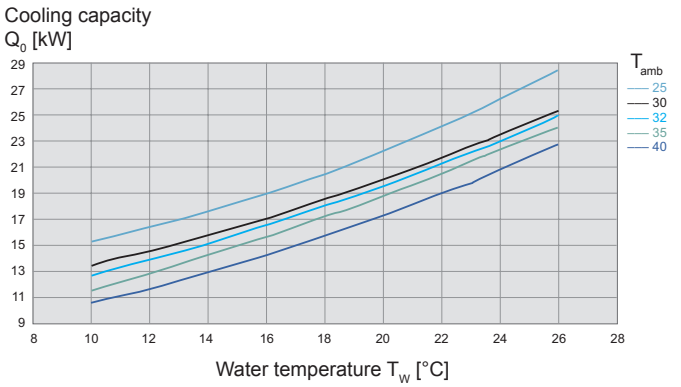
AR 12 WT (50 Hz)[1]



AR 15 WT (50 Hz)[1]

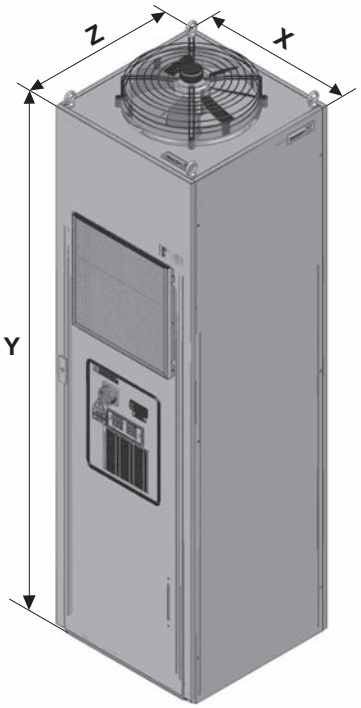


AR 18 WT (50 Hz)[1]



Dimensions

mm	AR 10/12 WT[2]	AR 15/18 WT[2]
X	1000	1000
Y	2000	2000
Z	600	800



[1] the performance curves for the 60 Hz version can be obtained from your Pfannenberg advisor or at www.pfannenberg.com

[2] housing only

Chillers 9000–24000 W
PWW 9.000 / PWW 12.000 / PWW 18.000 / PWW 24.000

- easily removable panels for easy access to interior components
- corrosion prevention with nonferrous construction
- closed loop system
- primary water regulation valve (AVTA)
- control circuit on/off switch for service convenience
- corrosion-resistant fixed piping for water circulation
- programmable controller (solid-state)
- multi stage centrifugal pump
- customer specific modification upon request

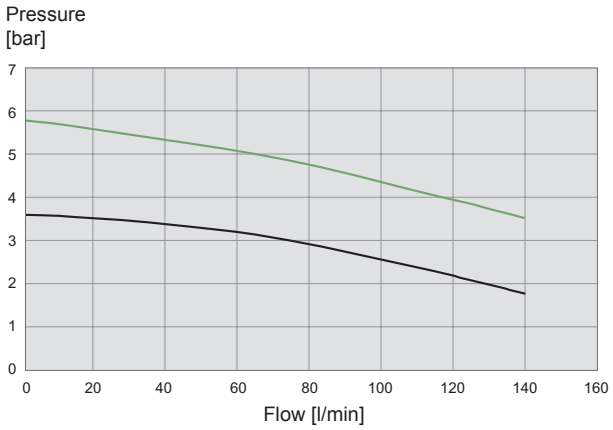
Data		PWW 9.000	PWW 12.000	PWW 18.000	PWW 24.000	Unit
Article number		42120905001	42121205001	42121805001	42122405001	
Rated voltage ± 10%		AC 50 / 60				Hz
		230 1~				V
Cooling capacity [1] (flow rate ration primary/ secondary = 1/1)	W15/W20	9	12	18	24	kW
	W15/W25	10	13.5	20	27	
Primary water inlet	temperature range	+ 10 … + 35 / + 50 … + 95; factory setting + 20 / + 68				°C/°F
	flow rate	70				l/min
	pressure	3				bar
Secondary water outlet	temperature range	+ 5 … + 15 / + 41 … + 59				°C/°F
	flow range	min. 35	min. 35	min. 70	min. 70	l/min
	pressure	1.5				bar
Ambient temperature range		> + 1 … + 70 / > + 34 … + 158				°C/°F
Target value tolerance		± 2				K
Power consumption	W15/W20	1720 / 2610				W
Current consumption	W15/W20	4.37 / 4.32				A
Starting current	W15/W20	17.48 / 17.28				A
Connections (medium)	IG	1/2"				BSPP
Noise level according to EN ISO 3741		< 62				dB (A)
Weight (without packaging)		50	53	60	65	kg
System of protection (enclosure electrical components)		IP 56				
Colour		RAL 7035, different colours available on request				

Accessories		Article number
Temperature display		48700952805
Overflow valve (internal)		48700952806
Flow monitor		48700952807
Water inlet filter	60 µ	48700952808
Casters		45700952809
20% Propyleneglycol pre-mix	20 l	45783000123
20% Ethyleneglycol pre-mix	20 l	45783000125

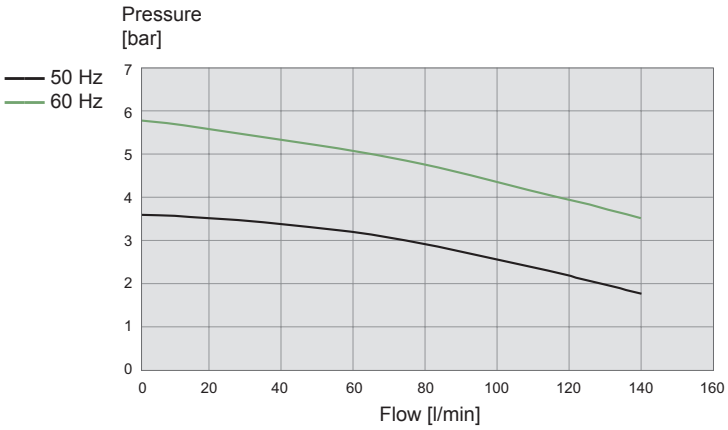
[1] cooling capacity incl. power loss in the pump, primary water inlet temperature/secondary water outlet temperature
[2] performance data based on 50 Hz operation
Approvals see page 105

Pump performance curves

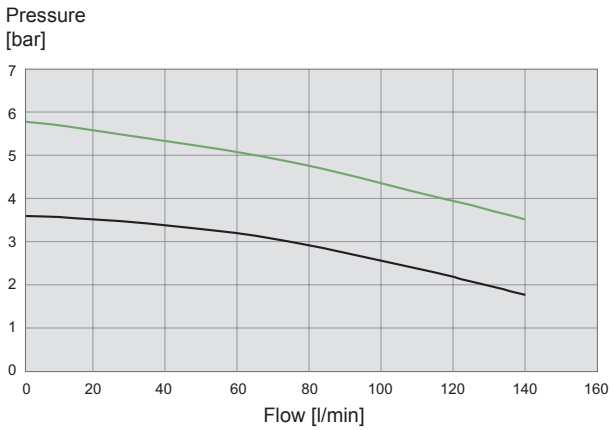
PWW 9.000



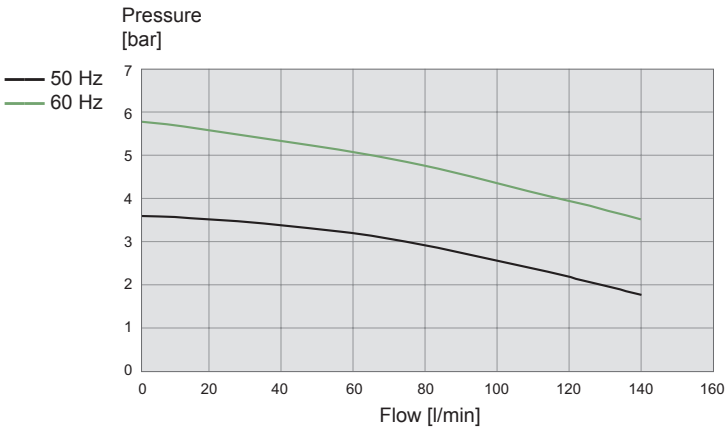
PWW 12.000



PWW 18.000

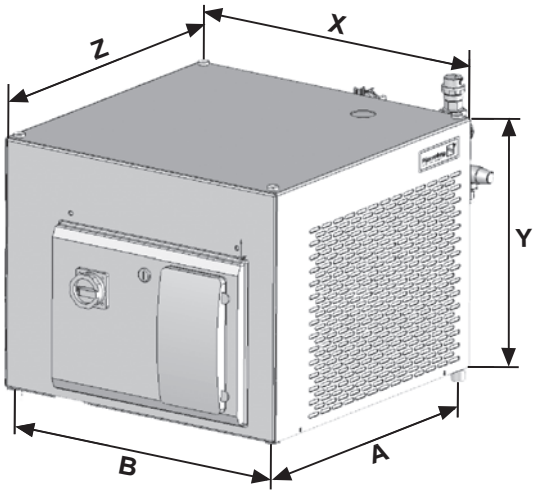


PWW 24.000



Dimensions

mm	PWW 9.000 - 24.000
X	580
Y	500 [1]
Z	580
A	555
B	550



[1] without eye bolts

Options

Start up / Service case

Service case for closed loop systems	Article number
Service case **Box incl. pump, pipes, connections, gaskets**	45700952648

Pfannenberg Protect

Water/glycol-mixture in different concentrations and for several applications.

	Glycol content	Quantity	Article number
Pfannenberg Protect 20P (PP20P)	20% Propyleneglycol	20 kg	45783000123
Pfannenberg Protect 30P (PP30P)	30% Propyleneglycol	20 kg	45783000124
Pfannenberg Protect 50P (PP50P)	54% Propyleneglycol	20 kg	45783000128
Pfannenberg Protect 20E (PP20E)	20% Ethyleneglycol	20 kg	45783000125
Pfannenberg Protect 30E (PP30E)	30% Ethyleneglycol	20 kg	45783000126
Pfannenberg Protect 50E (PP50E)	50% Ethyleneglycol	20 kg	45783000127

Rack series

- maximum temperature alarm
- bypass in hydraulic circuit with manometer and manual controller
- UL conformity
- other supply voltages
- flow monitor
- Harting plug for power supply

CC series

- castors
- different RAL colours (5002, 5010, 5015, 6011, 7037, 9002 and 9010)
- different pumps
- differential temperature control
- control circuit 24 V DC
- pre-filter, aluminium
- flow monitor
- Harting plug for power supply
- Harting plug for single alarm
- heating gas bypass
- hydraulic bypass
- minimum/maximum temperature alarm
- stainless steel housing
- water pressure gauge 0...10 bar

EB series

- electric level control
- differential temperature control
- minimum/maximum temperature alarm
- flow monitor
- heating gas bypass
- UL conformity
- heater for tempering the fluid
- pressure-sealed system
- control accuracy +/- 0.1K
- other supply voltages
- other ambient temperature ranges
- unit for outdoor installation
- refrigerant R134a
- monitoring of air intake filter
- water filter
- oil filter
- shut-off valves for feed/return
- automatic tank refilling
- water circuit in PVC for DI water
- dual-circuit system
- water-cooled condenser
- control circuit 24 V DC
- phase protection relay
- electronic speed control for condenser fan
- Harting plug for power supply
- Harting plug for single alarm
- different pumps

HK series

- differential temperature control
- minimum/maximum temperature alarm
- oil version according to customer specification
- UL conformity
- heater for tempering the fluid
- heating gas bypass
- pressure-sealed system
- other supply voltages
- other connection systems
- flow monitor
- Harting plug for power supply
- Harting plug for single alarm
- different pumps

AR series

- pump seal made from FPM (Viton)
- electric level control
- diagnostic module
- differential temperature control
- minimum/maximum temperature alarm
- heater for tempering the fluid
- heating gas bypass
- other supply voltages
- flow monitor
- Harting plug for power supply
- Harting plug for single alarm
- different pumps


Pfannenberg

New standards in efficient cooling

εCOOL Air/Air Heat Exchangers from the PAI and PAS series

Using the ambient air for the thermal management of the enclosure is the most economical and energy efficient type of cooling. In many applications the ambient air is contaminated by dust, liquid or gases, so that components which are integrated in the enclosure can be damaged when contact occurs. The use of a filter fan is therefore no longer possible.

The Pfannenberg air/air heat exchangers make the ideal solution for these application areas. Due to the integrated heat exchangers a complete separation of the internal and external air flow is possible. The interior of the enclosure is thus hermetically separated from the atmosphere. Harmful dust and fluids can't cause any damage to the integrated components any more. The **εCOOL** air/air heat exchangers are thus an alternative to filter fans.

The robust steel construction of the air/air heat exchangers makes their operation in harsh industrial routines possible. According to our **εCOOL**-motto special focus has been placed on maintenance friendliness. Assembly and maintenance has been reduced to a uniquely low amount of time. Energy efficiency and maintenance friendliness form the optimal basis for process safety, reliability and cost advantages.

Cut-out compatibility with active cooling units from the DTI/DTS series

Components in the enclosure are often updated and the requirements to thermal management change. An air/air heat exchanger which was previously the optimal solution is not suitable any more. The refitting of an active **ECOOL** cooling unit can be carried out easily and without problems, because the units have the same cut-out dimensions. Thus, the process stability is also ensured after extensive modifications.

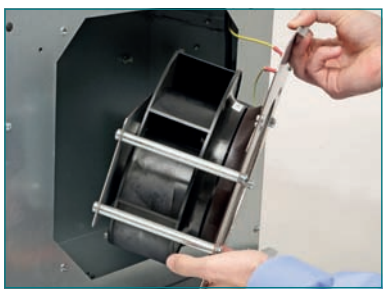
Cooling unit *Air/air heat exchanger*

The advantages at a glance

- tool-free assembly for partially recessed mounting
- tried and tested partially recessed mounting
- integrated handles makes it possible for one mechanic to assemble the device
- assembly possible in less than 3 minutes
- simple colour matching
- robust front design

- tool-free retrofit of filter adapter
- tool-free filter change
- filter change in less than one minute

- temperature adjusting occurs via the mechanical thermostat
- additional alarm thermostat makes optimal adjusting of the alarm limit possible



- high maintenance friendliness
- all fans are easily accessible from the outside
- not necessary to open the enclosure
- exchange of the fan in less than 6 minutes
- secure selection via PSS

All ECOOL air/air heat exchangers at a glance

PAI: for partially recessed mounting of the cooling unit in the door or side
PAS: or outer mounting of the cooling unit on the door or side

Type	Specific cooling capacity	Rated voltage	Dimensions (HxWxD)	Approvals					Page
				UR	cUL	GOST	CSA	CE	
Heat exchangers from the PAI and PAS series – air/air heat exchangers for side and door mounting									
PAI 6203	100 W/K	115 V / 230 V	1549 x 485 x 252 mm	○		○		●	140
PAS 6203			1555 x 485 x 252 mm	○		○		●	
PAI 6173	85 W/K	115 V / 230 V	1549 x 485 x 252 mm	○		○		●	140
PAS 6173			1555 x 485 x 252 mm	○		○		●	
PAI 6133	65 W/K	115 V / 230 V	933 x 410 x 199 mm	○		○		●	142
PAS 6133			937 x 410 x 199 mm	○		○		●	
PAI 6103	50 W/K	115 V / 230 V	933 x 410 x 199 mm	○		○		●	142
PAS 6103			937 x 410 x 199 mm	○		○		●	
PAI 6073	35 W/K	115 V / 230 V	933 x 410 x 199 mm	○		○		●	144
PAS 6073			937 x 410 x 199 mm	○		○		●	
PAI 6043	20 W/K	115 V / 230 V	612 x 380 x 212 mm	○		○		●	144
PAS 6043			618 x 380 x 212 mm	○		○		●	

● available
○ pending

Further information can be found on the Internet:
www.pfannenberg.com · www.pfannenberg-spareparts.com
Keep up to date. Subscribe to the newsletter now:
newsletter.pfannenberg.com

Air/Air Heat Exchanger 85 / 100 W/K

PAI/PAS 6173
PAI/PAS 6203

PAI: for partially recessed mounting of the cooling unit in the door or side
PAS: for outer mounting of the cooling unit on the door or side

- cut-out compatible with the complete DTI/DTS 6000 cooling unit series
- mounting-friendly seal, no elaborate reworking of the mounting cut-out
- integrated thermostat for temperature control
- additional thermostat for excessive temperature warning
- maintenance-free
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated

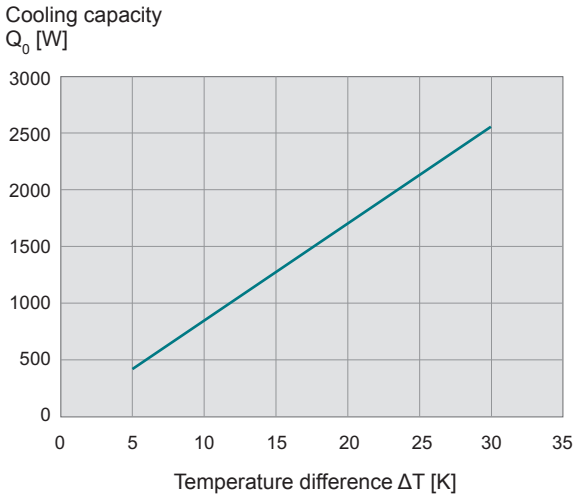
Data		PAI/PAS 6173		PAI/PAS 6203		Unit
Article number	PAI	12993511055	12993514055	12993611055	12993614055	
	PAS	12983511055	12983514055	12983611055	12983614055	
Rated voltage ± 10%		AC 50 / 60	AC 60	AC 50 / 60	AC 60	Hz
		230	115	230	115	V
Specific cooling capacity		85		100		W/K
Power consumption		310 / 420	420	310 / 420	420	W
Current consumption		1.3 / 1.7	3.4	1.3 / 1.7	3.4	A
Starting current		3.5 / 3.3	7.8	3.5 / 3.3	7.8	
Unimpeded airflow (free flow)	intern	1175 / 1300	1340	1175 / 1300	1340	m^3/h
	extern	1175 / 1300	1340	1175 / 1300	1340	
Pre use T		4	8	4	8	A
Type of connection		spring-type terminal included with plug				
Noise level according to EN ISO 3741		< 69				dB (A)
Weight (without packaging)	PAI	46		46		kg
	PAS	46.3		46.3		
Ambient temperature range		-25 … +55 / -13 … +131				°C / °F
Control range (adjustable)	control thermostat	+ 20 … + 55 / + 68 … + 131; factory setting + 35 / + 95				
	alarm thermostat	+ 30 … + 65 / + 86 … + 149; factory setting + 45 / + 113				
Duty cycle		100				%
Protection system according to EN 60529	IP 54	towards the electrical enclosure if used as intended by the manufacturer				
	IP 34	towards the surroundings if used as intended by the manufacturer				
Design	housing	galvanised sheet steel				
	cover	galvanised / electrostatically powder coated (200 °C)				
Colour (cover)		RAL 7035, different colours available on request				

Accessories	Piece	Article number
Filter adapater (RAL 7035)	1	18310000151
Vlies filter	5	18300000147

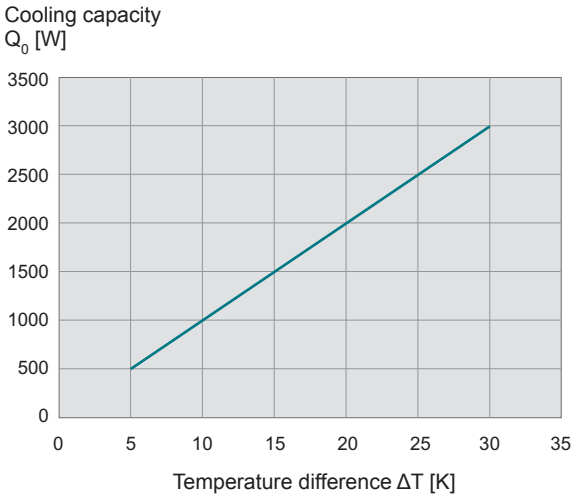
Approvals see page 139

Cooling capacity performance curves

PAI/PAS 6173



PAI/PAS 6203



Dimensions

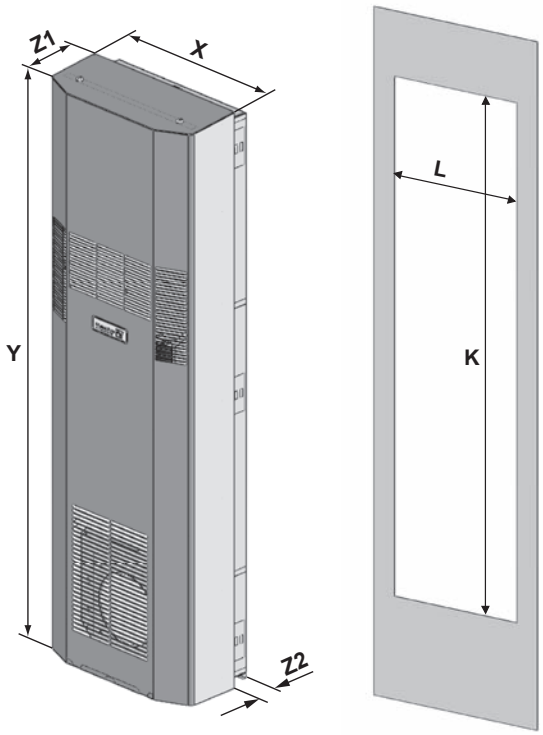
PAI	X	Y	Z1	Z2	K	L
mm	485	1549	252	120	1510	450

PAI variants partially recessed by 120 mm after installation

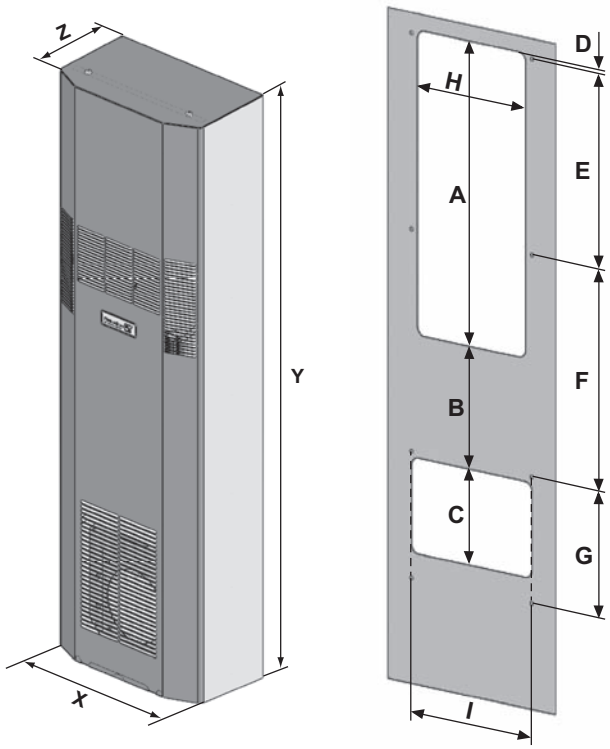
PAS	X	Y	Z	A	B	C	D	E	F	G	H	I
mm	485	1555	372	700	282	220	10	450	510	290	315	350

Mounting holes Ø 8 mm and cut-out radii R20

PAI 6173 / PAI 6203



PAS 6173 / PAS 6203



ECOOL Air/Air Heat Exchanger 35 / 50 / 65 W/K

PAI/PAS 6073
PAI/PAS 6103
PAI/PAS 6133

PAI: for partially recessed mounting of the cooling unit in the door or side
PAS: for outer mounting of the cooling unit on the door or side

- cut-out compatible with DTI/DTS 9341C and DTI/DTS 9141
- mounting-friendly seal, no elaborate reworking of the mounting cut-out
- integrated thermostat for temperature control
- additional thermostat for excessive temperature warning
- maintenance-free
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated

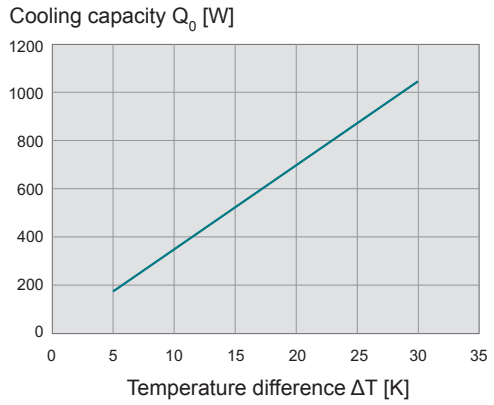
Data		PAI/PAS 6073		PAI/PAS 6103		PAI/PAS 6133		Unit
Article number	PAI	12992211055	12992214055	12992311055	12992314055	12992411055	12992414055	
	PAS	12982211055	12982214055	12982311055	12982314055	12982411055	12982414055	
Rated voltage ± 10%		AC 50 / 60	AC 60	AC 50 / 60	AC 60	AC 50 / 60	AC 60	Hz
		230	115	230	115	230	115	V
Specific cooling capacity		35		50		65		W
Power consumption		170 / 180	260	170 / 180	260	310 / 420	420	
Current consumption		0.8 / 1	2.45	0.8 / 1	2.45	1.3 / 1.8	3.6	A
Starting current		1.9 / 1.8	5.1	1.9 / 1.8	5.1	3.6 / 3.7	8.2	
Unimpeded airflow (free flow)	intern	850 / 900	1070	850 / 900	1070	1175 / 1300	1340	m^3/h
	extern	850 / 900	1070	850 / 900	1070	1175 / 1300	1340	
Pre use T		2	6	2	6	4	8	A
Type of connection		spring-type terminal included with plug						
Noise level according to EN ISO 3741		< 64	< 68	< 64	< 68	< 70	< 71	dB (A)
Weight (without packaging)	PAI	23.9		23.9		23.9		kg
	PAS	24.9		24.9		24.9		
Ambient temperature range		-25 … +55 / -13 … +131						°C / °F
Control range (adjustable)	control thermostat	+ 20 … + 55 / + 68 … + 131; factory setting + 35 / + 95						
	alarm thermostat	+ 30 … + 65 / + 86 … + 149; factory setting + 45 / + 113						
Duty cycle		100						%
Protection system according to EN 60529	IP 54	towards the electrical enclosure if used as intended by the manufacturer						
	IP 34	towards the surroundings if used as intended by the manufacturer						
Design	housing	galvanised sheet steel						
	cover	galvanised / electrostatically powder coated (200 °C)						
Colour (cover)		RAL 7035, different colours available on request						

Accessories	Piece	Article number
Filter adapater (RAL 7035)	1	18060200001
Vlies filter	5	18066100001

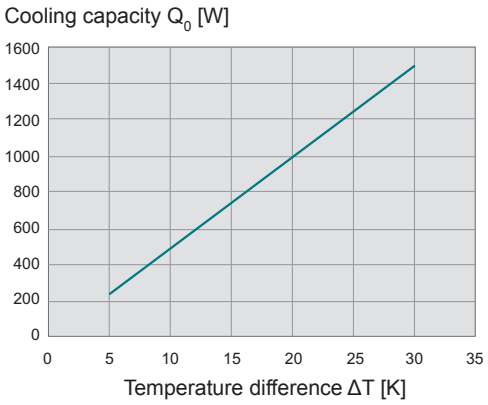
Approvals see page 139

Cooling capacity performance curves

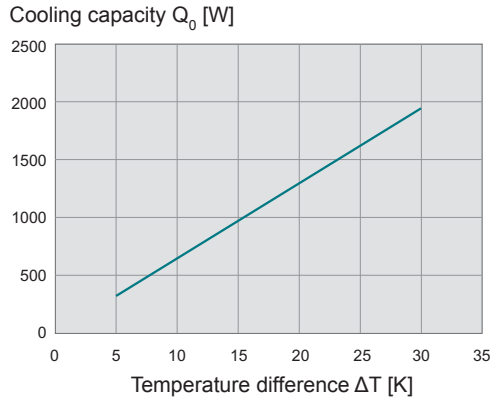
PAI/PAS 6073



PAI/PAS 6103



PAI/PAS 6133

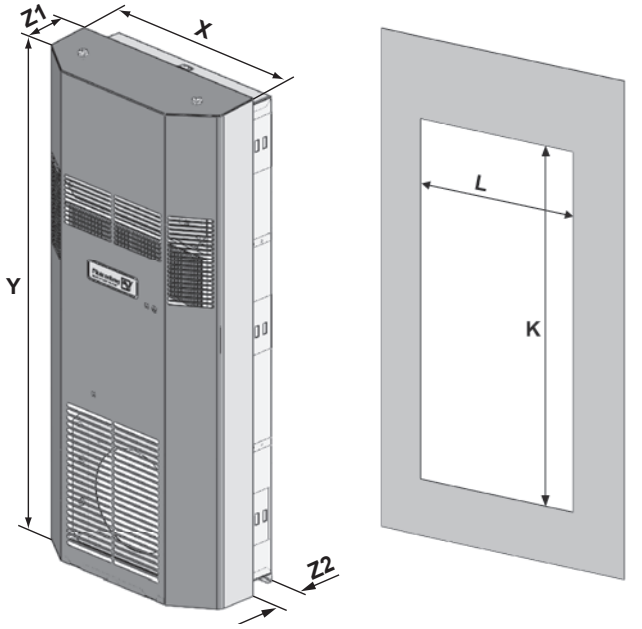


Dimensions

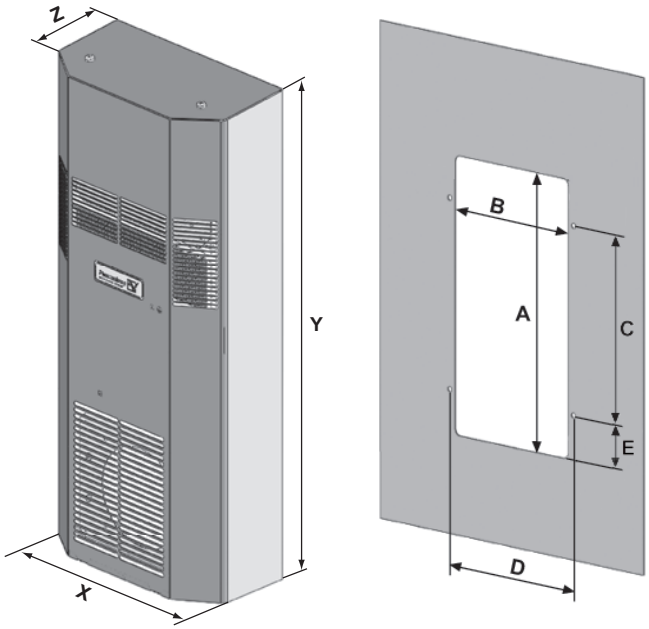
PAI	X	Y	Z1	Z2	K	L
mm	410	933	192	60	900	380
PAI variants partially recessed by 60 mm after installation						

PAS	X	Y	Z	A	B	C	D	E
mm	410	937	199	662	320	562	350	55
Mounting holes Ø 8 mm and cut-out radii R20								

PAI 6073 / PAI 6103 / PAI 6133



PAS 6073 / PAS 6103 / PAS 6133



ECOOL Air/Air Heat Exchanger 20 W/K

PAI/PAS 6043

PAI: for partially recessed mounting of the cooling unit in the door or side
PAS: for outer mounting of the cooling unit on the door or side

- cut-out compatible with DTI/DTS 9041
- mounting-friendly seal, no elaborate reworking of the mounting cut-out
- integrated thermostat for temperature control
- additional thermostat for excessive temperature warning
- maintenance-free
- large distance between intake and exhaust vents, safe circulation within the electrical enclosure due to long passage of air, therefore hot spots are eliminated

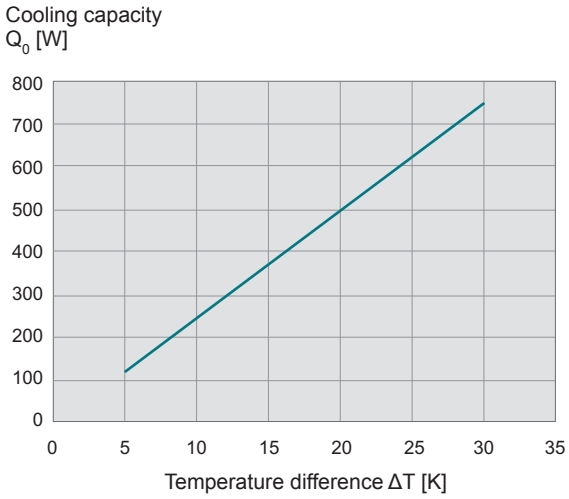
Data		PAI/PAS 6043		Unit
Article number	PAI	12991111055	12991114055	
	PAS	12981111055	12981114055	
Rated voltage ± 10%		AC 50 / 60	AC 60	Hz
		230	115	V
Specific cooling capacity		20		W/K
Power consumption		50 / 56	56	W
Current consumption		0.25 / 0.26	0.52	A
Starting current		0.7 / 0.8	1.3	
Unimpeded airflow (free flow)	intern	240 / 280	280	m^3/h
	extern	240 / 280	280	
Pre use T		1		A
Type of connection		spring-type terminal included with plug		
Noise level according to EN ISO 3741		< 61	< 63	dB (A)
Weight (without packaging)	PAI	15.2		kg
	PAS	15.5		
Ambient temperature range		- 25 … + 55 / - 13 … + 131		°C / °F
Control range (adjustable)	control thermostat	+ 20 … + 55 / + 68 … + 131; factory setting + 35 / + 95		
	alarm thermostat	+ 30 … + 65 / + 86 … + 149; factory setting + 45 / + 113		
Duty cycle		100		%
Protection system according to EN 60529	IP 54	towards the electrical enclosure if used as intended by the manufacturer		
	IP 34	towards the surroundings if used as intended by the manufacturer		
Design	housing	galvanised sheet steel		
	cover	galvanised / electrostatically powder coated (200 °C)		
Colour (cover)		RAL 7035, different colours available on request		

Accessories	Piece	Article number
Filteradpater	1	18060200000
Vlies filter	5	18061600000

Approvals see page 139

Cooling capacity performance curves

PAI/PAS 6043

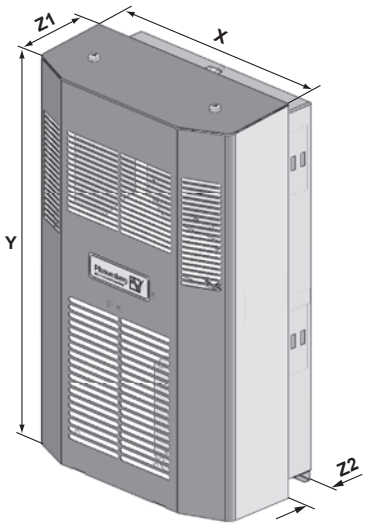


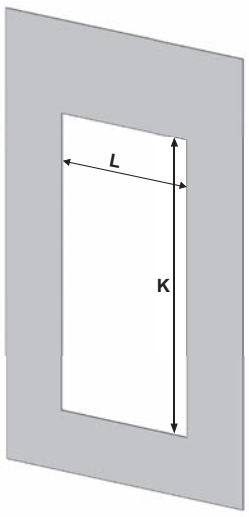
Dimensions

PAI	X	Y	Z1	Z2	K	L
mm	380	612	152	60	577	350
PAI variants partially recessed by 60 mm after installation						

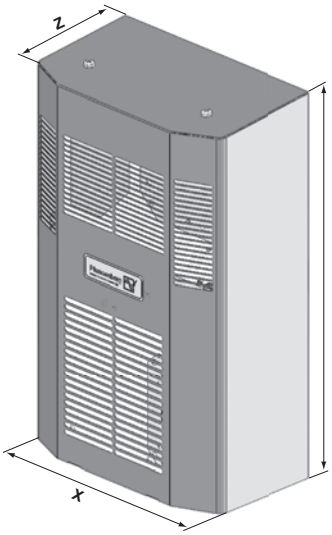
PAS	X	Y	Z	A	B	C	D	E	F	G
mm	380	618	212	472	285	272	150	288	40	300
Mounting holes Ø 8 mm and cut-out radii R20										

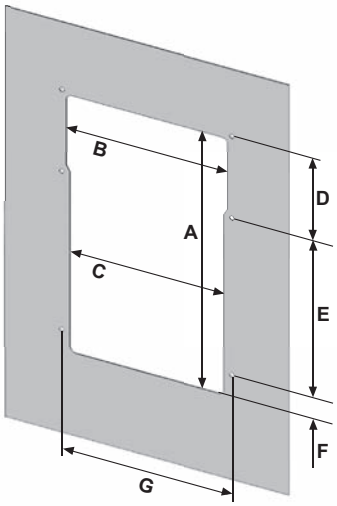
PAI 6043

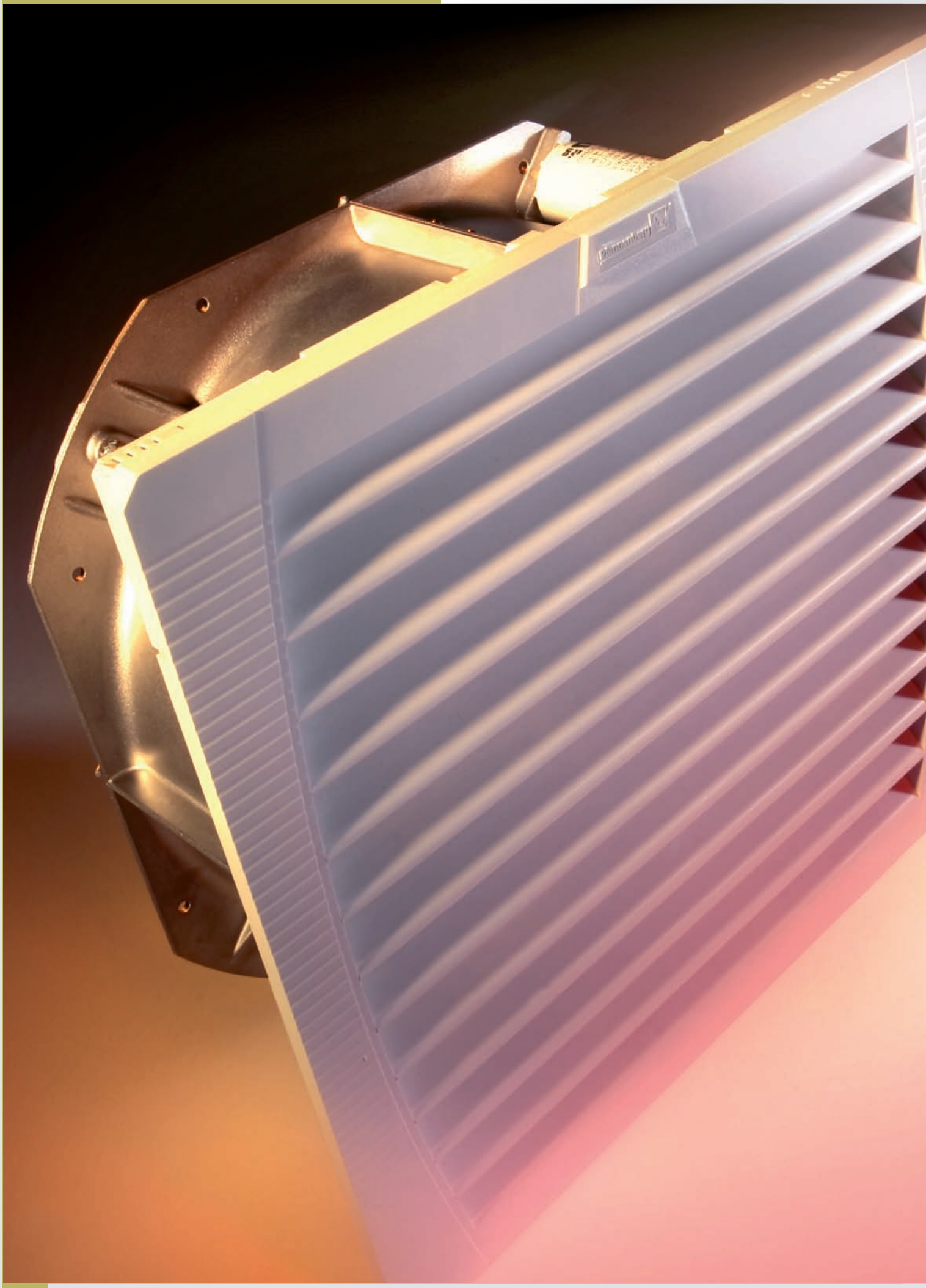


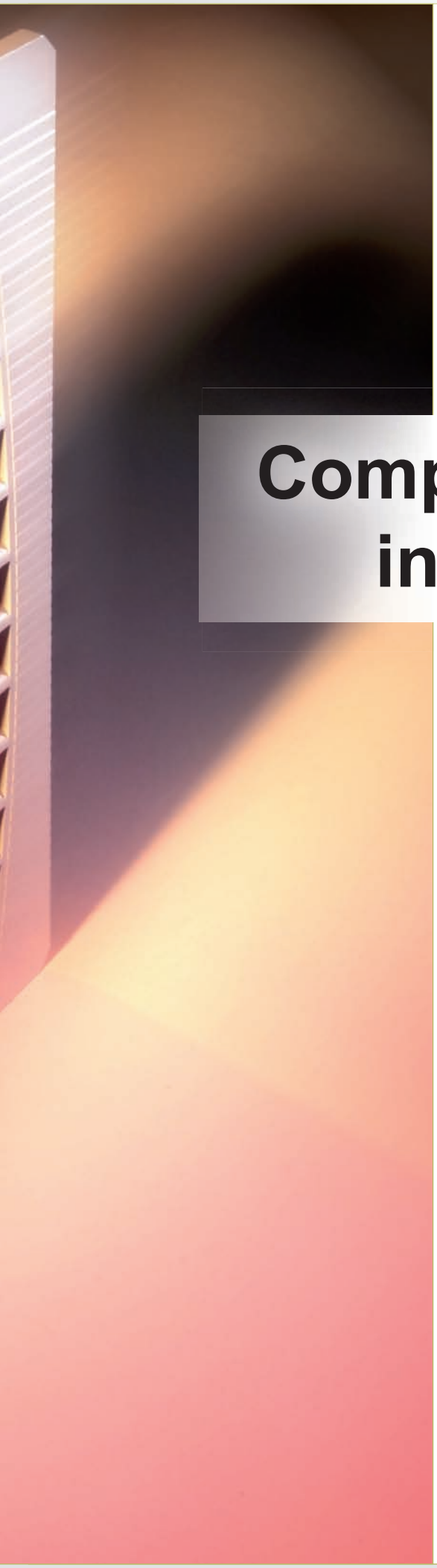


PAS 6043









Competence advantage in the 4th Generation

Filterfans

You can save energy, resources and valuable time through the use of Pfannenberg‘s 4th Generation Filterfans.

Over and above that, they provide for more reliability in the production process, because the innovative filterfans and filter mats from the 4th Generation enable an increase in the air flow of over 100% (protection class IP 55), leading to expanded operating life that is several times longer and thus to longer service intervals.

Practical tests under the toughest conditions in the woodworking industry showed that service intervals were prolonged by one to two and sometimes even three weeks. In addition, the mounting and service-friendliness of the filterfans was confirmed, also for cleaning by means of compressed air and dispensing with the bothersome cutting to size of filter mats.

Using a combination of filterfans with thermostats and hygrostats from the FLZ series (see page 208), you can additionally achieve savings on energy, materials and time plus a significantly longer life span. This results in an optimised environmental balance as well as greater reliability of your production process.

Assembly, energy, air, maintenance - Your advantage

Well thought out details optimize your balance sheet:

Compatibility

The 4th generation Filterfans can be integrated into existing applications without any problems, because most of the enclosure cut-outs correspond to the Pfannenberg standard.

Time

The patented 4-corner snap fastener makes a tool-free installation possible in seconds and guarantees a secure fit.

Maintenance

The cover enables a filter mat change in seconds.

Air

Fins and rotor blades that are optimized for the current guarantee maximal airflow and a minimal energy consumption.

Efficiency

The 4th generation Filterfans can be equipped with a thermostat (optional): they operate only when cooling is really necessary.

Life span

The 4th generation Filterfans achieve the system of protection IP 55 with the patented fluted filter mats. The intervals when they need to be exchanged are 300% longer in comparison to conventional filter media.

All 4th Generation Filterfans at a glance

Type	Airflow rate [1] IP 54 / IP 55	Rated voltage	Cut-out dimensions (HxW) [2]	Approvals UR	cUL	GOST	CSA	CE	Page
PF series Filterfans									
PF 11.000	25 / - m³/h	115 V / 230 V AC 12 V / 24 V / 48 V DC	92 x 92 mm	●	●	●		●	150
PF 22.000	61 / 56 m³/h	115 V / 230 V AC 12 V / 24 V / 48 V DC	125 x 125 mm	●	●	●		●	152
PF 32.000	110 / 100 m³/h	115 V / 230 V AC 12 V / 24 V / 48 V DC	177 x 177 mm	●	●	●		●	154
PF 42.500	156 / 145 m³/h	115 V / 230 V AC 12 V / 24 V / 48 V DC	223 x 223 mm	●	●	●		●	156
PF 43.000	256 / 233 m³/h	115 V / 230 V AC 12 V / 24 V / 48 V DC	223 x 223 mm	●	●	●		●	160
PF 65.000	480 / 505 m³/h	115 V / 230 V AC	291 x 291 mm	●	●	●		●	160
PF 66.000	640 / 770 m³/h	400 V / 460 V 3 ~ 115 V / 230 V AC	291 x 291 mm	●	●	●		●	162
PF 67.000	845 / 925 m³/h	400 V / 460 V 3 ~ 115 V / 230 V AC	291 x 291 mm	●	●	●		●	164
PFA series exhaust filters									
PFA 10.000			92 x 92 mm	●	●	●		●	190
PFA 20.000			125 x 125 mm	●	●	●		●	190
PFA 30.000			177 x 177 mm	●	●	●		●	190
PFA 40.000			223 x 223 mm	●	●	●		●	190
PFA 60.000			291 x 291 mm	●	●	●		●	190
PF Slim Line Filterfans									
PF 65.000 SL	500 m³/h	115 V / 230 V AC	291 x 291 mm	●	●	●		●	166
PF 67.000 SL	705 m³/h	400 V / 460 V 3 ~ 115 V / 230 V AC	291 x 291 mm	●	●	●		●	168
PF series EMC Filterfans									
PF 11.000 EMC	as for PF series	as for PF series	93 x 93 mm	●	●	●		●	170
PF 22.000 EMC			126 x 126 mm	●	●	●		●	172
PF 32.000 EMC			178 x 178 mm	●	●	●		●	174
PF 42.500 EMC			224 x 224 mm	●	●	●		●	176
PF 43.000 EMC			224 x 224 mm	●	●	●		●	178
PF 65.000 EMC			292 x 292 mm	●	●	●		●	180
PF 66.000 EMC			292 x 292 mm	●	●	●		●	182
PF 67.000 EMC			292 x 292 mm	●	●	●		●	184
PFA series EMC exhaust filters									
PFA 10.000 EMC			93 x 93 mm	●	●	●		●	190
PFA 20.000 EMC			126 x 126 mm	●	●	●		●	190
PFA 30.000 EMC			178 x 178 mm	●	●	●		●	190
PFA 40.000 EMC			224 x 224 mm	●	●	●		●	190
PFA 60.000 EMC			292 x 292mm	●	●	●		●	190
PTF series top-mounted Filterfans – Filterfans for top mounting									
PTF 60.500	500 / 350 m³/h	115 V / 230 V AC	291 x 291 mm	●	●	●		●	188
PTF 60.700	700 / 550 m³/h	115 V / 230 V AC	291 x 291 mm	●	●	●		●	188
PTF 61.000	1000 / 750 m³/h	115 V / 230 V AC	291 x 291 mm	●	●	●		●	188
PTFA series top exhaust filters									
PTFA 60.000			291 x 291 mm	●	●	●		●	190

[1] free-blowing
[2] for material thicknesses up to 2 mm

● available
○ pending

Further information can be found on the Internet:
www.pfannenberg.com · **www.pfannenberg-spareparts.com** · **www.filterfan.com**
Keep up to date. Subscribe to the newsletter now:
newsletter.pfannenberg.com

Filterfan
PF 11.000
Exhaust filter
PFA 10.000

- installation size 1, air flow rate up to 29 m³/h
- system of protection IP 54, NEMA type 12
- UL, cUL approval
- cut-out compatible with installation size 1 from the 3rd Generation

Data		PF 11.000					Unit
Article number	IP 54	11611101055	11611151055	11611851055	11611801055	11611701055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		DC			
		230	115	12	24	48	V
Unimpeded airflow		25 / 29					m³/h
Airflow rate in combination (PF + PFA 10.000)		16 / 18					
Power consumption		12 / 11	12 / 11	2.4	2.4	2.6	W
Current consumption		0.07 / 0.06	0.15 / 0.15	0.2	0.1	0.05	A
Noise level (according to EN ISO 3741)		33 / 33		33			dB (A)
Weight		0.55		0.16			kg
Type of connection		cable, 2-core, length 310 mm					
Fuse		6					A
System of protection according to EN 60529 / UL 50		NEMA type 12 - standard filter					
Filtration efficiency		88					%
Filter mat quality class according to EN 779		G 3					
Duty cycle		100					%
Bearing type		sleeve bearing		ball bearing			
Service life L_{10} (+ 40 °C)[1]		52500	55000	70000			h
Temperature range		- 40 … + 55 / - 40 … + 131					°C / °F
Design (housing and protection against accidental contact)		made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO					
Colour		RAL 7035, different colours available on request					

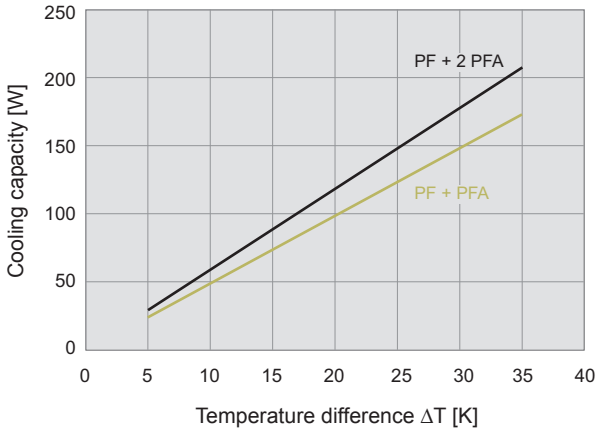
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 10.000	IP 54	1	11710001055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

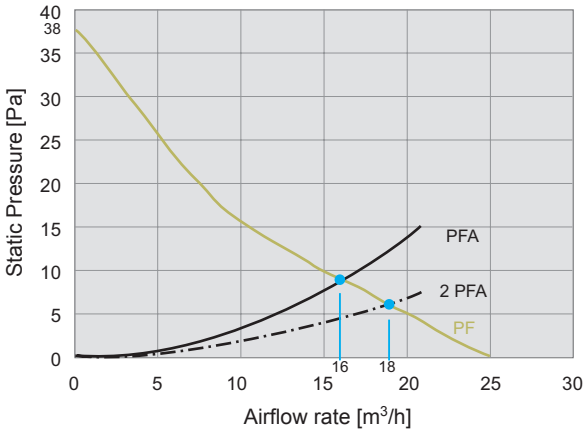
Cooling capacity performance curves

PF 11.000



Static pressure performance curves

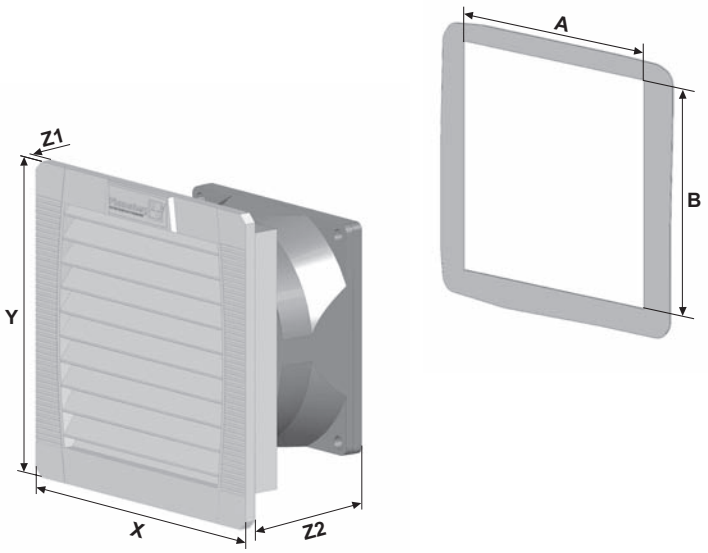
PF 11.000



Dimensions

mm	PF 11.000		PFA 10.000
	AC	DC	
X	109	109	109
Y	109	109	109
Z1	4	4	4
Z2	62	49	19
A[1]	92	92	92
B[1]	92	92	92

[1] for material thicknesses up to 2 mm
+ 1 mm for thickness of material > 2 mm ≤ 3 mm



Filterfan
PF 22.000
Exhaust filter
PFA 20.000

- installation size 2, air flow rate up to 70 m³/h
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)
- cut-out compatible with installation size 2 from the 3rd Generation

Data		PF 22.000					Unit
Article number	IP 54	11622101055	11622151055	11622851055	11622801055	11622701055	
	IP 55	11622103055	11622153055	11622853055	11622803055	11622703055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		DC			
		230	115	12	24	48	V
Unimpeded airflow	IP 54	61 / 70					m³/h
	IP 55	56 / 64					
Airflow rate in combination (PF + PFA 20.000)	IP 54	44 / 52					
	IP 55	40 / 46					
Power consumption		19 / 18	20 / 20	5	5	5	W
Current consumption		0.12 / 0.18	0.24 / 0.23	0.42	0.21	0.1	A
Noise level (according to EN ISO 3741)	IP 54	44 / 44		44			dB (A)
	IP 55						
Weight		0.7		0.44			kg
Type of connection		terminal strip		cable, 2-core, length 310 mm			
Fuse		6					A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter					
	IP 55	NEMA type 12 - fluted filter					
Filtration efficiency	IP 54	88					%
	IP 55	91					
Filter mat quality class according to EN 779	IP 54	G 3					
	IP 55	G 4					
Duty cycle		100					%
Bearing type		sleeve bearing		ball bearing			
Service life L_{10} (+ 40 °C)[1]		37500	40000	62500			h
Temperature range		- 40 … + 55 / - 40 … + 131					°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO					
	IP 55	additional: UV-resistant					
Colour		RAL 7035, different colours available on request					

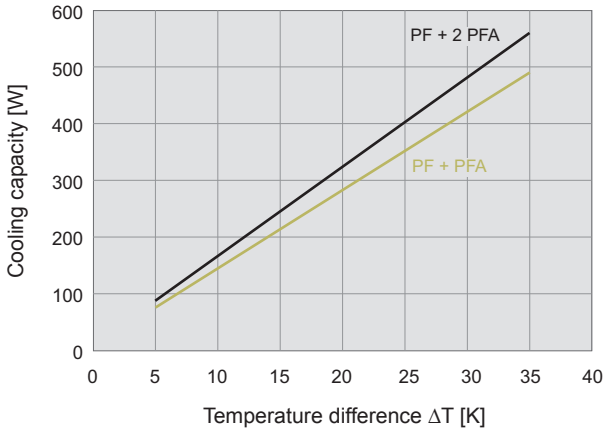
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 20.000	IP 54	1	11720001055	190
	IP 55	1	11720003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

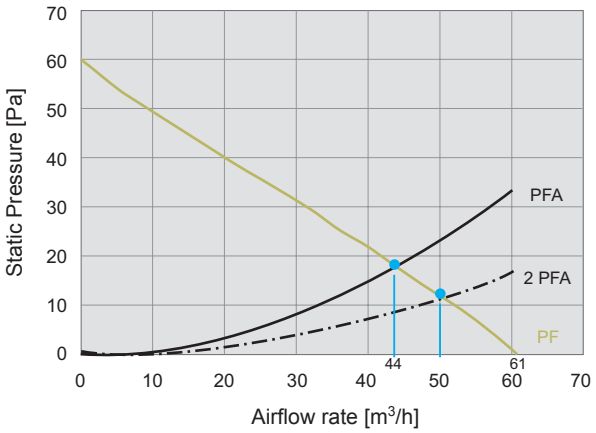
Cooling capacity performance curves

PF 22.000 IP 54

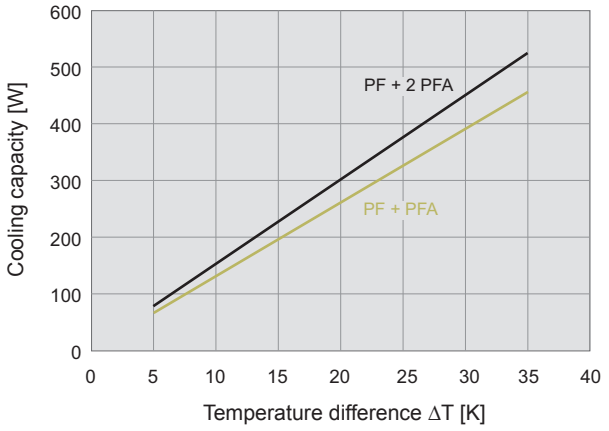


Static pressure performance curves

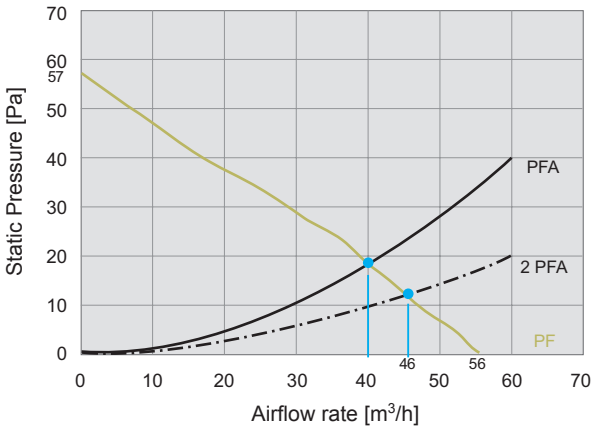
PF 22.000 IP 54



PF 22.000 IP 55



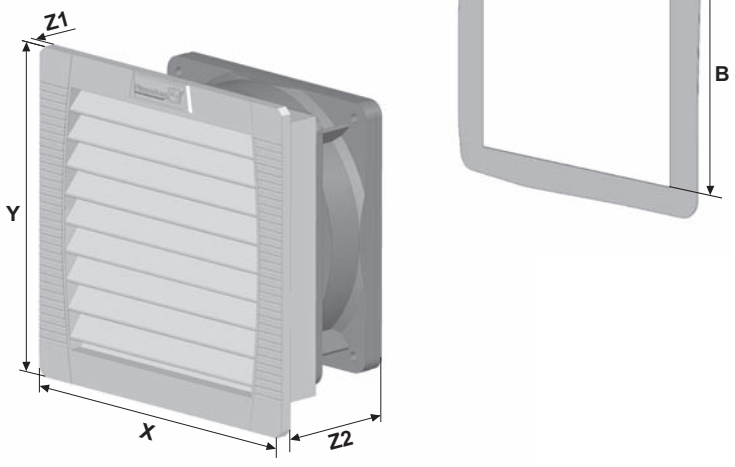
PF 22.000 IP 55



Dimensions

mm	PF 22.000		PFA 20.000
	AC	DC	
X	145	145	145
Y	145	145	145
Z1	5	5	5
Z2	70	64	26
A[1]	125	125	125
B[1]	125	125	125

[1] for material thicknesses up to 2 mm
+ 1 mm for thickness of material > 2 mm ≤ 3 mm



Filterfan
PF 32.000
Exhaust filter
PFA 30.000

- installation size 3, air flow rate up to 125 m³/h
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)

Data		PF 32.000					Unit
Article number	IP 54	11632101055	11632151055	11632851055	11632801055	11632701055	
	IP 55	11632103055	11632153055	11632853055	11632803055	11632703055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		DC			
		230	115	12	24	48	V
Unimpeded airflow	IP 54	110 / 125					m³/h
	IP 55	100 / 110					
Airflow rate in combination (PF + PFA 30.000)	IP 54	82 / 93					
	IP 55	55 / 64					
Power consumption		19 / 18	20 / 20	5	5	5	W
Current consumption		0.12 / 0.18	0.24 / 0.23	0.42	0.21	0.1	A
Noise level (according to EN ISO 3741)	IP 54	40 / 40		40			dB (A)
	IP 55						
Weight		0.87		0.61			kg
Type of connection		terminal strip		cable, 2-core, length 310 mm			
Fuse		6					A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter					
	IP 55	NEMA type 12 - fluted filter					
Filtration efficiency	IP 54	88					%
	IP 55	91					
Filter mat quality class according to EN 779	IP 54	G 3					
	IP 55	G 4					
Duty cycle		100					%
Bearing type		sleeve bearing		ball bearing			
Service life L_{10} (+ 40 °C)[1]		37500	40000	62500			h
Temperature range		- 40 … + 55 / - 40 … + 131					°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO					
	IP 55	additional: UV-resistant					
Colour		RAL 7035, different colours available on request					

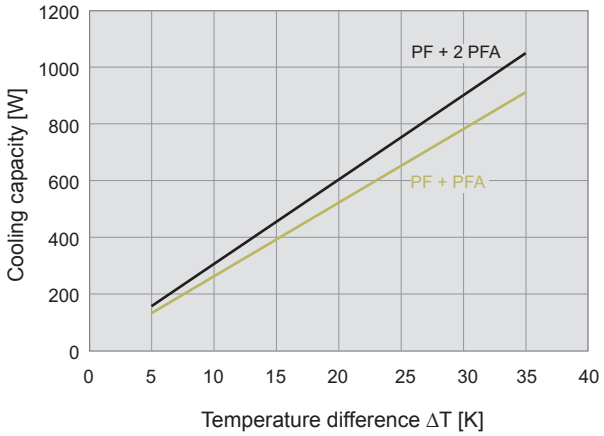
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 30.000	IP 54	1	11730001055	190
	IP 55	1	11730003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

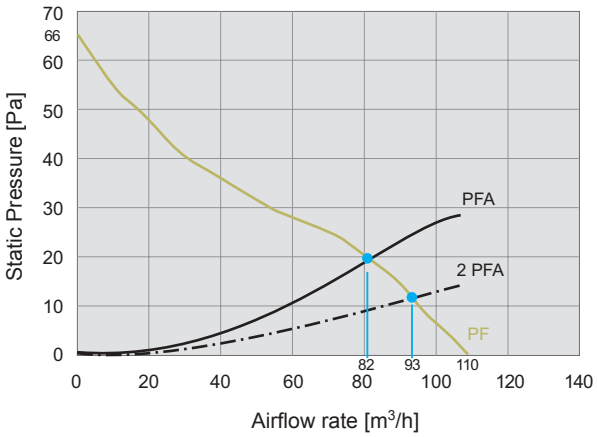
Cooling capacity performance curves

PF 32.000 IP 54

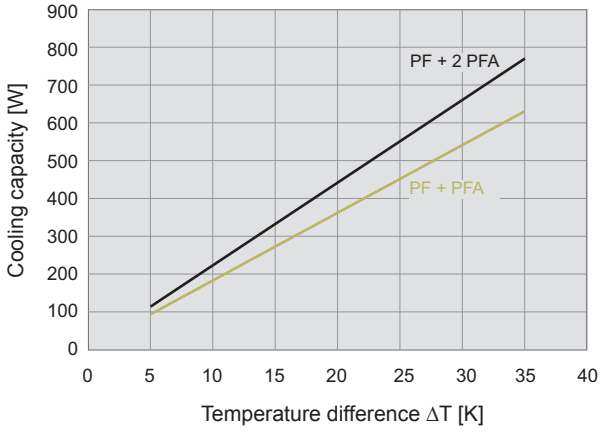


Static pressure performance curves

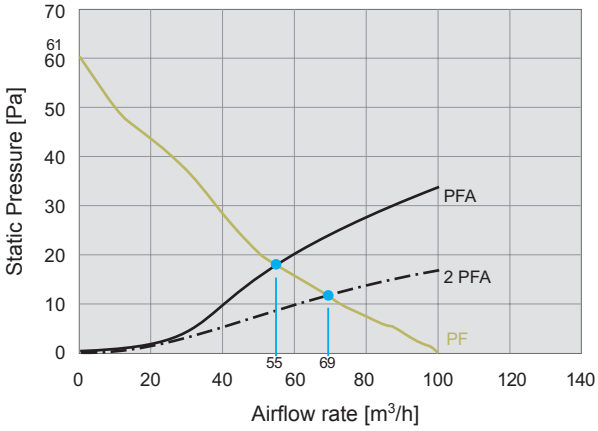
PF 32.000 IP 54



PF 32.000 IP 55



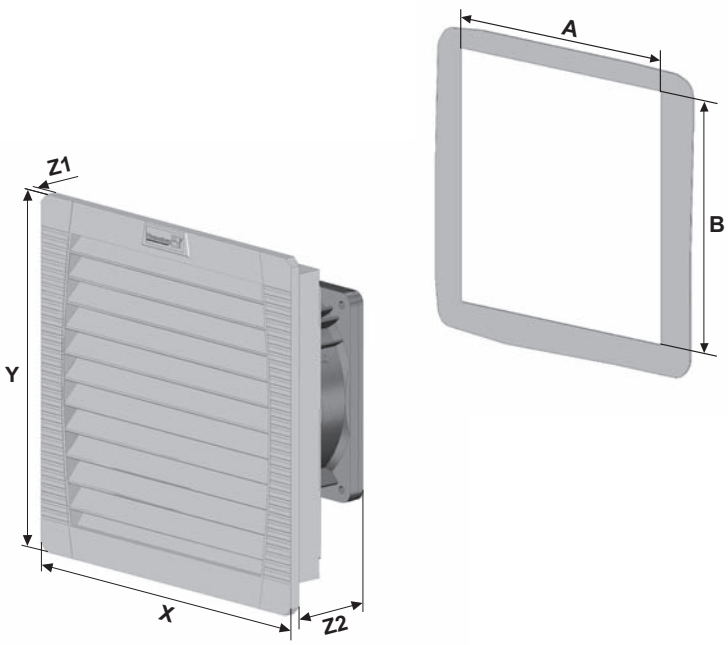
PF 32.000 IP 55



Dimensions

mm	PF 32.000		PFA 30.000
	AC	DC	
X	202	202	202
Y	202	202	202
Z1	6	6	6
Z2	87	81	34
A[1]	177	177	177
B[1]	177	177	177

[1] for material thicknesses up to 2 mm
+ 1 mm for thickness of material > 2 mm ≤ 3 mm



Filterfan
PF 42.500
Exhaust filter
PFA 40.000

- installation size 4, air flow rate up to 171 m³/h
- two performance classes, cut-out compatible
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)
- cut-out compatible with installation size 4 from the 3rd Generation

Data		PF 42.500					Unit
Article number	IP 54	11642101055	11642151055	11642851055	11642801055	11642701055	
	IP 55	11642103055	11642153055	11642853055	11642803055	11642703055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		DC			
		230	115	12	24	48	V
Unimpeded airflow	IP 54	156 / 171					m³/h
	IP 55	145 / 160					
Airflow rate in combination (PF + PFA 40.000)	IP 54	116 / 127					
	IP 55	109 / 113					
Power consumption		18 / 17	18 / 17	6	4.7	4.6	W
Current consumption		0.12 / 0.1	0.25 / 0.25	0.5	0.2	0.1	A
Noise level (according to EN ISO 3741)	IP 54	40 / 43		40			dB (A)
	IP 55						
Weight		1.18		0.92			kg
Type of connection		spring-type terminal					
Fuse		6					A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter					
	IP 55	NEMA type 12 - fluted filter					
Filtration efficiency	IP 54	88					%
	IP 55	91					
Filter mat quality class according to EN 779	IP 54	G 3					
	IP 55	G 4					
Duty cycle		100					%
Bearing type		ball bearing					
Service life L_{10} (+ 40 °C)[1]		40000	42500	57500	70000		h
Temperature range		- 40 … + 55 / - 40 … + 131					°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO					
	IP 55	additional: UV-resistant					
Colour		RAL 7035, different colours available on request					

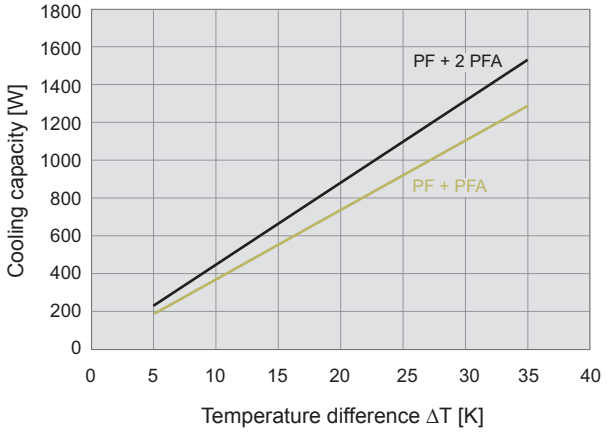
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 40.000	IP 54	1	11740001055	190
	IP 55	1	11740003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

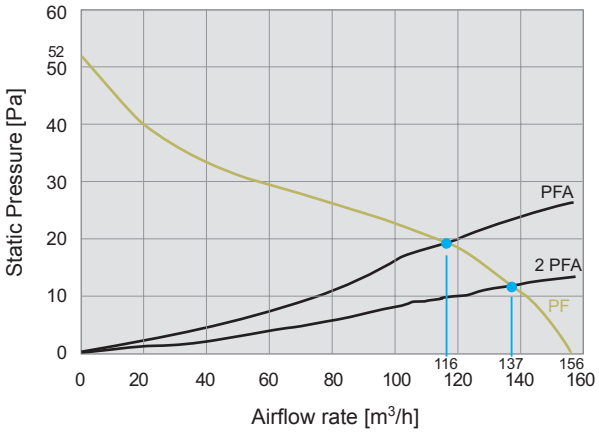
Cooling capacity performance curves

PF 42.500 IP 54

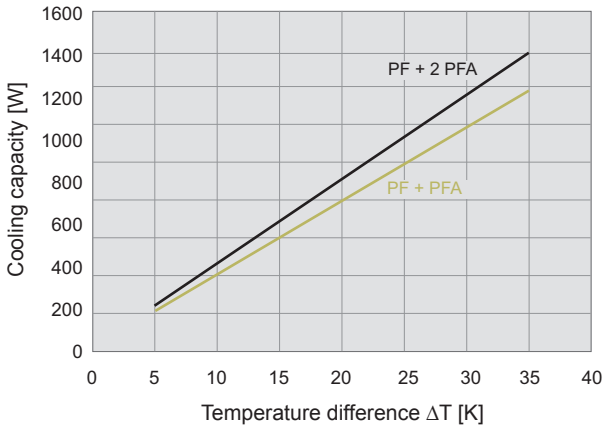


Static pressure performance curves

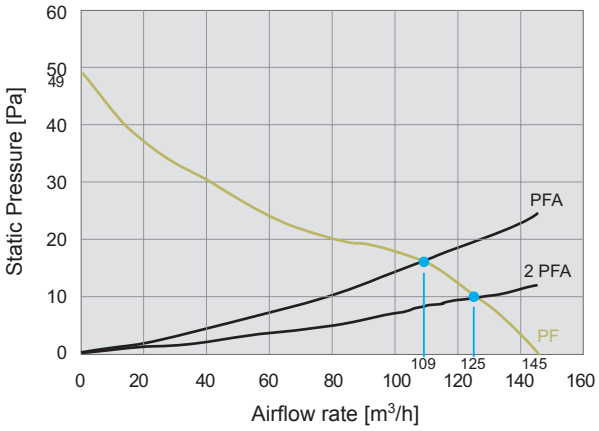
PF 42.500 IP 54



PF 42.500 IP 55



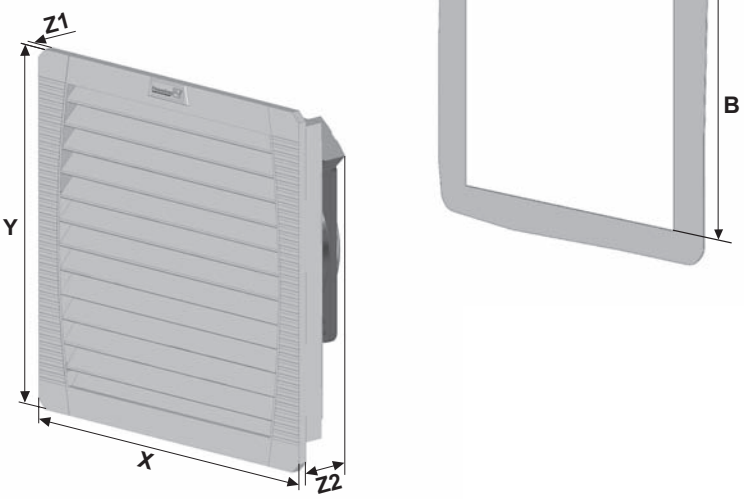
PF 42.500 IP 55



Dimensions

mm	PF 42.500	PFA 40.000
X	252	252
Y	252	252
Z1	6	6
Z2	97	38
A[1]	223	223
B[1]	223	223

[1] for material thicknesses up to 2 mm
+ 1 mm for thickness of material > 2 mm ≤ 3 mm



Filterfan
PF 43.000
Exhaust filter
PFA 40.000

- installation size 4, air flow rate up to 292 m³/h
- two performance classes, cut-out compatible
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)
- cut-out compatible with installation size 4 from the 3rd Generation

Data		PF 43.000					Unit
Article number	IP 54	11643101055	11643151055	11643851055	11643801055	11643701055	
	IP 55	11643103055	11643153055	11643853055	11643803055	11643703055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		DC			
		230	115	12	24	48	V
Unimpeded airflow	IP 54	256 / 292					m³/h
	IP 55	233 / 265					
Airflow rate in combination (PF + PFA 40.000)	IP 54	231 / 265					
	IP 55	180 / 207					
Power consumption		45 / 39	40 / 40	12	12	12	W
Current consumption		0.32 / 0.26	0.5 / 0.5	1	0.5	0.25	A
Noise level (according to EN ISO 3741)	IP 54	42 / 46		42			dB (A)
	IP 55						
Weight		1.67		1.51			kg
Type of connection		spring-type terminal					
Fuse		6					A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter					
	IP 55	NEMA type 12 - fluted filter					
Filtration efficiency	IP 54	88					%
	IP 55	91					
Filter mat quality class according to EN 779	IP 54	G 3					
	IP 55	G 4					
Duty cycle		100					%
Bearing type		ball bearing					
Service life L_{10} (+ 40 °C)[1]		40000		80000			h
Temperature range		- 40 … + 55 / - 40 … + 131					°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO					
	IP 55	additional: UV-resistant					
Colour		RAL 7035, different colours available on request					

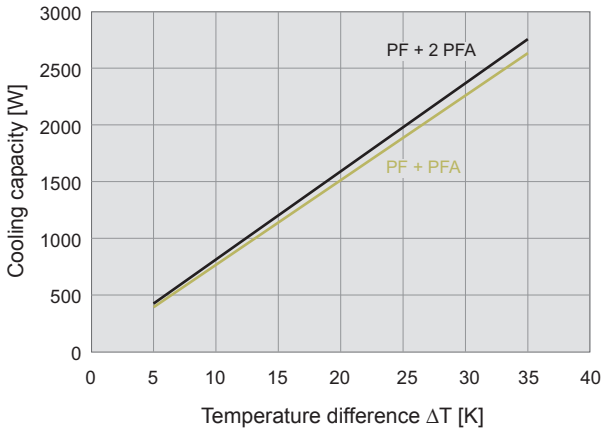
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 40.000	IP 54	1	11740001055	190
	IP 55	1	11740003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

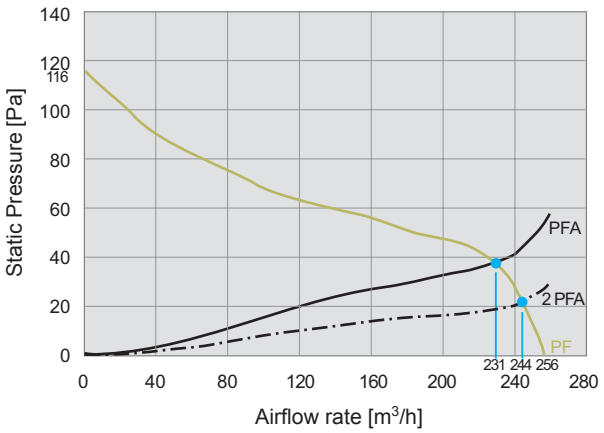
Cooling capacity performance curves

PF 43.000 IP 54

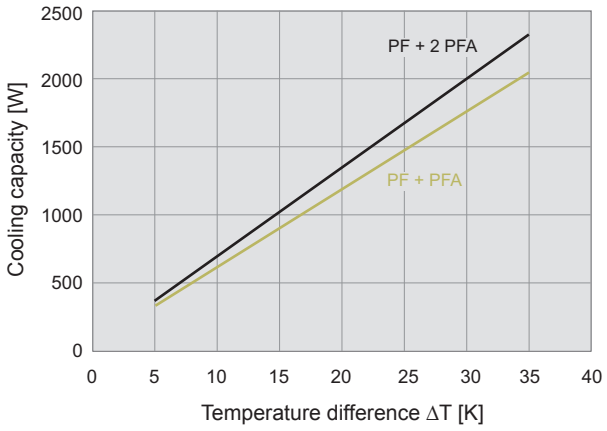


Static pressure performance curves

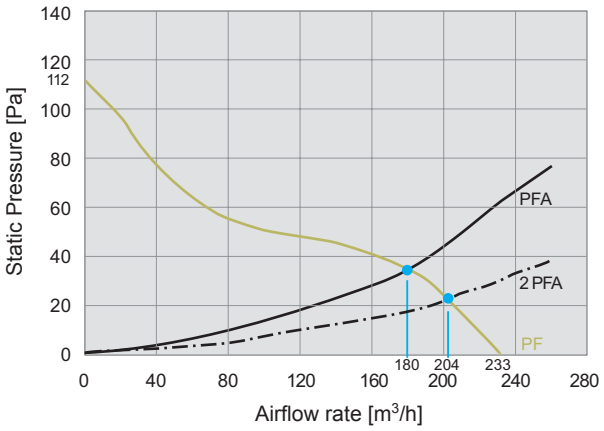
PF 43.000 IP 54



PF 43.000 IP 55



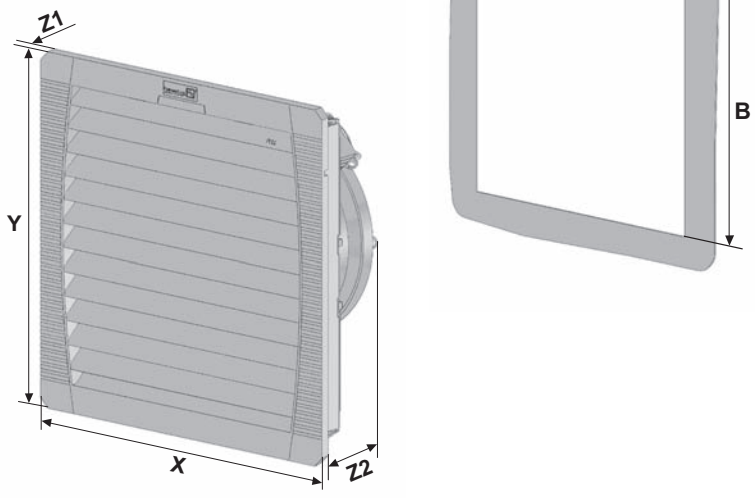
PF 43.000 IP 55



Dimensions

mm	PF 43.000		PFA 40.000
	AC	DC	
X	252	252	252
Y	252	252	252
Z1	6	6	6
Z2	113	97	38
A[1]	223	223	223
B[1]	223	223	223

[1] for material thicknesses up to 2 mm
+ 1 mm for thickness of material > 2 mm ≤ 3 mm



Filterfan
PF 65.000
Exhaust filter
PFA 60.000

- installation size 6, air flow rate up to 505 m³/h
- three performance classes, cut-out compatible
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)
- cut-out compatible with installation size 6 from the 3rd Generation and with cooling unit DTFI 9021 (see page 36)

Data		PF 65.000		Unit
Article number	IP 54	11665102055	11665152055	
	IP 55	11665103055	11665153055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		
		230	115	V
Unimpeded airflow	IP 54	480 / 480		m³/h
	IP 55	505 / 505		
Airflow rate in combination (PF + PFA 60.000)	IP 54	370 / 370		
	IP 55	380 / 380		
Power consumption		65 / 80	75 / 90	W
Current consumption		0.3 / 0.36	0.66 / 0.8	A
Noise level (according to EN ISO 3741)	IP 54	54 / 52		dB (A)
	IP 55			
Weight		3.2		kg
Type of connection		spring-type terminal		
Fuse		6		A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter		
	IP 55	NEMA type 12 - fluted filter		
Filtration efficiency	IP 54	91		%
	IP 55			
Filter mat quality class according to EN 779	IP 54	G 4		
	IP 55			
Duty cycle		100		%
Bearing type		ball bearing		
Service life L_{10} (+ 40 °C)[1]		40000		h
Temperature range		- 40 … + 55 / - 40 … + 131		°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 V0		
	IP 55	additional: UV-resistant		
Colour		RAL 7035, different colours available on request		

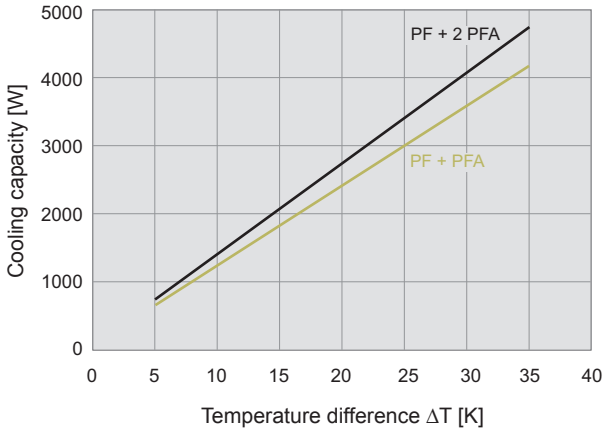
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 60.000	IP 54	1	11760002055	190
	IP 55	1	11760003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

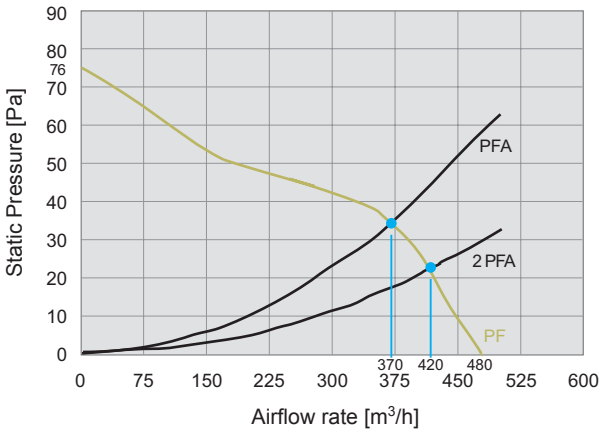
Cooling capacity performance curves

PF 65.000 IP 54

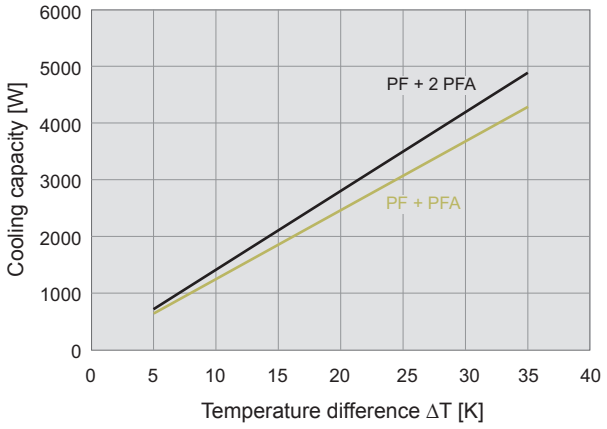


Static pressure performance curves

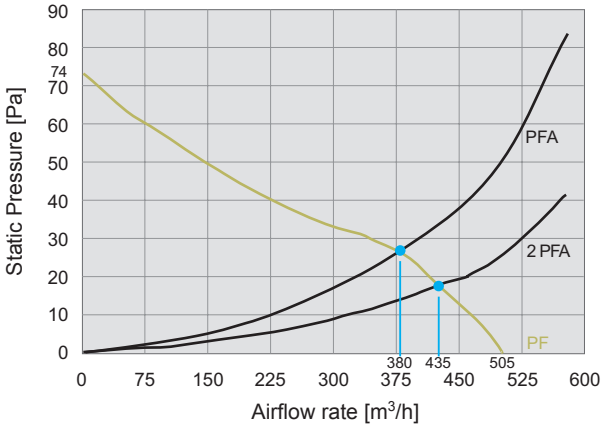
PF 65.000 IP 54



PF 65.000 IP 55



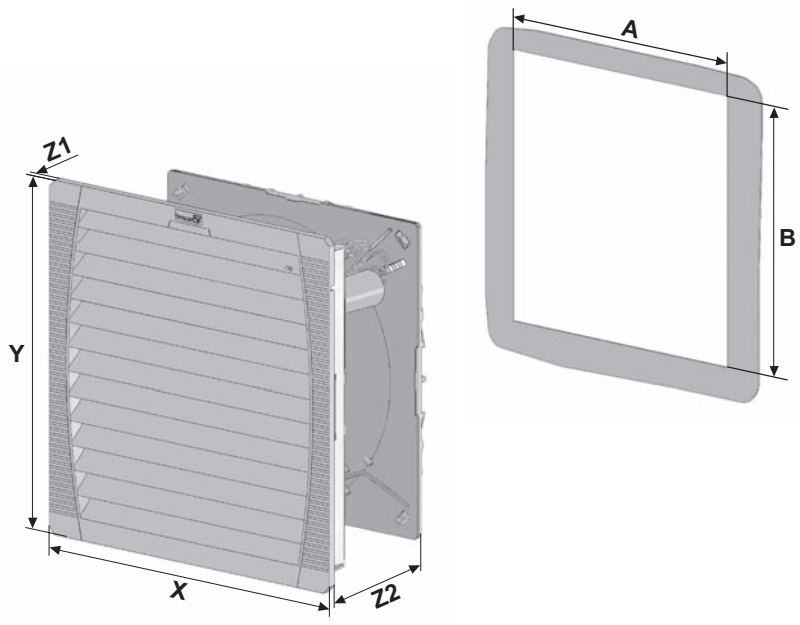
PF 65.000 IP 55



Dimensions

mm	PF 65.000	PFA 60.000
X	320	320
Y	320	320
Z1	7	7
Z2	150	39
A[1]	291	291
B[1]	291	291

[1] for material thicknesses up to 2 mm
+ 1 mm for thickness of material > 2 mm ≤ 3 mm



Filterfan
PF 66.000
Exhaust filter
PFA 60.000

- installation size 6, air flow rate up to 785 m³/h
- three performance classes, cut-out compatible
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)
- cut-out compatible with installation size 6 from the 3rd Generation and with cooling unit DTFI 9021 (see page 36)

Data		PF 66.000			Unit
Article number	IP 54	11666022055	11666102055	11666152055	
	IP 55	11666023055	11666103055	11666153055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz			
		400 / 460 3 ~	230	115	V
Unimpeded airflow	IP 54	640 / 653			m³/h
	IP 55	770 / 785			
Airflow rate in combination (PF + PFA 60.000)	IP 54	445 / 445			
	IP 55	490 / 501			
Power consumption		120 / 155	115 / 150	110 / 160	W
Current consumption		0.26 / 0.25	0.51 / 0.66	0.96 / 1.4	A
Noise level (according to EN ISO 3741)	IP 54	63 / 64			dB (A)
	IP 55				
Weight		3.2			kg
Type of connection		spring-type terminal			
Fuse		6			A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter			
	IP 55	NEMA type 12 - fluted filter			
Filtration efficiency	IP 54	91			%
	IP 55				
Filter mat quality class according to EN 779	IP 54	G 4			
	IP 55				
Duty cycle		100			%
Bearing type		ball bearing			
Service life L_{10} (+ 40 °C)[1]		40000			h
Temperature range		- 40 … + 55 / - 40 … + 131			°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO			
	IP 55	additional: UV-resistant			
Colour		RAL 7035, different colours available on request			

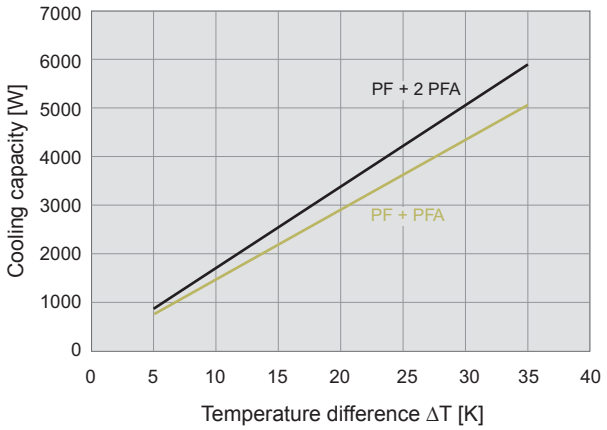
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 60.000	IP 54	1	11760002055	190
	IP 55	1	11760003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

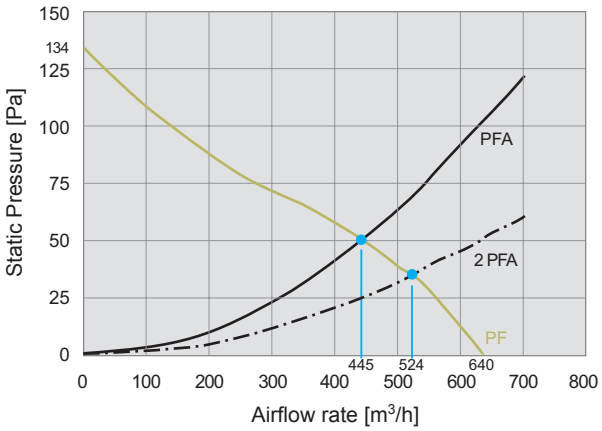
Cooling capacity performance curves

PF 66.000 IP 54

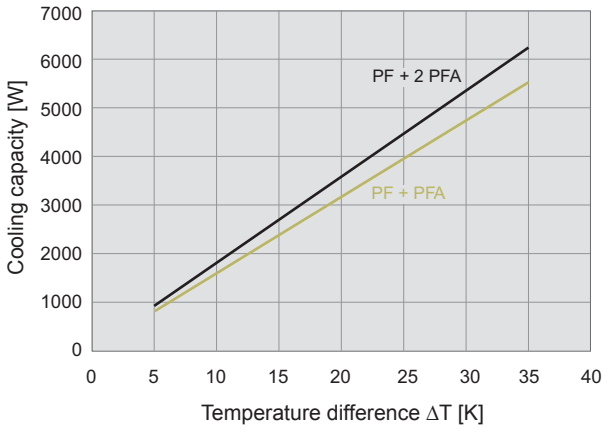


Static pressure performance curves

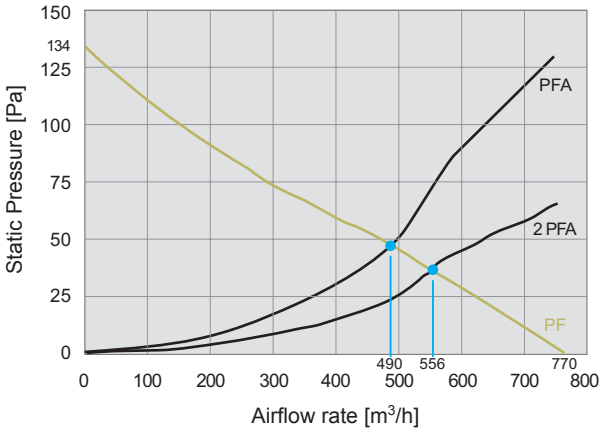
PF 66.000 IP 54



PF 66.000 IP 55



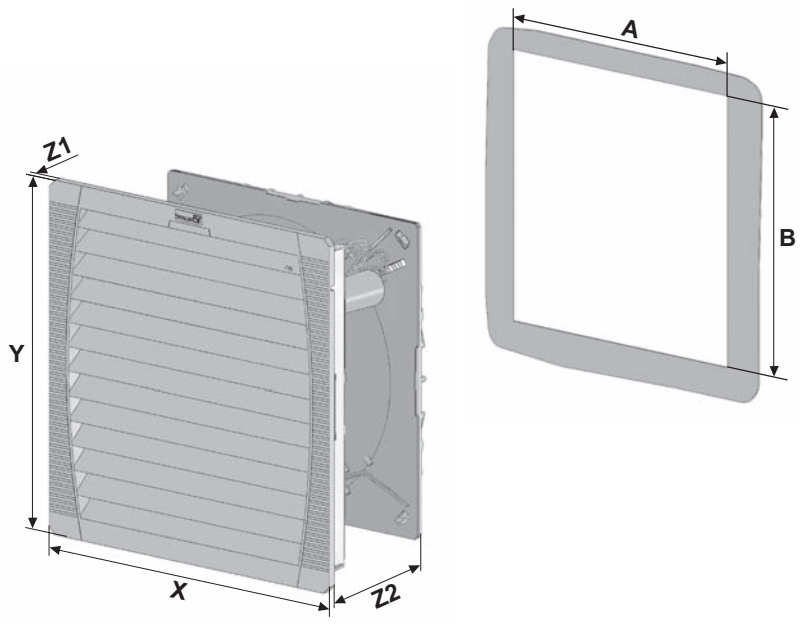
PF 66.000 IP 55



Dimensions

mm	PF 66.000	PFA 60.000
X	320	320
Y	320	320
Z1	7	7
Z2	150	39
A[1]	291	291
B[1]	291	291

[1] for material thicknesses up to 2 mm
+ 1 mm for thickness of material > 2 mm ≤ 3 mm



Filterfan
PF 67.000
Exhaust filter
PFA 60.000

- installation size 6, air flow rate up to 950 m³/h
- three performance classes, cut-out compatible
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)
- cut-out compatible with installation size 6 from the 3rd Generation and with cooling unit DTFI 9021 (see page 36)

Data		PF 67.000			Unit
Article number	IP 54	11667022055	11667102055	11667152055	
	IP 55	11667023055	11667103055	11667153055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz			
		400 / 460 3 ~	230	115	V
Unimpeded airflow	IP 54	845 / 875			m³/h
	IP 55	925 / 950			
Airflow rate in combination (PF + PFA 60.000)	IP 54	560 / 625			
	IP 55	570 / 625			
Power consumption		140 / 170	135 / 200	140 / 195	W
Current consumption		0.35 / 0.43	0.59 / 0.88	1.23 / 1.71	A
Noise level (according to EN ISO 3741)	IP 54	66 / 69			dB (A)
	IP 55				
Weight		3.7			kg
Type of connection		spring-type terminal			
Fuse		6			A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter			
	IP 55	NEMA type 12 - fluted filter			
Filtration efficiency	IP 54	91			%
	IP 55				
Filter mat quality class according to EN 779	IP 54	G 4			
	IP 55				
Duty cycle		100			%
Bearing type		ball bearing			
Service life L_{10} (+ 40 °C)[1]		40000			h
Temperature range		- 40 … + 55 / - 40 … + 131			°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO			
	IP 55	additional: UV-resistant			
Colour		RAL 7035, different colours available on request			

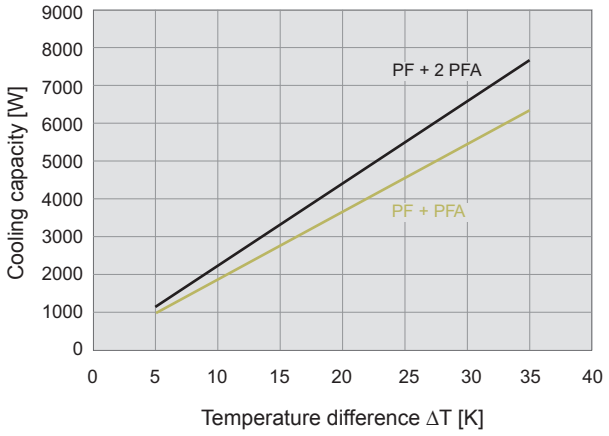
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 60.000	IP 54	1	11760002055	190
	IP 55	1	11760003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

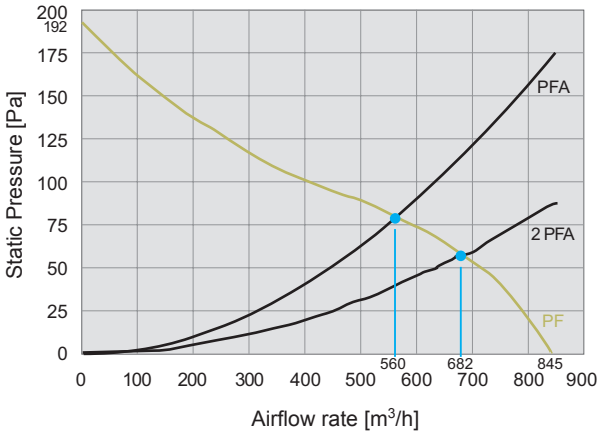
Cooling capacity performance curves

PF 67.000 IP 54

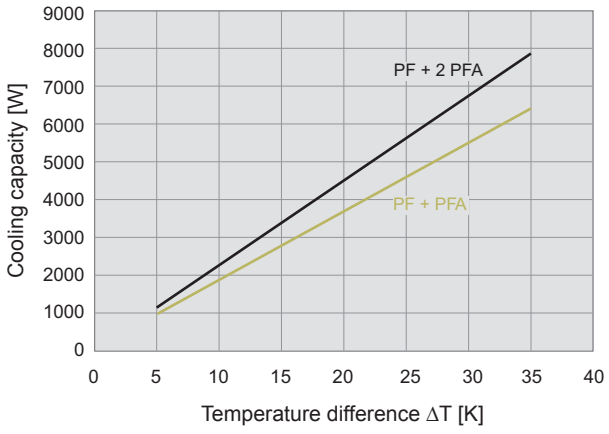


Static pressure performance curves

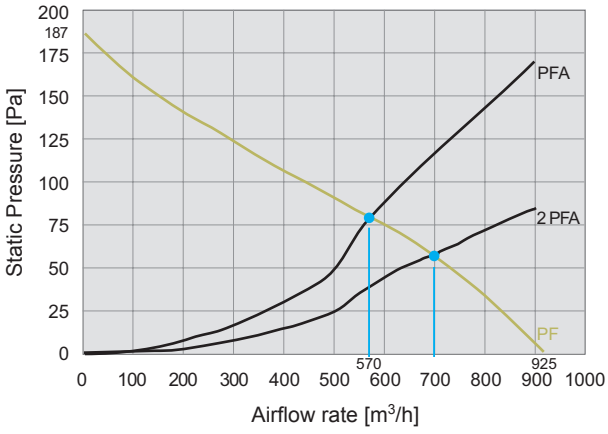
PF 67.000 IP 54



PF 67.000 IP 55



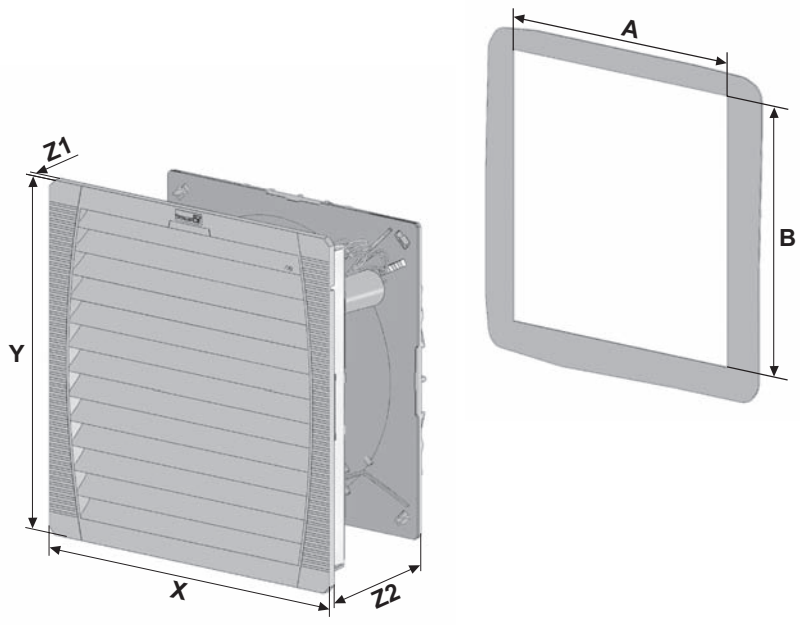
PF 67.000 IP 55



Dimensions

mm	PF 67.000	PFA 60.000
X	320	320
Y	320	320
Z1	7	7
Z2	150	39
A[1]	291	291
B[1]	291	291

[1] for material thicknesses up to 2 mm
+ 1 mm for thickness of material > 2 mm ≤ 3 mm



Slim Line Filterfan
PF 65.000 SL

Pfannenberg 4th Generation filterfan with low installation depth
- installation size 6, air flow rate up to 550 m³/h
- three performance classes, cut-out compatible
- system of protection IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)

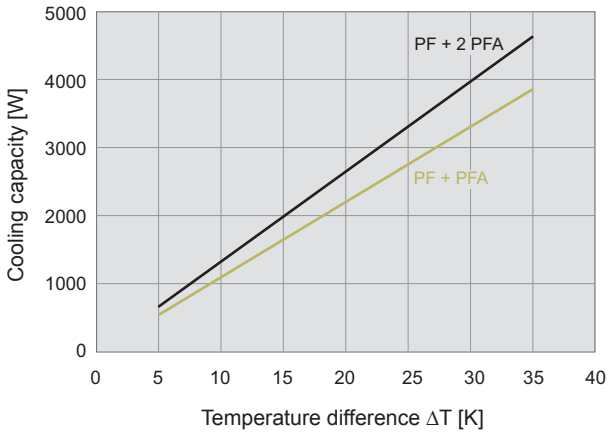
Data		PF 65.000 SL		Unit
Article number	IP 55	11675103055	11675153055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		
		230	115	V
Unimpeded airflow		500 / 550		m³/h
Airflow rate in combination (PF + PFA 60.000)		345 / 423		
Power consumption		64 / 80		W
Current consumption		0.29 / 0.35	0.58 / 0.7	A
Noise level (according to EN ISO 3741)		54 / 52		dB (A)
Weight		3.3		kg
Type of connection		screw terminal		
Fuse		6		A
System of protection according to EN 60529 / UL 50		NEMA type 12 - fluted filter		
Filtration efficiency		91		%
Filter mat quality class according to EN 779		G 4		
Duty cycle		100		%
Bearing type		ball bearing		
Service life L_{10} (+ 40 °C)[1]		40000		h
Temperature range		- 40 … + 55 / - 40 … + 131		°C / °F
Design (housing and protection against accidental contact)		made of injection-moulded thermoplastic, self-extinguishing, UL 94 V0, UV-resistant		
Colour		RAL 7035, different colours available on request		

Accessories		Piece	Article number	Information on page
Exhaust filter PFA 60.000	IP 55	1	11760003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary
Approvals see page 149.

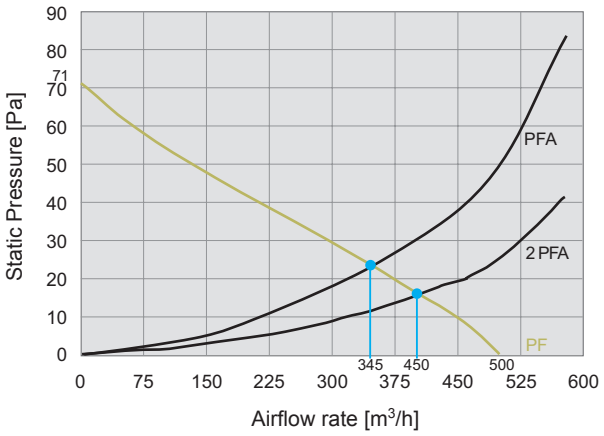
Cooling capacity performance curves

PF 65.000 SL IP 55



Static pressure performance curves

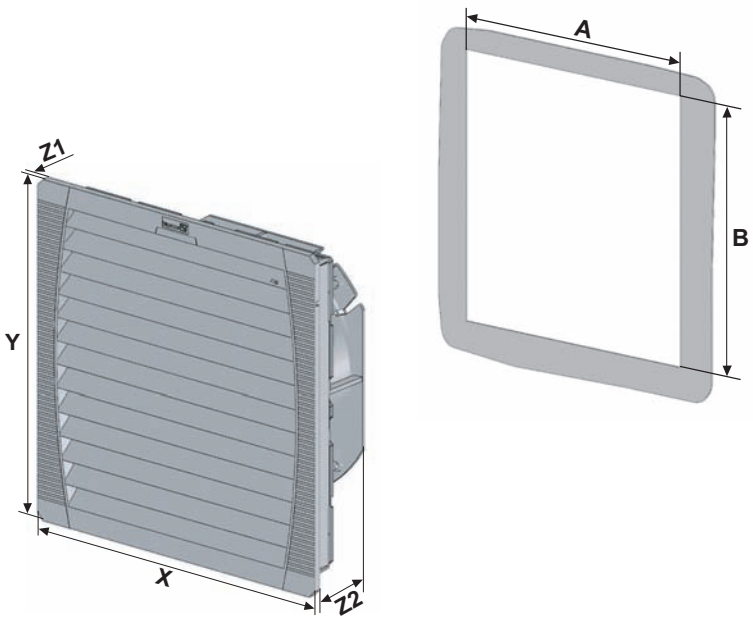
PF 65.000 SL IP 55



Dimensions

mm	PF 65.000 SL	PFA 60.000
X	320	320
Y	320	320
Z1	7	7
Z2	124	39
A[1]	291	291
B[1]	291	291

[1] for material thicknesses up to 2 mm
+ 1 mm for thickness of material > 2 mm ≤ 3 mm



Slim Line Filterfan
PF 67.000 SL

Pfannenberg 4th Generation filterfan with low installation depth

- installation size 6, air flow rate up to 725 m³/h
- three performance classes, cut-out compatible
- system of protection IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)

Data		PF 67.000 SL			Unit
Article number	IP 55	11677023055	11677103055	11677153055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz			
		400 / 460 3 ~	230	115	V
Unimpeded airflow		705 / 725			m³/h
Airflow rate in combination (PF + PFA 60.000)		530 / 580			
Power consumption		110 / 165	127 / 180	120 / 165	W
Current consumption		0.2 / 0.23	0.56 / 0.79	1.05 / 1.45	A
Noise level (according to EN ISO 3741)		66 / 69			dB (A)
Weight		3.85	4.05	4.00	kg
Type of connection		screw terminal			
Fuse		6			A
System of protection according to EN 60529 / UL 50		NEMA type 12 - fluted filter			
Filtration efficiency		91			%
Filter mat quality class according to EN 779		G 4			
Duty cycle		100			%
Bearing type		ball bearing			
Service life L_{10} (+ 40 °C)[1]		40000			h
Temperature range		- 40 … + 55 / - 40 … + 131			°C / °F
Design (housing and protection against accidental contact)		made of injection-moulded thermoplastic, self-extinguishing, UL 94 V0, UV-resistant			
Colour		RAL 7035, different colours available on request			

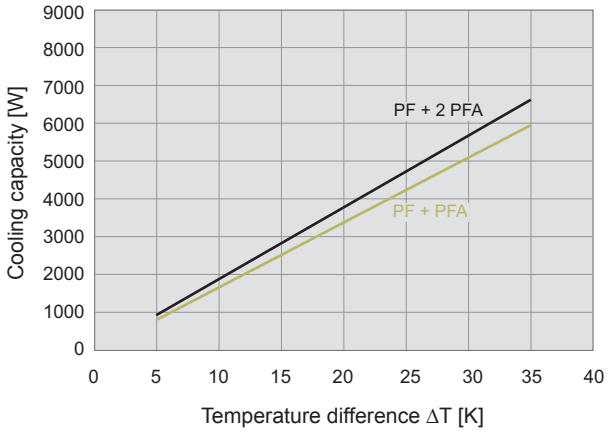
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 60.000	IP 55	1	11760003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

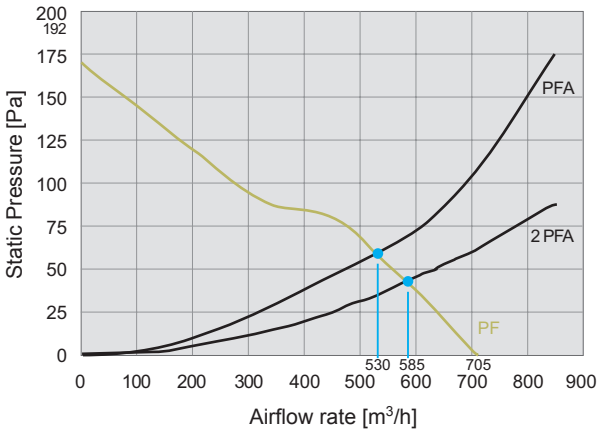
Cooling capacity performance curves

PF 67.000 SL IP 55



Static pressure performance curves

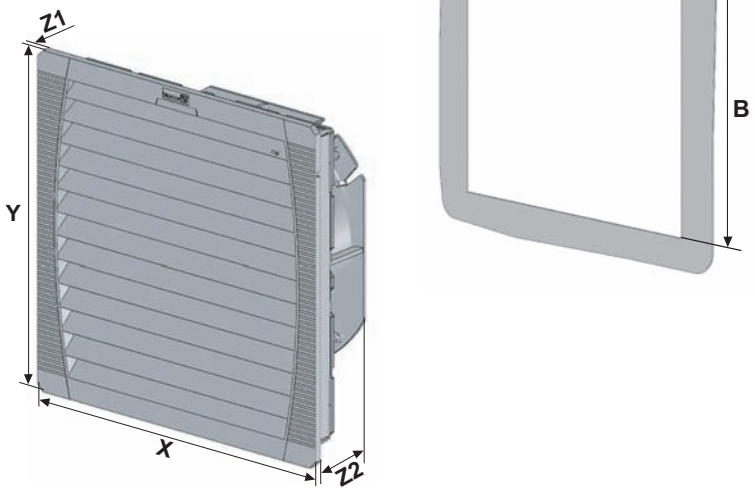
PF 67.000 SL IP 55



Dimensions

mm	PF 67.000 SL	PFA 60.000
X	320	320
Y	320	320
Z1	7	7
Z2	127	39
A[1]	291	291
B[1]	291	291

[1] for material thicknesses up to 2 mm
+ 1 mm for thickness of material > 2 mm ≤ 3 mm



Filterfan
PF 11.000 EMC
Exhaust filter
PFA 10.000 EMC

- installation size 1, air flow rate up to 29 m³/h
- secure contact due to improved contact springs on the screen grid
- system of protection IP 54, NEMA type 12
- UL, cUL approval
- cut-out compatible to installation size 1 of the 3rd and 4th Generation

Data		PF 11.000 EMC					Unit
Article number	IP 54	11811101055	11811151055	11811851055	11811801055	11811701055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		DC			
		230	115	12	24	48	V
Unimpeded airflow		25 / 29					m³/h
Airflow rate in combination (PF + PFA 10.000 EMC)		16 / 18					
Power consumption		12 / 11	12 / 11	2.4	2.4	2.6	W
Current consumption		0.07 / 0.06	0.15 / 0.15	0.2	0.1	0.05	A
Noise level (according to EN ISO 3741)		33 / 33		33			dB (A)
Weight		0.58		0.19			kg
Type of connection		cable, 2-core, length 310 mm					
Fuse		6					A
System of protection according to EN 60529 / UL 50		NEMA type 12 – standard filter					
Filtration efficiency		88					%
Filter mat quality class according to EN 779		G 3					
Duty cycle		100					%
Bearing type		sleeve bearing		ball bearing			
Service life L_{10} (+ 40 °C)[1]		52500	55000	70000			h
Temperature range		- 40 … + 55 / - 40 … + 131					°C / °F
Design (housing and protection against accidental contact)		made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO					
EMC screen		**stainless steel**					
Colour		RAL 7035, different colours available on request					

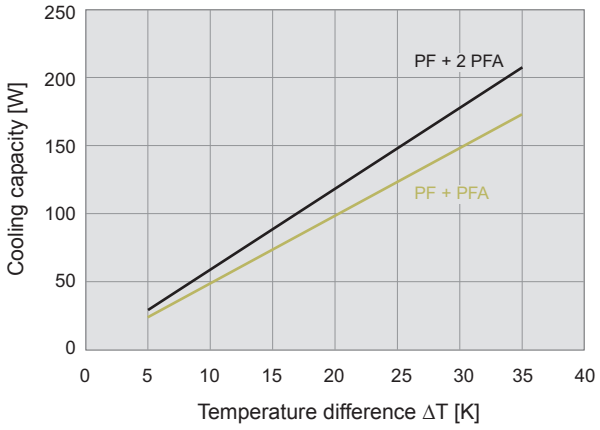
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 10.000 EMC	IP 54	1	11910001055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

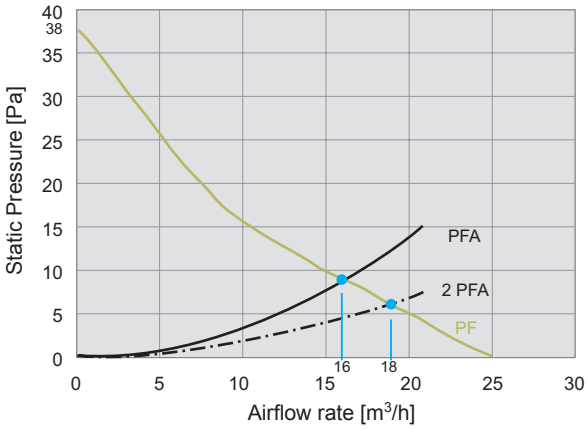
Cooling capacity performance curves

PF 11.000 EMC



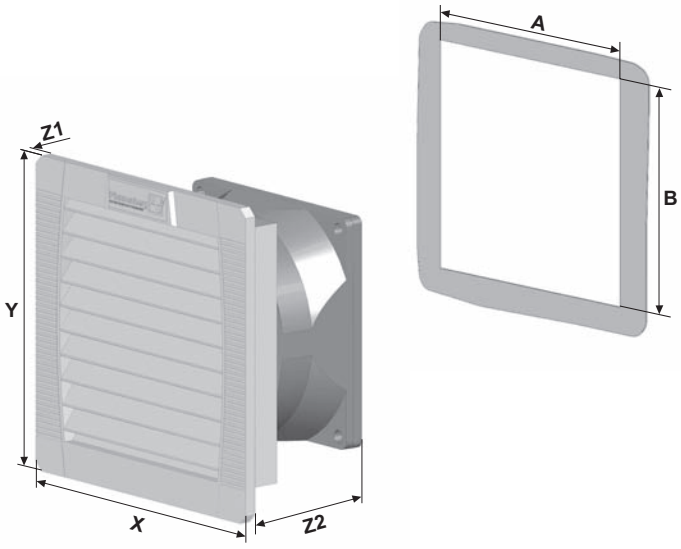
Static pressure performance curves

PF 11.000 EMC



Dimensions

mm	PF 11.000 EMC		PFA 10.000 EMC
	AC	DC	
X	109	109	109
Y	109	109	109
Z1	4	4	4
Z2	62	49	19
A	93	93	93
B	93	93	93



Further information on the EMC Filterfans (EMC series) can be found on page 186.

Filterfan
PF 22.000 EMC
Exhaust filter
PFA 20.000 EMC

- installation size 2, air flow rate up to 70 m³/h
- secure contact due to improved contact springs on the screen grid
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)
- cut-out compatible to installation size 2 of the 3rd and 4th Generation

Data		PF 22.000 EMC					Unit
Article number	IP 54	11822101055	11822151055	11822851055	11822801055	11822701055	
	IP 55	11822103055	11822153055	11822853055	11822803055	11822703055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		DC			
		230	115	12	24	48	V
Unimpeded airflow	IP 54	61 / 70					m³/h
	IP 55	56 / 64					
Airflow rate in combination (PF + PFA 20.000 EMC)	IP 54	44 / 52					
	IP 55	40 / 46					
Power consumption		19 / 18	20 / 20	5	5	5	W
Current consumption		0.12 / 0.18	0.24 / 0.23	0.42	0.21	0.1	A
Noise level (according to EN ISO 3741)	IP 54	44 / 44		44			dB (A)
	IP 55						
Weight		0.78		0.49			kg
Type of connection		terminal strip		cable, 2-core, length 310 mm			
Fuse		6					A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter					
	IP 55	NEMA type 12 - fluted filter					
Filtration efficiency	IP 54	88					%
	IP 55	91					
Filter mat quality class according to EN 779	IP 54	G 3					
	IP 55	G 4					
Duty cycle		100					%
Bearing type		sleeve bearing		ball bearing			
Service life L_{10} (+ 40 °C)[1]		37500	40000	62500			h
Temperature range		- 40 … + 55 / - 40 … + 131					°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO					
	IP 55	additional: UV-resistant					
EMC screen		**stainless steel**					
Colour		RAL 7035, different colours available on request					

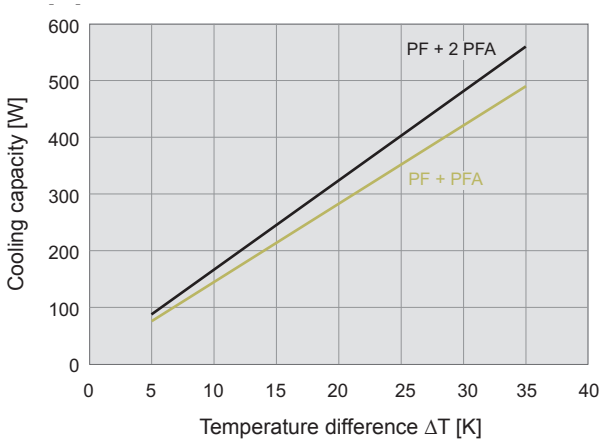
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 20.000 EMC	IP 54	1	11920001055	190
	IP 55	1	11920003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

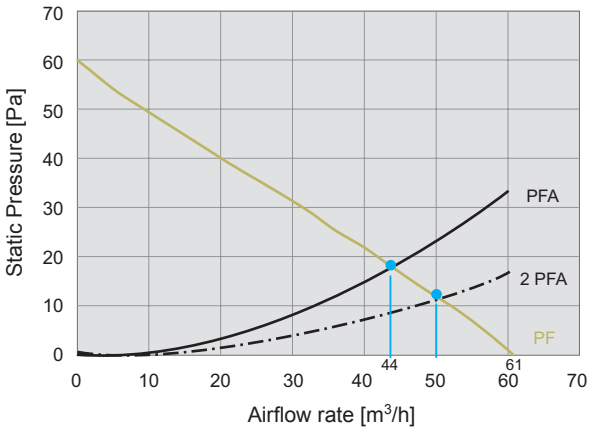
Cooling capacity performance curves

PF 22.000 EMC IP 54

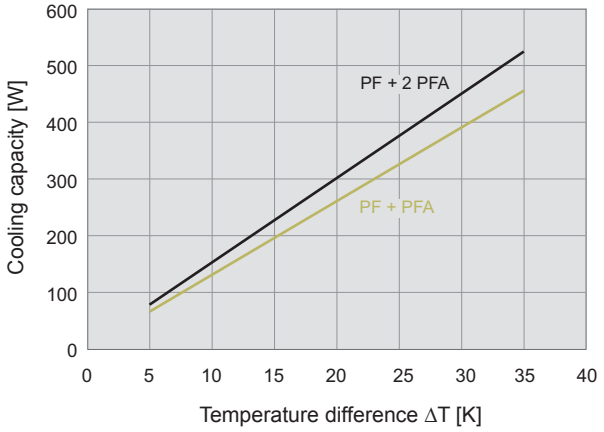


Static pressure performance curves

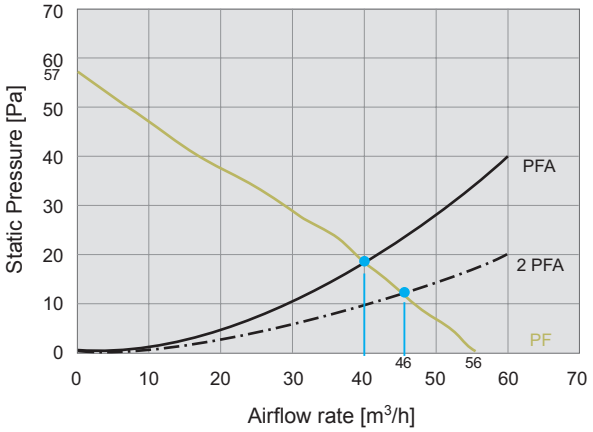
PF 22.000 EMC IP 54



PF 22.000 EMC IP 55

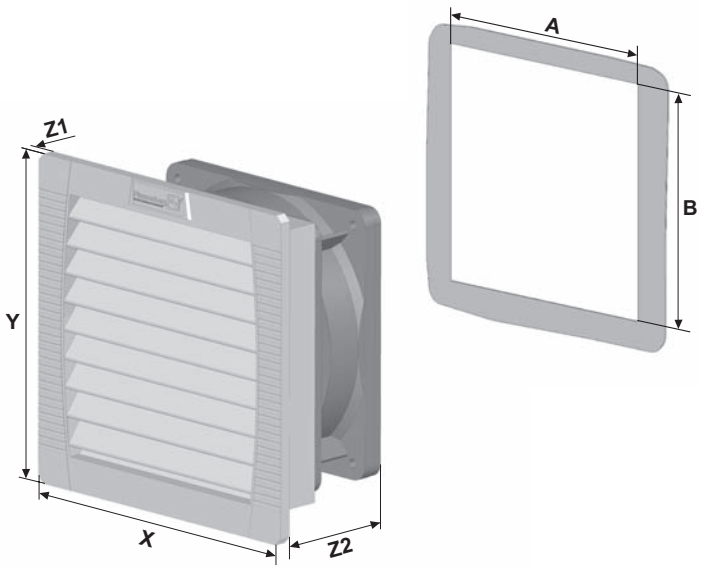


PF 22.000 EMC IP 55



Dimensions

mm	PF 22.000 EMC		PFA 20.000 EMC
	AC	DC	
X	145	145	145
Y	145	145	145
Z1	5	5	5
Z2	70	64	26
A	126	126	126
B	126	126	126



Further information on the EMC Filterfans (EMC series) can be found on page 186.

Filterfan
PF 32.000 EMC
Exhaust filter
PFA 30.000 EMC

- installation size 3, air flow rate up to 125 m³/h
- secure contact due to improved contact springs on the screen grid
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)

Data		PF 32.000 EMC					Unit
Article number	IP 54	11832101055	11832151055	11832851055	11832801055	11832701055	
	IP 55	11832103055	11832153055	11832853055	11832803055	11832703055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		DC			
		230	115	12	24	48	V
Unimpeded airflow	IP 54	110 / 125					m³/h
	IP 55	100 / 110					
Airflow rate in combination (PF + PFA 30.000 EMC)	IP 54	82 / 93					
	IP 55	55 / 64					
Power consumption		19 / 18	20 / 20	5	5	5	W
Current consumption		0.12 / 0.18	0.24 / 0.23	0.42	0.21	0.1	A
Noise level (according to EN ISO 3741)	IP 54	40 / 40		40			dB (A)
	IP 55						
Weight		0.96		0.7			kg
Type of connection		terminal strip		cable, 2-core, length 310 mm			
Fuse		6					A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter					
	IP 55	NEMA type 12 - fluted filter					
Filtration efficiency	IP 54	88					%
	IP 55	91					
Filter mat quality class according to EN 779	IP 54	G 3					
	IP 55	G 4					
Duty cycle		100					%
Bearing type		sleeve bearing		ball bearing			
Service life L_{10} (+ 40 °C)[1]		37500	40000	62500			h
Temperature range		- 40 … + 55 / - 40 … + 131					°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO					
	IP 55	additional: UV-resistant					
EMC screen		**stainless steel**					
Colour		RAL 7035, different colours available on request					

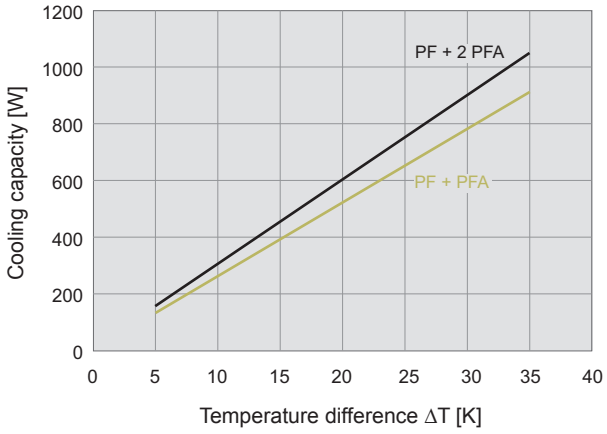
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 30.000 EMC	IP 54	1	11930001055	190
	IP 55	1	11930003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

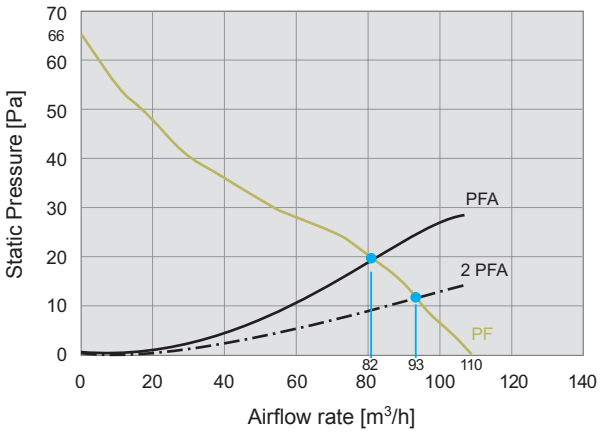
Cooling capacity performance curves

PF 32.000 EMC IP 54

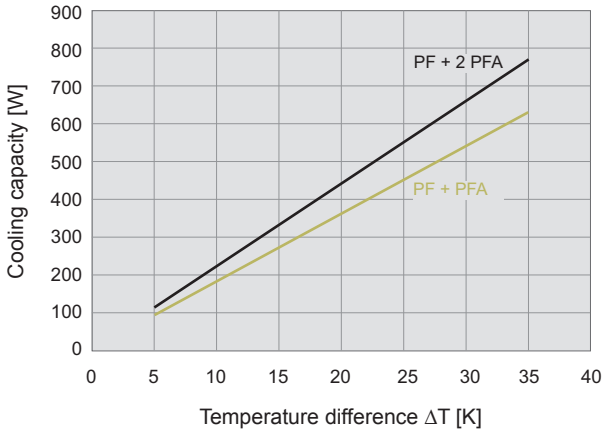


Static pressure performance curves

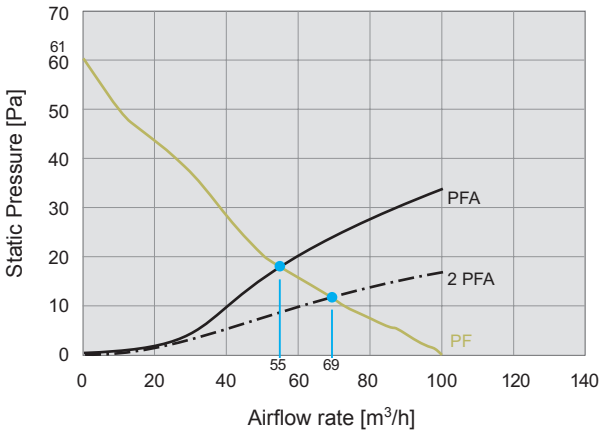
PF 32.000 EMC IP 54



PF 32.000 EMC IP 55

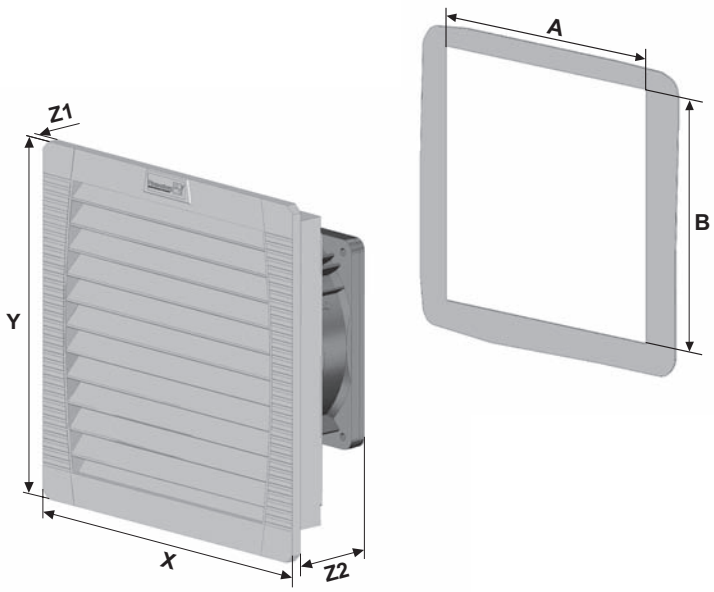


PF 32.000 EMC IP 55



Dimensions

mm	PF 32.000 EMC		PFA 30.000 EMC
	AC	DC	
X	202	202	202
Y	202	202	202
Z1	6	6	6
Z2	87	81	34
A	178	178	178
B	178	178	178



Further information on the EMC Filterfans (EMC series) can be found on page 186.

Filterfan
PF 42.500 EMC
Exhaust filter
PFA 40.000 EMC

- installation size 4, air flow rate up to 171 m³/h
- two performance classes, cut-out compatible
- secure contact due to improved contact springs on the screen grid
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)
- cut-out compatible to installation size 4 of the 3rd and 4th Generation

Data		PF 42.500 EMC					Unit
Article number	IP 54	11842101055	11842151055	11842851055	11842801055	11842701055	
	IP 55	11842103055	11842153055	11842853055	11842803055	11842703055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		DC			
		230	115	12	24	48	V
Unimpeded airflow	IP 54	156 / 171					m³/h
	IP 55	145 / 160					
Airflow rate in combination (PF + PFA 40.000 EMC)	IP 54	116 / 127					
	IP 55	109 / 113					
Power consumption		18 / 17	18 / 17	6	4.7	4.6	W
Current consumption		0.12 / 0.1	0.25 / 0.25	0.5	0.2	0.1	A
Noise level (according to EN ISO 3741)	IP 54	40 / 43		40			dB (A)
	IP 55						
Weight		1.34		1.08			kg
Type of connection		spring-type terminal					
Fuse		6					A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter					
	IP 55	NEMA type 12 - fluted filter					
Filtration efficiency	IP 54	88					%
	IP 55	91					
Filter mat quality class according to EN 779	IP 54	G 3					
	IP 55	G 4					
Duty cycle		100					%
Bearing type		ball bearing					
Service life L_{10} (+ 40 °C)[1]		40000	42500	57500	70000		h
Temperature range		- 40 … + 55 / - 40 … + 131					°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO					
	IP 55	additional: UV-resistant					
EMC screen		**stainless steel**					
Colour		RAL 7035, different colours available on request					

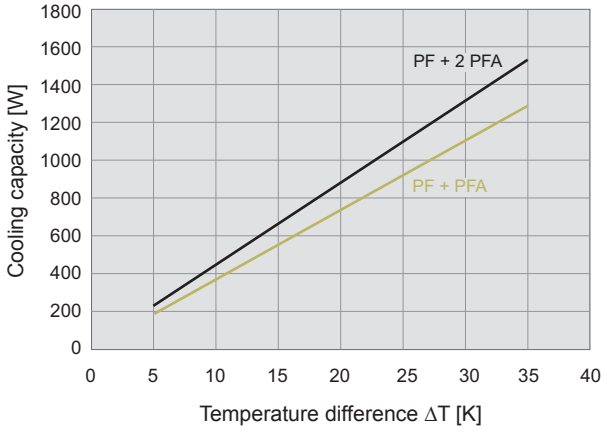
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 40.000 EMC	IP 54	1	11940001055	190
	IP 55	1	11940003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

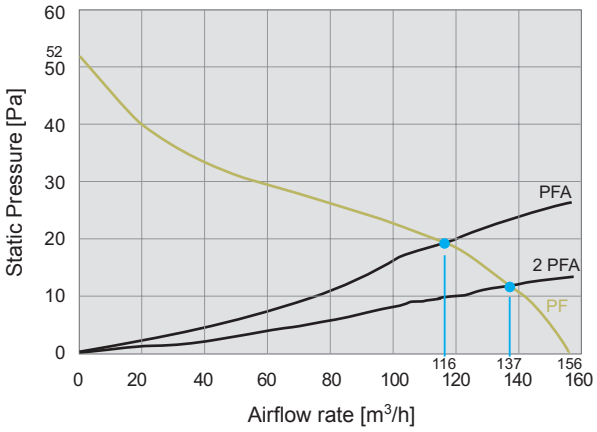
Cooling capacity performance curves

PF 42.500 EMC IP 54

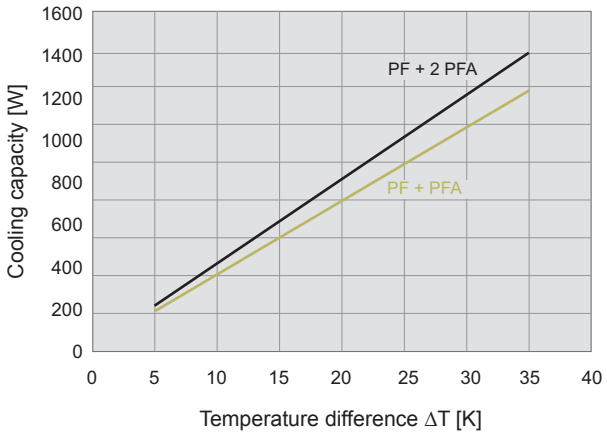


Static pressure performance curves

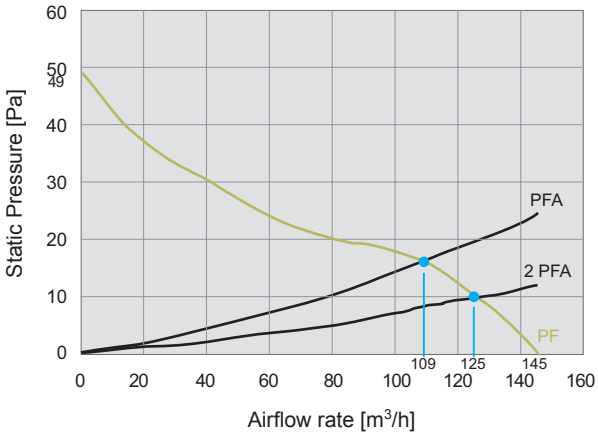
PF 42.500 EMC IP 54



PF 42.500 EMC IP 55

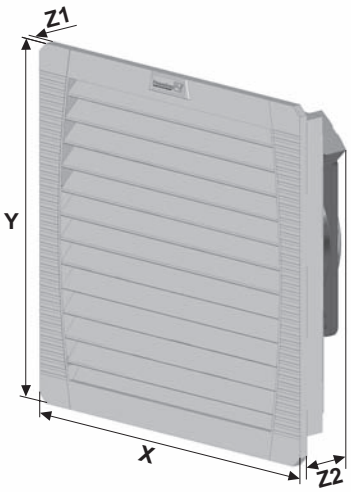


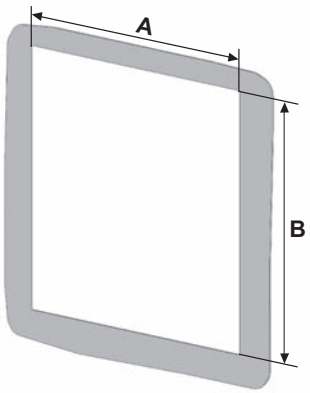
PF 42.500 EMC IP 55



Dimensions

mm	PF 42.500 EMC	PFA 40.000 EMC
X	252	252
Y	252	252
Z1	6	6
Z2	97	38
A	224	224
B	224	224





Further information on the EMC Filterfans (EMC series) can be found on page 186.

Filterfan
PF 43.000 EMC
Exhaust filter
PFA 40.000 EMC

- installation size 4, air flow rate up to 292 m³/h
- two performance classes, cut-out compatible
- secure contact due to improved contact springs on the screen grid
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)
- cut-out compatible to installation size 4 of the 3rd and 4th Generation

Data		PF 43.000 EMC					Unit
Article number	IP 54	11843101055	11843151055	11843851055	11843801055	11843701055	
	IP 55	11843103055	11843153055	11843853055	11843803055	11843703055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		DC			
		230	115	12	24	48	V
Unimpeded airflow	IP 54	256 / 292					m³/h
	IP 55	233 / 265					
Airflow rate in combination (PF + PFA 40.000 EMC)	IP 54	231 / 265					
	IP 55	180 / 207					
Power consumption		45 / 39	40 / 40	12	12	12	W
Current consumption		0.32 / 0.26	0.5 / 0.5	1	0.5	0.25	A
Noise level (according to EN ISO 3741)	IP 54	42 / 46		42			dB (A)
	IP 55						
Weight		1.83		1.77			kg
Type of connection		spring-type terminal					
Fuse		6					A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter					
	IP 55	NEMA type 12 - fluted filter					
Filtration efficiency	IP 54	88					%
	IP 55	91					
Filter mat quality class according to EN 779	IP 54	G 3					
	IP 55	G 4					
Duty cycle		100					%
Bearing type		ball bearing					
Service life L_{10} (+ 40 °C)[1]		40000		80000			h
Temperature range		- 40 … + 55 / - 40 … + 131					°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO					
	IP 55	additional: UV-resistant					
EMC screen		**stainless steel**					
Colour		RAL 7035, different colours available on request					

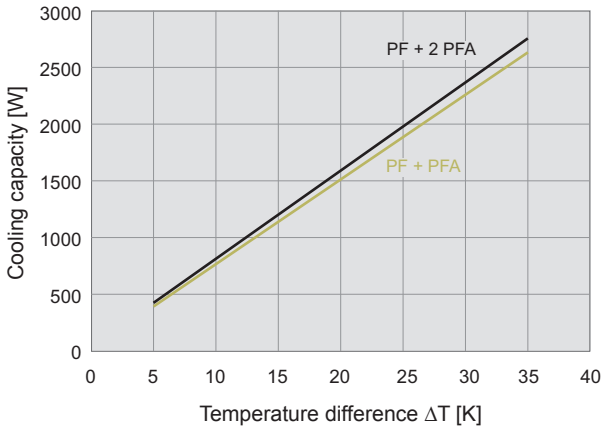
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 40.000 EMC	IP 54	1	11940001055	190
	IP 55	1	11940003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

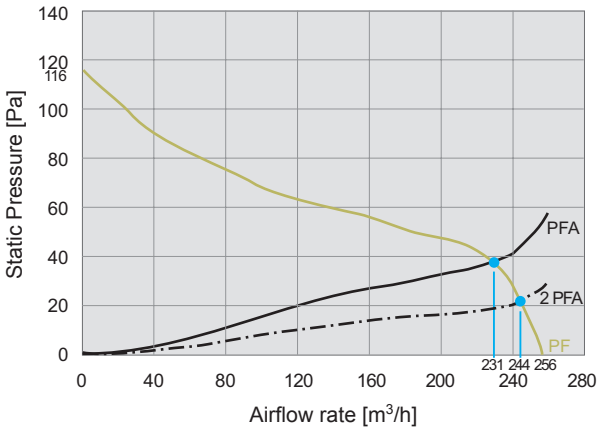
Cooling capacity performance curves

PF 43.000 EMC IP 54

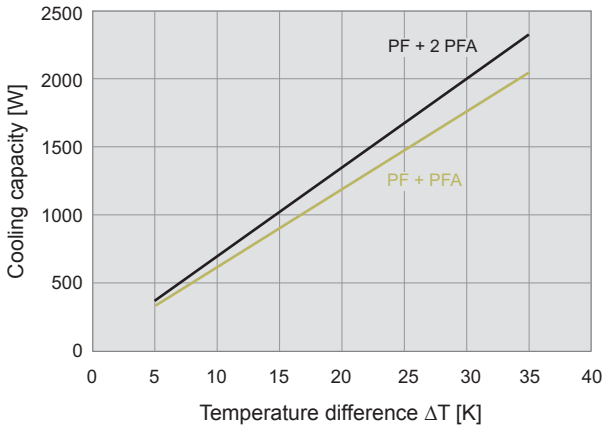


Static pressure performance curves

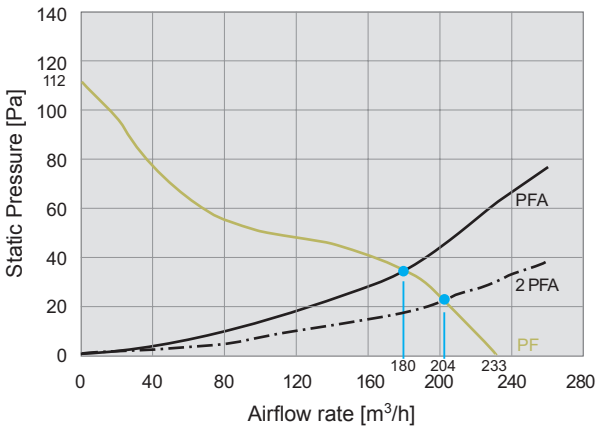
PF 43.000 EMC IP 54



PF 43.000 EMC IP 55

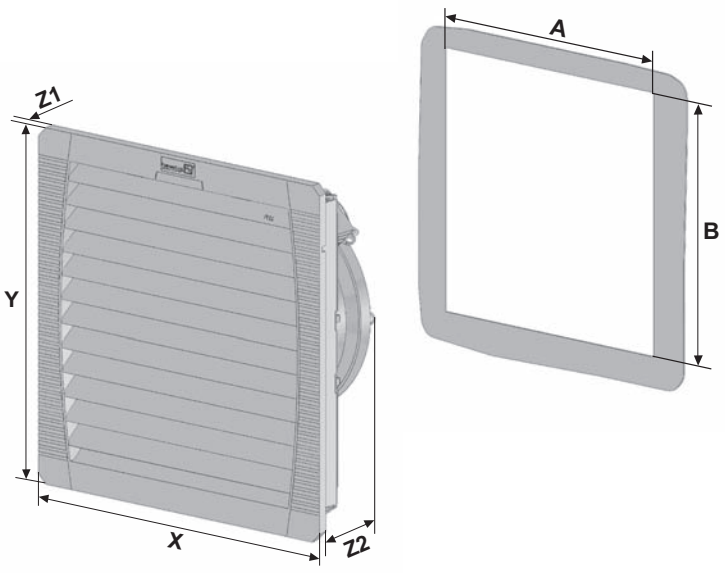


PF 43.000 EMC IP 55



Dimensions

mm	43.000 EMC		PFA 40.000 EMC
	AC	DC	
X	252	252	252
Y	252	252	252
Z1	6	6	6
Z2	113	97	38
A	224	224	224
B	224	224	224



Further information on the EMC Filterfans (EMC series) can be found on page 186.

Filterfan
PF 65.000 EMC
Exhaust filter
PFA 60.000 EMC

- installation size 6, air flow rate up to 505 m³/h
- three performance classes, cut-out compatible
- secure contact due to improved contact springs on the screen grid
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)
- cut-out compatible to installation size 6 of the 3rd and 4th Generation

Data		PF 65.000 EMC		Unit
Article number	IP 54	11865102055	11865152055	
	IP 55	11865103055	11865153055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz		
		230	115	V
Unimpeded airflow	IP 54	480 / 480		m³/h
	IP 55	505 / 505		
Airflow rate in combination (PF + PFA 60.000 EMC)	IP 54	370 / 370		
	IP 55	380 / 380		
Power consumption		65 / 80	75 / 90	W
Current consumption		0.3 / 0.36	0.66 / 0.8	A
Noise level (according to EN ISO 3741)	IP 54	54 / 52		dB (A)
	IP 55			
Weight		3.43		kg
Type of connection		spring-type terminal		
Fuse		6		A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter		
	IP 55	NEMA type 12 - fluted filter		
Filtration efficiency	IP 54	91		%
	IP 55			
Filter mat quality class according to EN 779	IP 54	G 4		
	IP 55			
Duty cycle		100		%
Bearing type		ball bearing		
Service life L_{10} (+ 40 °C)[1]		40000		h
Temperature range		- 40 … + 55 / - 40 … + 131		°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO		
	IP 55	additional: UV-resistant		
EMC screen		**stainless steel**		
Colour		RAL 7035, different colours available on request		

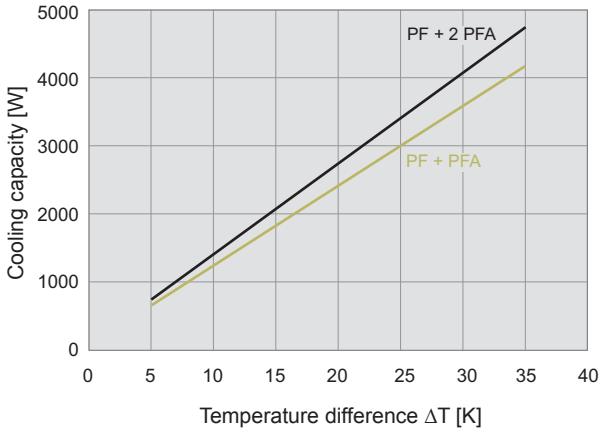
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 60.000 EMC	IP 54	1	11960002055	190
	IP 55	1	11960003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

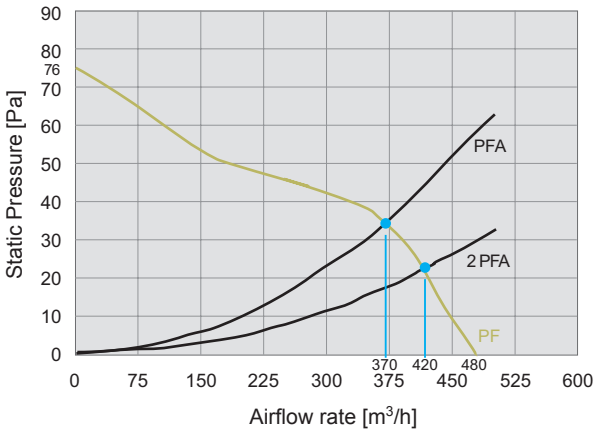
Cooling capacity performance curves

PF 65.000 EMC IP 54

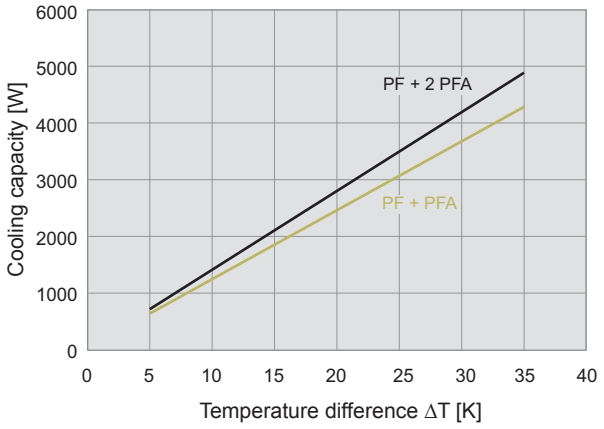


Static pressure performance curves

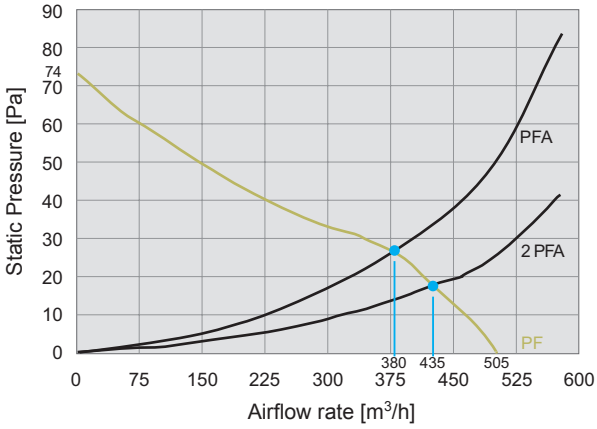
PF 65.000 EMC IP 54



PF 65.000 EMC IP 55

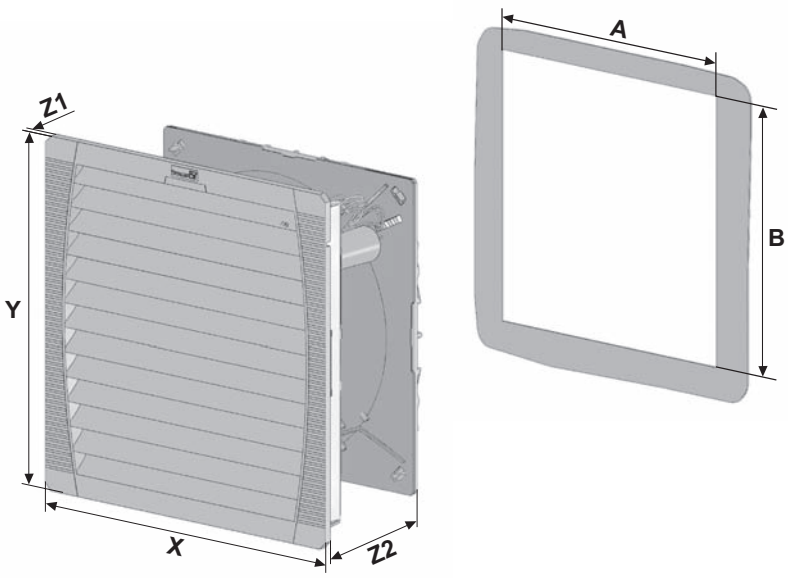


PF 65.000 EMC IP 55



Dimensions

mm	PF 65.000 EMC	PFA 60.000 EMC
X	320	320
Y	320	320
Z1	7	7
Z2	150	39
A	292	292
B	292	292



Further information on the EMC Filterfans (EMC series) can be found on page 186.

Filterfan
PF 66.000 EMC
Exhaust filter
PFA 60.000 EMC

- installation size 6, air flow rate up to 785 m³/h
- three performance classes, cut-out compatible
- secure contact due to improved contact springs on the screen grid
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)
- cut-out compatible to installation size 6 of the 3rd and 4th Generation

Data		PF 66.000 EMC			Unit
Article number	IP 54	11866022055	11866102055	11866152055	
	IP 55	11866023055	11866103055	11866153055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz			
		400 / 460 3 ~	230	115	V
Unimpeded airflow	IP 54	640 / 653			m³/h
	IP 55	770 / 785			
Airflow rate in combination (PF + PFA 60.000 EMC)	IP 54	445 / 445			
	IP 55	490 / 501			
Power consumption		120 / 155	115 / 150	110 / 160	W
Current consumption		0.26 / 0.25	0.51 / 0.66	0.96 / 1.4	A
Noise level (according to EN ISO 3741)	IP 54	63 / 64			dB (A)
	IP 55				
Weight		3.43			kg
Type of connection		spring-type terminal			
Fuse		6			A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter			
	IP 55	NEMA type 12 - fluted filter			
Filtration efficiency	IP 54	91			%
	IP 55				
Filter mat quality class according to EN 779	IP 54	G 4			
	IP 55				
Duty cycle		100			%
Bearing type		ball bearing			
Service life L_{10} (+ 40 °C)[1]		40000			h
Temperature range		- 40 … + 55 / - 40 … + 131			°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO			
	IP 55	additional: UV-resistant			
EMC screen		**stainless steel**			
Colour		RAL 7035, different colours available on request			

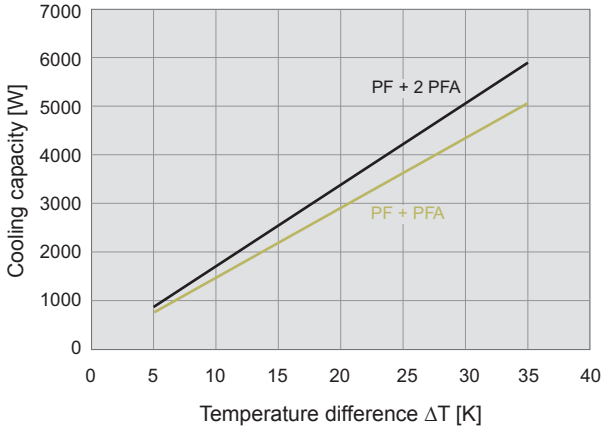
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 60.000 EMC	IP 54	1	11960002055	190
	IP 55	1	11960003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

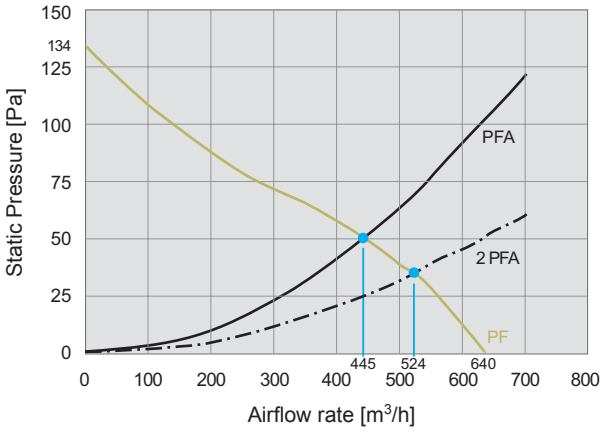
Cooling capacity performance curves

PF 66.000 EMC IP 54

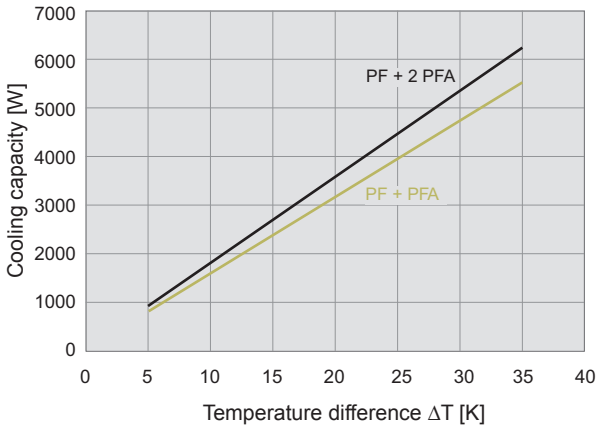


Static pressure performance curves

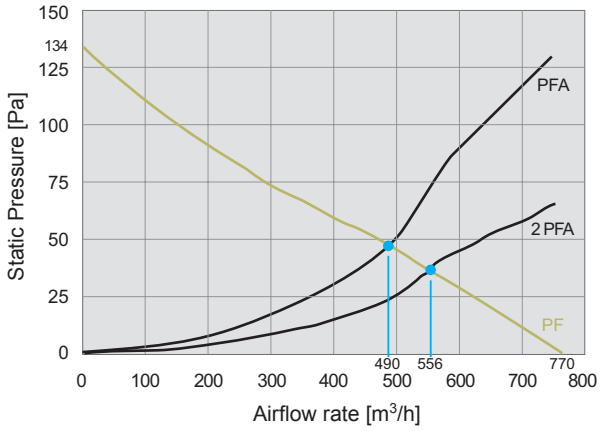
PF 66.000 EMC IP 54



PF 66.000 EMC IP 55

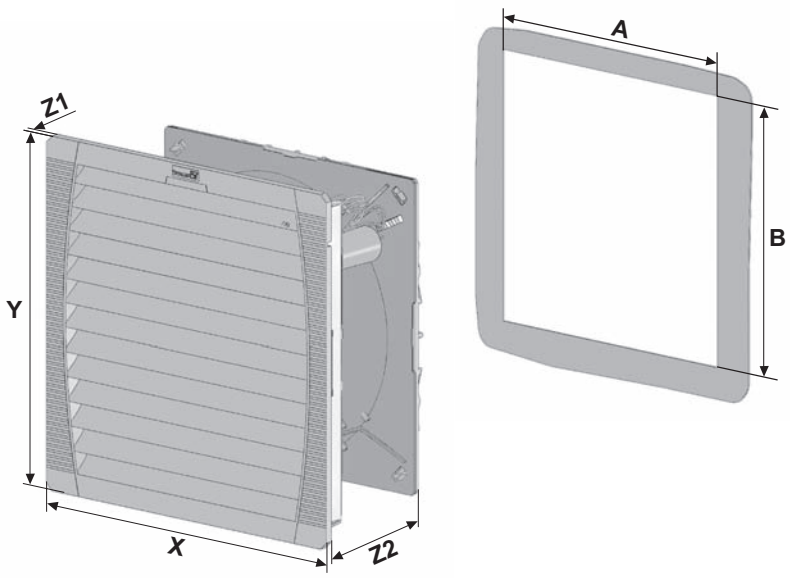


PF 66.000 EMC IP 55



Dimensions

mm	PF 66.000 EMC	PFA 60.000 EMC
X	320	320
Y	320	320
Z1	7	7
Z2	150	39
A	292	292
B	292	292



Further information on the EMC Filterfans (EMC series) can be found on page 186.

Filterfan
PF 67.000 EMC
Exhaust filter
PFA 60.000 EMC

- installation size 6, air flow rate up to 950 m³/h
- three performance classes, cut-out compatible
- secure contact due to improved contact springs on the screen grid
- system of protection IP 54 and IP 55, NEMA type 12
- UL, cUL approval
- UV-resistance (IP 55 version)
- cut-out compatible to installation size 6 of the 3rd and 4th Generation

Data		PF 67.000 EMC			Unit
Article number	IP 54	11867022055	11867102055	11867152055	
	IP 55	11867023055	11867103055	11867153055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz			
		400 / 460 3 ~	230	115	V
Unimpeded airflow	IP 54	845 / 875			m³/h
	IP 55	925 / 950			
Airflow rate in combination (PF + PFA 60.000 EMC)	IP 54	560 / 625			
	IP 55	570 / 625			
Power consumption		140 / 170	135 / 200	140 / 195	W
Current consumption		0.35 / 0.43	0.59 / 0.88	1.23 / 1.71	A
Noise level (according to EN ISO 3741)	IP 54	66 / 69			dB (A)
	IP 55				
Weight		3.93			kg
Type of connection		spring-type terminal			
Fuse		6			A
System of protection according to EN 60529 / UL 50	IP 54	NEMA type 12 - standard filter			
	IP 55	NEMA type 12 - fluted filter			
Filtration efficiency	IP 54	91			%
	IP 55				
Filter mat quality class according to EN 779	IP 54	G 4			
	IP 55				
Duty cycle		100			%
Bearing type		ball bearing			
Service life L_{10} (+ 40 °C)[1]		40000			h
Temperature range		- 40 … + 55 / - 40 … + 131			°C / °F
Design (housing and protection against accidental contact)	IP 54	made of injection-moulded thermoplastic, self-extinguishing, UL 94 VO			
	IP 55	additional: UV-resistant			
EMC screen		**stainless steel**			
Colour		RAL 7035, different colours available on request			

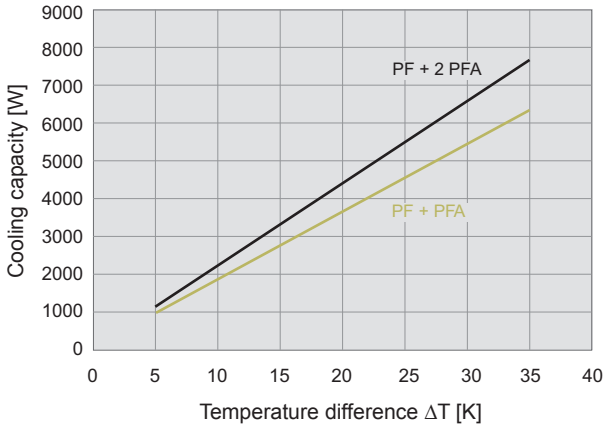
Accessories		Piece	Article number	Information on page
Exhaust filter PFA 60.000 EMC	IP 54	1	11960002055	190
	IP 55	1	11960003055	190
Thermostat		1	17121000000	208/210

[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Approvals see page 149.

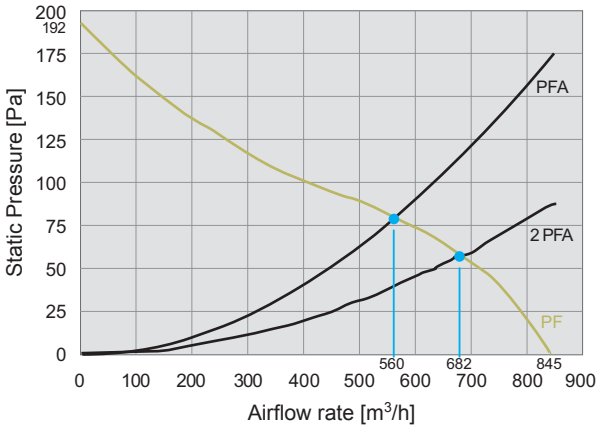
Cooling capacity performance curves

PF 67.000 EMC IP 54

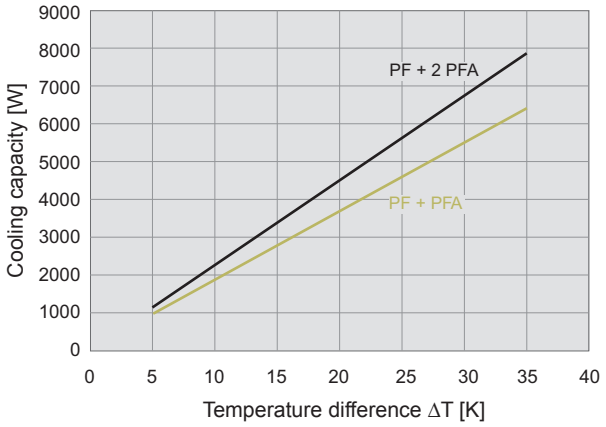


Static pressure performance curves

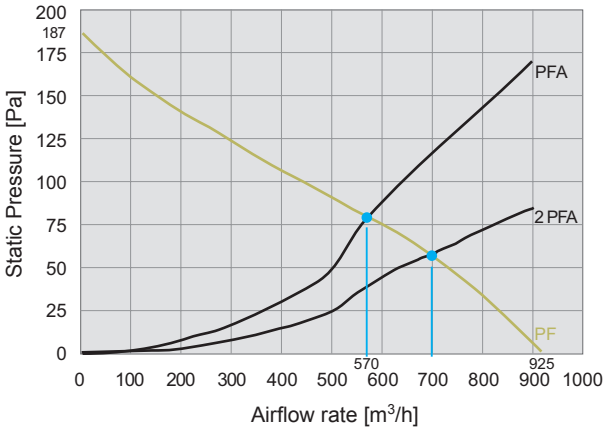
PF 67.000 EMC IP 54



PF 67.000 EMC IP 55

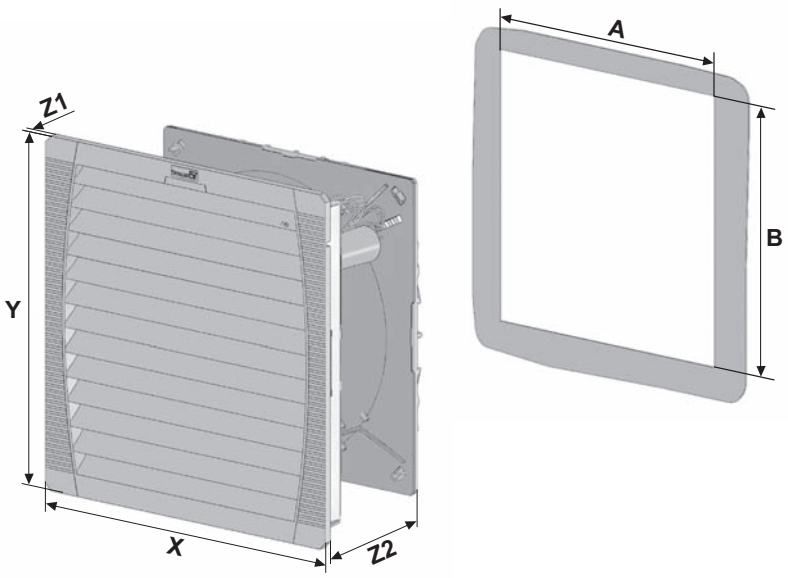


PF 67.000 EMC IP 55



Dimensions

mm	PF 67.000 EMC	PFA 60.000 EMC
X	320	320
Y	320	320
Z1	7	7
Z2	150	39
A	292	292
B	292	292

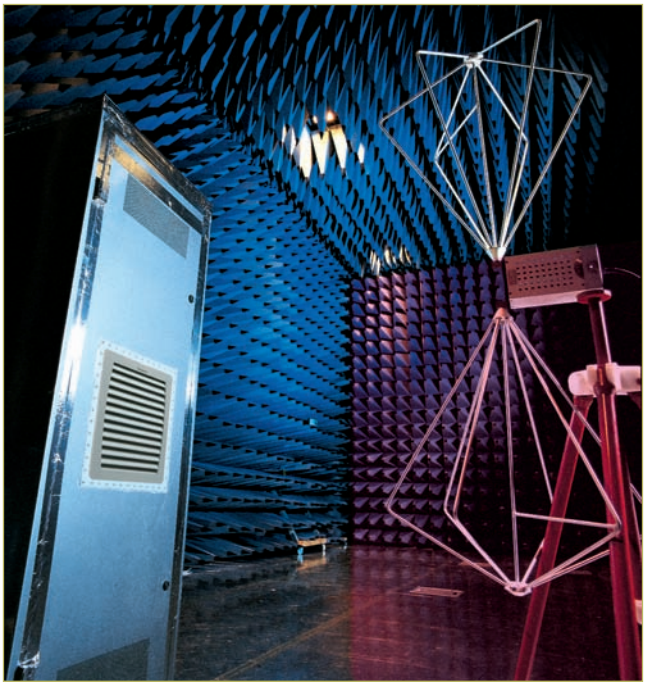


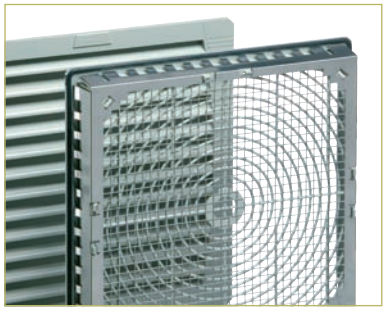
Further information on the EMC Filterfans (EMC series) can be found on page 186.

EMC Filterfans (EMC series)

If filterfans are used for thermal management, openings must exist in the cabinet. These can allow electromagnetic radiation to pass in or out unhindered. Pfannenberg offers the widest range of EMC Filterfans as solutions to this problem.

You too can find the right combination of EMC filterfan and exhaust filter for airflow rates from 25 m^3/h to 950 m^3/h.



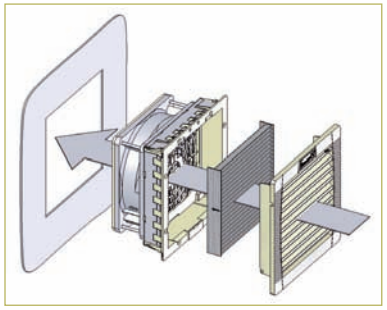


In accordance with the basic principle of our company we have dispensed with the use of metallised plastics, because these are difficult to recycle.

contact springs

New metal shielding

- unequalled worldwide: contact surfaces without beryllium-copper seal!



No elaborate reworking of the cut-out

- no adhering of copper tape or similar aids
- no time-consuming scratching off of coatings in order to ensure a good contact
- contact is made via the cut edge of the cut-out for the filterfan or exhaust filter

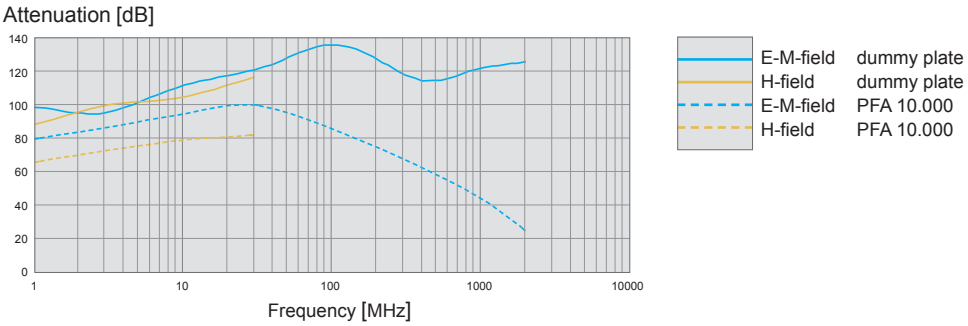
EMC – electromagnetic compatibility

In standards, electromagnetic compatibility, or 'EMC' for short, is defined as the ability of a component, device or system to function satisfactorily under the influence of electromagnetic fields in its surroundings, without influencing its surroundings, to which other electrical equipment also belongs, in an impermissible way.
We guarantee that our EMC shielded filterfans provide protection against electromagnetic interference by ensuring continuity between the shielding part of the fan and the metal structure of the cabinet based on the attenuation characteristics below:

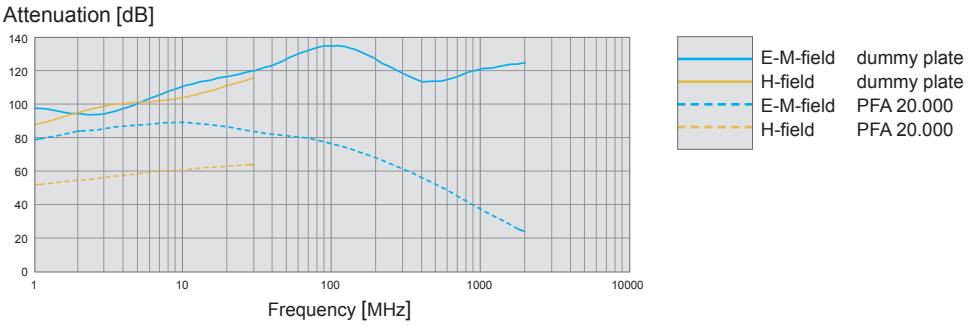
Attenuation at 30 MHz approx. 71 dB
Attenuation at 400 MHz approx. 57 dB
Measured in accordance with EN 50 147-1 (1996): absorber rooms, part 1, measurement of screening attenuation.

Shielding effectiveness

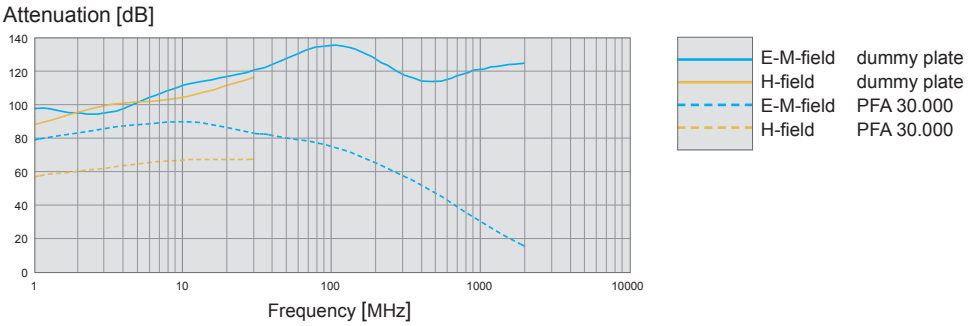
PF 11.000 EMC / PFA 10.000 EMC



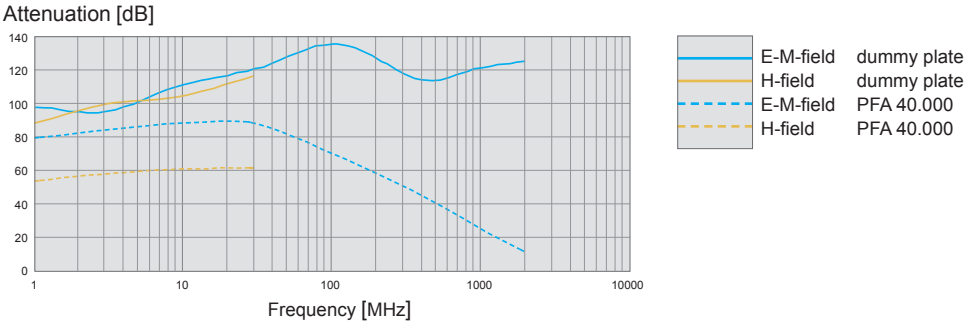
PF 22.000 EMC / PFA 20.000 EMC



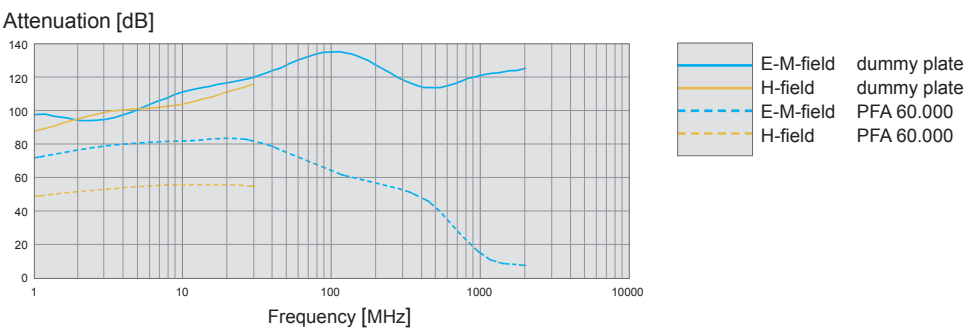
PF 32.000 EMC / PFA 30.000 EMC



PF 42.500 EMC / PF 43.000 EMC / PFA 40.000 EMC



PF 65.000 EMC / PF 66.000 EMC / PF 67.000 EMC / PFA 60.000 EMC



Filterfans for roof mounting
PTF 60.500
PTF 60.700
PTF 61.000
Top exhaust filter for roof mounting
PTFA 60.000

- 2 installation sizes, air flow rate up to 1000 m³/h
- three performance classes, cut-out compatible
- system of protection IP 33 and IP 54
- optimum passage of air and even temperature distribution (natural air convection is supported)
- toolless mounting, patented quick fastening system
- UL, cUL approval

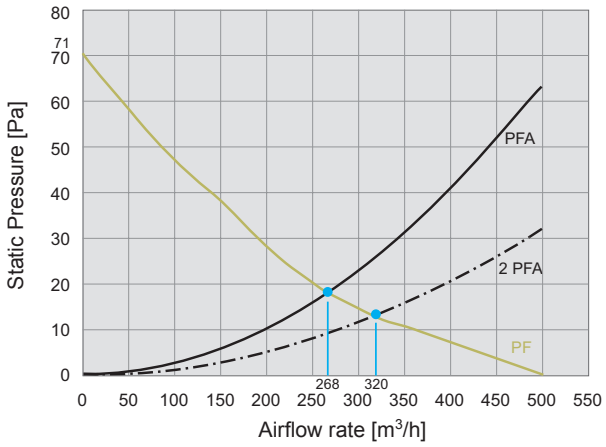
Data		PTF 60.500		PTF 60.700		PTF 61.000		Unit
Article number	IP 54	11685101055	11685151055	11687102055	11687152055	11681102055	11681152055	
	IP 33	11685100055	11685150055	11687100055	11687150055	11681100055	11681150055	
Rated voltage ± 10%		AC 50 Hz / 60 Hz						
		230	115	230	115	230	115	V
Unimpeded airflow	IP 54	350		550		750		m³/h
	IP 33	500		700		1000		
Airflow rate in combination (PTF + PFA 60.000)	IP 54	242		370		500		
	IP 33	268		427		582		
Power consumption		4 x 28 / 29	4 x 29 / 24	65 / 80	75 / 90	115 / 150	110 / 160	W
Current consumption		4 x 0.2 / 0.2	4 x 0.3 / 0.3	0.3 / 0.36	0.66 / 0.8	0.51 / 0.66	0.96 / 1.4	A
Noise level (according to EN ISO 3741)	IP 54 / IP 33	67		69		77		dB (A)
Weight		4.8		4.1		4.3		kg
Type of connection		terminal strip						
Fuse		6						A
System of protection according to EN 60529 / UL 50		IP 33, IP 54						
Filtration efficiency	IP 54	81						%
	IP 33	0 (no filter mat)						
Filter mat quality class according to EN 779	IP 54	G 3						
	IP 33	no filter mat						
Duty cycle		100						%
Bearing type		ball bearing						
Service life L_{10} (+ 40 °C)[1]		approx. 50000[2]		approx. 40000		approx. 40000		h
Temperature range		- 15 … + 55 / + 5 … + 131						°C / °F
Design (housing and protection against accidental contact)		sheet steel, cover powder-coated; snap-in housing made of injection-moulded thermoplastic (ABS-FR) self-extinguishing, UL 94 VO						
Colour		RAL 7035, different colours available on request						

Accessories		Piece	Article number	Information on page
Exhaust filter PTFA 60.000	IP 54	1	11786001055	190
	IP 33	1	11786000055	190
Thermostat		1	17121000000	208/210

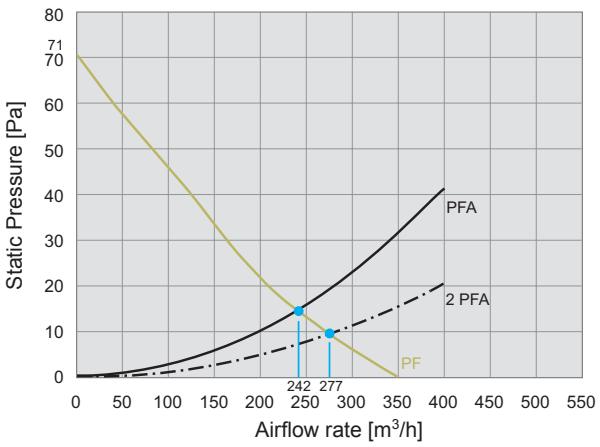
[1] fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary
[2] L_{10} (+25 °C)
Approvals see page 149.

Static pressure performance curves

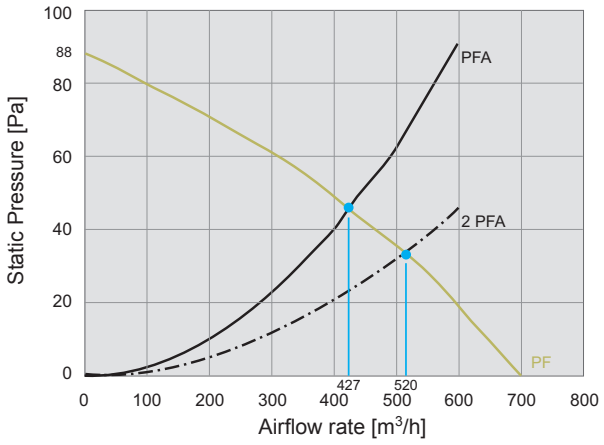
PTF 60.500 IP 33



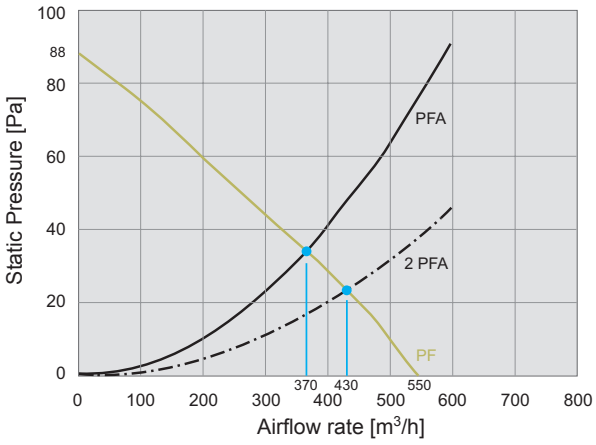
PTF 60.500 IP 54



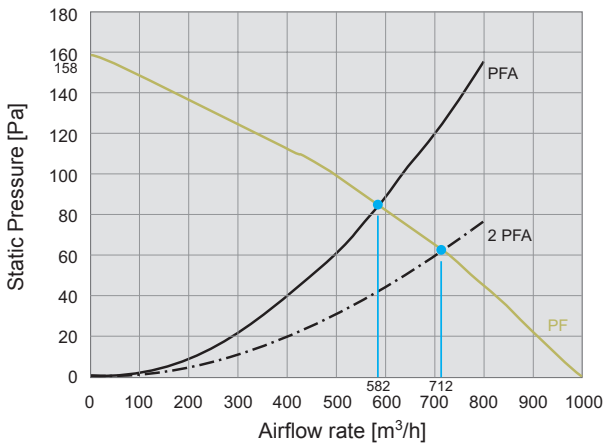
PTF 60.700 IP 33



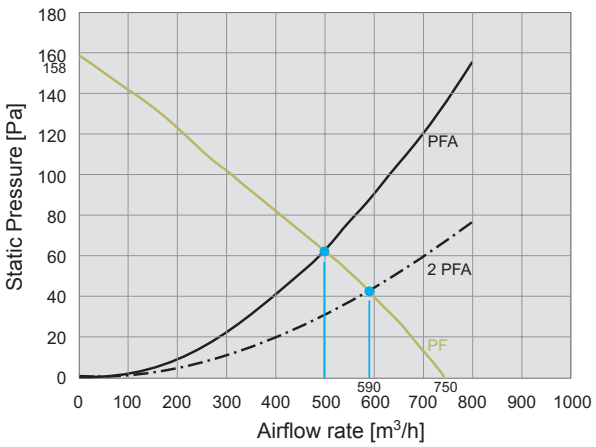
PTF 60.700 IP 54



PTF 61.000 IP 33

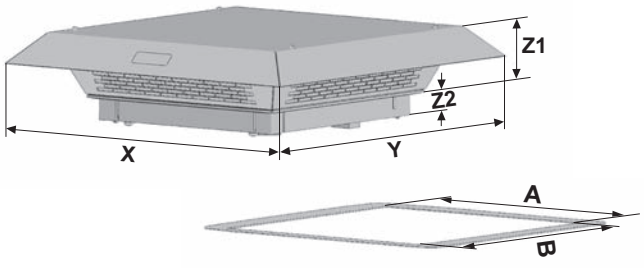


PTF 61.000 IP 54



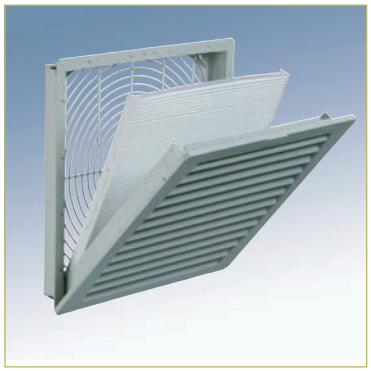
Dimensions

mm	PTF 60.500	PTF 60.700	PTF 61.000	PTFA 60.000
X	436	470	470	436
Y	436	470	470	436
Z1	72	95	95	72
Z2	34	57	57	34
A[1]	291	291	291	291
B[1]	291	291	291	291



[1] for material thicknesses up to 2 mm
+ 1 mm for thickness of material > 2 mm ≤ 3 mm

Options



Exhaust filters for all PF Filterfans

- same design as the PF series filterfans
- snap fastener developed and patented by Pfannenberg
- door mounting without screws in accordance with VDE 0113 (EN 60204)
- simple filter mat exchange during operation
- with integrated foam seal to enclosure

Product	Cut-out	Article number (IP 54)	Article number (IP 55)
PFA 10.000	92 x 92 mm	11710001055	–
PFA 20.000	125 x 125 mm	11720001055	11720003055
PFA 30.000	177 x 177 mm	11730001055	11730003055
PFA 40.000	223 x 223 mm	11740001055	11740003055
PFA 60.000	291 x 291 mm	11760002055	11760003055
PFA 10.000 EMC	93 x 93 mm	11910001055	–
PFA 20.000 EMC	126 x 126 mm	11920001055	11920003055
PFA 30.000 EMC	178 x 178 mm	11930001055	11930003055
PFA 40.000 EMC	224 x 224 mm	11940001055	11940003055
PFA 60.000 EMC	293 x 293 mm	11960002055	11960003055

Product	Cut-out	Article number (IP 54)	Article number (IP 33)
PTFA 60.000	291 x 291 mm	11786001055	11786000055

Weather protection hoods

Weather protection hood in VA or powder-coated.

Suitable for ...	Version	Article number
Installation size 1 and 2	VA	18102000014
	RAL 7035	18102000013
Installation size 3 and 4	VA	18102000017
	RAL 7035	18102000016
Installation size 6	VA	18102000020
	RAL 7035	18102000019

Thermostat and Hygrostat

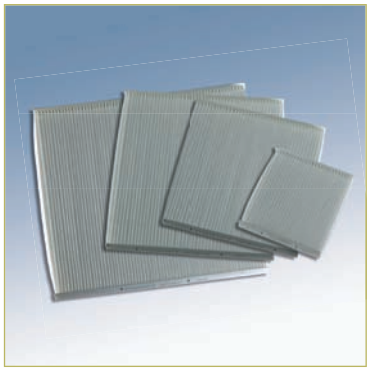
In combination with thermostats and hygrostats from the FLZ series (see page 208), Pfannenberg Filterfans additionally achieve savings on energy, materials and time plus a significantly longer service life. This results in an optimised environmental balance as well as greater reliability of your production process. Suitable for all Pfannenberg Filterfans.

Product	Article number	Page
FLZ 530 Thermostat 0 ... 60 °C	17121000000	208
FLZ 543 Twin Thermostat 0 ... 60 °C	17143000000	210
FLZ 600 Hygrostat 40 ... 90% R.H.	17207000000	212
FLZ 610 Thermostat/Hygrostat 0 … 60 °C / 40 ... 90% R.H.	17218100000	212

Filter mats for filterfans and exhaust filters

Suitable for ...	Article number (IP 54)	Dimensions	Material
Installation size 1 [1]	18611600029	87 x 87 mm	LG3318
Installation size 2 [1]	18611600030	119 x 119 mm	LG3318
Installation size 3 [1]	18611600031	170 x 170 mm	LG3318
Installation size 4 [1]	18611600032	216 x 216 mm	LG3318
Installation size 6 [1]	18611600033	284 x 284 mm	LG3318
PTF 60.500 and PTFA 60.000 [2]	18611600124	290 x 70 mm	LG3318
PTF 60.700 and PTF 61.000 [2]	18611600143	390 x 100 mm	LG3318

[1] set with 5 pieces, [2] set with 20 pieces



Suitable for ...	Article number (IP 55)	Dimensions	Material
Installation size 2 [1]	18611600034	116 x 108 mm	BN 2.208
Installation size 3 [1]	18611600035	166 x 156 mm	BN 2.208
Installation size 4 [1]	18611600036	212 x 200 mm	BN 2.208
Installation size 6 [1]	18611600037	279 x 264 mm	BN 2.208

[1] set with 5 pieces

Further information can be found on the Internet:
www.pfannenberg.com · **www.pfannenberg-spareparts.com** · **www.filterfan.com**
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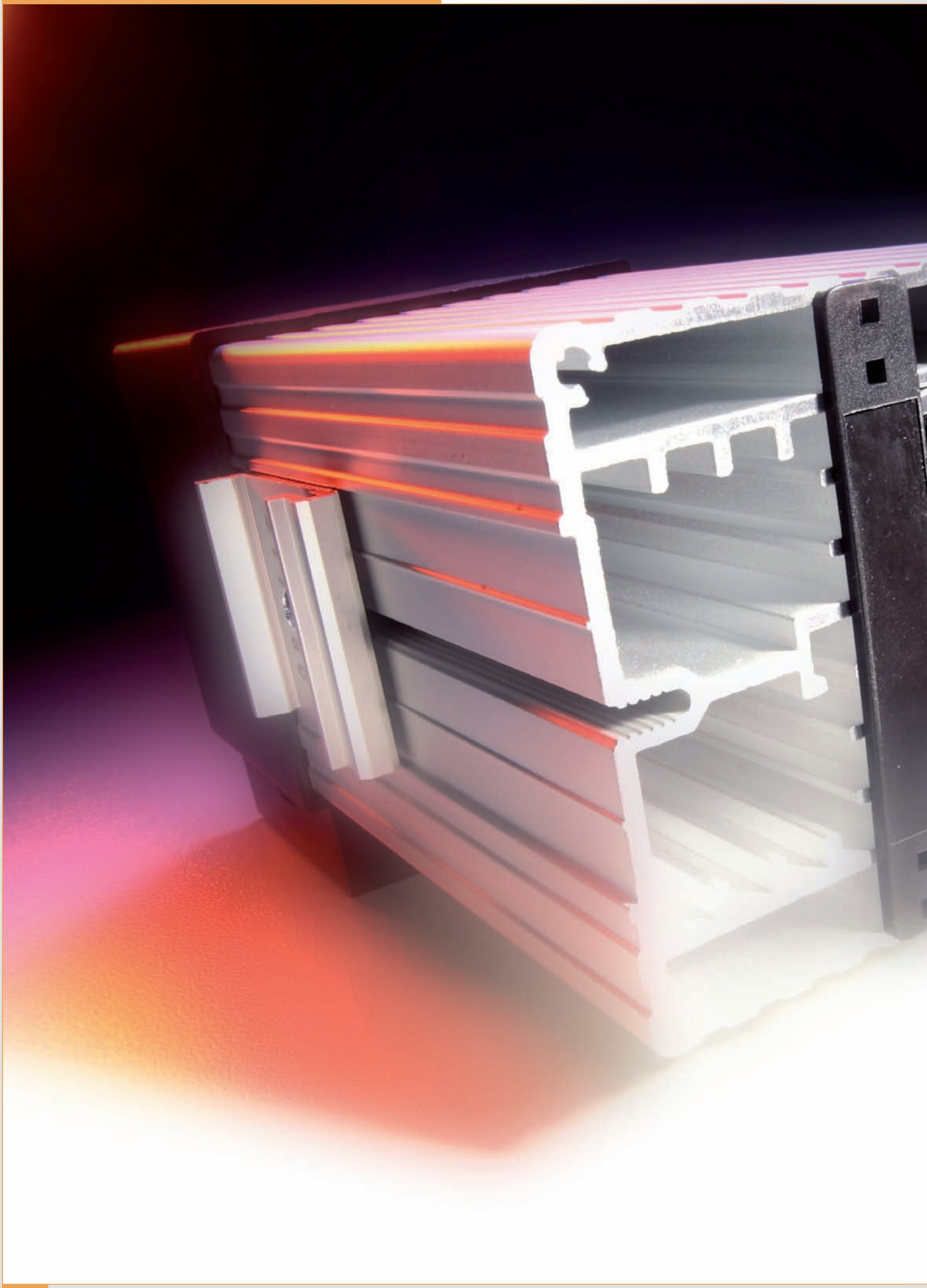

The formation of condensation is one of the biggest dangers for electrical enclosures. As long as they are working under load, the heat dissipation from the components will prevent any condensation from forming within the enclosure.
When there is no longer any heat load due to system downtime, there is a potential danger that components within the cabinet will form condensation. This varies based on the dew point. And this is precisely where the function of the Pfannenberg control cabinet heaters begins (radiant heaters and fan heaters).
With the addition of the new FLH-T series, which is a new range of fan heaters with an internal thermostat for the regulation of the fan and heater, prevention of condensation in the cabinet is guaranteed.
Various performance classes of FLH control cabinet heaters are ideally complemented by thermostats and hygrostats from the FLZ series. Combined, they ensure that the temperature inside the control cabinet is always correct and that the formation of condensation is prevented.

The control of 4th generation filterfans by thermostats from the FLZ series represents an intelligent use of filterfans for control cabinet air conditioning to suit individual needs. It increases energy efficiency and reduces CO_2 emissions.

Accordingly, the combination with thermostats and hygrostats from the FLZ series offers a better environmental balance through higher energy efficiency. It also results in greater reliability of your production process. The reasons for this are:

- pinpoint distribution and constant temperature in the control cabinet
- reduced energy consumption and optimisation of the efficiency of the heaters and
- additional savings on energy, materials and time

Pfannenberg's heaters, thermostats and hygrostats perfectly complement Pfannenberg's filterfans, heat exchangers and air conditioner units.

Life insurance for your electronics

Heaters, Thermostats and Hygrostats

The Pfannenberg Thermal Management Team

FLZ Thermostats

Thermostats are used as temperature controllers and, therefore, for the control of filterfans or electrical enclosure heaters. They are available with N.C. (normally closed) / N.O. (normally open) and changeover contacts. In combination with control cabinet heaters you can ensure, besides temperature control, that the control cabinet is ‘artificially’ dehumidified, in particular in outdoor applications. That means that the temperature is kept above the dew point so that no water condenses out of the air, which could lead to short circuits due to the formation of condensation.
The combination with filterfans offers additional savings on energy, materials and time and, as well as a better environmental balance and greater reliability of the production process due to reduced energy consumption and improvement of the efficiency of the filterfans.
The twin thermostat series unites two thermostats in all combinations for multiple switching tasks!

FLZ Hygrostats/Hygrostat-Thermostat Combination

Hygrostats switch on electrical enclosure heaters or filterfans when a preset relative humidity is exceeded. The relative humidity is kept above the dew point and the condensation of water on electrical components and the corrosion of unprotected sheet metal is prevented. A new electronic combination device unites thermostat and hygrostat in one housing.

FLH Radiant Heaters

Radiant heaters are built very compactly and cover a wide operating range. They are used in combination with a thermostat or hygrostat, predominantly for the avoidance of excessively low temperatures or excessively high humidity in the control cabinet and, last but not least, help to avoid the formation of corrosion.

The mini-heaters and surface temperature-limited heaters by Pfannenberg are particularly suitable for use in small housings or for the heating of isolated spots in sensitive areas.

FLH Fan Heaters

This type of heating is ideal for use in larger electrical enclosure. They have an integrated fan that assists the natural convection and provides for fast and even distribution of the heat in the electrical enclosure.

The fan heaters are used in combination with a thermostat or hygrostat, predominantly for the avoidance of excessively low temperatures or excessively high humidity in the electrical enclosure and also help to avoid the formation of corrosion.

The new heater line FLH-T with integrated thermostat has been specifically developed for demanding environments, espacially wind turbines and for use in the telecommunications sector.

All heaters, thermostats and hygrostats at a glance

Type	Heating performance	Rated voltage	Dimensions (HxWxD)	Approvals						Page
				UR	cUL	GOST	CSA	VDE	CE	
FLH series Radiant Heaters										
FLH 010	10 W	230 V AC [1]	100 x 70 x 50 mm	●	●	●			●	196
FLH 015	15 W	230 V AC [1]	100 x 70 x 50 mm	●	●	●			●	196
FLH 030	30 W	230 V AC [1]	100 x 70 x 50 mm	●	●	●			●	196
FLH 045	45 W	230 V AC [1]	100 x 70 x 50 mm	●	●	●			●	196
FLH 060	60 W	230 V AC [1]	175 x 70 x 50 mm	●	●	●			●	196
FLH 075	75 W	230 V AC [1]	175 x 70 x 50 mm	●	●	●			●	196
FLH 100	100 W	230 V AC [1]	175 x 70 x 50 mm	●	●	●			●	196
FLH 150	150 W	230 V AC [1]	250 x 70 x 50 mm	●	●	●			●	196
Surface temperature-limited Radiant Heaters from the FLH series										
FLH-LST 020	20 W	230 V AC [1]	100 x 70 x 50 mm	●	●	●			●	198
FLH-LST 030	30 W	230 V AC [1]	100 x 70 x 50 mm	●	●	●			●	198
FLH-LST 050	50 W	230 V AC [1]	100 x 70 x 50 mm	●	●	●			●	198
FLH series Mini-Radiant Heaters										
FLH 010-M	10 W	230 V AC [1]	45 x 50 x 29.5 mm	●	●	●			●	200
FLH 020-M	20 W	230 V AC [1]	45 x 75 x 29.5 mm	●	●	●			●	200
FLH 030-M	30 W	230 V AC [1]	45 x 75 x 29.5 mm	●	●	●			●	200
FLH series Fan Heaters										
FLH 250	250 W	115 V / 230 V AC	186.5 x 85 x 104 mm	●	●	●			●	202
FLH 400	400 W	115 V / 230 V AC	226.5 x 85 x 104 mm	●	●	●			●	202
FLH 250 SL	250 W	230 V AC	170.5 x 126.5 x 103 mm	○	○				●	204
FLH 275 SLM	275 W	230 V AC	108 x 91 x 115 mm	○	○				●	204
FLH-T series Fan Heaters with integrated thermostat										
FLH-T 250	250 W	115 V / 230 V AC	100 x 150 x 164 mm	●					●	206
FLH-T 400	400 W	115 V / 230 V AC	100 x 150 x 164 mm	●					●	206
FLH-T 600	600 W	115 V / 230 V AC	100 x 150 x 164 mm	●					●	206
FLH-T 800	800 W	115 V / 230 V AC	100 x 150 x 164 mm	●					●	206
FLH-T 1000	1000 W	115 V / 230 V AC	100 x 150 x 164 mm	●					●	206
FLZ series Thermostats and Hygrostats										
FLZ 510		AC / DC	64 x 37 x 46 mm	●	●	●			●	208
FLZ 520		AC / DC	72 x 40 x 36 mm	●	●	●	●		●	208
FLZ 530		AC / DC	72 x 40 x 36 mm	●	●	●	●		●	208
FLZ 541		AC / DC	80.5 x 59 x 38 mm	●	●	●			●	210
FLZ 542		AC / DC	80.5 x 59 x 38 mm	●	●	●			●	210
FLZ 543		AC / DC	80.5 x 59 x 38 mm	●	●	●			●	210
FLZ 600		AC / DC	64 x 37 x 46 mm	●	●	●			●	212
FLZ 610		AC / DC	80.5 x 59 x 38 mm	●	●	●			●	212

[1] voltage range 110 V - 250 V AC

● available
○ pending

Further information can be found on the Internet:
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Radiant Heaters
FLH 010 – FLH 150

FLH radiant heaters are used in combination with a thermostat or hygrostat, predominantly for the avoidance of excessively low temperatures or excessively high humidity in the control cabinet. Different performance ratings from 10 to 150 Watts ensure that the correct heating power is always available.
The total required heat can be distributed in a control cabinet according to needs.
Available with either terminal or connecting cable.

Data		FLH 010	FLH 015	FLH 030	FLH 045	Unit
Article number	with terminal	17001005007	17001505007	17003005007	17004505007	
	with connecting cable	17001005017	17001505017	17003005017	17004505017	
Heating performance (Ta = +20 °C)		10	15	30	45	W
Max. surface temperature		55	65	90	105	°C
Power consumption		10	15	30	45	W
Starting current		1.0	1.1	1.2	1.8	A
Sytem of protection for intended purpose of use		IP 44 (connecting cable) and IP 20 (plug terminal connector)				
Weight		250	250	250	250	g

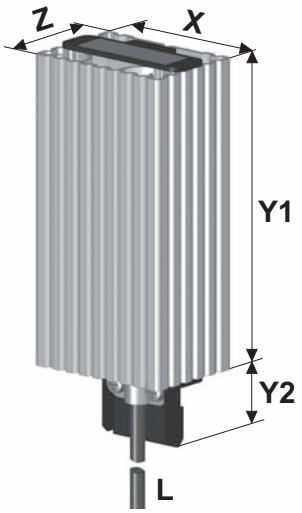
Data		FLH 060	FLH 075	FLH 100	FLH 150	Unit
Article number	with terminal	17006005007	17007505007	17010005007	17015005007	
	with connecting cable	17006005017	17007505017	17010005017	17015005017	
Heating performance (Ta = +20 °C)		60	75	100	150	W
Max. surface temperature		105	120	130	150	°C
Power consumption		60	75	100	150	W
Starting current		2.5	4.5	5.0	7.5	A
Sytem of protection for intended purpose of use		IP 44 (connecting cable) and IP 20 (plug terminal connector)				
Weight		450	510	510	770	g
Rated voltage [1]		230 V AC 50 / 60 Hz				
Functional range		110 - 250 V AC 50 / 60 Hz				
Duty cycle		100%				
Operating temperature range		- 40 … + 70 (- 40 … + 158)				°C
Storage temperature range		- 40 … + 70 (- 40 … + 158)				
Installation orientation		as desired, preferably vertical				
Device construction		aluminium profile, brightly anodised				
Type of mounting		snap fastening for 35 mm profile bars according to EN 60715				
Protection class		I				
Type of connection		connecting cable (500 mm) or plug terminal connector				
Clamping range of connecting terminal		single wire: 2 x 0.5 - 2.5 mm², fine-stranded: (tinned, with ferrule, with pin cable lug) 2 x 0.5 - 1.5 mm²				

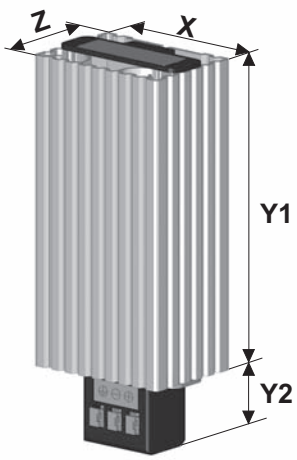
Accessories	Piece	Article number	Information on page
Thermostat	1	17111000000	208/210
Hygrostat	1	17207000000	212
Internal enclosure fan	1	18110000000	75

[1] other voltages avaibale on request
Approvals see page 195.

Dimensions

mm	FLH 010 ... 045	FLH 060 ... 100	FLH 150
X	70	70	70
Y1	65	140	215
Y2	35	35	35
Z	50	50	50
L	500	500	500





Surface temperature-limited Radiant Heaters
FLH-LST 020 – FLH-LST 050

The FLH series of radiant heaters with limitation of the radiator surface temperature consists of three versions with heating performance ratings of 20, 30 and 50 Watts.
Typical applications are to be found within building installations, where accidental contact with radiant heaters inside control cabinets is possible, where safety regulations prohibit open sources of heat, or where neighbouring structural elements are negatively influenced by the increased development of heat.

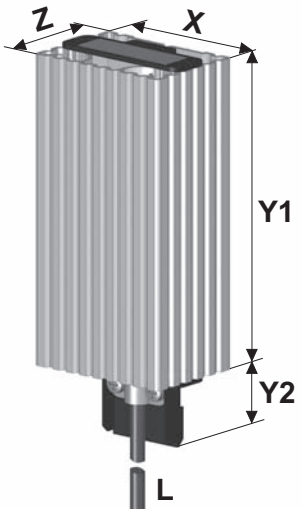
Data		FLH-LST 020	FLH-LST 030	FLH-LST 050	Unit
Article number	with terminal	17002105007	17003105007	17005105007	
	with connecting cable	17002105017	17003105017	17005105017	
Heating performance (Ta = +20 °C)		20	30	50	W
Max. surface temperature		55 [1]			°C
Power consumption		20	30	50	W
Starting current		1.1	1.2	2.3	A
Sytem of protection for intended purpose of use		IP 44 (connecting cable) and IP 20 (plug terminal connector)			
Weight		320	450	770	g
Rated voltage		230 V AC 50 / 60 Hz			
Functional range		110 - 250 V AC 50 / 60 Hz			
Duty cycle		100%			
Operating temperature range		- 40 … + 70 (- 40 … + 158)			°C (°F)
Storage temperature range		- 40 … + 70 (- 40 … + 158)			
Installation orientation		as desired, preferably vertical			
Device construction		aluminium profile, brightly anodised			
Type of mounting		snap fastening for 35 mm profile bars according to EN 60715			
Protection class		I			
Type of connection		connecting cable (500 mm) or plug terminal connector			
Clamping range of connecting terminal		single wire: 2 x 0.5 - 2.5 mm², fine-stranded: (tinned, with ferrule, with pin cable lug) 2 x 0.5 - 1.5 mm²			

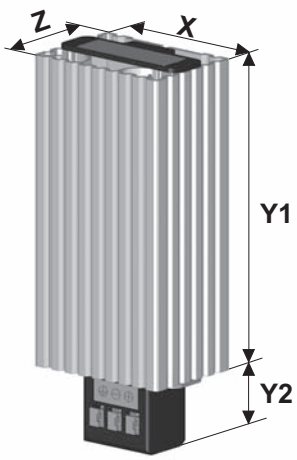
Accessories	Piece	Article number	Information on page
Thermostat	1	17111000000	208/210
Hygrostat	1	17207000000	212
Internal enclosure fan	1	18110000000	75

[1] surface temperature by a max. internal enclosure temperature of + 35 °C
Approvals see page 195.

Dimensions

mm	FLH-LST 020	FLH-LST 030	FLH-LST 050
X	70	70	70
Y1	95	140	215
Y2	37	37	37
Z	50	50	50
L	500	500	500





Mini-Radiant Heaters
FLH 010-M – FLH 030-M

The FLH Mini series of radiant heaters consists of three versions with heating performance ratings of 10, 20 and 30 Watts. The new mini-heaters by Pfannenberg are particularly suitable for use in small housings or for the heating of isolated spots in sensitive areas.

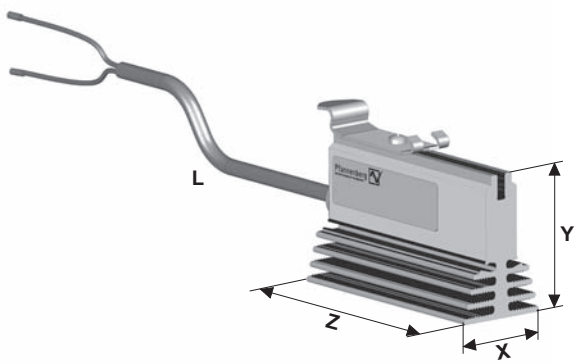
Data	FLH 010-M	FLH 020-M	FLH 030-M	Unit
Article number	17000105017	17000205017	17000305017	
Heating performance (Ta = +20 °C)	10	20	30	W
Max. surface temperature	95	115	140	°C
Power consumption	10	20	30	W
Starting current	1.0	1.1	1.2	A
Sytem of protection for intended purpose of use	IP 54			
Weight	85	120	120	g
Rated voltage	230 V AC 50 / 60 Hz			
Functional range	110 - 250 V AC 50 / 60 Hz			
Duty cycle	100%			
Operating temperature range	- 40 … + 70 (- 40 … + 158)			°C (°F)
Storage temperature range	- 40 … + 70 (- 40 … + 158)			
Installation orientation	as desired, preferably vertical			
Device construction	aluminium profile, black anodised			
Type of mounting	snap fastening for 35 mm profile bars according to EN 60715			
Protection class	II			
Type of connection	connecting cable (300 mm)			

Accessories	Piece	Article number	Information on page
Thermostat	1	17111000000	208/210
Hygrostat	1	17207000000	212
Internal enclosure fan	1	18110000000	75

Approvals see page 195.

Dimensions

mm	FLH 010-M	FLH 020-M / 030-M
X	29.5	29.5
Y	45	45
Z	50	75
L	300	300



Fan Heater
FLH 250 – FLH 400

The FLH series of fan heaters consists of two versions with heating performance ratings of 250 and 400 Watts. This type of heating is ideal for use in larger electrical enclosures. It has an integrated fan that assists the natural convection and thus provides for fast and even distribution of the heat in the control cabinet.

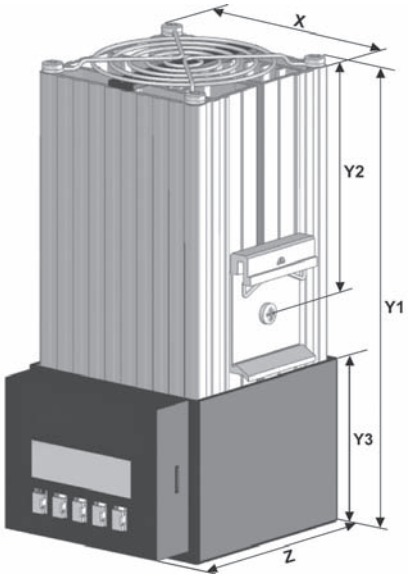
Data	FLH 250	FLH 400	Unit
Article number	17025010007	17040010007	
plus a 2nd protective grille	17025010107	17040010107	
Heating performance (Ta = +20 °C)	250	400	W
Max. surface temperature	70	85	°C
Power consumption	260	410	W
Starting current	2.2 / 1.1	3.6 / 1.8	A
Sytem of protection for intended purpose of use	IP 20		
Weight	1035	1200	g
Volumetric air flow	50 (50 Hz) / 61 (60 Hz)		m^3/h
Rated voltage [1]	230 V AC 50 / 60 Hz		
Functional range	207 - 258 V AC 50 / 60 Hz		
Duty cycle	100%		
Operating temperature range	- 40 … + 70 (- 40 … + 158)		°C (°F)
Storage temperature range	- 40 … + 70 (- 40 … + 158)		
Installation orientation	as desired, preferably vertical		
Device construction	aluminium profile, brightly anodised		
Type of mounting	snap fastening for 35 mm profile bars according to EN 60715		
Protection class	I		
Type of connection	plug terminal connector		
Clamping range of connecting terminal	single wire: 2 x 0.5 - 2.5 mm², fine-stranded: (tinned, with ferrule, with pin cable lug) 2 x 0.5 - 1.5 mm²		

Accessories	Piece	Article number	Information on page
Thermostat	1	17111000000	208/210
Hygrostat	1	17207000000	212
Internal enclosure fan	1	18110000000	75

[1] other voltages avaibale on request
Approvals see page 195.

Dimensions

mm	FLH 250	FLH 400
X	85	85
Y1	186.5	226.5
Y2	90	90
Y3	65	65
Z	104	104



Fan Heater
FLH 250 SL
FLH 275 SLM

The FLH 250 SL and FLH 275 SLM fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures.

- all tests were performed according to European Norms, EN 60068-2-6 / 60068-2-27 / 60068-2-29 **Railway applications - Rolling stock equipment - Shock and vibration tests** and therefore are unique to the industry
- can be used under extreme conditions (- 40 °C…+ 70 °C)
- fan design with ball bearing: guaranteed long service life
- the heater is connected using the internal terminal connectors
- the heaters compact design make it ideal for use in enclosures where space is at a premium

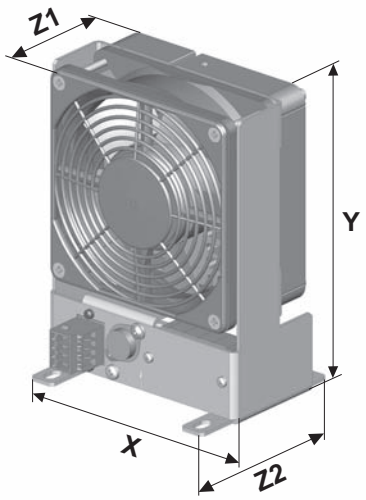
Data	FLH 250 SL	FLH 275 SLM	Unit
Article number	17025110007	17027610007	
Heating performance (Ta = +20 °C)	250	275	W
Max. surface temperature	70	70	°C
Power consumption	269	287	W
Starting current	2.4	1.5	A
Sytem of protection for intended purpose of use	IP 20		
Weight	1500	955	g
Volumetric air flow	160	50	m^3/h
Rated voltage	230 V AC 50 / 60 Hz		
Functional range	207 - 258 V AC 50 / 60 Hz		
Duty cycle	100%		
Operating temperature range	- 40 … + 70 (- 40 … + 158)		°C (°F)
Storage temperature range	- 40 … + 70 (- 40 … + 158)		
Installation orientation	as desired, preferably vertical		
Device construction	galvanised sheet steel		
Type of mounting	M6 screw fastening		
Protection class	I		
Type of connection	plug terminal connector		
Clamping range of connecting terminal	single wire: 0.08 - 4.0 mm² (AWG 28-12), fine-stranded: (tinned, with ferrule, with pin cable lug) 0.08 - 2.5 mm² (AWG 28-14)		

Accessories	Piece	Article number	Information on page
Thermostat	1	17111000000	208/210
Hygrostat	1	17207000000	212
Internal enclosure fan	1	18110000000	75

Approvals see page 195.

Dimensions

mm	FLH 250 SL	FLH 275 SLM
X	126.5	91
Y	170.5	108
Z1	75	89
Z2	103	115



Fan Heater with integrated thermostat
FLH-T

New Pfannenberg heater line with integrated thermostat. This new line has been specifically developed for demanding environments, especially wind turbines and for use in the telecommunications sector.

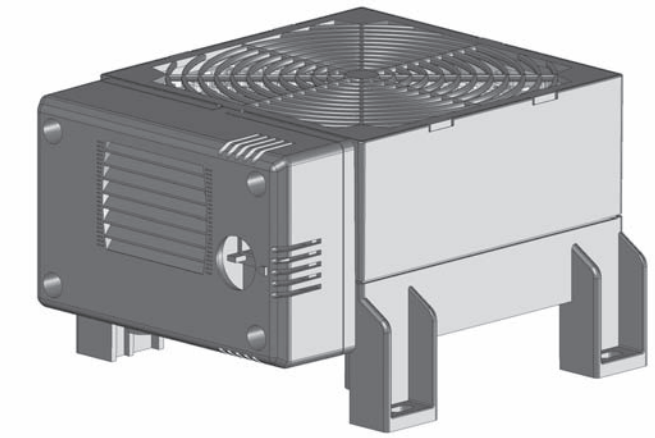
- all tests were performed according to European Norms, EN 60068-2-6 / 60068-2-27 / 60068-2-29 **Railway applications - Rolling stock equipment - Shock and vibration tests** and therefore are unique to the industry
- can be used under extreme conditions (- 40 °C…+ 70 °C)
- fan design with ball bearing: guaranteed long service life
- voltage range: 230 V / 115 V / 50/60 Hz

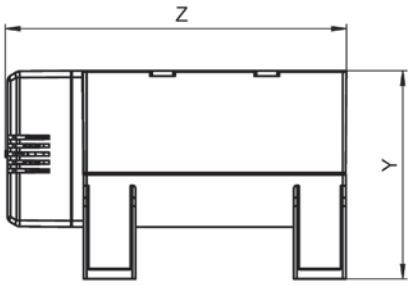
Data		FLH-T 250	FLH-T 400	FLH-T 600	FLH-T 800	FLH-T 1000	Unit
Article number	230 V	17025310007	17040310007	17060310007	17080310007	17099310007	
	115 V	17025315007	17040315007	17060315007	17080315007	17099315007	
Heating performance (Ta = +20 °C)		250	400	600	800	1000	W
Power consumption		300	450	650	850	1050	W
Starting current		0.7	2.6	3.4	4.3	5.2	A
Bearing type	fan	ball bearing					
Service life L_{10} (+ 25 °C)		52500					h
Sytem of protection according to EN 60529		IP 20					
Weight		1.0	1.1	1.2	1.4		kg
Volumetric air flow	50 Hz	160					m^3/h
	60 Hz	180					
Rated voltage		115 V or 230 V AC 50/60 Hz					
Functional range		104 - 127 V or 207 - 253 V AC 50/60 Hz					
Duty cycle		100%					
Temperature setting range		- 20 … + 40 (- 4 … + 104)					°C (°F)
Switching temperature difference		< 7					K
Switching point tolerance		± 4					
Operating temperature range		- 40 … + 70 (- 40 … + 158)					°C (°F)
Storage temperature range		- 40 … + 70 (- 40 … + 158)					
Installation orientation		as desired, preferably vertical					
Device construction		plastic UL 94V-O, black					
Type of mounting		4 x M5 screws (not included)					
Protection class		II (double insulation)					
Type of connection		2-pole terminal strip					
Clamping range of connecting terminal		2.5 mm² (AWG 14); clamping torque 0.51 Nm					

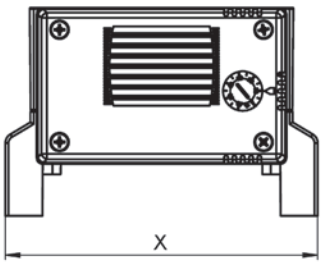
Accessories	Piece	Article number	Information on page
Hygrostat	1	17207000000	212
Internal enclosure fan	1	18110000000	75

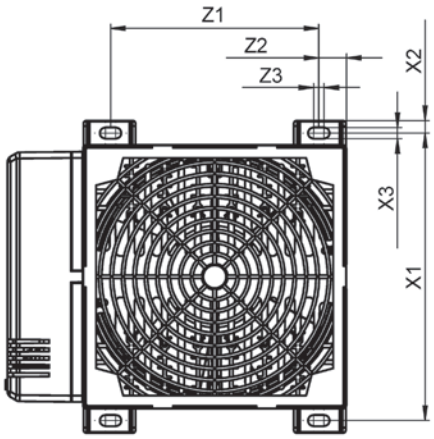
Dimensions

mm	FLH-T
X	150
X1	138
X2	6
X3	5.4
Y	100
Z	164
Z1	100
Z2	13.3
Z3	5









Thermostats
FLZ 510 – FLZ 530

The FLZ series of thermostats consists of three versions. They are available with N.C. / N.O.[1] and changeover contacts. In combination with control cabinet heaters, they serve for temperature control inside the control cabinet. In combination with filterfans, they provide for additional savings on energy, materials and time and, hence, for a better environmental balance. All in all, this results in greater reliability of the production process, reduced energy consumption due to need-based use and an improvement in the efficiency of the controlled heaters and filterfans.

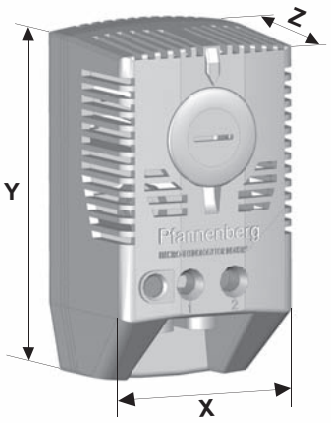
Data		FLZ 510			FLZ 520	FLZ 530	Unit
Article number	-20 °C (-4 °F) … +40 °C (+104 °F)	17103000003	17105000003	17106000003	17111000003	17121000003	
	0 °C (+32 °F) … +60 °C (+140 °F)	17103000000	17105000000	17106000000	17111000000	17121000000	
	+20 °C (+68 °F) … +80 °C (+176 °F)	17103000004	17105000004	17106000004	17111000004	17121000004	
Type of contact		changeover with spring contact			N.C. with spring contact	N.O. with spring contact	
Switching temperature difference		1[2]	3	7	< 7		K
Switching point tolerance		± 3			± 4		K
Max. switching power value in brackets: inductive load at cos φ = 0.6		N.C. 100 - 250 V AC / 10 (2)			240 V AC / 10 (2)		A
		N.O. 100 - 250 V AC / 5 (2)			120 V AC / 15 (2)		A
	DC	max. 30			max. 30		W
Operating temperature range		- 40 … + 80 (- 40 … + 176)					°C (°F)
Storage temperature range		- 40 … + 80 (- 40 … + 176)					°C (°F)
Probe type		bimetal		capillary probe (1.5 m)	bimetal		
System of protection		IP 20					
Weight		75			50		g
Type of connection		screw terminal for cable cross-section 0.5 to 2.5 mm²					
Special feature		thermal return[2]	–				
Suitable for the operation of		fan and heater			heater	fan	
Type of mounting		snap fastening for 35 mm profile bars according to EN 60715					
Colour		RAL 7035					

Accessories	Piece	Article number	Information on page
Hygrostat	1	17207000000	212
Internal enclosure fan	1	18110000000	75

[1] N.C. = normally closed / N.O. = normally open
[2] for 230 V AC operation only
Approvals see page 195.

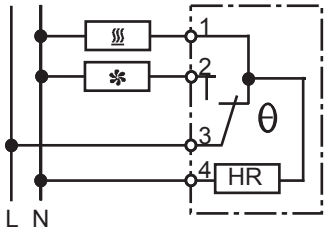
Dimensions

mm	FLZ 510	FLZ 520	FLZ 530
X	37	40	40
Y	64	72	72
Z	46	36	36

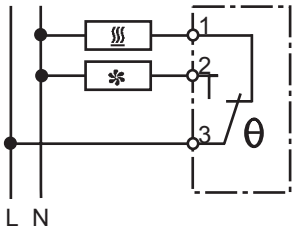


Schematics

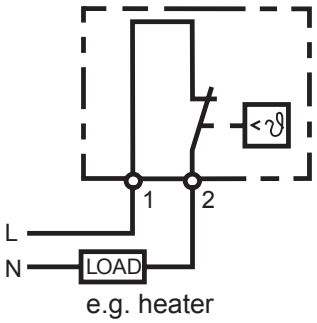
FLZ 510 1K



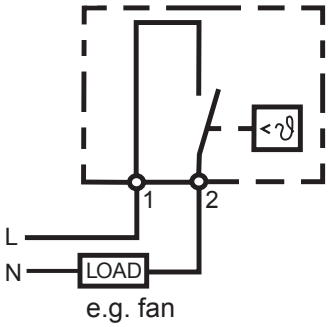
FLZ 510 3K / 7K



FLZ 520 N.C.



FLZ 530 N.O.



Twin Thermostats
FLZ 541 – FLZ 543

The FLZ series of twin thermostats integrates two independently switchable thermostats. They are available with N.C./N.O.[1], N.C./N.C. and N.O./N.O. contacts. Unlike thermostats with changeover contacts, connected devices can be switched in different temperature ranges.

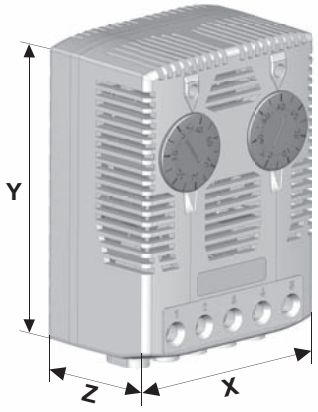
Data		FLZ 541	FLZ 542	FLZ 543	Unit
Article number		17141000000	17142000000	17143000000	
Type of contact		N.C. / N.O. with spring contact	N.C. / N.C. with spring contact	N.O. / N.O. with spring contact	
Setting range		0 °C (+32 °F) … +60 °C (+140 °F)			
Switching temperature difference		< 7			K
Switching point tolerance		± 4			
Max. switching power value in brackets: inductive load at cos φ = 0.6	N.C.	240 V AC / 10 (2)			A
	N.O.	120 V AC / 15 (2)			
	DC	max. 30			W
Operating temperature range		- 40 … + 80 (- 40 … + 176)			°C (°F)
Storage temperature range		- 40 … + 80 (- 40 … + 176)			
Probe type		bimetal			
System of protection		IP 20			
Weight		95			g
Type of connection		screw terminal for cable cross-section 0.5 to 2.5 mm²			
Suitable for the operation of		fan and heater	heaters	fans	
Type of mounting		snap fastening for 35 mm profile bars according to EN 60715			
Colour		RAL 7035			

Accessories	Piece	Article number	Information on page
Hygrostat	1	17207000000	212
Internal enclosure fan	1	18110000000	75

[1] N.C. = normally closed / N.O. = normally open
Approvals see page 195.

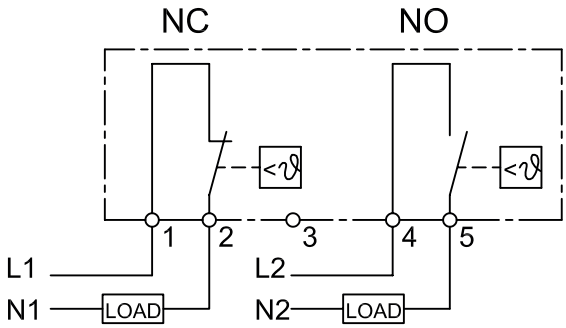
Dimensions

mm	FLZ 541	FLZ 542	FLZ 543
X	59		
Y	80.5		
Z	38		

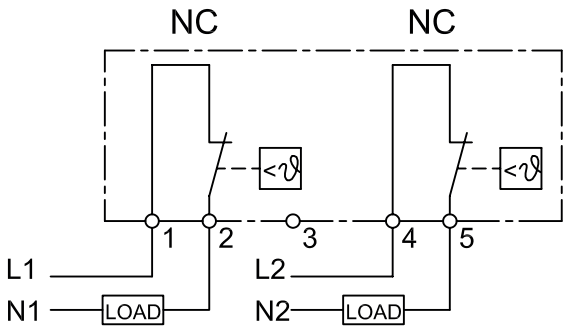


Schematics

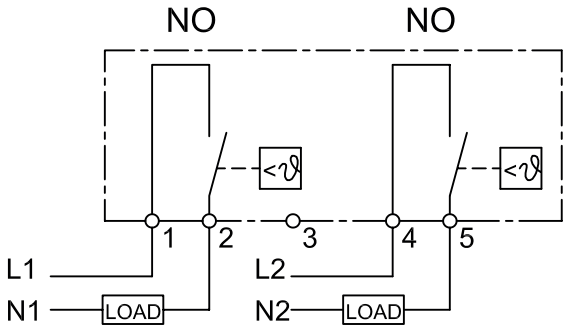
FLZ 541



FLZ 542



FLZ 543



Hygrostat
FLZ 600
Hygrostat-thermostat combination device
FLZ 610

Hygrostats from the FLZ series switch on control cabinet heaters or filterfans when a preset relative humidity is exceeded. The relative humidity is kept above the dew point and the condensation of water on electrical components and the corrosion of unprotected sheet metal is prevented. The electronic combination device unites thermostat and hygrostat in one housing and, at the same time, monitors the relative humidity and the temperature independently of each other.

Data		FLZ 600	FLZ 610	Unit
Article number		17207000000	17218100000	
Device implementation		mechanical hygrostat	electronic hygrostat-thermostat combination device	
Type of contact		changeover with spring contact	changeover/relay	
Rated voltage		–	230 V AC 50 / 60 Hz [1]	
Setting range			0 °C (+32 °F) … +60 °C (+140 °F)	
		40 - 90% R.H.	40 - 90% R.H.	
Switching temperature difference		approx. 5%	approx. 2 K ± 1 K / approx. 4% R.H. ± 1%	
Switching point tolerance		± 4[2]	–	K
Contact resistance		–	< 10	mΩ
Max. switching power value in brackets: inductive load at cos φ = 0.6	N.C.	24 - 250 V AC / 2 (0.2) A – min. 100 mA	240 V AC, 8 (3) A or 120 V AC, 8 (3) A	
	N.O.	24 - 250 V AC / 5 (0.2) A – min. 100 mA	24 V DC, 4 A	
	DC	max. 30	–	W
Operating temperature range		0 … + 60 (+ 30 … + 140)	- 20 … + 60 (- 4 … + 140)	°C (°F)
Storage temperature range		- 40 … + 80 (- 40 … + 176)		
Probe type		polyamide belt	–	
System of protection		IP 20		
Weight		55	85	g
Type of connection		screw terminal for cable cross-section 0.5 to 2.5 mm²		
Operating display		–	LED	
Suitable for the operation of		fan and heater		
Type of mounting		snap fastening for 35 mm profile bars according to EN 60715		
Colour		RAL 7035		

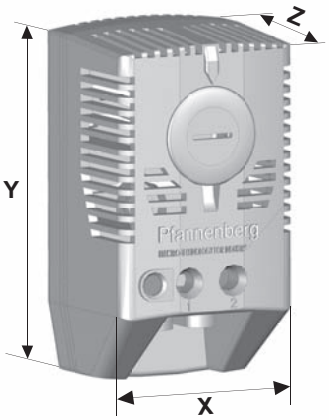
Accessories	Piece	Article number	Information on page
Thermostat	1	17207000000	208/210
Internal enclosure fan	1	18110000000	75

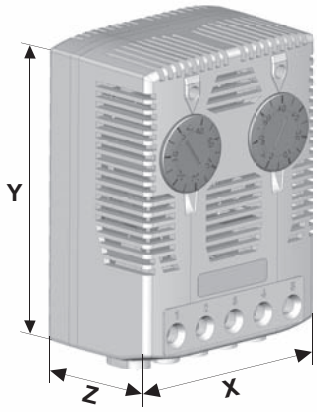
[1] alternatively available in 115 V AC (17218151000)
[2] in relation to 50% R.H.
Approvals see page 195.

Dimensions

mm	FLZ 600	FLZ 610
X	37	59
Y	64	80.5
Z	46	38

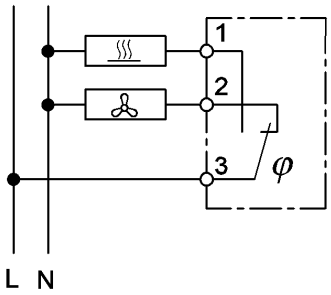
FLZ 600 | **FLZ 610**



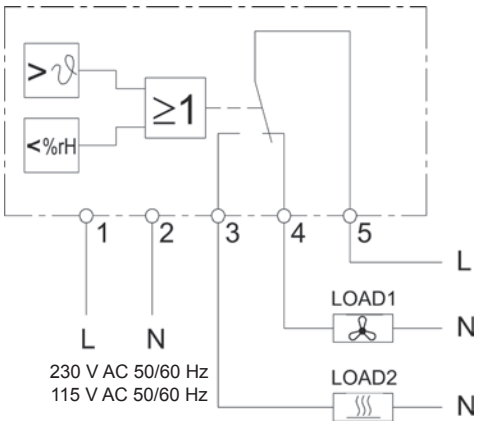


Schematics

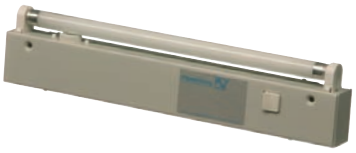
FLZ 600



FLZ 610



Pfannenberg electrical enclosure accessories



PLS Lamp Systems

A large selection of different options is available for illuminating your control cabinets. Whether with sockets, connector for door contact, integrated door limit switch or for the simple series switching of several lights - everything is possible. Light bulb covers are additionally available.

PLS-C Mains/Connection Plugs

In order to integrate the Pfannenberg lamp system simply and effectively in the switch cabinet, we offer you a series of preassembled connectors of various lengths.

PPS Sockets

For simple snap fastening to 35 mm profile bars, available in the country versions Germany, France and USA (incl. UL approval). The electrical connection is made via screw clamps up to a line cross-section of 4 mm^2 (single wire).

PPC Pressure Compensation Device

Temperature fluctuations in a housing in relation to the environment - caused by installed heat generating components and fluctuations in the ambient temperature – result in changing pressure conditions. These pressure changes can lead to the penetration of dust and humidity into the enclosure. In order to compensate for these pressure fluctuations, it is recommended to install a pressure-balancing element whilst retaining the highest protection types (up to IP 69K, high pressure/steam jet cleaning).

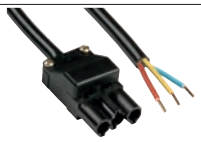
BR Machine Identification Lights

Supplementary to their air-conditioning equipment, Pfannenberg also manufactures machine identification lights for control equipment and automation systems. Irrespective of whether in the electrical industry, in medical equipment, in laboratories, in mechanical engineering or in the automation of manufacturing, Pfannenberg's signal towers are used with ever increasing frequency.
Their slim, elegant form and the quality of the components are convincing.

Internal enclosure fan

For an optimal distribution of cold air inside the control cabinet, (see page 75).

Plugs/connecting cables for PLS/PLS SL
PLS-C

	Length	Sales unit (piece)	Article number	Picture
Mains connection cable with safety plug and GST18/3 socket	1.0 m	1	17399091090	
		5	17399591090	
	3.0 m	1	17399095090	
		5	17399595090	
Mains connection cable with GST18/3 plug	1.0 m	1	17399091092	
		5	17399591092	
	3.0 m	1	17399095092	
		5	17399595092	
Mains connection cable with GST18/3 socket	1.0 m	1	17399091091	
		5	17399591091	
	3.0 m	1	17399095091	
		5	17399595091	
Connecting cable with GST18/3 plug and socket	0.5 m	1	17398089093	
		5	17398589093	
	1.0 m	1	17398091093	
		5	17398591093	
	2.0 m	1	17398093093	
		5	17398593093	

Sockets
PPS




NEMA 5-15

Data	PPS D	PPS F	PPS USA	Unit
Article number	17401000000	17402000000	17403000000	
Rated voltage	250 V AC		125 V AC	
Nominal current	10 A DC / 16 A AC		15 A AC	
Contact material	CuZn37			
Insulation material	PA			
Colour	grey			
Operating temperature	- 20 ... + 60 (- 4 ... + 140)			°C (°F)
Montage	snap fastening for 35 mm profile bars according to EN 60715			
Cable cross-section	single wire: 0.2 – 4 mm² / fine-stranded: 0.2 – 2.5 mm² / AWG 24 – AWG 12			
Insulation stripping length	8 mm			mm
Standards/approvals	IEC 83, DIN 49440-1		UL	

Pressure compensation device
PPC

Data	PPC	Unit
Article number	17410050000	
Thread	M12 x 1.5 - 10 mm	
Material	polyamide 6, O ring: perbunan	
Operating temperature	- 40 ... + 120 (- 40 ... + 248)	°C (°F)
Colour	RAL 7035	
System of protection	IP 66, 68 + 69K	
Sales unit	5	piece

Mounting support
PDR

Data	PDR	Unit
Article number	17411000000	
Fastening	self-adhesive	
Material	sheet steel, galvanised	
Operating/storage temperature	- 30 ... + 70 (- 22 ... + 158)	°C (°F)
Dimensions (HxWxD)	35 x 70 x 7	mm
Weight	approx. 25	g
Load capacity after 24h waiting period	500	

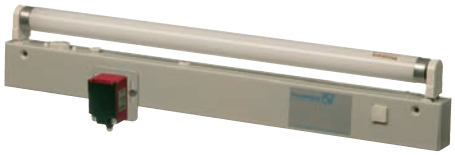
Standard Lamp Systems
PLS 008 Mini
PLS 013 Mini
PLS 014

Data	PLS 008 Mini	PLS 013 Mini	PLS 014			Unit
Article number	17308210010	17313210010	17314010110	17314010102	17314010103	
Rated voltage ± 10 %	230 V 50 / 60 Hz					
Current consumption	0.07	0.11 A	0.39			A
Fluorescent tubes	8	13	14			W
Tube type	T5		T8			
Light intensity	450	640	700			Lm
Duty cycle	8000					h
Operating temperature	- 10 ... + 45 (+ 14 ... + 113)					°C (°F)
Storage temperature	- 10 ... + 45 (+ 14 ... + 113)					
Installation location	variable					
System of protection	IP 20					
Protection class	II		I			
Housing colour	white		RAL 7035			
Certification	GS (ITS)		ENEC (KEMA)			
Weight	0.17	0.26	1.31	1.22		kg
Type of connection	mains cable with plug included		cable (1.5 m)	GST 18/3 plug		
Additional connections	–			GST 18/3 socket		
				door contact	integrated door end switch	

Special Lamp Systems
PLS 015

Data	PLS 015				Unit
Article number	17315010111	17315010101	17315010102	17315010103	
Rated voltage ± 10 %	230 V 50 / 60 Hz (US: 120 V 60 Hz)				
Current consumption	0.29 (US: 0.38)				A
Fluorescent tubes	15				W
Tube type	T8				
Light intensity	720				Lm
Duty cycle	8000				h
Operating temperature	- 10 ... + 45 (+ 14 ... + 113)				°C (°F)
Storage temperature	- 10 ... + 45 (+ 14 ... + 113)				
Installation location	variable				
System of protection	IP 20				
Protection class	I				
Housing colour	RAL 7035				
Certification	ENEC (KEMA)				
Weight	1.36	1.25	1.29		kg
Socket	D				
Type of connection	cable (1.5 m)	GST 18/3 plug			
Additional connections		GST 18/3 socket			
			door contact	integrated door end switch	

Special Lamp Systems
PLS 015 SL



Data	PLS 015 SL					Unit
Article number	17315110010[1]	17315110011	17315110001	17315110002	17315110003	
Rated voltage ± 10 %	230 V 50 / 60 Hz (US: 120 V 60 Hz)					
Current consumption	0.29 (US: 0.38)					A
Fluorescent tubes	15					W
Tube type	T8					
Light intensity	720					Lm
Duty cycle	8000					h
Operating temperature	- 10 ... + 45 (+ 14 ... + 113)					°C (°F)
Storage temperature	- 10 ... + 45 (+ 14 ... + 113)					
Installation location	variable					
System of protection	IP 20					
Protection class	I					
Housing colour	RAL 7035					
Certification	ENEC (KEMA)					
Weight	1.43	1.28	1.30	1.32	1.35	kg
Type of connection	cable (1.5 m)		GST 18/3 plug			
Additional connections		GST 18/3 socket				
				door contact	integrated door end switch	

Special Lamp Systems
PLS 008 SL

Data	PLS 008 SL					Unit
Article number	17308110010[1]	17308110011	17308110001	17308110002	17308110003	
Rated voltage ± 10 %	230 V 50 / 60 Hz (US: 120 V 60 Hz)					
Current consumption	0.16 (US: 0.25)					A
Fluorescent tubes	8					W
Tube type	T5					
Light intensity	450					Lm
Duty cycle	8000					h
Operating temperature	- 10 ... + 45 (+ 14 ... + 113)					°C (°F)
Storage temperature	- 10 ... + 45 (+ 14 ... + 113)					
Installation location	variable					
System of protection	IP 20					
Protection class	I					
Housing colour	RAL 7035					
Certification	ENEC (KEMA)					
Weight	0.89	0.75		0.78	0.82	kg
Type of connection	cable (1.5 m)		GST 18/3 plug			
Additional connections		GST 18/3 socket				
				door contact	integrated door end switch	

[1] without socket GST 18/3


Spare parts
Maintenance
Pfannenberg
Global Services
Commissioning
Product
validation

Customised Services for your Thermal Management

Pfannenberg Global Services

In order to ensure the trouble-free functioning of your production process, Pfannenberg maintains a global service network of competent partners. True to the company's motto 'safety for man, machine and the environment' we offer a broad range of additional services besides pure sales, which are available worldwide, fast and individually tailored to your company's requirements.

Ask us about our services: call +49 40 734 12-0 or send an email to technical.support@pfannenberg.com. Our Service Management will be pleased to offer you comprehensive and competent advice.

Our service prolongs the availability of your machines

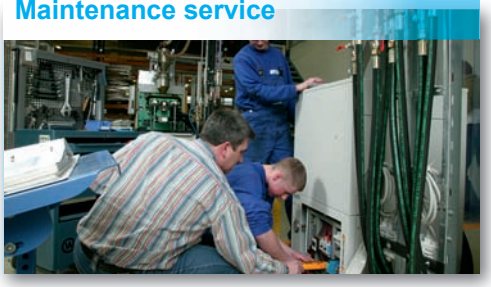
Maintenance

Pfannenberg's products are designed and manufactured to the highest quality standards. That pays off for you - in the form of particularly long running times, even under extreme operating and environmental conditions. In addition to that, the taking out of a service contract ensures the optimal functioning of our products and prevents expensive downtimes. Regular maintenance just once or twice per year already significantly reduces the probability of failure and contributes to a considerable improvement in machine availability.

In addition, our service supports you in the optimisation of your plants and production with equipment cleaning, inspections and further maintenance measures.

Regular service

Maintenance service



Maintenance includes:

- **checking the essential functions of the unit**
- **checking and exchanging consumable parts**
- **performance of necessary cleaning**
- **readjustment of control and regulating modules**
- **provision of tools and measuring instruments**
- **preparation of a maintenance report and a list of any parts needed for repairs**

Regular maintenance ensures the high energy efficiency of Pfannenberg products. That lowers your energy costs and also benefits our environment.

Maintenance frequency

Regular maintenance is necessary even for the most reliable devices. Depending upon operating conditions, individually adapted maintenance intervals can significantly increase operational reliability and availability. You can be safe with your individual service level within the context of a service contract.

Warranty extension is your security

By taking out a service contract it is possible to extend the warranty on your Pfannenberg product up to five years. Depending on your chosen level, the warranty period amounts to ...

- **Level 1** ... 2 years
- **Level 2** ... 3 years
- **Level 3** ... 5 years.

Spare and consumable parts

Spare part availability

Pfannenberg ensures the short-notice, global availability of its consumable and spare parts, so that they can be delivered quickly to you if need be. No matter where in the world you need them.

Four different options are available, depending upon needs:

Standard order Level 1

Standard spare parts are always on stock in at least one of our service centres and are dispatched within 24 hours.

Manufactured spare parts are not always in stock and are in part only manufactured to order (procurement time up to 48 hours).

Custom spare parts are only special ordered.

Part stock at Pfannenberg Level 2

On request, customer-specific spare part stock can be set up in the Pfannenberg service centres. This makes particular sense in the case of non-standard spare parts. These parts are dispatched within 24 hours when needed.

Part stock at your premises Level 3

In order to guarantee the maximum availability of your production plants, defined parts can also be stocked at your own premises. This way they are always immediately available at the place of use.

Online Spare Parts Shop

www.pfannenberg-spareparts.com

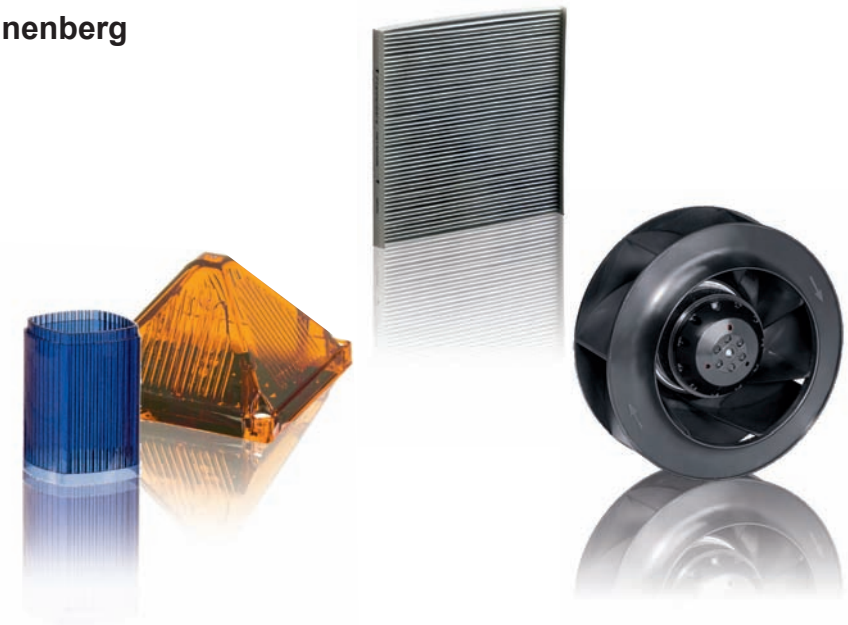
Online parts ordering by mouse click; search comfortably, find quickly, order directly - from anywhere in the world. Ordering that is handy, fast and reliable.

Simply click **www.pfannenberg-spareparts.com** and enter the desired part into the search function, or directly enter the part number of the desired part. The price and shipping costs will be displayed to you immediately. Ordering original parts from Pfannenberg is as simple as that.
From anywhere in the world, 24 hours a day, 7 days a week.

Wherever you are in the world, the Pfannenberg Online Spare Parts Shop delivers to you quickly, comfortably and reliably.

Only with original parts from Pfannenberg can you be sure that ...

... they are the correct parts
... they fit
... they are available
... they can be delivered quickly
... you won't lose valuable time
... their proper function is guaranteed
... your warranty remains intact



Before commissioning – call Pfannenberg

Pfannenberg offers you worldwide professional commissioning in order to avoid malfunctions and damage to machines right at the start of production. Incorrect installations otherwise pose the danger of causing expensive machine failures and losses of production, in particular under the complex conditions for water chillers.

We offer you the professional commissioning of your cooling systems anywhere in the world.

Our service technicians support you in:

- **the conversion, expansion or relocation of your existing cooling solution**
- **questions of technical support for your cooling applications**
- **commissioning of new devices in your manufacturing facilities**
- **organisation and completion of commissioning**

Training courses

In order for your employees to develop a better understanding of thermal management technology, we also offer training courses.

This allows your employees to recognise malfunctions faster and to make the correct decisions for the repair and resumption of production with greater reliability. The result is more economical operation of the systems with less trouble.

Pfannenberg's range of services therefore includes practical training courses, in which suitable methods of assistance are learned and fast intervention in the case of faults is practised. These training courses are held at Pfannenberg, but of course they can also take place at your company.

The standard contents of a training course are:

- **general information on refrigeration technology (circuit, components, functional sequences)**
- **the refrigeration unit - in direct relationship to the customer's application**
- **commissioning of a refrigeration unit and the customer's system**
- **fault simulation, fault recognition**
- **remedial actions in the event of faults during commissioning**
- **information about making contact in the event of a fault**
- **information about the work processes and the flow of documentation in the event of a fault**

Use our knowledge for putting your product ideas into practice

Product development

Benefit from the Pfannenberg R&D service for the testing of your own product ideas, e.g. during component development in the fields of system air conditioning, thermal management and signaling. Here, we can place the complete range of services of a well-rehearsed engineering consultancy at your disposal – to suit your needs and pocket. This way you can put your own ideas into practice, even if you have neither the resources nor the experience necessary to be able to do so.

That gives you several advantages at once. On the one hand, you can fall back on external know-how and rely on a professional team of specialists. On the other, you lower your fixed costs, since you do not tie up any of your own R&D capacities for long periods and do not need to take care of staffing issues. Instead, you can concentrate 100% on your own core competency.

Air test facility

Our R&D department offers to you the complete service of an engineering consultancy:

- **conception**
- **development of specifications and test plans (design)**
- **design**
- **flow simulation (CFD)**
- **prototype construction**
- **validation of prototypes with regard to relevant requirements**
- **production of the design and manufacturing documents**

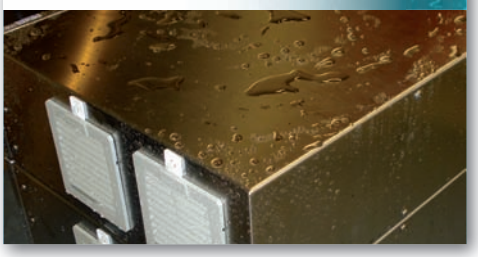
We put your products through their paces

Product validation

Many companies are very reluctant to invest in efficient test laboratories because both their acquisition and maintenance are too cost-intensive given the infrequency of their use. The inexpensive alternative is to use Pfannenberg's test laboratories. There is no need to maintain any permanent testing facilities at your company, but you still have access at all times to professional testing facilities, including expert technical staff.

In order to test the characteristics of your products in detail, we place an extensive range of services at your disposal.

IP test equipment



Further information can be found in our new Service Flyer.
Order your copy today:

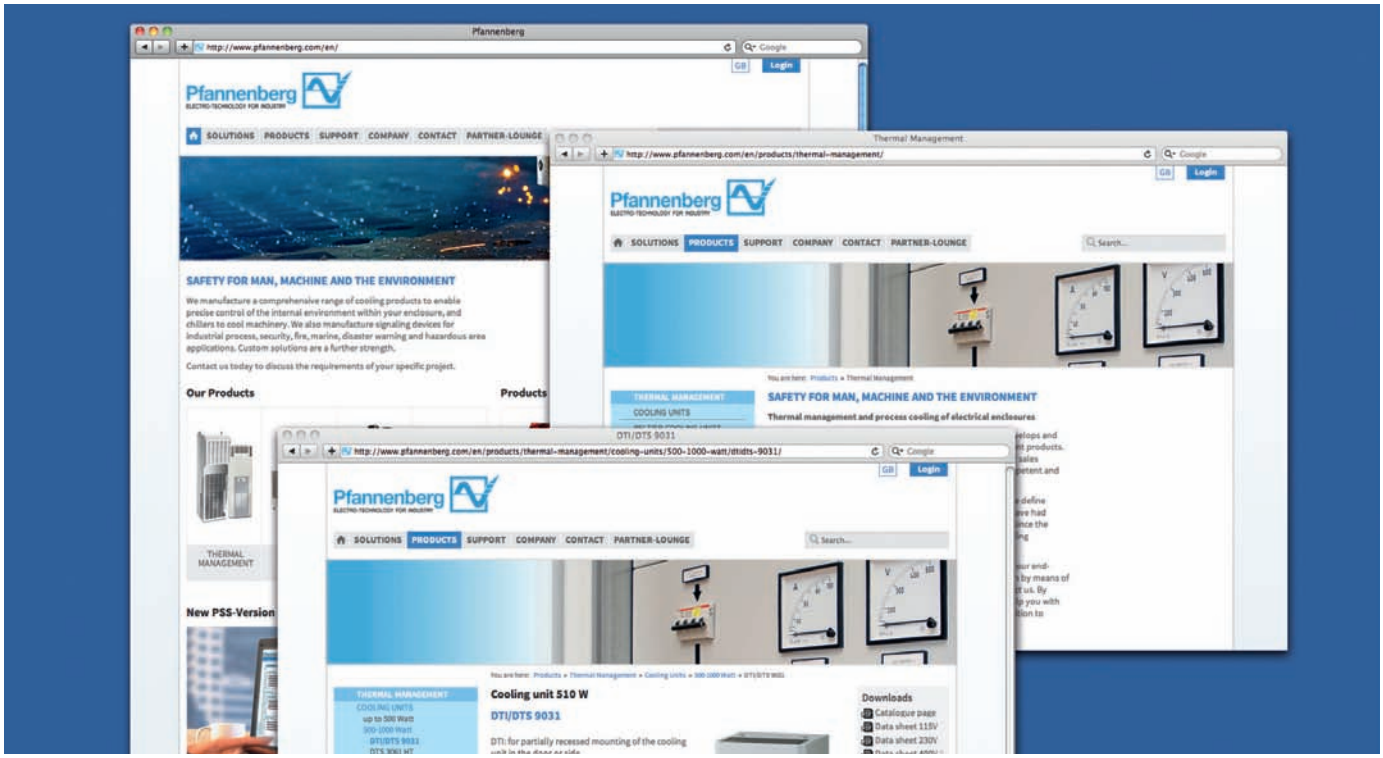
+ 49 40 734 12-0

Pfannenberg on the Internet

Make use of our large offering of online information. At **www.pfannenberg.com**, just click ‘Products’ in the menu bar. This will open a sub-menu on the left-hand side with all product categories. With just a few clicks you can find all of the important information that you require.

Our special service to you: the download area! With a mouse click here you can conveniently download data sheets, operating manuals, drilling templates and construction drawings to your PC and print them out.

www.pfannenberg.com



Pfannenberg:
Thermal Management & Signaling Technology

You can also benefit from Pfannenberg’s long-standing competence in the field of signaling technology. You too will be convinced by our economical solutions.

We look forward to your call or just send an email to: **customercare@pfannenberg.com**. Order your ‘signaling’ catalogue today.

+ 49 40 734 12-141

- **Flashing lights**
- **Sounders**
- **LED lights**
- **Signal towers**
- **Traffic lights**
- **Ex-ATEX signaling devices**
- **Obstruction lights**

Do you require further information?

Do you have any questions on our products and services? Would you like to arrange an appointment with one of our technicians? Do you require further information? Then just call us on **+ 49 40 7 34 12 - 0** or send an email to **info@pfannenberg.com**.

You can also fill in this fax form and send it to the number shown below. Whichever way you choose to contact us, we will respond promptly to your questions, requests and suggestions.

+ 49 40 7 34 12 - 101

Company	
Contact person	
Street/no.	
Post code/town	
Country	
Email	

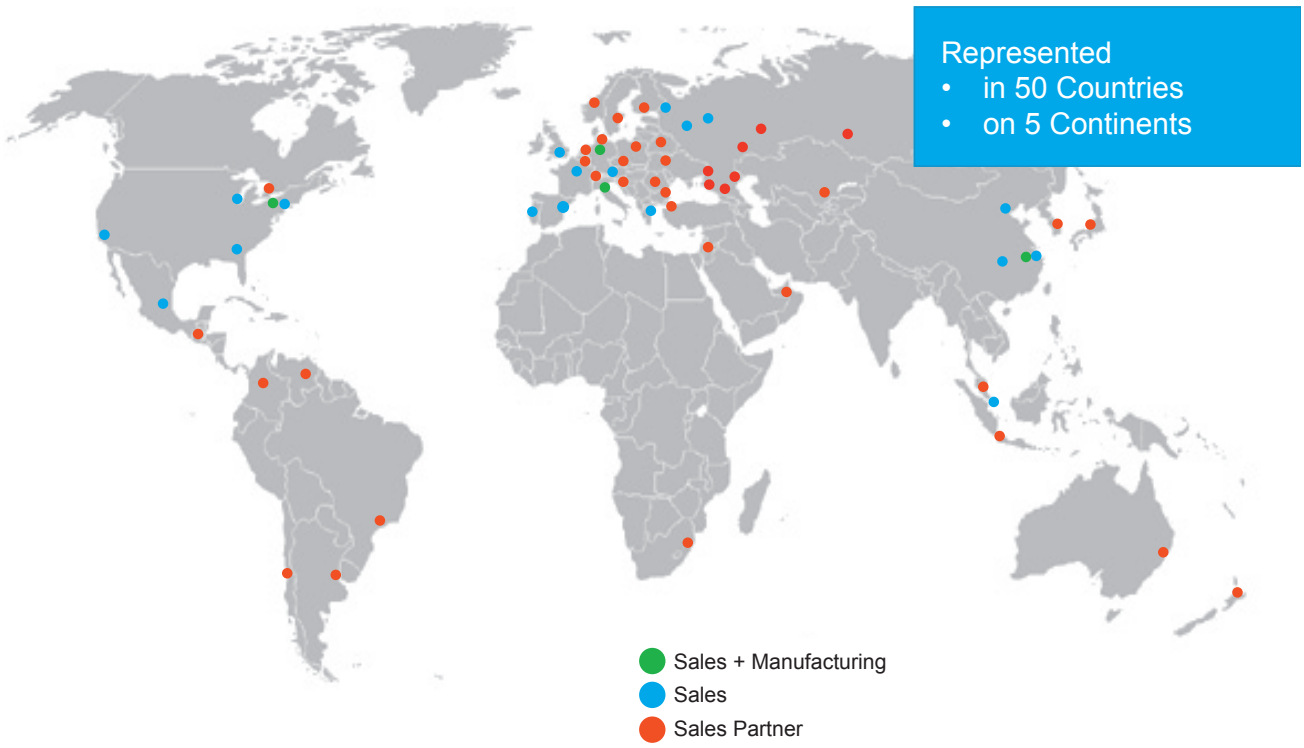
Please call me on	

I would like to arrange an appointment with a field service employee.

My suggested date:	

My concern is as follows:

Pfannenberg – worldwide expertise in thermal management and signaling technology



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