

THERMAL MANAGEMENT

MAIN CATALOGUE EDITION 20.3

THERMAL MANAGEMENT FOR ELECTRICAL ENCLOSURES AND PROCESS COOLING.

Filterfans 4.0 | Cooling Units
Air/Water Heat Exchangers
Air/Air Heat Exchangers | Chillers
Heaters | Thermostats | Hygrostats
Accessories | Signaling Technology

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

You need perfect solutions. That is exactly what we are geared to.

With our products and services, we are guided by the needs of our clients and can supply the required solution to any need. With top quality, superior energy and cost efficiency.

PRODUCTS

From cooling to heating – you will find everything you need for the thermal management solution that perfectly meets your needs.

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SERVICES

Partnership and reliability worldwide – a service concept going far beyond the provision of spare parts.

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Protecting people, machine and the environment.

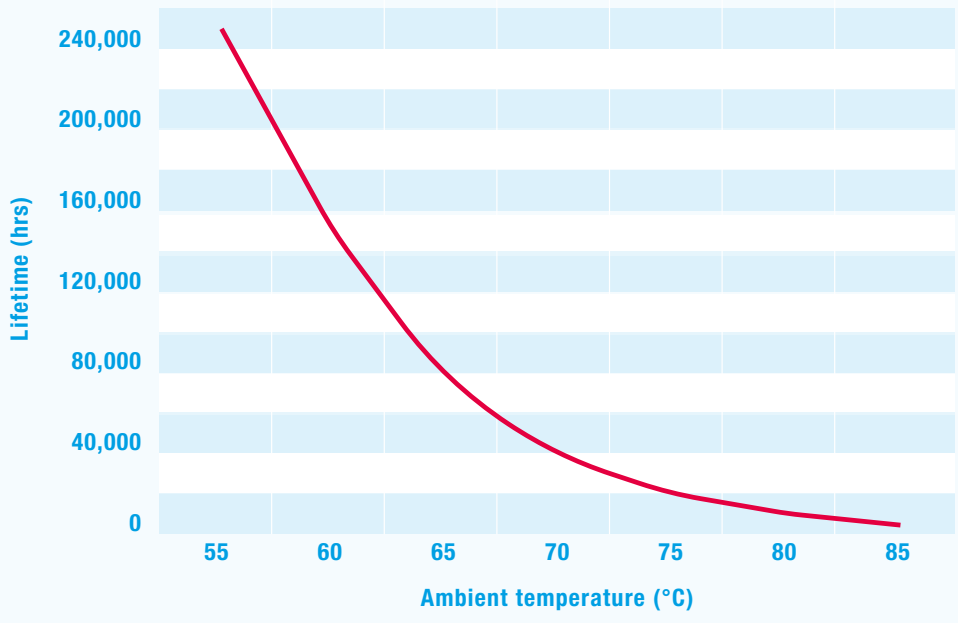
The more stable the working climate is, the longer the components last.

Electrical enclosures and their high-performance components are indispensable for the control of today's production processes. However, it is easy to imagine the consequences when sensitive circuitry and modules become overheated: systems shut down, creating the risk of production losses and the premature ageing of components.

To ensure that sensitive electronic components continue to function reliably in the long-term, the temperature inside electrical enclosures should not exceed or fall below defined limits. Tests have shown that an increase in temperature of as little as 10 K shortens the lifetime of electrical components by more than 50 %.

This exemplifies the effect of perfect thermal management of electrical enclosures – it prevents critical temperature fluctuations, avoids overheating and protects against the formation of condensates. In this way, it contributes significantly to increasing failure safety and prolonging the lifetime of electronic control units.

The life expectancy of film capacitors decreases as the ambient temperature increases.



An increase in temperature of 10 K shortens the lifetime of electrical components by more than 50 %.

Too hot – too cold – too humid – broken. Protect your electronic systems against stress.

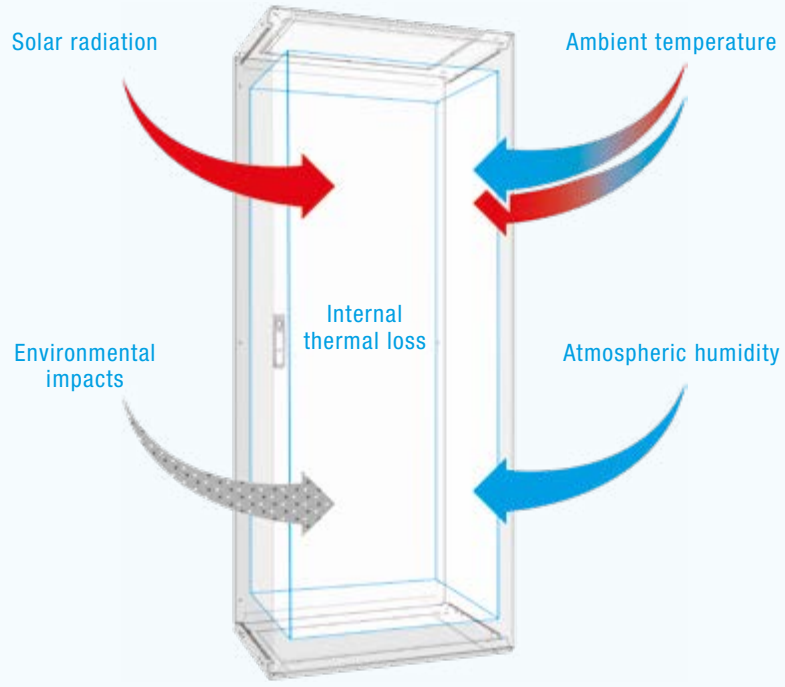
To be able to choose the most suitable thermal management solution, it is essential to start by considering the location of the unit and the ambient temperature. This is because the environment in the electrical enclosure can also be affected by weather conditions, solar radiation or other external heat sources.

Regardless of whether they are exposed to climatic or technical conditions, even particularly low ambient temperatures impact on specific thermal management solutions. This means that electrical enclosures may need to be heated to counter the effects of excess cold and the associated risks of condensate formation such as corrosion and short circuiting.

Another major factor to be taken into account is the ambient air quality – for example, if the air is excessively humid or dust, oil or gas loaded.

Pfannenberg's thermal management solutions address all these factors and create exactly the right conditions that sensitive electrical enclosure electronics need: a stable operating environment that is ideally pitched.

Both internal thermal losses and external factors make thermal management necessary.



Five different influencing factors make thermal management necessary.

How to find the right product. For any location and any temperature.

Analyse your operating conditions to make the right choice. The most suitable thermal management solution depends on the particular ambient conditions – and to a major degree the prevailing temperature. Is it consistently lower than that required in the electrical enclosure? Is it higher? Is the air contaminated? Would water cooling instead of air cooling be more appropriate? Whatever the answer, we have the right product.

Low ambient temperature?

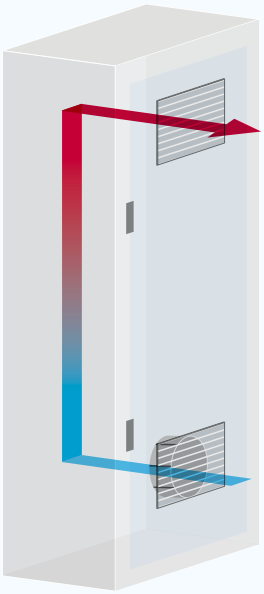
If the ambient temperature is always lower than the temperature needed in the electrical enclosure, filterfans will provide economic cooling. If the air is heavily contaminated with dust or fluids, air/air heat exchangers are the recommended choice.

Cooling with filterfans.

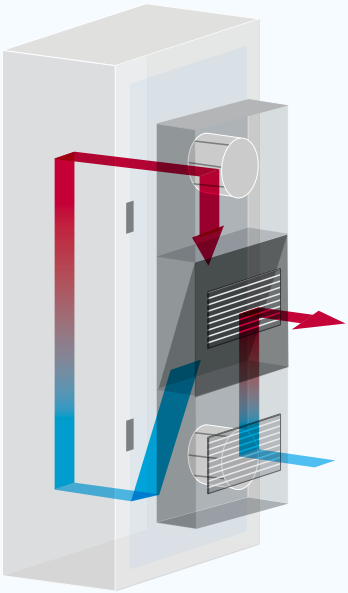
A filterfan sends cool, filtered ambient air into the interior of the electrical enclosure. At the same time, it increases the pressure slightly, which prevents dust from infiltrating into the enclosure. Fitting a filterfan to the lower third of the electrical enclosure and placing the exhaust filter as high as possible also aids natural air convection processes and avoids the build-up of heat pockets.

Cooling with air/air heat exchangers.

An air/air heat exchanger is used when the ambient air is heavily contaminated (dust, fluids). The external and internal air circuits are isolated from each other in order to form a hermetic seal between the interior



Cooling with filterfans



Cooling with air/air heat exchangers

of the electrical enclosure and environmental influences. The use of an air/air heat exchanger requires the ambient temperature to be consistently >10 K below the temperature needed in the electrical enclosure.

High ambient temperature?

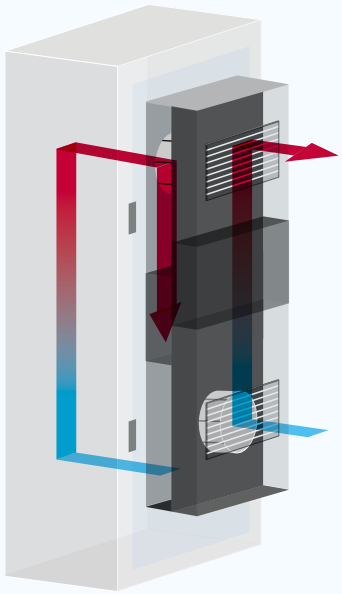
If the ambient temperature is consistently high or higher than the temperature needed in the electrical enclosure, active cooling units are used. If the ambient air is heavily contaminated with oil/dust or there is a hostile/humid environment – air/water heat exchangers are recommended.

Cooling with active cooling units.

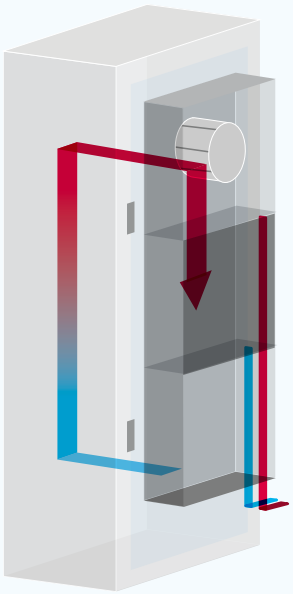
An active cooling unit takes in air from inside the electrical enclosure and lowers its temperature to a suitable level, in order to guarantee a defined temperature in the electrical enclosure. The lowest temperature inside the cabinet is not necessarily the best. Our units are preset to 35 °C, which achieves a good balance between useful lifetime and condensate build up. It is essential to have good air intake and air exhaust features in the cooling unit's external air circuit to ensure proper heat energy dispersal into the environment.

Cooling with air/water heat exchangers.

An air/water heat exchanger works without servicing and independently of ambient air quality. Suitable areas for use include extremely high ambient temperatures (>55 °C) and in oily, dusty, humid and aggressive ambient air (IP protection system up to IP 65). Since it uses water to dissipate thermal losses, it is also suitable for use in air-conditioned manufacturing areas in which additional heating is not allowed.



Cooling with active cooling units



Cooling with air/water heat exchangers

Increase performance with our complete solutions.

Unsurpassed efficiency: Product combinations.
System solutions combine the power of different products and optimise the efficiency, environmental performance and safety by consistently providing the required refrigerant in the required temperature, or by even after switching off the unit, preventing condensation in the control cabinet.

Air/water heat exchanger and chiller.
The combination of an air/water heat exchanger and a chiller guarantees a safe and silent cooling system, along with being able to operate regardless of the quality of the ambient air at the installation site. The closed pipeline system ensures that all cooling tasks to control panel, system, or machine can be solved easily and economically.



Filterfans and thermostats.
The interaction of filterfans and thermostats leads to a significant energy-, material- and time savings. The thermostat controls the operation of the filterfan, which reduces the energy consumption and extends significantly the lifetime of the fan. This results in a reduced consumption of filter mats and decreased time for cleaning. Improved environmental performances, lower costs and more reliability for your production process are the bottom line.



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 a better environmental balance, the combination of heaters with thermostats and hygrostats offer greater reliability of the production process.

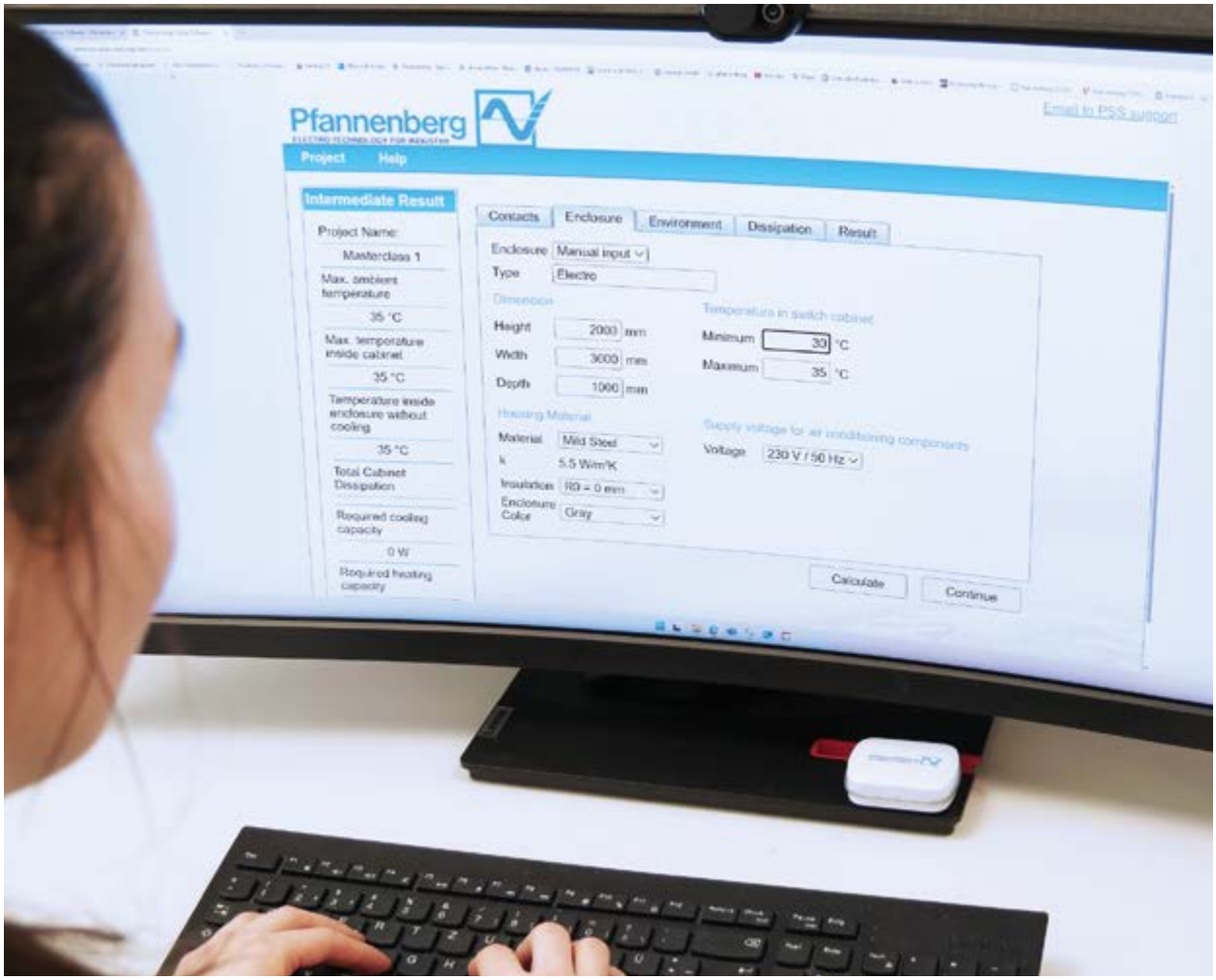


Reliable data directly on the screen.

Planners and designers need security when configuring an optimal air conditioning and signalling solutions. With the Pfannenberg Sizing Software (PSS) we offer you a free and user friendliness instrument, which immediately provides a qualified device recommendation. You can avoid costly over-sizing as well as dangerous under-dimensioning already in the planning phase or review the dimensioning.

Often, individual circumstances make it difficult choosing the right solution. The PSS contains an open library, in which custom specific components can be easily maintained. In this way, we ensure that we can cover the complete spectrum of possible applications and solutions for each application in the field of thermal management, re-cooling and signalling.

The PSS is online available at:
www.pfannenberg.com/pss



Selection of the preferred thermal management method, based on environmental conditions.

PRODUCTS			AMBIENT TEMPERATURE			DUST			WATER			SPECIFIC			
			Low <5 °C	Moder-ate	High >40 °C	Clean	Moder-ate	Heavy	Dry	High Humidity	Wash-down	Corro-sive	Oily	Sea air	Outdoor
FILTERFANS		Series IP 54	○	+	–	+	+	–	+	○	–	–	○	–	–
		Series IP 55	○	+	–	+	+	○	+	○	–	–	–	–	+
HEAT EXCHANGERS	Air/Air	Green Series 6000	+	+	–	+	+	+	+	+	–	○	○	–	○
	Air/Water	◘cool 6000 Basic 5000 Slim 7000	○	+	+	+	+	+	+	+	–	+	+	○	○
COOLING UNITS		Green Series 6000	–	+	+	+	+	○	+	+	–	–	○	–	–
		Basic 9000	–	+	+	+	+	○	+	+	–	–	○	–	–
		Outdoor 3000	○* (+*)	+	+	+	+	+	+	+	–	○	○	○	+
		Washdown 3000	○ (+*)	+	+	+	+	+	+	+	+	+	○	○	+
CHILLERS		CPC/PC	–	+	+	+	○	○	+	+	–	–	○	–	–
		CCE	–	+	+	+	+	○	+	+	–	–	○	–	–
		EB	+*	+	+	+	+	○	+	+	–	–	○	–	+*
		VLV/DMC/IMC	+	+	+	+	+	○	+	+	–	○	○	○	○
		PWW 2.0	–	+	+	+	+	+	+	+	–	–	+	–	–

+ recommended
○ applicable
– not recommended
* option

We are happy to support you personally with the selection of the best thermal management method for you. Please contact us. You can find the addresses at the end of the catalogue.

Explanation of approvals.

Please note following information in reference to our approvals: Most Pfannenberg products are (in the standard version) already equipped with various approvals. In some products the approvals are not included in the standard version, but need to be ordered explicitly and then manufactured in accordance with official requirements. There are, for example, instances in which approvals expire and are then not renewed due to too little demand. **Therefore, when making inquiries and placing orders, please state which approvals are necessary for the products you require.**

In the following, we would like to provide you with some information to make it easier for you to choose the appropriate approvals for the markets relevant to you. We are available, should you have any questions or suggestions. You can find our contact details at the end of this catalogue or on pfannenberg.com.

The organisation Underwriters Laboratories (UL) checks equipment and awards seals of approval. It differentiates between components which need to be installed to be used and finished products which can be used by themselves.

UL recognised component

UL listed product

The most important markets/countries for the use of the UL logos are the United States and Canada. Approvals for the United States are marked with 'US' at the bottom right of the logo. Approvals for Canada with a 'C' at the bottom left. If there is no country code, then it has approval for the US market. The UL approval is not a mandatory approval for the North American market, but it can make it easier to import there.

The logo EAC stands for EurAsian Conformity. It is comparable to the European CE mark, so it stands for the product's safety. The EAC mark is the approval of the Eurasian economic community and is valid for Russia, Belarus and Kazakhstan. There is no specific identification of the country by a code. The mark is issued by the respective manufacturer on their own authority, but always with the involvement of an official certification body. The EAC is the successor of the GOST approval.

The Canadian Standard Association is the Canadian counterpart to the United States' UL organisation. The same test specifications are used as for the UR/UL classification. The CSA logo is valid for the Canadian market.

The CE classification documents the compliance with the European regulations relevant for the product. It is not a test mark, but an administrative one. The CE marking confirms the complete compliance with the "basic (safety) requirements" which are specifically determined in EU directives.

UKCA (UK Conformity Assessed) marking is the UK's product marking requirement for goods placed on the market in Great Britain (England, Scotland, and Wales). It replaces the CE marking after Brexit and is required for most products that previously needed CE marking.

NEMA Type 12

The Type 12 approval describes a protection system similar to the IP rating. Type 12, however, may not be awarded by the manufacturer itself like the IP rating, but only by an external, recognised testing organisation such as UL, NEMA or CSA. Type 12 corresponds roughly with an IP 54 rating.



PRODUCTS

Quality and quantity – attributes of our high-volume products for the thermal management in electrical enclosures. Rapid availability is the hallmark of this extensive range, which we keep good stock levels of to meet high market demands. The range includes fliterfans, active cooling units, air/air and air/water heat exchangers, chillers, heaters, thermostats and hygrostats – plus electrical enclosure accessories and signaling devices.


POWER
Pfannenberg

Trust in the Original.



Filterfans 4.0.
Superiority in fourth Generation.

When it comes to safe and cost-effective cooling of control cabinets with filtered ambient air, our filterfans are the first choice. Since Otto Pfannenberg invented it in 1958, they have held a leading position in the market.

The latest generation is even expanding this lead – with no fewer than 11 well-thought out and patent-protected details. One example worth mentioning here is the closed housing, which reaches guaranteed high system of protection IP 54 and IP 55, or the fluted filter mat which, in the IP 55 model, keeps the volume flow constantly high but increases the service life (time between 2 mat changes) by up to 300 %.

Our filterfans 4.0 series sets standards in terms of capacity, cost-efficiency and maintenance friendliness.

Protecting people, machines and the environment.

A suitable product for every requirement.

The comprehensive range of Pfannenberg filterfans provides solutions for various requirements. The units can be installed on the side or on the top. The application can be indoor or outdoor. Also in a high EMC version or with improved UV stability.



Filterfans IP 54.

- As standard in RAL 7035 grey and RAL 9011 black.
- IP 54 protection, closed frame prevents unfiltered air from penetrating.
- Patented tool-free 4-corner fastening system enables installation in seconds.

More on page 24.



Filterfans IP 55.

- For demanding applications indoors and outdoors.
- Innovative filter mat technology for outstanding airflow.
- UV protection due to special plastic (RAL 7035).
- IP 55 protection.

More on page 28.



Slim Line Filterfans IP 55.

- For demanding applications indoors and outdoors.
- Reduced installation depth for optimised air distribution.
- UV protection due to special plastic.
- IP 55 protection.

More on page 32.



Top mounting Filterfans.

- For indoor use in constricted spaces.
- Optimal airflow and temperature distribution.
- UV protection due to special plastic.
- IP 33 and IP 54 protection.

More on page 34.



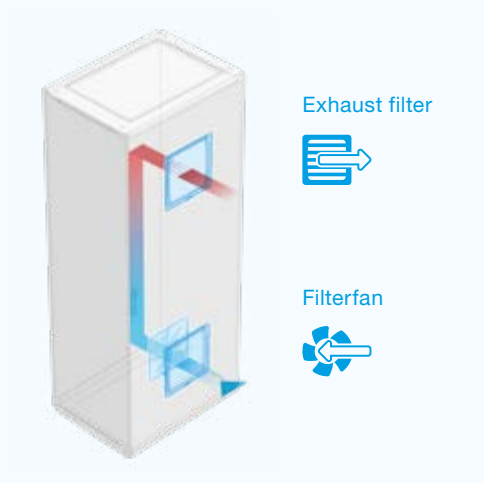
EMC Filterfans.

- For reliable use near electromagnetic fields.
- Environmentally friendly, no metallised plastics.
- Safe contact surface without beryllium-copper seal.
- IP 54 protection.

More on page 36.



Possibilities for the use of filterfans.

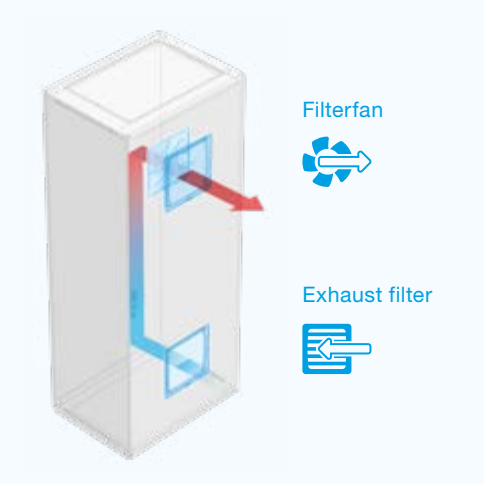


Version 1

- A filterfan blows the cold air into the lower section.
- The heated air gets out via an exhaust filter.

This is the standard application.

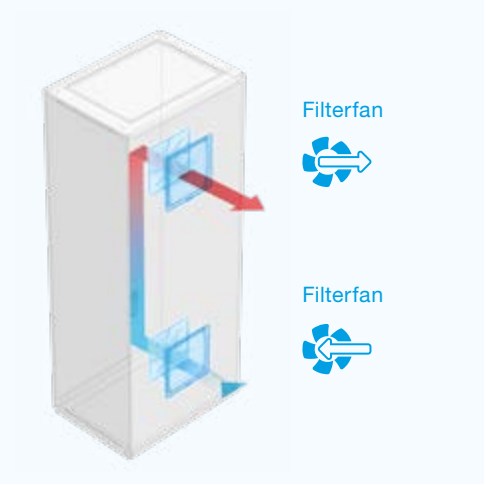
The advantage is that there is a slight over pressure in the housing. Therefore, no dust can penetrate through cracks and crevices.



Version 2

- A filterfan sucks the air out of the upper section of the housing.
- Cold air moves into the lower area via an exhaust filter.

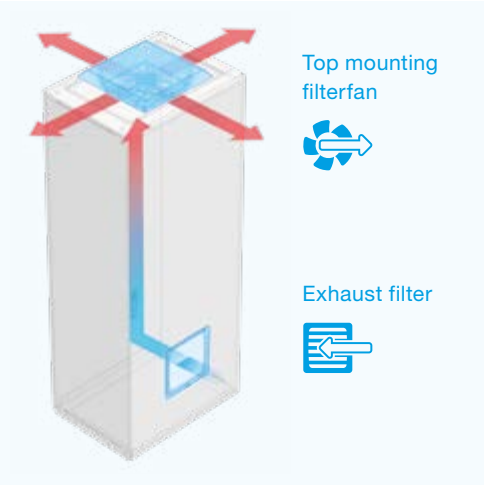
The advantage of this layout is an even airflow through the whole housing cross section. However, dust can enter through cracks as a result of the negative pressure.



Version 3

- A filterfan blows the cold air into the lower section and a second fan in the upper section sucks the heated air out again.
- Only the same types can be used in pairs.

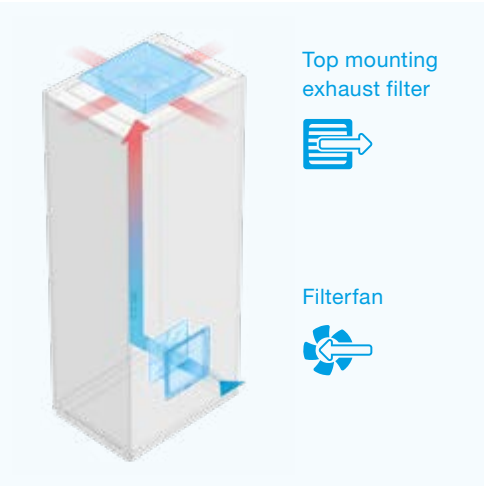
As a result of the layout, the static pressure loss of the filter mats is compensated. The layout promotes the free volume flow of a filterfan.



Version 4

- A top mounted filterfan sucks the air out of the housing.
- Cold air moves into the lower section by means of an exhaust filter.

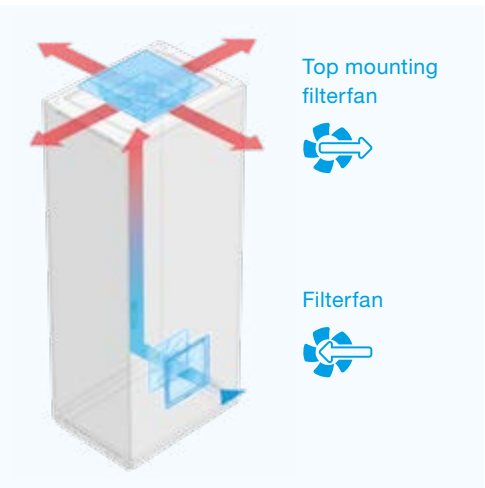
The advantage of this layout is an even airflow through the whole housing cross section. However, dust can enter through cracks as a result of the negative pressure.



Version 5

- A filterfan blows the cold air into the lower section.
- The heated air exits through a top mounted exhaust filter.

The advantage is that there is a slight over pressure in the housing. Therefore, no dust can penetrate through cracks and crevices.



Version 6

- A top mounted filterfan sucks the air out of the housing.
- A filterfan blows the cold air into the lower section.

As a result of the layout, the static pressure loss of the filter mats is compensated. The layout promotes the free volume flow of a filterfan.

Assembly, Energy, Air, Maintenance – Your Benefits

Well thought out details optimise your cost balance:



Compatibility

Filterfans 4.0 can be integrated into existing applications easily since most of the housing cut-outs comply with the Pfannenberg standard.



Time

The patented 4-corner fastening system allows for a tool-free installation in seconds and guarantees a secure hold.



Maintenance

The click mechanism enables a filter mat replacement in seconds.



Air

Airflow optimised fins and rotor blades guarantee maximal airflow with minimal energy consumption.



Efficiency

Filterfans 4.0 can be equipped with an optional thermostat – only operate when cooling is actually necessary.



Life time

With the fluted filter mats, filterfans 4.0 reach IP 55 system of protection. The intervals at which they need to be replaced extend up to 300 % longer than with conventional filter media.

Filterfans 4.0 at a glance

TYPE	INSTALLATION SIZE	AIRFLOW RATE [1]	RATED VOLTAGE	CUT-OUT (WxH) [2]	APPROVALS					PAGE
					cULus	EAC	CSA	CE	UKCA	
Filterfans IP 54										
PF 11.000	1	19 m³/h	230 V AC I 24 V DC	92 x 92 mm	●	●	●	●	●	24
PF 22.000	2	61 m³/h	230 V AC I 24 V DC	125 x 125 mm	●	●	●	●	●	
PF 32.000	3	98 m³/h	230 V AC I 24 V DC	177 x 177 mm	●	●	●	●	●	26
PF 42.500	4	125 m³/h	230 V AC I 24 V DC	223 x 223 mm	●	●	●	●	●	
PF 43.000	4	223 m³/h	230 V AC I 24 V DC		●	●	●	●	●	
PF 65.000	6	480 m³/h	230 V AC	292 x 292 mm	●	●	●	●	●	27
PF 66.000	6	640 m³/h	230 V I 400/460 V 3 ~		●	●	●	●	●	
PF 67.000	6	845 m³/h	230 V I 400/460 V 3 ~		●	●	●	●	●	
Filterfans IP 55										
PF 22.000	2	56 m³/h	230 V AC I 24 V DC	125 x 125 mm	●	●	●	●	●	28
PF 32.000	3	100 m³/h	230 V AC I 24 V DC	177 x 177 mm	●	●	●	●	●	
PF 42.500	4	145 m³/h	230 V AC I 24 V DC	223 x 223 mm	●	●	●	●	●	30
PF 43.000	4	233 m³/h	230 V AC I 24 V DC		●	●	●	●	●	
PF 65.000	6	505 m³/h	230 V AC	292 x 292 mm	●	●	●	●	●	31
PF 66.000	6	770 m³/h	230 V I 400/460 V 3 ~		●	●	●	●	●	
PF 67.000	6	925 m³/h	230 V I 400/460 V 3 ~		●	●	●	●	●	
Filter Grid										
PFA 10.000	1			92 x 92 mm	●	●	●	●	●	40
PFA 20.000	2			125 x 125 mm	●	●	●	●	●	
PFA 30.000	3			177 x 177 mm	●	●	●	●	●	
PFA 40.000	4			223 x 223 mm	●	●	●	●	●	
PFA 60.000	6			292 x 292 mm	●	●	●	●	●	
Slim Line Filterfans										
PF 65.000 SL	6	500 m³/h	230 V AC	292 x 292 mm	●		●	●	●	32
PF 67.000 SL	6	705 m³/h	230 V I 400/460 V 3 ~		●		●	●	●	
Filterfans for 3 to 5 mm walls										
PF 11.000 MEK	1	19 m³/h	230 V AC	93 x 93 mm	●	●	●	●	●	33
PF 22.000 MEK	2	61 m³/h	230 V AC	126.5 x 126.5 mm	●	●	●	●	●	
EMC Filterfans										
PF 11.000 EMC	1	19 m³/h	230 V AC I 24 V DC	93 x 93 mm	●	●		●	●	36
PF 22.000 EMC	2	61 m³/h	230 V AC I 24 V DC	126,5 x 126,5 mm	●	●		●	●	
PF 32.000 EMC	3	98 m³/h	230 V AC I 24 V DC	178 x 178 mm	●	●		●	●	
PF 42.500 EMC	4	125 m³/h	230 V AC I 24 V DC	224 x 224 mm	●	●		●	●	38
PF 43.000 EMC	4	223 m³/h	230 V AC I 24 V DC		●	●		●	●	
PF 67.000 EMC	6	845 m³/h	230 V I 400/460 V 3 ~	292 x 292 mm	●	●		●	●	
EMC Filter Grid										
PFA 10.000 EMC	1			93 x 93 mm	●	●		●	●	40
PFA 20.000 EMC	2			126,5 x 126,5 mm	●	●		●	●	
PFA 30.000 EMC	3			178 x 178 mm	●	●		●	●	
PFA 40.000 EMC	4			224 x 224 mm	●	●		●	●	
PFA 60.000 EMC	6			292 x 292 mm	●	●		●	●	
Top mounting Filterfans										
PTF 60.500	6	350 m³/h	230 V AC	291 x 291 mm	●	●		●	●	34
PTF 60.700	6	600 m³/h			●	●		●	●	
PTF 61.000	6	880 m³/h			●	●		●	●	
PTF 1200	-	1000 m³/h		~229 x 229 mm	●	●		●		35
Top mounting Exhaust Filter										
PTFA 60.000	6			291 x 291 mm	●	●		●	●	34
Various accessories										
Internal enclosure fan, weather protection hoods, thermostats, hygrostats										39
Filter mats										41

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

[1] free-blowing with filter

[2] for material thicknesses up to 3 mm; can be extended up to 5 mm for sizes 1 and 2

● available ○ pending

Filterfans IP 54

19–875 m³/h

Optimised airflow
Airflow optimised fins and rotor blades guarantee maximal airflow with minimal energy consumption.

Closed frame
prevents unfiltered air from penetrating (IP 54).

Efficiency
Filterfans 4.0 can be equipped with an optional thermostat – only operate when cooling is actually necessary.

Reduced energy consumption
More air, less power consumption.

Quick installation
The patented 4-corner fastening system allows for tool-free installation in seconds and guarantees a secure hold.

Easy maintenance
The click mechanism of the cover enables a filter mat replacement in seconds.

Neutral design
without colour irritations. Perfect harmony of colours with modern machines and plants.

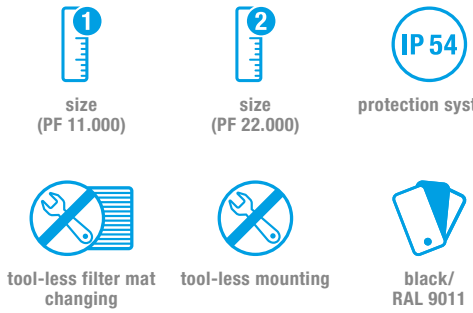
Compatibility
Filterfans 4.0 can be integrated into existing applications easily since most of the housing cut-outs comply with the Pfannenberg standard.



Black design
Alternative colour for various machine designs.



FILTERFANS IP 54 19–70 m³/h





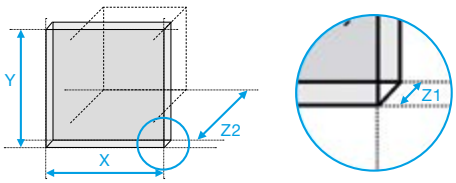
PRODUCT	PF 11.000		PF 22.000		
ARTICLE NO. WITH CABLE ○	11611101055	11611801055		11622801055	Unit
ARTICLE NO. WITH CABLE ●	11611101050	11611801050		11622801050	
ARTICLE NO. WITH CLAMP ○	11611101066	11611801066	11622101055	11622801066	
ARTICLE NO. WITH CLAMP ●	11611101087	11611801087	11622101050	11622801051	
DATA					
Rated voltage ±10 %	AC 50 I 60 Hz	DC	AC 50 I 60 Hz	DC	
	230	24	230	24	V
Unimpeded airflow	19 I 24	19	61 I 70	61	m³/h
Airflow rate in combination with exhaust filter	12 I 14	12	44 I 50	44	
Power consumption	12 I 11	2.4	19 I 18	5	W
Current consumption	0.07 I 0.06	0.1	0.12 I 0.18	0.21	A
Type of connection	cable, 2-core, length 310 mm or terminal strip, single wire, 0.5 - 1.5 mm² see article no. above				
Temperature range	–40 … +55 I –40 … +131				°C I °F
Service life L_{10} (+40 °C)	52500	70000	37500	62500	hrs
Dimensions (X x Y)	109 x 109		145 x 145		mm
Installation depth (Z2) + Construction height (Z1)	62 + 4	49 + 4	70 + 5	64 + 5	
Cut-out dimensions (W x H)	92 x 92		125 x 125		

ACCESSORIES	ARTICLE NUMBER		Page
Mounting Extension Kit 3 - 5 mm wall thickness	18112000006	18112000007	33
Filter grid ○	1 pc: 11710001055; 45 pc. 11710001410	1 pc:11720001055; 42 pc: 11720001411	40
Filter grid ●	11710001050	11720001050	40
Spare filter mats 5 pieces	18611600029	18611600030	41
Thermostat	17121000000		39
Hygrostat	17207000000		39
Rainhood, stainless steel	18112000001		39
Rainhood, steel RAL7035	18112000000		39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 160

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com



FILTERFANS IP 54 98–247 m³/h

size (PF 32.000)



size (PF 42.500)



protection system


tool-less filter mat changing


tool-less mounting


black/ RAL 9011



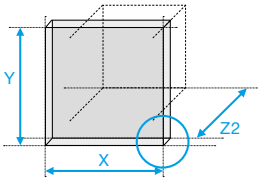
PRODUCT	PF 32.000		PF 42.500		PF 43.000		
ARTICLE NO. ●	11632101055	11632801055	11642101055	11642801055	11643101055	11643801055	Unit
ARTICLE NO. ●	11632101050	11632801050	11642101050	11642801050	11643101050	11643801050	
DATA							
Rated voltage ±10 %	AC 50 I 60 Hz	DC	AC 50 I 60 Hz	DC	AC 50 I 60 Hz	DC	
	230	24	230	24	230	24	V
Unimpeded airflow	98 I 108	98	125 I 138	125	223 I 247	223	m³/h
Airflow rate in combination with exhaust filter	73 I 80	73	93 I 102	93	201 I 223	201	m³/h
Power consumption	19 I 18	5	28 I 29	5.9	45 I 39	12	W
Current consumption	0.12 I 0.18	0.21	0.12 I 0.13	0.25	0.31 I 0.25	0.5	A
Type of connection	terminal strip	cable, 2-core, length 310 mm	spring type terminal				
Temperature range	–40 … +55 I –40 … +131		–20 … +55 I –4 … + 131	–40 … +55 I –40 … +131	–40 … +55 I –40 … +131		°C I °F
Service life L_{10} (+40 °C)	37500	62500	50000	57500	40000	80000	h
Dimensions (X x Y)	202 x 202		252 x 252				mm
Installation depth (Z2) + Construction height (Z1)	87 + 6	81 + 6	97 + 6	38 + 6	113 + 6	97 + 6	mm
Cut-out dimensions (W x H)	177 x 177		223 x 223				mm

ACCESSORIES	ARTICLE NUMBER		Page
Filter grid ●	1 pcs. 11730001055 14 pcs. 11730001408	1 pc: 11740001055 24 pc: 11740001412	40
Filter grid ●	11730001050	11740001050	40
Spare filter mats 5 pieces	18611600031	18611600032	41
Thermostat	17121000000		39
Hygrostat	17207000000		39
Rainhood, stainless steel	18112000003		39
Rainhood, steel RAL7035	18112000002		39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 160–161

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com





FILTERFANS IP 54 480–875 m³/h



size

protection system


tool-less filter mat changing


tool-less mounting


black/ RAL 9011



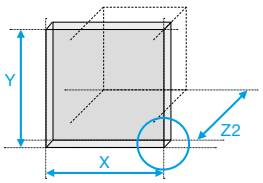
PRODUCT	PF 65.000	PF 66.000		PF 67.000		
ARTICLE NO. ●	11665102055	11666102055	11666022055	11667102055	11667022055	Unit
ARTICLE NO. ●	11665102050	11666102050	11666022050	11667102050	11667022050	
DATA						
Rated voltage ±10 %	AC 50 I 60 Hz					
	230	230	400/460 3 ~	230	400/460 3 ~	V
Unimpeded airflow	480 I 550	640 I 653		845 I 875		m³/h
Airflow rate in combination with exhaust filter	370 I 420	445 I 450		560 I 625		
Power consumption	80 I 100	120 I 160	120 I 155	140 I 197	140 I 170	W
Current consumption	0.35 I 0.45	0.53 I 0.72	0.26 I 0.25	0.62 I 0.86	0.35 I 0.43	A
Type of connection	spring type terminal					
Temperature range	–40 … +55 I –40 … +131					°C I °F
Service life L_{10} (+40 °C)	40000					h
Dimensions (X x Y)	320 x 320					mm
Installation depth (Z2) + Construction height (Z1)	150 + 7					
Cut-out dimensions (W x H)	292 x 292					

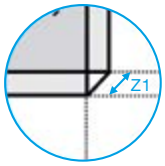
ACCESSORIES	ARTICLE NUMBER	Page
Filter grid ●	1 pc: 11760002055 I 12 pc: 11760002413	40
Filter grid ●	11760002050	40
Spare filter mats 5 pieces	18611600033	41
Thermostat	17121000000	39
Hygrostat	17207000000	39
Rainhood, stainless steel	18112000005	39
Rainhood, steel RAL7035	18112000004	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 161–162

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com





Filterfans IP 55

56–950 m³/h

Optimised airflow
Airflow optimised fins and rotor blades guarantee maximal airflow with minimal energy consumption.

Efficiency
Filterfans 4.0 can be equipped with an optional thermostat – only operate when cooling is actually necessary.

Reduced energy consumption
More air, less power consumption.

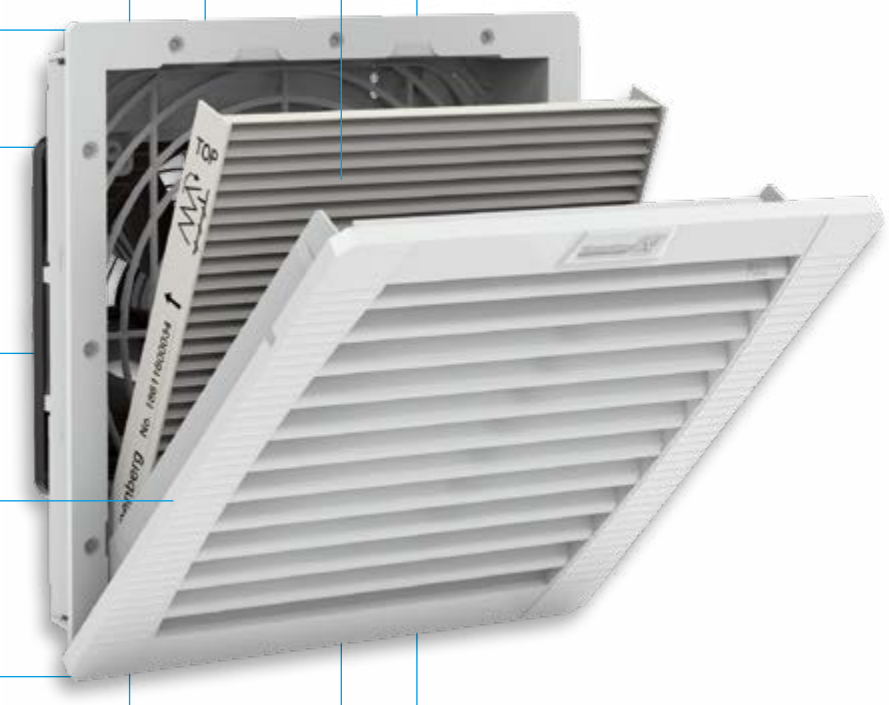
Quick installation
The patented 4-corner fastening system allows for tool-free installation in seconds and guarantees a secure hold.

IP 55 hose-proof
suitable for wet, dusty and dirty ambient conditions.

Easy maintenance
The click mechanism of the cover enables a filter mat replacement in seconds.

Unrivalled airflow at IP 55
via fluted filter mat. Closed frame prevents unfiltered air from penetrating.

Compatibility
Filterfans 4.0 can be integrated into existing applications easily since most of the housing cut-outs comply with the Pfannenberg standard.



Extended life span
3 times longer life span with the fluted filter mats.

UV resistant
against solar radiation damages (RAL 7035).

Neutral design
without colour irritations. Perfect harmony of colours with modern machines and plants.

Multiple applications
Appropriate for most indoor and outdoor applications in industrial and rough conditions, i.e. Food & Beverage, Airport, Chemical Plant, Machinery, Wood Processing and many others.

FILTERFANS IP 55 56–110 m³/h

size (PF 22.000)

size (PF 32.000)

IP 55 protection system

UV resistant RAL 7035

tool-less filter mat changing

tool-less mounting



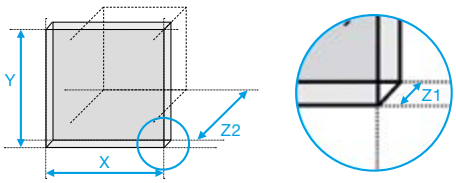
PRODUCT	PF 22.000		PF 32.000		
ARTICLE NO.	11622103055	11622803055	11632103055	11632803055	Unit
DATA					
Rated voltage ±10 %	AC 50 I 60 Hz	DC	AC 50 I 60 Hz	DC	
	230	24	230	24	V
Unimpeded airflow	56 I 64	56	100 I 110	100	m³/h
Airflow rate in combination with exhaust filter	40 I 46	40	55 I 64	55	m³/h
Power consumption	19 I 18	5	19 I 18	5	W
Current consumption	0.12 I 0.18	0.21	0.12 I 0.18	0.21	A
Type of connection	terminal strip	cable, 2-core, length 310 mm	terminal strip	cable, 2-core, length 310 mm	
Temperature range	–40 … +55 I –40 … +131				°C I °F
Service life L_{10} (+40 °C)	37500	62500	37500	62500	h
Dimensions (X x Y)	145 x 145		202 x 202		mm
Installation depth (Z2) + Construction height (Z1)	70 + 5	64 + 5	87 + 6	81 + 6	mm
Cut-out dimensions (W x H)	125 x 125		177 x 177		mm

ACCESSORIES	ARTICLE NUMBER		Page
Mounting Extension Kit 3 - 5 mm wall thickness	18112000007	–	33
Filter grid	1 pc: 11720003055 I 42 pc: 11720003411	1 pc: 11730003055 I 14 pc: 11730003408	40
Spare filter mats 5 pieces	18611600034	18611600035	41
Thermostat	17121000000		39
Hygrostat	17207000000		39
Rainhood, stainless steel	18112000001	18112000003	39
Rainhood, steel RAL7035	18112000000	18112000002	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 162–163

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com



FILTERFANS IP 55 145–265 m³/h



size

protection system

resistant RAL 7035

tool-less filter mat changing

tool-less mounting

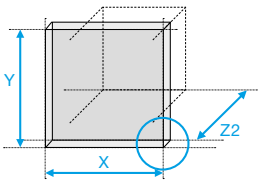
PRODUCT	PF 42.500		PF 43.000		
ARTICLE NO.	11642103055	11642803055	11643103055	11643803055	Unit
DATA					
Rated voltage ±10 %	AC 50 I 60 Hz	DC	AC 50 I 60 Hz	DC	
	230	24	230	24	V
Unimpeded airflow	145 I 160	145	233 I 265	233	m³/h
Airflow rate in combination with exhaust filter	109 I 113	109	180 I 207	180	m³/h
Power consumption	28 I 29	5.9	45 I 39	12	W
Current consumption	0.12 I 0.13	0.25	0.31 I 0.25	0.5	A
Type of connection	spring type terminal				
Temperature range	–20 … +55 I –4 … +131	–40 … +55 I –40 … +131	–40 … +55 I –40 … +131		°C I °F
Service life L_{10} (+40 °C)	50000	57500	40000		h
Dimensions (X x Y)	252 x 252				mm
Installation depth (Z2) + Construction height (Z1)	97 + 6		113 + 6	97 + 6	mm
Cut-out dimensions (W x H)	223 x 223				mm

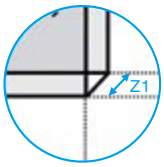
ACCESSORIES	ARTICLE NUMBER	Page
Filter grid	1 pc: 11740003055 I 24 pc: 11740003412	40
Spare filter mats 5 pieces	18611600036	41
Thermostat	17121000000	39
Hygrostat	17207000000	39
Rainhood, stainless steel	18112000003	39
Rainhood, steel RAL7035	18112000002	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 163

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com





FILTERFANS IP 55 505–950 m³/h



6 size

IP 55 protection system

UV resistant RAL 7035

tool-less filter mat changing

tool-less mounting

cut-out compatible to DTFI 9021

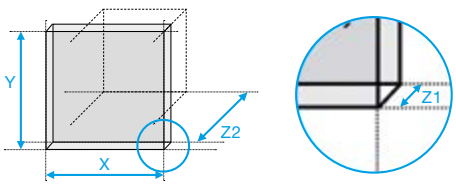
PRODUCT	PF 65.000	PF 66.000		PF 67.000		
ARTICLE NO.	11665103055	11666103055	11666023055	11667103055	11667023055	Unit
DATA						
Rated voltage ±10 %	AC 50 I 60 Hz					
	230		400/460 3 ~	230	400/460 3 ~	V
Unimpeded airflow	505 I 510	770 I 785		925 I 950		m³/h
Airflow rate in combination with exhaust filter	380 I 390	490 I 501		570 I 625		m³/h
Power consumption	80 I 100	120 I 160	120 I 155	140 I 197	140 I 170	W
Current consumption	0.35 I 0.45	0.53 I 0.72	0.26 I 0.25	0.62 I 0.86	0.35 I 0.43	A
Type of connection	spring type terminal					
Temperature range	–40 … +55 I –40 … +131					°C I °F
Service life L_{10} (+40 °C)	40000					h
Dimensions (X x Y)	320 x 320					mm
Installation depth (Z2) + Construction height (Z1)	150 + 7					mm
Cut-out dimensions (W x H)	292 x 292					mm

ACCESSORIES	ARTICLE NUMBER	Page
Filter grid	1 pc: 11760003055 I 12 pc: 11760003413	40
Spare filter mats 5 pieces	18611600037	41
Thermostat	17121000000	39
Hygrostat	17207000000	39
Rainhood, stainless steel	18112000005	39
Rainhood, steel RAL7035	18112000004	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 164

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com



SLIM LINE FILTERFANS 500–725 m³/h



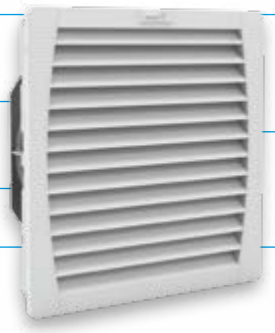
size | protection system | resistant RAL 7035 | tool-less filter mat changing

More space in the enclosure.

High performance at low installation depth.

No collision with built-in components.

Life span
3 times longer life span of filter mat.



Maintenance
Tool-less filter mat exchange in seconds.

IP 55 hose-proof
increased protection for humid environment.

UV resistant
for outdoor and indoor (RAL 7035)

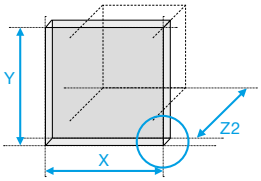
PRODUCT	PF 65.000 SL	PF 67.000 SL		
ARTICLE NO.	11675103055	11677103055	11677023055	Unit
DATA				
Rated voltage ±10 %	AC 50 I 60 Hz			
	230		400/460 3 ~	V
Unimpeded airflow	500 I 550	705 I 725		m³/h
Airflow rate in combination with exhaust filter	345 I 423	530 I 580		m³/h
Power consumption	64 I 80	115 I 165	110 I 165	W
Current consumption	0.29 I 0.35	0.51 I 0.7	0.2 I 0.23	A
Type of connection	screw terminal			
Temperature range	–40 … +55 I –40 … +131			°C I °F
Service life L_{10} (+ 40 °C)	40000			h
Dimensions (X x Y)	320 x 320			mm
Installation depth (Z2) + Construction height (Z1)	124 + 7	127 + 7		mm
Cut-out dimensions (W x H)	292 x 292			mm

ACCESSORIES	ARTICLE NUMBER	Page
Filter grid	1 pc: 11760003055 I 12 pc: 11760003413	40
Spare filter mats 5 pieces	18611600037	41
Thermostat	17121000000	39
Hygrostat	17207000000	39
Rainhood, stainless steel	18112000005	39
Rainhood, steel RAL7035	18112000004	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 165

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com





FILTERFANS for 3 - 5 mm walls 19–70 m³/h
with MEK - mounting extension kit

Filterfan and exhaust filter for wall thicknesses from 3 to 5 mm.

Can be used in plastic cabinets, for example



Standard filterfans can be upgraded with the MEK (mounting extension kit) for use in 3 to 5 mm thick housing walls.

PRODUCT	PF 11.000 with MEK	PF 22.000 with MEK	
ARTICLE NO.	11611101215	11622101215	Unit
DATA			
Rated voltage ±10 %	230 AC 50 I 60 Hz		V
Unimpeded airflow	19 I 24	61 I 70	m³/h
Airflow comb. with exhaust filter	12 I 14	44 I 50	
Power consumption	12 I 11	20 I 20	W
Current consumption	0.07 I 0.06	0.15 I 0.15	A
Type of connection I Fuse	cable, 2-core, length 310 mm I 6	terminal strip I 6	A
System of protection	NEMA type 12 according to EN 60529 / UL 50		
System of protection	IP 54; IP 55 on request for PF/ PFA 22.000		
Service life L_{10} (+ 40 °C)	52500	37500	h
Dimensions (X x Y)	109 x 109	145 x 145	mm
Installation depth (Z2) + Construction height (Z1)	62 + 4	70 + 5	
Cut-out dimensions (W x H)	93 x 93	126.5 x 126.5	

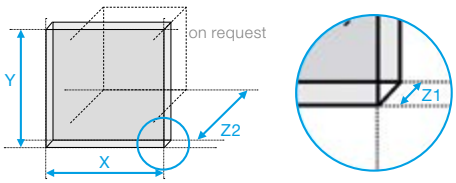
PRODUCT	MEK for PF 11.000 or PFA	MEK for PF 22.000 or PFA	
ARTICLE NO.	18112000006	18112000007	Unit
Dimensions (H x W x D)	98 x 90 x 15	132 x 120 x 24	mm
Weight	12	20	g
Material	stainless steel		
Kit consists of	Extension sheet and 4 screws		W

ACCESSORIES	ARTICLE NUMBER		Page
Exhaust filter	PFA 10000 MEK: 11710001215	PFA 20000 MEK: 11720001215	-
Spare filter mats 5 pieces	18611600029	18611600030	41
Thermostat	17121000000		39
Hygrostat	17207000000		39
Rainhood in stainless steel	18102000014		39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 160

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com



ROOF VENTILATION 350–1000 m³/h

IP 33 protection system

IP 54 protection system

tool-less mounting

3 performance classes
in only one installation cut-out.

Natural air convection is supported.

Tool-less mounting.



Can be operated with or without a filter mat according to the ambient conditions.

Sucking fan
for an even circulation in the whole electrical enclosure.

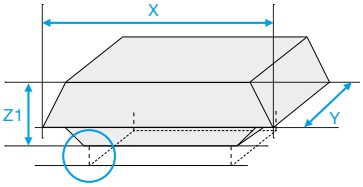
PRODUCT		PTF 60.500	PTF 60.700	PTF 61.000	PTFA 60.000	
ARTICLE NO.	IP 54	11685101055	11687102055	11681102055	11786001055	Unit
ARTICLE NO.	IP 33	11685100055	11687100055	11681100055	11786000055	
DATA						
Rated voltage ±10 %		AC 50 I 60 Hz				
		230				V
Unimpeded airflow	IP 54	350	600	880		m³/h
	IP 33	500	800	1000		
Airflow rate in combination with exhaust filter	IP 54	242	400	570		
	IP 33	310	450	650		
Power consumption		4 x 28 I 29	80 I 100	120 I 160		W
Current consumption		4 x 0.2 I 0.2	0.35 I 0.45	0.53 I 0.72		A
Type of connection		terminal strip				
Temperature range		–15 … +55 I +5 … +131				°C I °F
Service life L_{10} (+40 °C)		50000 (+25°C)	40000			h
Dimensions (X x Y)		436 x 436	470 x 470		436 x 436	mm
Installation depth (Z2) + Construction height (Z1)		34 + 72	57 + 95		34 + 72	
Cut-out dimension (W x D)		291 x 291				

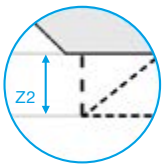
ACCESSORIES		ARTICLE NUMBER			Page
Spare filter mats	20 pieces	18611600124	18611600143	18611600124	41
Thermostat		17121000000			39
Hygrostat		17207000000			39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 165–166

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com





PTF 1200/1200S ROOF VENTILATION 1000 m³/h

IP 54 protection system

UV resistant RAL 7035

PWM speed control (PTF 1.200 S)

Energy-efficient EC centrifugal fan

Optimum airflow and uniform temperature distribution
(natural convection of the air is supported)



PWM control (PTF 1200S only)
speed control for less noise, longer lifespan and even more energy savings.

Full metal housing, powder coated
Robust and corrosion protected.

Easy mounting

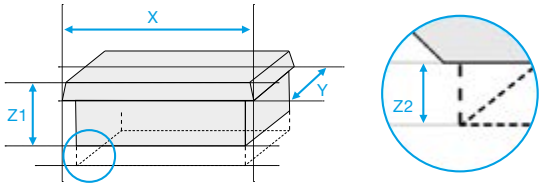
PRODUCT	PTF 1.200/1.200S		
ARTICLE NO. PTF 1200	11692102055	11692152055	Unit
ARTICLE NO. PTF 1200S	11692102185	11692152185	
DATA			
Rated voltage ±10 %	AC 50 I 60 Hz		
	230	115	V
Unimpeded airflow	1000		m³/h
Airflow rate in comb. with 2x exhaust filter (IP 55)	870		
Power consumption	170		W
Current consumption	1.40	2.20	A
Power supply	X-COM plug		
PWM control (only PTF 1200S)	Wago Serie 231 4-pole		
Service life L_{10} (+ 40 °C)	approx. 70000		h
Operating temperature	–25 … +60 I -13 … +140	–25 … +50 I -13 … +122	°C I °F
Dimensions (X x Y x Z1)	300 x 300 x 155		mm
Installation depth (Z2)	22		

ACCESSORIES	ARTICLE NUMBER	Page
Spare filter mats 20 pieces	18611600193	41
Thermostat	17121000000	39
Hygrostat	17207000000	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

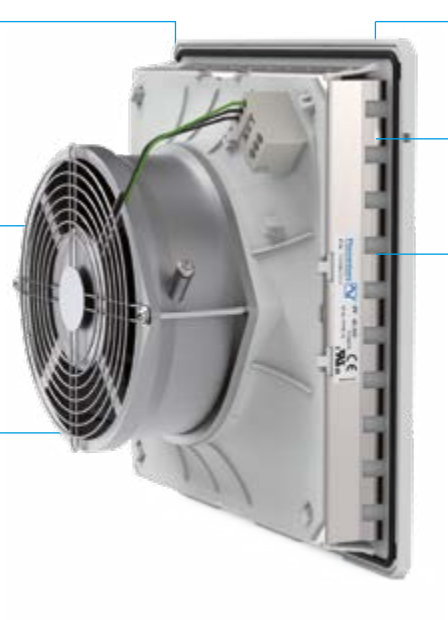
Performance curves on page 166

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com



EMC Filterfans

In most cases, industrial control cabinets are made of sheet steel. As a result of this choice of material, the control cabinet provides very good protection against electromagnetic radiation. This protection is compromised by the cut-out in the cabinet for the filterfan. Since the filterfan is usually made of plastic, electromagnetic waves can enter and escape in both directions through the opening. EMC filterfans “close” this hole.



Metal shielding
for high electromagnetic protection.

Contact is made via the cut edge of the cut-out
no scratching off of coatings.

Quick maintenance
Filter mat exchange without tools.

No elaborate reworking
of the cut-out.

Secure contact
with the housing wall via contact springs.

Use of standard filter mat
for lower maintenance cost.



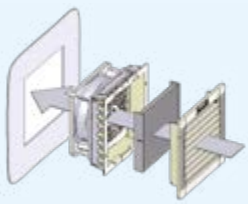
Safe contact surface
without beryllium-copper seal.

Pfannenberg uses a very effective, safe and environmentally friendly method for its EMC filterfan model. As a result, the protective effect of the control cabinet is restored even though filterfans are used. The EMC protection of the control cabinet is, as a result, guaranteed in both directions of the electromagnetic radiation. The components in the cabinet do not disturb the external environment and disturbance sources outside the cabinet do not disturb the components on the inside.

Pfannenberg’s EMC filterfans reach the following attenuation values:
Damping at 30 MHz approx. 71 dB
Damping at 400 MHz approx. 57 dB

You can find the result charts of all shield attenuation measurements of Pfannenberg’s filterfans and exhaust filters on www.pfannenberg.com.

No elaborate reworking of the cut-out.



No adhering of copper tape or similar aids.

No time-consuming scratch 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 FILTERFANS 19–108 m³/h



size (PF 11.000)



size (PF 22.000)



size (PF 32.000)



protection system


tool-less filter mat changing


tool-less mounting



tested



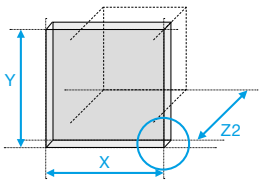
PRODUCT	PF 11.000 EMC		PF 22.000 EMC		PF 32.000 EMC		
ARTICLE NO. WITH CABLE	11811101055	11811801055		11822801055		11832801055	Unit
ARTICLE NO. WITH CLAMP	11811101066	11811801066	11822101055		11832101055		
DATA							
Rated voltage ±10 %	AC 50 I 60 Hz	DC	AC 50 I 60 Hz	DC	AC 50 I 60 Hz	DC	
	230	24	230	24	230	24	V
Unimpeded airflow	19 I 24	19	61 I 70	61	98 I 108	98	m³/h
Airflow rate in combination with exhaust filter	12 I 14	12	44 I 50	44	73 I 80	73	m³/h
Power consumption	12 I 11	2.4	19 I 18	5	19 I 18	5	W
Current consumption	0.07 I 0.06	0.1	0.12 I 0.18	0.21	0.12 I 0.18	0.21	A
Type of connection	cable, 2-core, length 310 mm or terminal strip, single-wire, 0.5 - 1.5 mm² see article no. above						
Temperature range	–40 … +55 I –40 … +131						°C I °F
Service life L_{10} (+40 °C)	52500	70000	37500	62500	37500	62500	h
Dimensions (X x Y)	109 x 109		145 x 145		202 x 202		mm
Installation depth (Z2) + Construction height (Z1)	62 + 4	49 + 4	70 + 5	64 + 5	87 + 6	81 + 6	mm
Cut-out dimensions (W x H)	93 x 93		126.5 x 126.5		178 x 178		mm

ACCESSORIES	ARTICLE NUMBER			Page
Filter grid	11910001055	11920001055	11930001055	40
Spare filter mats 5 pieces	18611600029	18611600030	18611600031	41
Thermostat	17121000000			39
Hygrostat	17207000000			39
Rainhood, stainless steel	18112000001		18112000003	39
Rainhood, steel RAL7035	18112000000		18112000002	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 160

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com





EMC-FILTERFANS 125–875 m³/h

size (PF 43.000)

size (PF 65.000)

protection system

tool-less filter mat changing

tool-less mounting

tested

cut-out compatible to DTFI 9021 (PF 67.000)



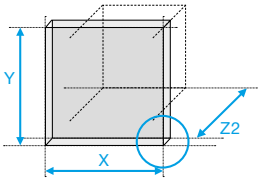
PRODUCT	PF 42.500 EMC		PF 43.000 EMC		PF 67.000 EMC		
ARTICLE NO.	11842101055	11842801055	11843101055	11843801055	11867022055	11867102055	Unit
DATA							
Rated voltage ±10 %	AC 50 I 60 Hz	DC	AC 50 I 60 Hz	DC	AC 50 I 60 Hz		
	230	24	230	24	400 3~ I 460 3~	230	V
Unimpeded airflow	125 I 138	125	223 I 247	223	845 I 875		m³/h
Airflow rate in combination with exhaust filter	93 I 102	93	201 I 223	201	560 I 625		m³/h
Power consumption	18 I 17	5.9	45 I 39	12	140 I 170	140 I 197	W
Current consumption	0.12 I 0.1	0.25	0.31 I 0.25	0.5	0.35 I 0.43	0.62 I 0.86	A
Type of connection	spring type terminal						
Temperature range	–20 … +55 I –4 … + 131	–40 … +55 I –40 … +131	–40 … +55 I –40 … +131				°C I °F
Service life L_{10} (+40 °C)	50000	57500	40000	80000	40000		h
Dimensions (X x Y)	252 x 252				320 x 320		mm
Installation depth (Z2) + Construction height (Z1)	97 + 6		113 + 6	97 + 6	150 + 7		mm
Cut-out dimensions (W x H)	224 x 224				292 x 292		mm

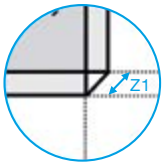
ACCESSORIES	ARTICLE NUMBER		Page
Filter grid	11940001055	11960002055	40
Spare filter mats 5 pieces	18611600032	18611600033	41
Thermostat	17121000000		39
Hygrostat	17207000000		39
Rainhood, stainless steel	18112000003	18112000005	39
Rainhood, steel RAL7035	18112000002	18112000004	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 161–162

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Accessories

INTERNAL ENCLOSURE FAN

- For long rows of electrical enclosures which are only cooled with one unit.
- Distribution of the cold air in the electrical enclosure.
- Robust – steel housing and bracket.
- Variable – air stream can with adjustable bracket be guided to any direction.
- Slim – even suitable for limited space.



PRODUCT	PEF 180		
ARTICLE NO.	18110000000	18110000002	Unit
DATA			
Rated voltage ±10 %	AC 50 I 60 Hz	DC	
	230	24	V
Airflow	160	170	m^3/h

HOSE-PROOF RAINHOODS

- Weather protection hood NEMA 3R/4 in VA or powder-coated.
- The mounting bracket can easily be installed to the enclosure around the existing cut-out.



PRODUCT		HOSE-PROOF RAINHOODS		
ARTICLE NO.	VA	18112000001	18112000003	18112000005
ARTICLE NO.	RAL 7035	18112000000	18112000002	18112000004
SUITABLE FOR...				
Installation size		1 I 2	3 I 4	6

THERMOSTAT AND HYGROSTAT

In combination with thermostats and hygrostats from the FLZ series, 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	FLZ 530	FLZ 543	FLZ 600	FLZ 610
ARTICLE NO.	17121000000	17143000000	17207000000	17218100000
DATA				
Version	Thermostat 0–60 °C	Twin Thermostat 0–60 °C	Hygrostat 40–90 % R.H.	Thermostat/Hygrostat 0–60 °C / 40–90 % R.H.

Accessories

FILTER GRIDS 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.



FILTER GRIDS
Grey (RAL 7035) for all PF filterfans.

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	292 x 292 mm	11760002055	11760003055
PFA 10.000 EMC	93 x 93 mm	11910001055	–
PFA 20.000 EMC	126.5 x 126.5 mm	11920001055	11920003055
PFA 30.000 EMC	178 x 178 mm	11910001055	11930003055
PFA 40.000 EMC	224 x 224 mm	11940001055	11940003055
PFA 60.000 EMC	292 x 292 mm	11960002055	11960003055

FILTER GRIDS
black (RAL 9011) for all PF filterfans.



PRODUCT	CUT-OUT	ARTICLE NUMBER (IP 54)
PFA 10.000	92 x 92 mm	11710001050
PFA 20.000	125 x 125 mm	11720001050
PFA 30.000	177 x 177 mm	11730001050
PFA 40.000	223 x 223 mm	11740001050
PFA 60.000	292 x 292 mm	11760002050



FILTER GRIDS
Grey (RAL 7035) for all PF filterfans.

PRODUCT	CUT-OUT	ARTICLE NUMBER (IP 54)
PTFA 60.000	291 x 291 mm	11786001055

FILTER MATS for filterfans and filter grids



IP 54



IP 55

SPARE FILTER MATS
for filterfans of the 4th Generation.

SUITABLE FOR...	ARTICLE NUMBER [1] (IP 54)	DIMENSIONS
Installation size 1	18611600029	87 x 87 mm
Installation size 2	18611600030	119 x 119 mm
Installation size 3	18611600031	170 x 170 mm
Installation size 4	18611600032	216 x 216 mm
Installation size 6	18611600033	284 x 284 mm
SUITABLE FOR...	**ARTICLE NUMBER [1] (IP 55)**	**DIMENSIONS**
Installation size 2	18611600034	116 x 108 mm
Installation size 3	18611600035	166 x 156 mm
Installation size 4	18611600036	212 x 200 mm
Installation size 6	18611600037	279 x 264 mm

[1] set with 5 pieces

SPARE FILTER MATS
for roof ventilation.

SUITABLE FOR...	ARTICLE NUMBER [1] (IP 54)	DIMENSIONS
PTF 60.500 I PTFA 60.000	18611600124	290 x 70 mm
PTF 60.700 I PTF 61.000	18611600143	290 x 95 mm
PTF 1200 I PTF 1200S	18611600193	246 x 146 mm

[1] package for 5 filterfans

SPARE FILTER MATS
for filterfans of the 3rd Generation.

SUITABLE FOR...	ARTICLE NUMBER [1] (IP 54)	DIMENSIONS
PF 1.000 I PFA 1.000	18611600029	87 x 87 mm
PF 2.000 I PFA 2.000	18611600066	115 x 115 mm
PF 2.500 I 3.000 I 3.000 SL I PFA 2.500/3.000	18611600074	210 x 210 mm
PF 5.000 I 6.000 I 7.000 I 6.000 SL2 I 6.500 SL1 I PFA 5.000 I 6.000 I 7.000	18611600081	277 x 277 mm

[1] set with 5 pieces

Efficient cooling.



Green Series Air/Air Heat Exchangers from the PAS series.

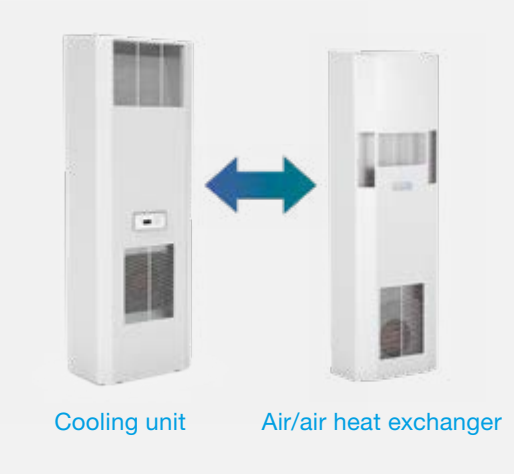
Using the ambient air for the thermal management of the enclosure is the most economical and energy efficient type of cooling. In many applications the ambient air is contaminated by dust, liquid or gases, so that components which are integrated in the enclosure can be damaged when contact occurs. The use of a filterfan 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. The Green Series air/air heat exchangers are thus an alternative to filterfans.

The robust steel construction of the air/air heat exchangers makes their operation in harsh industrial environments possible. Assembly and maintenance have 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.

Protecting people, machines and the environment.

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



Cooling unit Air/air heat exchanger

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 Green Series 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.

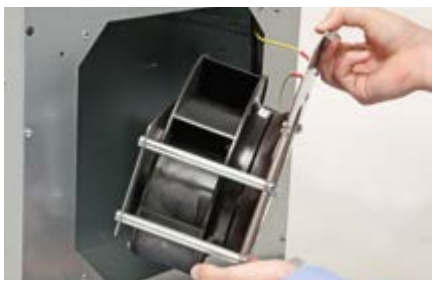
The advantages at a glance:



- Tool-free retrofit of filter adapter.
- Tool-free filter change.
- Change filter in less than one minute.



- Temperature adjusting occurs via the mechanical thermostat.
- Additional alarm thermostat allows for the ideal regulation of the alarm limit.



- Maintenance friendly.
- 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.

Green Series Air/Air Heat Exchangers at a glance

PAS for outer mounting on the door or side

TYPE	SPECIFIC COOLING CAPACITY	RATED VOLTAGE	DIMENSIONS (HxWxD)	APPROVALS CE	PAGE
PAS Air/Air Heat Exchangers					
PAS 6043	20 W/K	230 V	618 x 380 x 212 mm	●	46
PAS 6133	65 W/K		937 x 410 x 199 mm	●	
PAS 6203	100 W/K		1555 x 485 x 252 mm	●	
Accessories					
Internal enclosure fan		230 V			39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

● available ○ pending

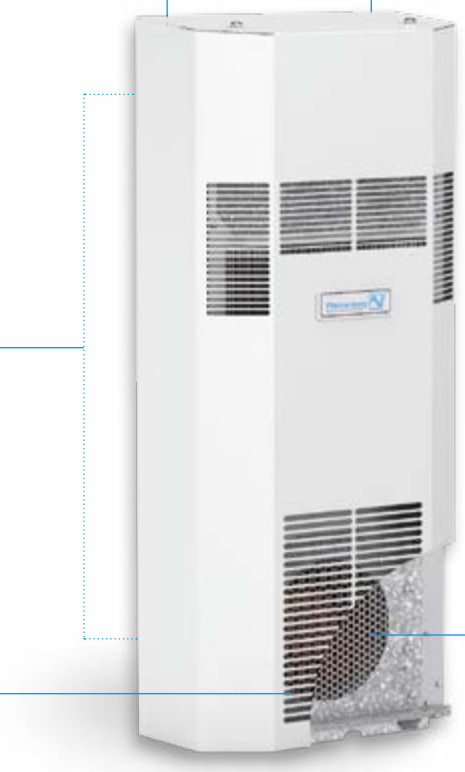


PAS 6000
Green Series Air/Air Heat Exchangers
20–100 W/K

Door or side mounting – in the event of limited space in the cabinet;
the routing of cold air to the important components in the cabinet is retained.

Highest variability
due to cut-out compatibility for five performance classes and to Pfannenberg cooling units and air/water heat exchangers.

Integrated thermostat
for temperature control; additional thermostat for excessive temperature warning and maintenance-free.



Large distance between intake and exhaust vents
for safe air circulation and elimination of hot spots.

Service friendly
due to direct access to the fans, thus 80 % shorter repair times.

Optional pre-filter
upgradable with aluminium, fleece or fluted filter, for applications with heat exchangers in different ambient conditions.

AIR/AIR HEAT EXCHANGERS 20–100 W/K



side mounting

IP 54
protection system

cut out compatible to DT I A/W heat exchangers

temperature control

temperature alarm

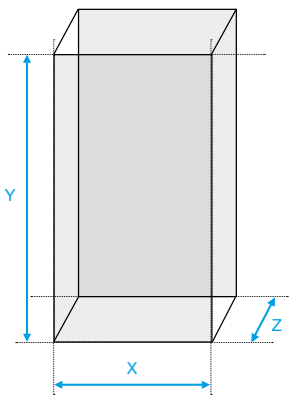
PRODUCT		PAS 6043	PAS 6133	PAS 6203	
ARTICLE NO.		12981111055	12982411055	12983611055	Unit
DATA					
Rated voltage ±10 %		AC 50 I 60 Hz			
		230			V
Specific cooling capacity		20	65	100	W/K
Power consumption		50 I 56	310 I 420		W
Current consumption		0.25 I 0.26	1.3 I 1.8	1.3 I 1.7	A
Starting current		0.7 I 0.8	3.6 I 3.7	3.5 I 3.3	
Unimpeded airflow (free flow)	internal	240 I 280	1175 I 1300		m^3/h
Type of connection		spring-type terminal included with plug			
Ambient temperature range		–25 … +55			°C
Control range (adjustable)	control	+20 … +55 I factory setting +35			
	alarm	+30 … +65 I factory setting +45			
Dimensions (X x Y x Z)		380 x 618 x 212	410 x 937 x 199	485 x 1555 x 252	mm
Weight (net)		15.5	24.9	46.3	kg
Degrees of protection according to EN 60529	IP 54	towards the electrical enclosure if used as intended by the manufacturer			
Design	housing	galvanised sheet steel			
	cover	galvanised; electrostatically powder coated (200 °C)			
Colour (cover)		RAL 7035 I different colours available on request			

ACCESSORIES	ARTICLE NUMBER			Page
Filter adapter (RAL 7035)	18060200000	18060200001	18310000151	85
Fleece filter (5 pieces)	18061600000	18061600001	18300000147	85
Internal enclosure fan	18110000000			39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

CE

Performance curves on page 171



Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com

Designed for the future.



Cooling units designed to meet any future requirements.

Being part of the process chain, we are well aware that our products also have to meet increasing expectations. This is why our active cooling units are compatible with all types of electrical enclosures and can be adapted to any system design. Worldwide, they deliver smooth process control sequences – with maximum reliability and ease of servicing plus innovative technologies.

Product lines for all space conditions.

The cooling units in our DTI and DTS product lines give you flexibility in the use of the available space. They satisfy all requirements for partially recessed (DTI) and side mounted (DTS) installation. Units in our DTT product line require even less space. Top-mounted cooling units provide the perfect solution for the most limited of spaces and 100 % protection against condensate.

Units for every requirement.

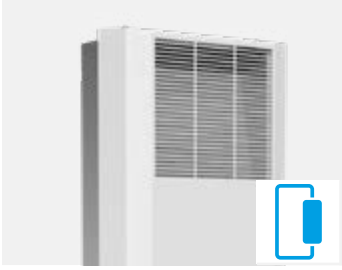
With three different series, Pfannenberg offers you a comprehensive selection of cooling units. From the powerful 6000 units of the Green Series, to the innovative energy-efficient models of the X-Series, to the robust 3000 cooling units, which are also suitable for outdoor use and in the food industry thanks to their high IP and NEMA protection class.

Protecting people, machines and the environment.

Selecting the right Cooling Unit series.

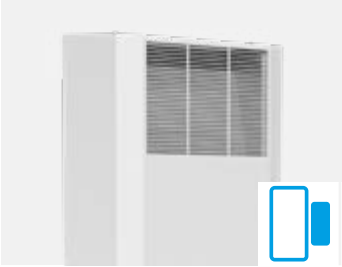
Pfannenberg's cooling units are available in four different series. The design concepts make it possible to select the appropriate cooling unit for the many different applications and ambient conditions.

Mounting options: DTI, DTS, DTFS and DTT.



DTI

Cooling unit for the partially recessed side or door mounting, extremely quick installation by one person in less than 3 minutes.



DTS

Cooling unit for side or door mounting. For cases when there is no available space for the cooling unit inside the control cabinet.



DTFS

A design for side mounting and fully recessed door or side installation. Two mounting options in only one device.



DTT

Cooling unit with 100 % condensate safety for the space-saving installation on the top of the control cabinet.



Small size

6000 DTI/DTS Green Series: progressive and energy efficient.

- State of the art cooling unit series for side mounting according to the latest developments in technology.
- Energy efficient X-series with highest EER (Energy Efficiency Ratio).
- Service friendly, easy to exchange fan and circuit board.
- Outside surface easy to clean.
- Optional filter adapter available for three different filter media for all industrial environments.
- Cut-out compatible to the older 9000 series.
- High air volume flow for the safe cooling of hot-spots.
- Cut-out compatible to 6000 air/water and air/air heat exchangers.
- In Multi Controller version:
  - equipped with a service interface for the integration in the machine control – ready for IoT: Machine to Machine.
  - 2nd temperature sensor enables the internal fan to be switched off safely.
  - Multi Master instead of the master/slave function: Cooling units continue cooling even when one breaks down.

More on page 60.



6000 DTT ▯COOL series: for top mounted applications.

- Space-saving installation on top of the control cabinet. Emergency escape routes and logistic paths are kept clear. Expensive storage space is saved.
- Perfect protection against mechanical damage in running production operation because it is “out of reach” of fork lift trucks and other vehicles.
- DTT cooling units fit on cabinets of all manufacturers.
- 100 % protection against condensate due to patented “warped” construction.

More on page 74.



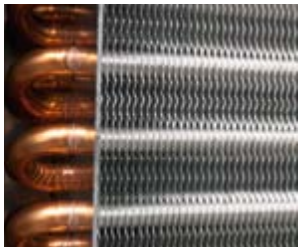
3000 DTS series: for extra harsh environments.

- The series has similar performances to the 6000 and 9000 series and is suitable for narrower cut-out dimensions. For example, at the side of less deep cabinets or on narrower doors.
- Robust US design with NEMA ratings 12, 3R/4 and 4/4x.
- Suitable for simple indoor and more demanding outdoor and wash-down applications.
- UL listed certification.

More on page 78.

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's Green Series takes excellent accessibility and simple maintenance into consideration.



Large fin spacing



Simple installation



Filter Adapter



Pfannenberg Sizing Software (PSS)

- Large condenser fin spacing allow for longer maintenance periods, even without an additional Nano coating.
- One mounting cut-out for five different performances, 1,000–4,000 W.
- Mounting possible by one person in a few minutes.
- Simple accessibility to all the relevant components.
- Fast component replacement.
- Versatile voltage supply of 380–460 V via built-in transformer.
- Filter inserts for various applications (aluminium, fleece or fluted filter)
- Tool-less installation and tool-less filter replacement.
- Filter replacement in less than one minute.

Time-saving

Tool-free patented mounting design allows for quick and efficient assembly that considerably reduces process costs. Don't just take our word for it! See our video demonstration on the web.
Visit www.pfannenberg.com to see how you can save time and money.

Simple installation

Pfannenberg offers cooling units with the world largest possible cut-out compatibility in order to be able to provide a unit replacement with the least possible installation work. Intelligent mounting systems minimise 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 provides you the security of a perfect dimensioning and prevents costly over dimensioning.

The PSS is online available at:
www.pfannenberg.com/pss

Our cooling concept provides unique flexibility.

One cut-out, all possibilities: Our active cooling units, our air/air and air/water heat exchangers have identical cut-out sizes and fit into the enclosures of all cabinet manufacturers. This makes it possible to exchange the cooling technology easily at any time, such as after an update of electrical enclosure components or another adjustment to changed temperature conditions.

Machine and plant constructors, end users and distributors enjoy this flexibility and profit from high cost savings when equipping and modifying electrical enclosures.

1 enclosure cut-out, 3 cooling technologies, 9 different devices – for unique flexibility and cost savings:

- Construction of one standardised enclosure cut-out
- Selection of the appropriate cooling technology, also after completion of planning phase
- Easy exchange of cooling technology when temperature conditions change
- Easier to stock replacement devices for service cases
- Less time and money needed for service and maintenance due to Plug & Play technology

The cut-out compatibility of our solutions enables a change of cooling technology at any time.



One enclosure cut-out for | active cooling units | air/air heat exchangers | air/water heat exchangers

One controller for all applications.

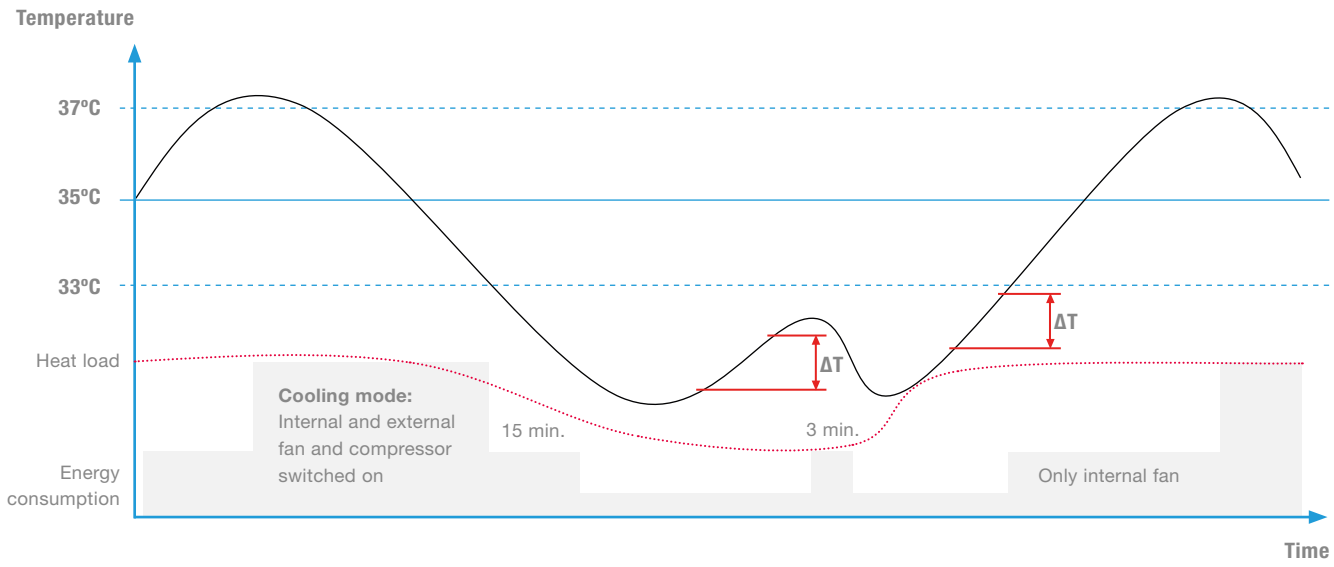
The new Green Series Controller combines all the important functions that were previously separated in the Standard Controller (SC) and Multicontroller (MC). The proven two-point control ensures that the temperature in the control cabinet is reliably maintained. Supplemented by the now even more efficient energy-saving mode in all variants, energy is consistently saved.

Advantages of the new Green Series controller

- A door contact switches the cooling unit off when the enclosure door is open.
- A collective fault message enables the output of any alarm type to a service interface or the output of a simple visual alarm. Supported alarm types are: max. temperature | pressure in the coolant circuit too high | incorrect device setting on the controller | temperature sensor defective.
- The energy-saving mode is now integrated in every controller and is designed to be even more efficient.
- A service interface on the rear of the cooling unit, in conjunction with the 'Pfannenberg Control Centre' software (available @pfannenberg.com), enables the temperature and error codes to be read out and recorded, and the set temperature and switching hysteresis to be set. A USB converter is required, which is available as an accessory.
- An integrated self-test, which can be performed manually at any time, enables OEMs to perform a simple and quick function test and to recognise the customer's machine availability.

The energy-saving mode

In energy-saving mode, the internal fan is switched off after 15 minutes without a cooling request. Maximum energy is saved. If the controller detects an increase in temperature, it switches the internal fan on for three minutes and circulates the air. If the setpoint temperature is not exceeded, the internal fan switches off again. By detecting a temperature rise regardless of the setpoint temperature, the energy-saving mode can be extended to the maximum, thus saving the most energy. The additional temperature sensor inside the housing can be dispensed with.



The controller is available in three versions

The LED variant (LED) has an operating display that can only indicate fault-free operation or an error. The setpoint temperature is set via DIP switches on the controller board. The display variant (DIS) has a control element with which the parameters of the cooling unit can be changed externally. This variant also has a display for the actual temperature and possible error codes. The Connect variant (CON) has a control element like the Display variant. In addition, this variant is equipped with an RS485 interface that works with the Modbus RTU protocol.



	LED	DIS	CON
Condensate Managment	x (not for DTFS)	x	x
Status LED	x	–	–
Main fault contact	x	x	x
Door contact	x	x	x
Integrated self test	–	x	x
Service interface	x	x	x
Pfannenberg Control Center	x	x	x
Antifreeze control	optional	optional	optional
Energy-saving mode	x	x	x
Temperature display	–	x	x
Set buttons	–	x	x
Modbus interface	–	–	x
Family Mode	–	–	x
DIP switch	x	x	x
Blackbox data storage	x	x	x

Condensate Management
Occurring condensate water will be collected in a tray and with using the power of the hot gas pipe evaporated.

Antifreeze Control
A separate temperature sensor prevents the internal heat exchanger from icing up.

Dip switch
Small dip switches are directly on the controller board to adjust the set temperature

Blackbox data storage
In case of power supply loss, major values from the last minutes are stored. You'll get access with the Pfannenberg control center.

New interface and family mode

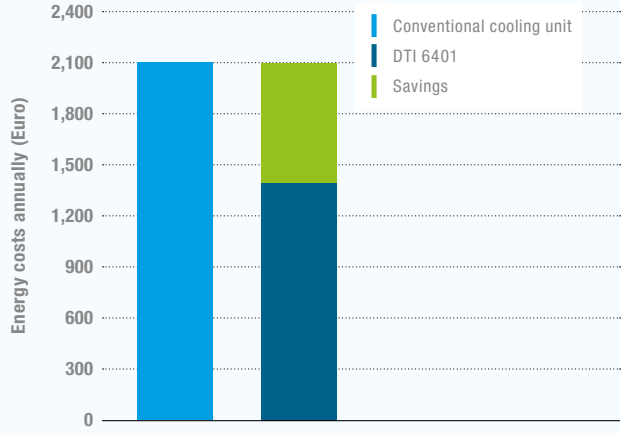
New options are the Modbus RTU interface and the family mode. As a Connect variant (CON), which is only available with an operating element, the service interface has been replaced by an RS 485 interface with Modbus RTU protocol. This enables particularly easy integration into machine communication. Set and actual values as well as error codes can be conveniently read out via the machine control system. The same interface can also be used to interconnect several devices that are installed on a control cabinet and operate in a network. In family mode, the cooling task is distributed to equalise operating times. If one appliance is in operation more frequently than other cooling appliances, cooling appliances with fewer operating hours are preferentially switched on. This means that all cooling units are loaded equally, which increases the service life and reliability.

With Family Mode, you can protect your cooling appliances by switching them off at high operating hours and homogeneous heat distribution. This ensures fewer cycles, more consistent cooling behaviour and a longer service life for your appliances.

Effective Cost Savings with Pfannenberg Green Series Cooling Units.

Take a small business with five cooling units, which operate in two shifts as an example. In comparison to the Green Series DTI 6401 with a 2,000 W cooling capacity and a comparable unit available on the market.

Energy savings comparison



Savings of 35 %

The DTI 6401 saves 35 % in energy costs in comparison to conventional cooling units.

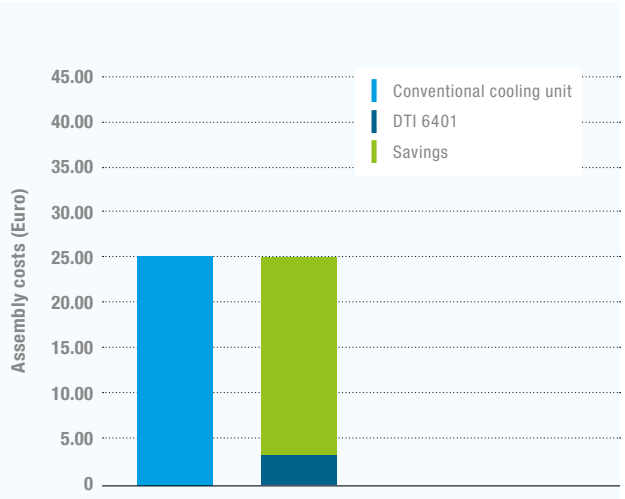
Basic parameter for energy comparison

Uptime at full performance	70 %
Uptime at partial performance	30 %
Total uptime per day	16 hrs
Total uptime per year	240 days
Electricity price in Germany*	0.1665 €/kWh*
Number of units	5 pieces
Cooling capacity	2,000 W

*Ø electricity price 07/2024 according to BDEW

Energy costs		
Conventional cooling units	2.099 €	annually
Green Series DTI 6401	1.365 €	annually
Your savings	**735 €**	**annually**

Assembly cost comparison



Savings of 88 %

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

Assembly and service times (MTTR) [min]

	Conventional cooling units	Green Series 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	60 €	
Number of units	5	

Assembly costs	
Conventional cooling units	310 €
Green Series DTI 6401	135 €
Your savings	**175 €**

The Green Series product family unites total savings potential in one unit.

Do you have demanding environmental goals? We accompany you there.

Raising productivity, reducing CO_2 emissions and cutting costs – we are aware of the challenges companies are facing today. We offer a solution: Green Series technology. Developed with the aim of maximum cost efficiency coupled with maximum performance, Green Series technology represents a new standard for cost and energy savings in the thermal management of electrical enclosures. The result: it enables annual savings of over 35 % in energy costs alone.

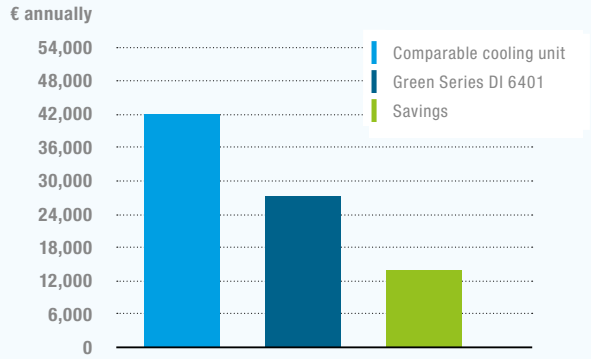
Green Series technology also sets records in ease of assembly and servicing, which brings further cost benefits. All units impress because they feature optimised MTTR* and MTTF** service factors, 1-person tool-less assembly in less than three minutes and a service and maintenance friendly plug & play system.

Produced out of robust sheet steel, Pfannenberg's cooling units are extremely resilient and long-lasting in testing industrial operating conditions. Depending on requirements, they are available for traditional mounting on the door or side, for partially recessed door or side mounting and the space-saving top-mounted position. Colours can easily be integrated as well because the covers can be painted or powder coated all over to suit the particular industrial design.

Whether they need filterfans, active cooling units, chillers or heaters as individual products or for combined use – leading companies around the world benefit from the advantages of Pfannenberg thermal management solutions. You, too, can contact us for a solution tailored to your needs like no other system.

*MTTR: Mean Time To Repair.
**MTTF: Mean Time To Failures.

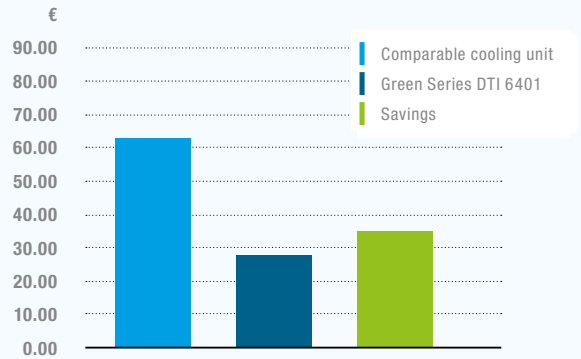
Cutting costs through energy efficiency.



Annual savings of 35 %

Energy costs (for 100 units):	
comparable cooling unit	**approx. 42,000 € annually**
Green Series DTI 6401	**approx. 27,300 € annually**
Savings	**approx. 14,700 € annually**

Cutting costs through servicing ease.



Savings of 55 % per unit

Service costs (for 1 unit):	
conventional cooling unit	**62.00 €**
Green Series DTI 6401	**27.00 €**
Savings	**35.00 €**

Cooling Units at a glance

DTI for partially recessed mounting in the door or side
DTS for outer mounting on the door or side
DTFS for fully recessed mounting or outer mounting on the door or side
DTT for top mounting on the roof

TYPE	COOLING CAPACITY	RATED VOLTAGE	DIMENSIONS (HxWxD)	APPROVALS						PAGE
				cURus	cULus	EAC	CE	UKCA	Type 12	
Green Series Cooling Units – Fully Recessed or Outer Mounted										
DTFS 6021	370 W	115 V I 230 V I 400 V 2~	550 x 280 x 209 mm		●	●	●	●	●	60
DTFS 6031	570 W		550 x 280 x 209 mm		●	●	●	●	●	
DTFS 6041	870 W		550 x 280 x 279 mm		●	●	●	●	●	62
Green Series Cooling Units – Compact										
DTI 6201C	1000 W	115 V I 230 V I 400 V 2~	962 x 410 x 253 mm		●	●	●	●	●	64
DTS 6201C			968 x 410 x 253 mm							
DTI 6301C	1500 W		962 x 410 x 253 mm		●	●	●	●	●	
DTS 6301C			968 x 410 x 253 mm							
Green Series Cooling Units										
DTI 6201	1150 W	230 V I 400 V 2~	1537 x 485 x 218 mm		●	●	●	●	●	66
DTS 6201			1540 x 485 x 218 mm							
DTI 6301	1550 W		1537 x 485 x 218 mm		●	●	●	●	●	
DTS 6301			1540 x 485 x 218 mm							
DTI 6401	2000 W	400/460 V 3~	1537 x 485 x 278 mm		●	●	●	●	●	68
DTS 6401			1540 x 485 x 278 mm							
DTI 6501	2500 W		1537 x 485 x 278 mm		●	●	●	●	●	
DTS 6501			1540 x 485 x 278 mm							
DTI 6801	4000 W		1537 x 485 x 372 mm		●	●	●	●	●	69
DTS 6801			1540 x 485 x 372 mm							
Cooling Units – X-Series										
DTI 6X1E	1000 W - 2800 W	230 V I 400/460 V 3~	1538 x 485 x 278 mm	●		●	●	●	●	70
DTS 6X1E			1547 x 485 x 278 mm	●		●	●	●	●	
DTI 6X2E	2000 W - 4500 W		1538 x 485 x 372 mm	●		●	●	●	●	72
DTS 6X2E			1547 x 458 x 372 mm	●		●	●	●	●	
Cooling Units – Top Mounted										
DTT 6101	500 W	115 V I 230 V	451 x 588 x 393 mm	●		●	●	●	●	76
DTT 6201	1000 W	115 V I 230 V I 400 V 2~		●		●	●	●	●	
DTT 6301	1500 W		435 x 595 x 495 mm	●		●	●	●	●	
DTT 6401	2000 W	230 V I 400/460 V 3~		●		●	●	●	●	77
DTT 6601	3000 W	400/460 V 3~	485 x 795 x 575 mm	●		●	●	●	●	
DTT 6801	4000 W			●		●	●	●	●	

Cooling Units at a glance

DTS for outer mounting on the door or side

TYP	COOLING CAPACITY	RATED VOLTAGE	DIMENSIONS (HxWxD)	APPROVALS						PAGE
				cURus	cULus	EAC	CE	UKCA	Type 12	
Outdoor Cooling Units										
DTS 3031	306 W	230 V	394 x 178 x 229 mm		●	●	●	●	●	80
DTS 3061	694 W		512 x 254 x 274 mm		●	●	●	●	●	
DTS 3161	1235 W		748 x 395 x 294 mm		●	●	●	●	●	
DTS 3165	1948 W		914 x 305 x 305 mm		●	●	●	●	●	
DTS 3261	1900 W	400/460 V 3~	1209 x 395 x 326 mm		●	●	●	●	●	81
DTS 3265	3325 W		1347 x 406 x 301 mm		●	●	●	●	●	
DTS 3461C	5800 W		1452 x 400 x 500 mm		●	●	●	●	●	
DTS 3661C	7200 W		1452 x 400 x 500 mm		●	●	●	●	●	
Outdoor Cooling Units – Stainless Steel										
DTS 3031 VA	306 W	230 V	394 x 178 x 229 mm		●	●	●	●	●	82
DTS 3081	694 W		512 x 254 x 274 mm		●	●	●	●	●	
DTS 3181	1235 W	230 V | 460 V 3~	748 x 395 x 294 mm		●	●	●	●	●	
DTS 3185	1948 W	230 V	914 x 305 x 305 mm		●	●	●	●	●	
DTS 3281	1900 W	400/460 V 3~	1209 x 395 x 326 mm		●	●	●	●	●	83
DTS 3285	3325 W		1347 x 406 x 301 mm		●	●	●	●	●	
DTS 3481C	5800 W		1452 x 400 x 500 mm		●	●	●	●	●	
DTS 3681C	7200 W		1452 x 400 x 500 mm		●	●	●	●	●	
Accessories										
Internal enclosure fan		230 V								39
External condensate evaporation system		230 V								84
External temperature probe										84
Condensate bottle										84
Premium TTL-USB converter										84
Air diverter internal										84
Air baffle internal										84
Filter solutions										85
Transport eye bolts										85
Quick installation frame										85
PAD air duct system										86
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.										

● available ○ pending

DTFS 6000
Green Series Cooling Units
370–870 Watt

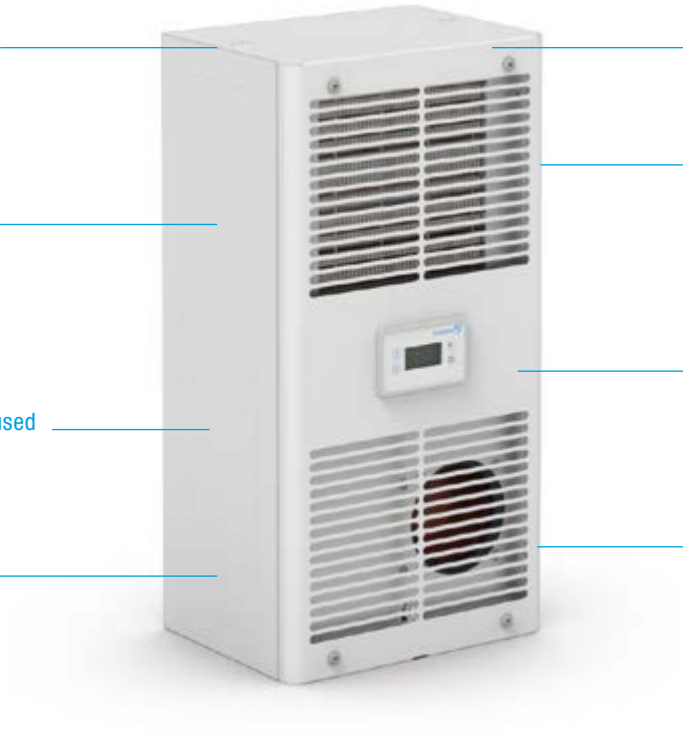
DTFS A design for side mounting and fully recessed door or side installation

Maximum energy efficiency
For significant energy savings and reduced operating costs.

Energy-saving modes
Included as standard for an even greater reduction in operating costs.

Significantly less refrigerant used
for a better CO_2 footprint.

F-Gas ready
Thanks to the use of low GWP refrigerants.



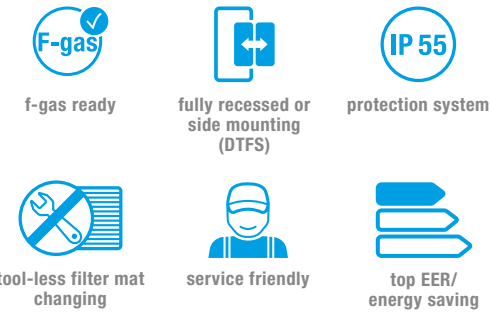
Perfect service friendliness

Version DIS
With temperature and error code indication, equipped with buttons for settings.

Version LED
Indication of operation status only.

Modbus interface
Optionally available for perfect machine integration.

COOLING UNITS 370–570 W



f-gas ready

fully recessed or side mounting (DTFS)

protection system

tool-less filter mat changing

service friendly

top EER/ energy saving



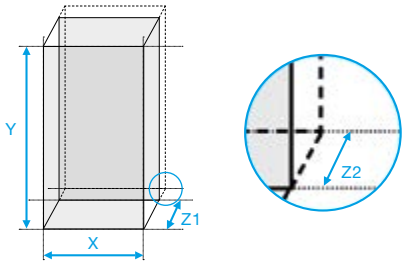
PRODUCT		DTFS 6021		DTFS 6031		
ARTICLE NO.	DIS	13824259055	13824251055	13824359055	13824351055	Unit
ARTICLE NO.	LED	13824249055	13824241055	13824349055	13824341055	
DATA						
Rated voltage ±10 %		AC 50 I 60 Hz				
		400 I 460 2~	230	400 I 460 2~	230	V
Cooling capacity according to EN 14511	A35/A35	370 I 450		570 I 670		W
	A35/A50	320 I 350		450 I 530		
Power consumption	A35/A35	185 I 195	175 I 190	255 I 280	245 I 270	
Current consumption	A35/A35	0.7	1.1 I 1.2	0.8	1.4 I 1.5	A
Starting current	A35/A35	1.7 I 1.4	2.9 I 2.7	2.5 I 2.1	4.1 I 4.0	
Type of connection		spring-type terminal included with plug				
Unimpeded airflow (free flow)	internal	290 I 340				m^3/h
Ambient temperature		+ 15 ... + 55 I + 59 ... + 131				°C I °F
Control range (adjustable)		+ 25 ... + 45 I + 77 ... + 113; factory setting +35 I +95				
Refrigerant	R513A	400		350		g
Condensate management	DISPLAY	integrated condensate evaporation system with safety overflow				
	LED	condensate drain				
Dimensions (X x Y x Z)		280 x 550 x 209				mm
Installation depth inside (Z2) + outside (Z1)		190 + 19 I 0 + 209				
Degrees of protection according to EN 60529	IP 55	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	electrostatically powder coated (200 °C), stainless steel on request				
	cover	electrostatically powder coated (200 °C), stainless steel on request				
Colour	cover	RAL 7035 I other colours or stainless steel on request				

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

NEMA Type 12

Performance curves on page 167

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com



COOLING UNITS 690–870 W

f-gas ready

fully recessed or side mounting (DTFS)

IP 55 protection system

tool-less filter mat changing

service friendly

top EER/ energy saving



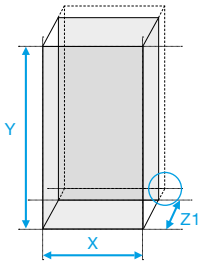
PRODUCT		DTFS 6041		
ARTICLE NO.	DIS	13824459055	13824451055	Unit
ARTICLE NO.	LED	13824449055	13824441055	
DATA				
Rated voltage ±10 %		AC 50 I 60 Hz		
		400 I 460 2~	230	V
Cooling capacity according to EN 14511	A35/A35	870 I 940		W
	A35/A50	690 I 730		
Power consumption	A35/A35	440 I 440	423 I 423	
Current consumption	A35/A35	2.4 I 2.5	1.4 I 1.3	A
Starting current	A35/A35	3.2 I 2.8	5.4 I 5.3	
Type of connection		spring-type terminal included with plug		
Unimpeded airflow (free flow)	internal	290 I 340		m^3/h
Ambient temperature		+ 15 … + 55 I + 59 … + 131		°C I °F
Control range (adjustable)		+ 25 … + 45 I + 77 … + 113; factory setting + 35 I + 95		
Refrigerant	R513A	225		g
Condensate management	DISPLAY	integrated condensate evaporation system with safety overflow		
	LED	condensate drain		
Dimensions (X x Y x Z)		280 x 550 x 279		mm
Installation depth inside (Z2) + outside (Z1)		270 + 19 I 0 + 279		
Degrees of protection according to EN 60529	IP 55	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	electrostatically powder coated (200 °C), stainless steel on request		
	cover	electrostatically powder coated (200 °C), stainless steel on request		
Colour	cover	RAL 7035 I other colours or stainless steel on request		

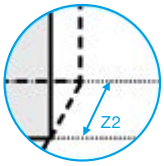
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

NEMA Type 12

Performance curves on page 167

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com





DTFS Green Series

Cooling units with remarkable benefits

Various applications

Cooling units fit with narrow cabinets (e.g. door width 400 mm) plus 400V and 115V versions do not require additional space due to the integrated transformer.



Flexible mounting 1
Suitable for external mounting on the door or side installation.

Flexible mounting 2
Fully integrable in the door or side.

Environmentally friendly

In accordance with the “F-Gas“ regulation: Use of R-513A, a low GWP refrigerant. Combining maximum energy efficiency (EER > 2) with a low amount of refrigerant contained.

DTI/DTS 6000C
Green Series Cooling Units
1000–1500 Watt

DTI Partially recessed in the side or door; elegantly integrated in the machine design; transport and escape routes are kept clear

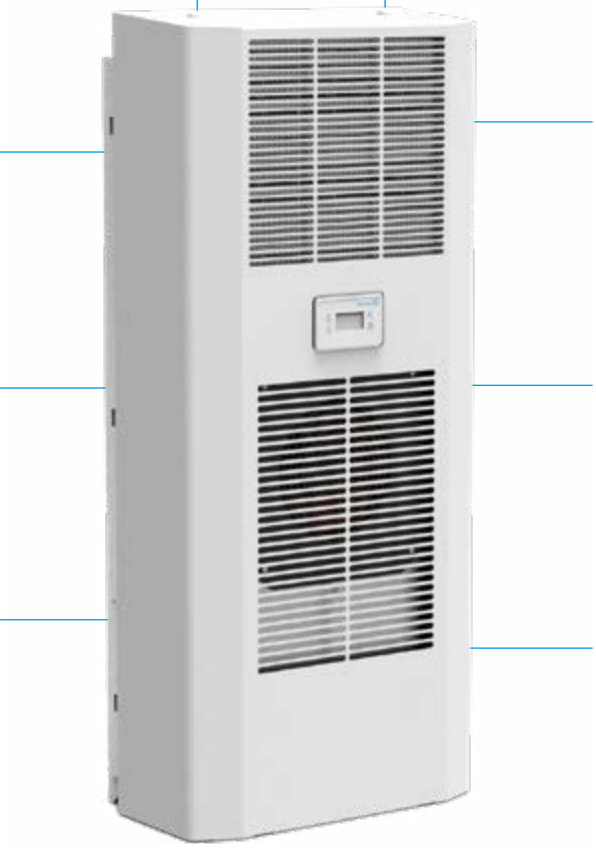
DTS Door or side mounting; in the event of limited space in the cabinet; the routing of cold air to the important components in the cabinet is retained

Compact design
for smaller cabinets or to cool hot spots.

Tool-free mounting (DTI)
by one person is possible in less than three minutes with 55 % lower mounting costs.

High energy efficiency ratio (EER)
for highest energy savings and operating costs reduction.

Service friendly
due to direct access to the PCB and the fans, thus 80 % shorter repair times.



F-gas ready
usage of low GWP refrigerant.

Interface to use Pfannenberg control center software
with USB-accessory to get information about error messages and runtime of single components.

Optional pre-filter
upgradable with aluminium, fleece or fluted filter, for the application of the cooling units in different ambient conditions.

Integrated condensate evaporation (Display);
no puddles of water under the device for increased operation safety.

COOLING UNITS 1000–1500 W



f-gas ready

partially recessed mounting (DTI)

side mounting (DTS)

IP 55
protection system

top EER/ energy saving

tool-less filter mat changing

tool-less mounting (DTI)

large distance in/out no hot spots

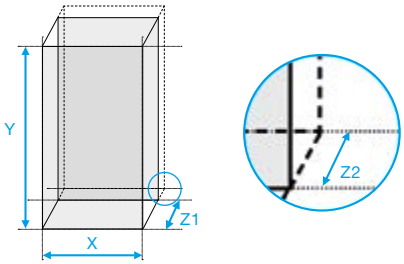
service friendly

PRODUCT		DTI 6201C I DTS 6201C		DTI 6301C I DTS 6301C		
ARTICLE NO.	DTI, DIS	13898251055	13895259055	13895351055	13898359055	Unit
ARTICLE NO.	DTI, LED	13895241055	13895249055	13895341055	13888359055	
ARTICLE NO.	DTS, DIS	13885251055	13885259055	13885351055	13888359055	
ARTICLE NO.	DTS, LED	13885241055	13885249055	13895341055	13888349055	
DATA						
Rated voltage ±10 %		AC 50 I 60 Hz				
		230	400/460 2~	230	400/460 2~	V
Cooling capacity according to EN 14511	A35/A35	1000 I 1150		1500 I 1580		W
	A35/A50	780 I 880		1200 I 1250		
Power consumption	A35/A35	485 I 530	505 I 550	610 I 705	630 I 730	
Current consumption	A35/A35					
Starting current		5.4	3.2 I 2.8	10.7	6.3 I 5.6	
Type of connection		spring-type terminal included with plug				
Unimpeded airflow (free flow)	internal	885 I 920				m^3/h
Ambient temperature		+15 … +55 I +59 … +131		+15 … +60 I +59 … +140		°C I °F
Control range (adjustable)		+25 … +45 I +77 … 113 factory setting +35 I +95				
Refrigerant	R513A	300		400		g
Condensate management	Display	integrated condensate evaporation system with safety overflow				
	LED	condensate drain				
Dimensions (X x Y)		DTI: 410 x 962 I DTS: 410 x 968				mm
Installation depth (Z2) + height (Z1)		DTI: 62 + 181 I DTS: 0 + 253				
Weight (net)		34	39	34	39	kg
Degrees of protection according to EN 60529	IP 55	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	electrostatically powder coated (200 °C) (or stainless steel on request)				
Colour	cover	RAL 7035 I different colours available on request				

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

NEMA Type 12

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Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com

DTI/DTS 6000
Green Series Cooling Units
1000–4000 Watt

DTI Partially recessed in the side or door – elegantly integrated in the machine design; transport and escape routes are kept clear

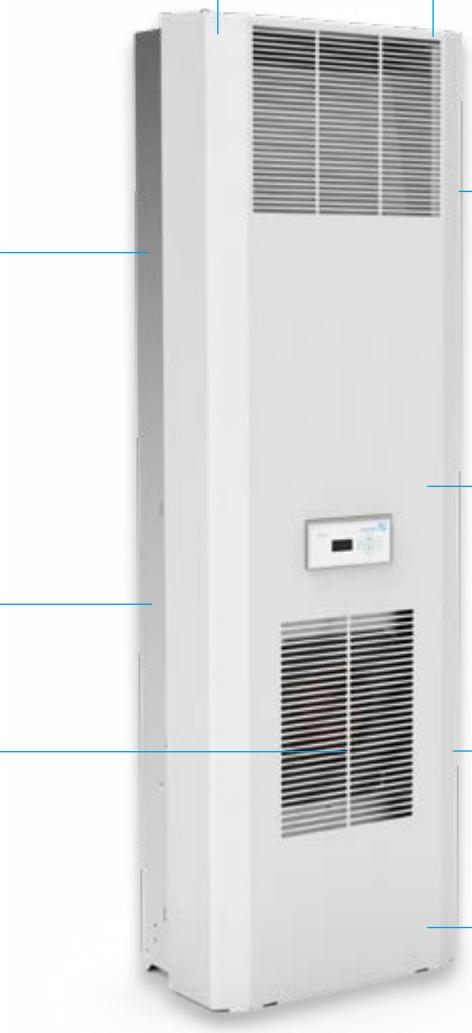
DTS Door or side mounting – in the event of limited space in the cabinet; the routing of cold air to the important components in the cabinet is retained

Tool-free mounting (DTI)
by one person is possible in less than three minutes with 55 % lower mounting costs.

High energy efficiency ratio (EER)
for hihgest energy savings and operating costs reduction.

Large distance between intake and exhaust vents
for safe air circulation and elimination of hot spots.

Optional pre-filter
upgradable with aluminium, fleece or fluted filter, for the application of the cooling units in different ambient conditions.



F-gas ready
usage of low GWP refrigerant.

Additional temperature sensor
In the Multi Controller (MC) model allows the deactivation of the internal fan and condensate evaporation for additional 10 % energy savings and service life extension of the fan.

Interface to use ◘COOL-Plant software
at the Multi Controller (MC) model with operating hours counter and error history observation for preventive maintenance processes and exact error analysis.

Service friendly
due to direct access to the PCB and the fans, thus 80 % shorter repair times.

Integrated condensate evaporation;
no puddles of water under the device for increased operation safety.

COOLING UNITS 1000–1500 W



f-gas ready

partially recessed mounting (DTI)

side mounting (DTS)

IP 55 protection system

top EER/ energy saving

tool-less filter mat changing

tool-less mounting (DTI)

large distance in/out no hot spots

service friendly

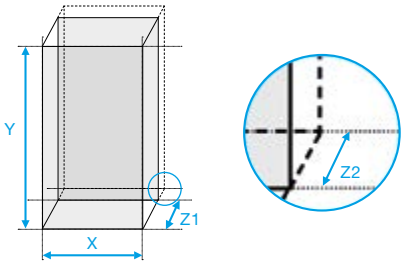
PRODUCT		DTI 6201 / DTS 6201		DTI 6301 / DTS 6301		
ARTICLE NO.	DTI, SC	13899211055	13899219055	13899311055	13899319055	Unit
ARTICLE NO.	DTI, MC	13899221055	13899229055	13899321055	13899329055	
ARTICLE NO.	DTS, SC	13889211055	13889219055	13889311055	13889319055	
ARTICLE NO.	DTS, MC	13889221055	13889229055	13889321055	13889329055	
DATA						
Rated voltage ±10 %		AC 50 I 60 Hz				
		230	400 2~	230	400 2~	V
Cooling capacity according to EN 14511	A35/A35	1150		1550		W
	A35/A50	750		1200		
Power consumption	A35/A35	500 I 631	532 I 653	721 I 845	778 I 874	
Current consumption	A35/A35	3.1 I 4.8	2.4 I 2.5	5.0 I 4.4	3.7 I 2.4	A
Starting current		11	6.3	13	7.5	
Type of connection		spring-type terminal included with plug				
Unimpeded airflow (free flow)	internal	885				m^3/h
Ambient temperature		+10 … +55 I + 50 … + 131				°C I °F
Control range (adjustable)		+25 … +45 I +77 … +113 factory setting +35 I +95				
Refrigerant	R513A	400		350		g
Condensate management		integrated condensate evaporation system with safety overflow				
Dimensions (X x Y)		485 x 1537 I 485 x 1540				mm
Installation depth inside (Z2) + outside (Z1)		60 + 158 I 0 + 218				
Weight (net)		55 I 58	58 I 61	55 I 58	59 I 62	kg
Degrees of protection according to EN 60529	IP 55	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	electrostatically powder coated (200 °C) (or stainless steel on request)				
Colour	cover	RAL 7035 I different colours available on request				

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

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COOLING UNITS 2000–2500 W



f-gas ready

partially recessed mounting (DTI)

side mounting (DTS)

protection system

top EER/ energy saving

tool-less filter mat changing

tool-less mounting (DTI)

large distance in/out no hot spots

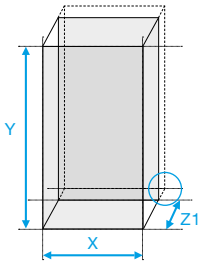
service friendly

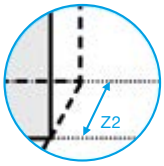
PRODUCT		DTI 6401 / DTS 6401		DTI 6501 / DTS 6501	
		400 / 460 V AC	230 V AC	400 / 460 V AC	
ARTICLE NO.	DTI, SC	13899412055	13899411055	13899512055	Unit
ARTICLE NO.	DTI, MC	13899422055	13899421055	13899522055	
ARTICLE NO.	DTS, SC	13889412055	13889411055	13889512055	
ARTICLE NO.	DTS, MC	13889422055	13889421055	13889522055	
DATA					
Rated voltage ±10 %		AC 50 I 60 Hz			
		400/460 3~	230	400/460 3~	V
Cooling capacity according to EN 14511	A35/A35	2000		2500	W
	A35/A50	1500		1800	
Power consumption	A35/A35	931 I 1126		926 I 1140	
Current consumption	A35/A35	2.2 I 2.1	5.8 I 6.9	2.3 I 2.4	A
Starting current		7.7 I 8.1	21.8	12 I 13	
Type of connection		spring-type terminal included with plug			
Unimpeded airflow (free flow)	internal	1175			m^3/h
Ambient temperature		+10 … +55 I +50 … +131			°C I °F
Control range (adjustable)		+ 25 … + 45 I +77 … +113 factory setting +35 I +95			
Refrigerant	R513A	500		700	g
Condensate management		integrated condensate evaporation system with safety overflow			
Dimensions (X x Y)		485 x 1537 I 485 x 1540		485 x 1537 I 485 x 1540	mm
Installation depth inside (Z2) + outside (Z1)		120 + 158 I 0 + 278		120 + 158 I 0 + 278	
Weight (net)		67 I 71		69 I 72	kg
Degrees of protection according to EN 60529	IP 55	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	electrostatically powder coated (200 °C) (or stainless steel on request)			
Colour	cover	RAL 7035 I different colours available on request			

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

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COOLING UNITS 4000 W



f-gas ready

partially recessed mounting (DTI)

side mounting (DTS)

protection system

top EER/ energy saving

tool-less filter mat changing

tool-less mounting (DTI)

large distance in/out no hot spots

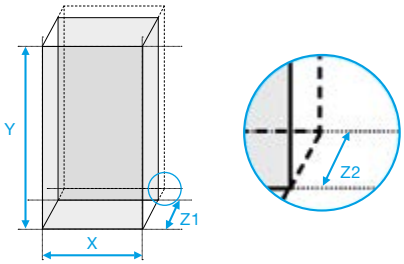
service friendly

PRODUCT		DTI 6801 I DTS 6801		
ARTICLE NO.	SC	13899812055	13889812055	Unit
ARTICLE NO.	MC	13899822055	13889822055	
DATA				
Rated voltage ±10 %		AC 50 I 60 Hz		
		400/460 3~		V
Cooling capacity according to EN 14511	A35/A35	4000		W
	A35/A50	3150		
Power consumption	A35/A35	1800 I 2416		
Current consumption	A35/A35	4.6 I 4.7		A
Starting current		20		
Type of connection		spring-type terminal included with plug		
Unimpeded airflow (free flow)	internal	1490		m^3/h
Ambient temperature		+10 … +55 I + 50 … + 131		°C I °F
Control range (adjustable)		+25 … +45 I +77 … +113 factory setting +35 I +95		
Refrigerant	R513A	1200		g
Condensate management		integrated condensate evaporation system with safety overflow		
Dimensions (X x Y)		485 x 1537 I 485 x 1540		mm
Installation depth inside (Z2) + outside (Z1)		120 + 252 I 0 + 372		
Weight (net)		90 I 94		kg
Degrees of protection according to EN 60529	IP 55	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	electrostatically powder coated (200 °C) (or stainless steel on request)		
Colour	cover	RAL 7035 I different colours available on request		

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

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DTI/DTS 6XxE
X-Series Cooling Units
1000–4500 Watt

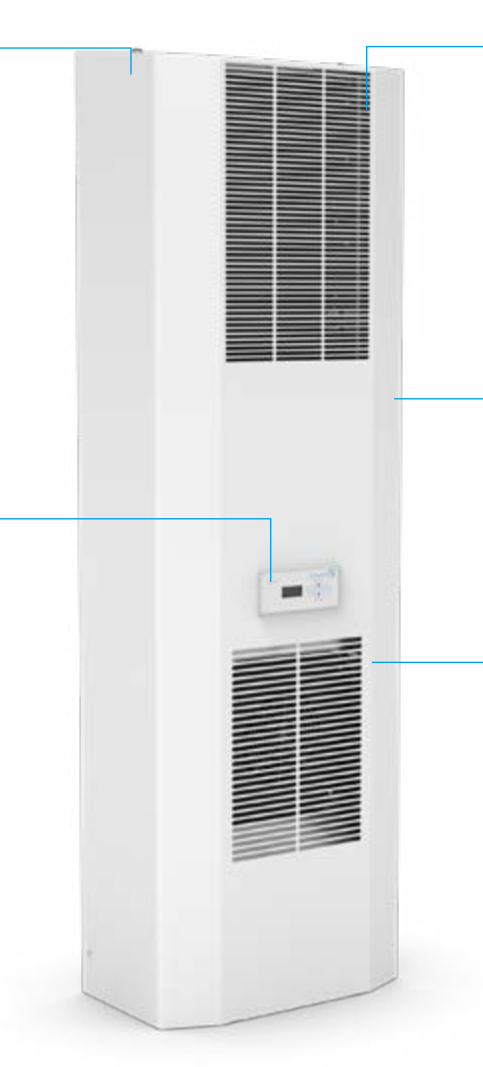
DTI Partially recessed in the side or door – elegantly integrated in the machine design; transport and escape routes are kept clear.

DTS Door or side mounting – in the event of limited space in the cabinet; the routing of cold air to the important components in the cabinet is retained.

Simplified dimensioning
Thanks to speed controlled components, every unit covers a wide power range. This leads to a small type diversity and correspondingly to a large design safety.

(1) DTI 6X1E with a performance range of 1,000–2,800 W.
(2) DTI 6X2E with 2,000 to 4,500 W
A power range of 1,000–4,500 W is covered with only two units!

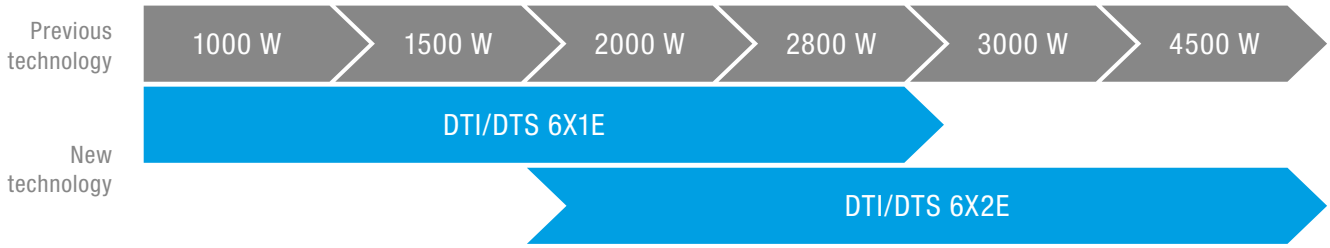
Controller
The operating unit which was developed especially for this series makes communication between the cooling unit and machine control possible and also the integration into production processes.



Highly efficient technology
The brushless direct current technology (Brushless DC) makes an extreme energy efficiency (EER) of >6 possible. Thereby, the cooling occurs with high precision within a very tight tolerance range.

Modbus
The communication interface "Modbus" to integrate the cooling unit into the existing machine control or in a cloud solution.

Long passage of air
The large distance between the cold air outlet (bottom) and warm air inlet (top), has aerodynamically improved circulation of the electrical enclosure which prevents hot spots on especially stressed components.



COOLING UNITS 1000–2800 W

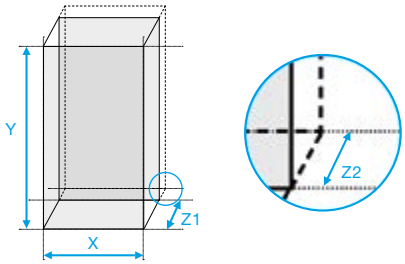


- partially recessed mounting (DTI)
- side mounting (DTS)
- IP 54 protection system
- top EER/ energy saving
- cut-out compatible to A/A I A/W heat exchangers
- Modbus connectivity
- high performance at high temperature
- tool-less filter mat changing
- tool-less mounting (DTI)
- large distance in/out no hot spots
- service friendly

PRODUCT		DTI 6X1E	DTS 6X1E	DTI 6X1E	DTS 6X1E	
ARTICLE NO.	XC	13897331555	13887331555	13897332555	13887332555	Unit
DATA						
Rated voltage ±10 %		AC 50 I 60 Hz				Hz
		230		400/460		V
Cooling capacity, regulated		1000–2800				W
Cooling capacity	A35/A20	3300				
Cooling capacity according to EN 14511	A35/A35	2800				
Power consumption	A35/A35	240–1370		240–1270		
Current consumption	A35/A35	7.4		3.2		A
Starting current		soft start				
Type of connection		spring-type terminal included with plug				
Unimpeded airflow (free flow)	internal	990				m^3/h
Ambient temperature		+15 … +55 I +59 … +131				°C I °F
Control range (adjustable)		+25 … +45 I +77 … +113; factory setting +35 I +95				
Refrigerant	R134a	1100				g
Condensate management		integrated condensate evaporation system with safety overflow				
Dimensions (X x Y)		485 x 1538	485 x 1547	485 x 1538	485 x 1547	mm
Installation depth inside (Z2) + outside (Z1)		60 + 218	0 + 278	60 + 218	0 + 278	
Weight (net)		70	75	70	75	kg
Degrees of protection 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	electrostatically powder coated (200 °C) or optional stainless steel				
Colour	cover	RAL 7035 or optional stainless steel				

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

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COOLING UNITS 2000–4500 W



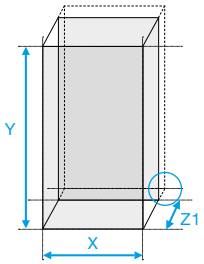
- f-gas ready
- partially recessed mounting (DTI)
- side mounting (DTS)
- protection system
- top EER/ energy saving
- cut-out compatible to A/A I A/W heat exchangers
- high performance at high temperature
- tool-less filter mat changing
- tool-less mounting (DTI)
- large distance in/out no hot spots
- service friendly
- connectivity

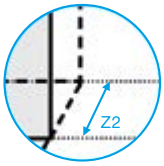
PRODUCT		DTI 6X2E	DTS 6X2E	DTI 6X2E	DTS 6X2E	
ARTICLE NO.	XC	13897831555	13887831555	13897832555	13887832555	Unit
DATA						
Rated voltage ±10 %		AC 50 I 60				Hz
		230		400 / 460		V
Cooling capacity, regulated		2000–4500				W
Cooling capacity	A35/A20	4800				
Cooling capacity according to EN 14511	A35/A35	4500				
Power consumption	A35/A35	240–2330		240–2020		
Current consumption	A35/A35	10.2		4.6		A
Starting current		soft start				
Type of connection		spring-type terminal included with plug				
Unimpeded airflow (free flow)	internal	1430				m^3/h
Ambient temperature		+15 … +55 I +59 … +131				°C I °F
Control range (adjustable)		+25 … +45 I +77 … +113; factory setting +35 I +95				
Refrigerant	R134a	1950				g
Condensate management		integrated condensate evaporation system with safety overflow				
Dimensions (X x Y)		485 x 1538	485 x 1547	485 x 1538	485 x 1547	mm
Installation depth inside (Z2) + outside (Z1)		120 + 252	0 + 372	120 + 252	0 + 372	
Weight (net)		84	87	84	87	kg
Degrees of protection 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	electrostatically powder coated (200 °C) or optional stainless steel				
Colour	cover	RAL 7035 or optional stainless steel				

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X-Series Cooling Units

Thanks to highly efficient speed control, each unit covers a wide power range. The BLDC technology used results in the highest energy efficiency on the market. Premium Controller specially developed for this series enables communication between the cooling unit and the machine control system as well as integration into production processes.

DTT 6000
COOL Cooling Units for Roof Mounting
500–4000 Watt

The DTT 6101–6801 cooling units use our 100 % patented condensate safety design. These cooling units are designed to be placed on top of the enclosure when there is a space shortage or aisles need to be kept clear.



Zero sweat guarantee
Condensate will not form in the cabinet where the cooling unit meets the enclosure.

Managed water droplet control
As the airflow passes through the evaporator, any condensate generated on the evaporator will not be carried into the enclosure.

Eliminate the need for duct work
Return air channels are engineered to increase the speed of the air leaving the cooling unit, ensuring cool air is effectively distributed moisture-free within the enclosure.

One piece leak-proof moulded tub
Industry's only seamless moulded condensate tray located at the top of the unit eliminates the ability for water to drip into the cabinet.

Active condensate management
Condensate evaporator uses heat to eliminate condensate even when the system is not actively cooling.

Compatible
with cabinets of every manufacturer.



Energy efficient
Our optional Multi Controller (MC) connected to a sensor, automatically turns off the fan when it is not needed.

Rugged steel cover
Powder coated or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Fast and easy maintenance
Removable cover allows for easy access to the front facing control components.

Durable and reliable components
High quality compressor, fans and heat exchangers provide dependable cooling of electrical enclosure components.

Reduced maintenance costs
Have a dirty environment? Use our optional tool-free quick release filter mat mounting frame and a standard Pfannenberg filter to extend the life of the unit and reduce maintenance costs.

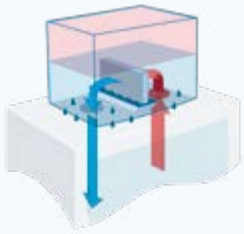
The revolutionary DTT condensate management.

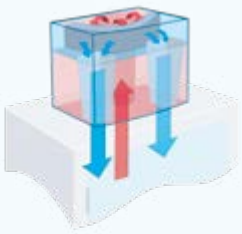
Main feature of the DTT's innovative condensate management is the repositioning of the cooling circuits. Moving the cold area up prevents the cold bridge to the electrical enclosure and also enables a problem-free drainage of condensate. A widespread airflow in the evaporator stops the formation of condensate buildup. And finally, the integrated air outlet nozzles make the use of conventional air hoses unnecessary; these are at risk of condensation.

DTT – security with 4-fold condensate protection!

1. No cold bridge to the ceiling of the electrical enclosure
2. No overflow of condensate into the electrical enclosure
3. No droplets that are stirred up in the airflow
4. No air hoses that are at risk of condensation

1. Cold bridge

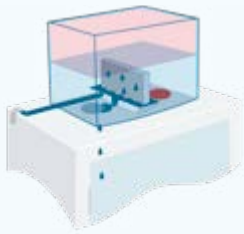


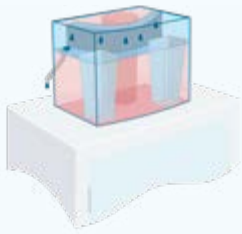


The challenge:
The lower, cold area of the cooling unit has direct contact with the ceiling of the warm electrical enclosure. As a result of the cold bridge, condensate can form on the inside ceiling of the electrical enclosure and drop into the inside.

The Pfannenberg solution:
Changing the position of the air-conditioning circuits. When the cold area of the cooling unit is at the top and the warm area at the bottom, a cold bridge to the electrical enclosure and the danger of condensate forming is avoided.

2. Overflow of condensate

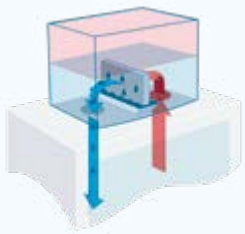


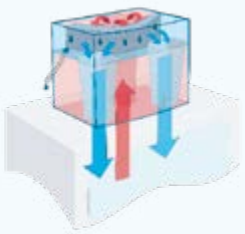


The challenge:
The horizontal condensate discharge which runs along the unit's floor makes the condensate drainage more difficult. Part of the condensate water that has accumulated in the cooling unit can overflow into the electrical enclosure via the air outlet opening.

The Pfannenberg solution:
Vertical drainage of the condensate. The positioning of the evaporator unit in the top part of the cooling unit makes a problem-free drainage of the condensate water without contact to the electrical enclosure possible.

3. Condensate buildup

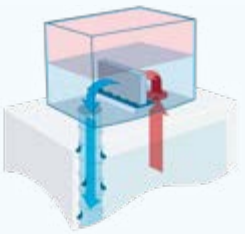


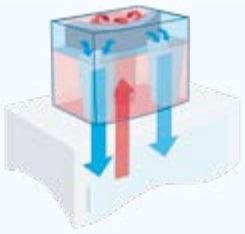


The challenge:
Concentrated warm air hits the evaporator. Parts of the condensate water formed there can be carried away by the airflow and can get into the electrical enclosure with the cold air.

The Pfannenberg solution:
The warm air spreads out over a large evaporator. The reduced air speed at the evaporator reduces the twirling and guarantees a condensate-free airflow in the direction of the electrical enclosure.

4. Air hoses





The challenge:
The hoses conducting the cold air are surrounded by warm air of the electrical enclosure. As a result, condensate can form on the surface of the hose.

The Pfannenberg solution:
Integrated nozzles instead of air hoses. Air outlet nozzles are positioned on both sides of the cooling unit which accelerate the cold air and conduct it condensate-free down to the bottom of the electrical enclosure.

TOP MOUNTING COOLING UNITS 640–1500 W


top mounting

protection system


energy saving


tool-less filter mat changing


tool-less mounting


service friendly



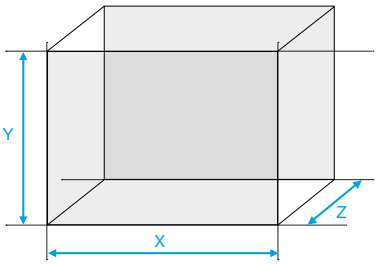
PRODUCT		DTT 6101	DTT 6201		DTT 6301		
ARTICLE NO.	SC	13256141055	13256241055	13256249055	13256341055	13256349055	Unit
ARTICLE NO.	MC	13256171055	13256271055	13256279055	13256371055	13256379055	
DATA							
Rated voltage ±10 %		AC 50 I 60 Hz					
		230		400 2~	230	400 2~	V
Cooling capacity according to EN 14511	A35/A35	500 I 665	1000 I 1080		1500 I 1620		W
	A35/A50	370 I 400	600 I 640		1000 I 1160		
Power consumption	A35/A35	450 I 540	440 I 570	530 I 660	980 I 1140	962 I 1150	W
Current consumption	A35/A35	2.1 I 2.3	2.4 I 2.7	1.6 I 1.7	5.73 I 7	3.75 I 3.6	A
Starting current		19.7 I 23	9.1 I 11.5	5.2 I 6.2	19.7 I 23.2	9.8 I 11.6	
Type of connection		spring-type terminal included with plug					
Unimpeded airflow (free flow)	internal	570/590			885/990		m^3/h
Ambient temperature		+15 … +55 I + 59 … + 131					°C °F
Control range (adjustable)	SC	+25 … +45 I +77 … +113; factory setting +35 I +95					
	MC	+25 … +50 I +77 … +122; factory setting +35 I +95					
Refrigerant	R134a	400			725		g
Condensate management		integrated condensate evaporation system with safety overflow					
Dimensions (X x Y x Z)		588 x 451 x 393			595 x 435 x 495		mm
Weight (net)		33	35	41	45	50.5	kg
Degrees of protection 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	electrostatically powder coated (200 °C)					
Colour	cover	RAL 7035 I different colours available on request					

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

NEMA Type 12

Performance curves on page 169

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com



TOP MOUNTING COOLING UNITS 2000–4000 W


top mounting



protection system


energy saving


tool-less filter mat changing


tool-less mounting


service friendly



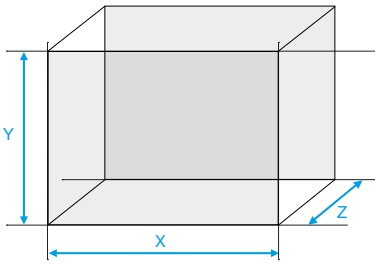
PRODUCT		DTT 6401		DTT 6601	DTT 6801	
ARTICLE NO.	SC	13256441055	13256432055	13256632055	13256832055	Unit
ARTICLE NO.	MC	13256471055	13256462055	13256662055	13256862055	
DATA						
Rated voltage ±10 %		AC 50 I 60 Hz				
		230	400/460 3~			V
Cooling capacity according to EN 14511	A35/A35	2000 I 2100		3000 I 3200	4000 I 4250	W
	A35/A50	1540 I 1600		2000 I 2250	3260 I 3495	
Power consumption	A35/A35	1049 I 1275	1300 I 1598	1700 I 2100	1618 I 2050	
Current consumption	A35/A35	6.2 I 7	3 I 3.3	3.16 I 4.5	7.07 I 5	A
Starting current		16.80 I 20	10 I 12	8.9 I 9.9	17.1 I 19.5	
Type of connection		spring-type terminal included with plug				
Unimpeded airflow (free flow)	internal	885/990		1420/1530		m^3/h
Ambient temperature		+15 … +55 I +59 … +131				°C I °F
Control range (adjustable)	SC	+25 … +45 I +77 … +113; factory setting +35 I +95				
	MC	+25 … +50 I +77 … +122; factory setting +35 I +95				
Refrigerant	R134a	750		1250		g
Condensate management		integrated condensate evaporation system with safety overflow				
Dimensions (X x Y x Z)		595 x 435 x 495		795 x 485 x 575		mm
Weight (net)		46	51	75	77	kg
Degrees of protection 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	electrostatically powder coated (200 °C)				
Colour	cover	RAL 7035 I different colours available on request				

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

NEMA Type 12

Performance curves on page 169

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DTS 3000
Cooling Units
306–5795 Watt

Door or side mounting – in the event of limited space inside the cabinet; the routing of cold air to the important components in the cabinet is retained.

Robust design
powder coated housing with IP 56
particularly suitable for outdoor applications.

Stainless steel – wash-down
particularly suitable for the
food and beverage industry.

Condenser
with large fin spacing enables very long
maintenance intervals even without
additional Nano coating.

Optional pre-filter
for even greater protection for oily air.

Coated components
in the external circuit actively prevent
corrosion caused by aggressive media
(copper pipe | solder joints | heat
exchanger).

Integrated condensate evaporation;
no puddles of water under the device
for increased operation safety.



Introducing the outdoor cooling units.

We have a standard answer for your specific needs:

- Outdoor applications
- Ambient temperature up to +55 °C
- Harsh environment
- Food & Beverage
- UL listed



What is NEMA?

National Electrical Manufacturers Association (NEMA) is the association of U.S. manufacturers of electrical equipment that defines the main set of construction standard for the United States and Canada.
Adherence to these standards is guaranteed by the UL certification. NEMA coding (Type 1, 3R, 12, 13, 4, 4X) can be compared with the IP coding (IP 23, 54, 56) but compared to the latter is more comprehensive and includes other factors such as protection against corrosion.

Pfannenberg cooling units from outdoor series are **UL listed.**

NEMA PROTECTION	1	3R	12	13	4	4X
Contact with internal contents	•	•	•	•	•	•
Falling dirt	•	•	•	•	•	•
Dripping or splashing water		•	•	•	•	•
Dust			•	•	•	•
Oils and coolants				•		
Sleet and ice		•				
Water jets					•	•
Corrosion						•
IP EQUIVALENT	**IP 23**	**IP 56**	**IP 54**	**IP 54**	**IP 56**	**IP 56**

COOLING UNITS 306–1948 W

side mounting

NEMA 3R/4 protection system

IP 56 protection system

large distance in/out no hot spots

LAP version



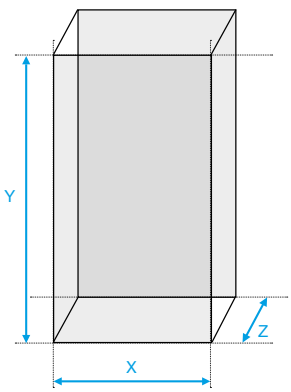
DTS 3031 DTS 3061 DTS 3161 DTS 3165

PRODUCT		DTS 3031	DTS 3061	DTS 3161	DTS 3165	
ARTICLE NO.		13383141355	–	–	–	Unit
ARTICLE NO.	SC	–	13382341355	13385441355	13383639355	
ARTICLE NO.	LAP [1]	–	13382341375	13385441375	13383639375	
DATA						
Rated voltage ±10 %		AC 50 I 60 Hz				
		230				V
Cooling capacity according to EN 14511	A35/A35	306	694	1235	1948	W
	A35/A50	–	428	570	1045	
Power consumption	A35/A35	253	663	795	1020	
Current consumption		1.2	4.1	4	6.2	A
Starting current		3.5	14.4	14.9	10	
Type of connection		plug connection, plug included				
Unimpeded airflow (free flow)	internal	64	325	595	580	m^3/h
Ambient temperature		+8 +45 I +46 .. +113	+8 +55 I +46 .. +131	0 … +55 I +32 … +131		°C I °F
Control range (adjustable)		+10 … +40 I +50 … +104 factory set. +35 I +95		+25 … +45 I +77 … +113 factory set. +35 I +95		
Refrigerant	R134a	150	400	400	750	g
Condensate management		integrated condensate evaporation system with safety overflow				
Dimensions (X x Y x Z)		178 x 394 x 229	254 x 512 x 274	395 x 748 x 294	305 x 918 x 305	mm
Weight (net)		14	23	40	49	kg
Degrees of protection according to NEMA		Type 3R/4				
		towards the electrical enclosure if used as intended by the manufacturer				
		Type 1 towards the surroundings if used as intended by the manufacturer				
Design	housing	galvanised sheet steel				
	cover	electrostatically powder coated (200 °C)				
Colour	cover	RAL 7035 I different colours available on request				

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

[1] LAP (Low Ambient Package): includes 900 W enclosure heater and a thermostat to be placed inside the enclosure

Performance curves on page 170



Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com

COOLING UNITS 1900–7200 W

side mounting

protection system

protection system

large distance in/out no hot spots

LAP version



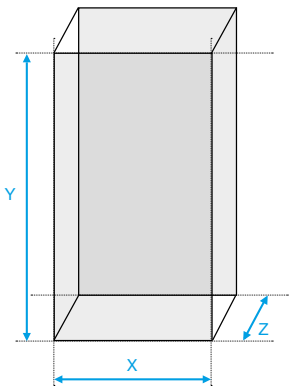
DTS 3261 DTS 3265 DTS 3461C/ 3661C

PRODUCT		DTS 3261	DTS 3265	DTS 3461C	DTS 3661C	
ARTICLE NO.	SC	13385736355	13383836355	13384136375	13384036375	Unit
ARTICLE NO.	LAP [1]	13385736375	13383836375	900W heater included as standard		
DATA						
Rated voltage ±10 %		AC 50 I 60 Hz				
		400/460 3~				V
Cooling capacity according to EN 14511	A35/A35	1900	3325	5800	7200	W
	A35/A50	1758	2280	3200	3800	
Power consumption (without heater)	A35/A35	1400	1700	2431	2693	
Current consumption (without heater)	A35/A35	2	2.6	4.06	5.18	A
Starting current		16	8	28	40	
Type of connection		plug connection, plug included				
Unimpeded airflow (free flow)	internal	765	1200	1145	1381	m³/h
Ambient temperature		0 … +55 I +32 … +131		–40 … +55 I –40… +131		°C I °F
Control range (adjustable)		+25 … +45 I +77 … +113 factory setting +35 I +95				
Refrigerant	R134a	700	1200	450	450	g
Condensate management		integrated condensate evaporation system with safety overflow				
Dimensions (X x Y x Z)		395 x 1209 x 326	411 x 1347 x 365.2	400 x 1452 x 500		mm
Weight (net)		67	68	95	107	kg
Degrees of protection according to NEMA		Type 3R/4				
		towards the electrical enclosure if used as intended by the manufacturer				
		Type 1 towards the surroundings if used as intended by the manufacturer				
Design	housing	galvanised sheet steel				
	cover	electrostatically powder coated (200 °C)				
Colour	cover	RAL 7035 I different colours available on request				

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

[1] LAP (Low Ambient Package): includes 900 W enclosure heater and a thermostat to be placed inside the enclosure

Performance curves on page 170–171



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COOLING UNITS 306–1948 W

side mounting

protection system

large distance in/out no hot spots

stainless steel

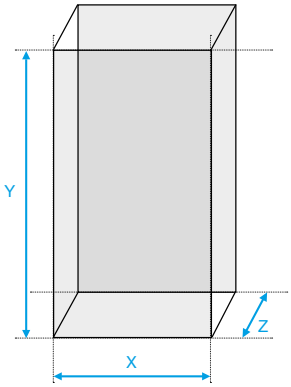


DTS 3031 VA | DTS 3081 | DTS 3181 | DTS 3185

PRODUCT		DTS 3031 VA	DTS 3081	DTS 3181		DTS 3185	
ARTICLE NO.	SC	13383141158	13382341300	13385436158	13385441158	13383639158	Unit
DATA							
Rated voltage ±10 %		AC 50 I 60 Hz					
		230		460 3~	230		V
Cooling capacity according to EN 14511	A35/A35	306	694	1140 I 1200	1235	1948	W
	A35/A50	–	428	350	570	1045	
Power consumption	A35/A35	253	663	1200	795	1020	
Starting current			10.4	15	10	26	
Type of connection		plug connection, plug included					
Unimpeded airflow (free flow)	internal	64	150	300	190	580	m^3/h
Ambient temperature		+8 ...+45 I +46... +113	+8...+55 I +46... +131	0 … +55 I +32 ... +131			°C I °F
Control range (adjustable)		+10 +40 I +50 .. +104 fact. set. +35 I +95		+25 … +45 I +77 … +113 factory set. +35 I +95			
Refrigerant	R134a	150	400			750	g
Condensate management		integrated condensate evaporation system with safety overflow					
Dimensions (X x Y x Z)		178 x 394 x 229	254 x 512 x 274	395 x 748 x 237	395 x 748 x 294	305 x 914 x 305	mm
Weight (net)		14	25	44	42	49	kg
Degrees of protection according to NEMA		Type 4/4X					
		towards the electrical enclosure if used as intended by the manufacturer					
		Type 1 towards the surroundings if used as intended by the manufacturer					
Design	housing	galvanised sheet steel					
	cover	stainless steel 304					

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 170



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COOLING UNITS 1900–7200 W

side mounting

protection system

large distance in/out no hot spots

stainless steel

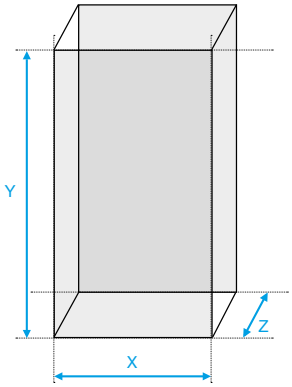


DTS 3281 DTS 3285 DTS 3481C / 3681C

PRODUCT		DTS 3281	DTS 3285	DTS 3481C	DTS 3681C	
ARTICLE NO.	SC	13385736158	13383836158	13384136178	13384036178	Unit
		–	–	900W heater included as standard		
DATA						
Rated voltage ±10 %		AC 50 I 60 Hz				
		400/460 3~				V
Cooling capacity according to EN 14511	A35/A35	1900	3325	5800	7200	W
	A35/A50	1758	2280	3200	3800	
Power consumption (without heater)	A35/A35	1400	1700	2431	2693	
Current consumption (without heater)	A35/A35	2	2.6	4.06	5.18	
Starting current		16	8	28	40	
Type of connection		plug connection, plug included				
Unimpeded airflow (free flow)	internal	765	1200	1145	1381	m³/h
Ambient temperature		0 … +55 I +32 … +131		–40 … +55 I –40… +131		°C I °F
Control range (adjustable)		+25 … +45 I +77 … +113 factory setting +35 I +95				
Refrigerant	R134a	700	1200	400	450	g
Condensate management		integrated condensate evaporation system with safety overflow				
Dimensions (X x Y x Z)		395 x 1209 x 326	411 x 1347 x 365.2	400 x 1452 x 500		mm
Weight (net)		67	68	95	107	kg
Degrees of protection according to NEMA		Type 4/4X				
		towards the electrical enclosure if used as intended by the manufacturer				
		Type 1 towards the surroundings if used as intended by the manufacturer				
Design	housing	galvanised sheet steel				
	cover	stainless steel 304				

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 170–171



Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com

Accessories

PRODUCT	SUITABLE FOR ...	ARTICLE NUMBER
External condensate evaporation system	**all units**	18314000001
External condensate evaporator (230 V 50/60 Hz) for the accumulated condensed water.		



External temperature probe	**DTI/DTS 6000 with Multi Controller**	18310000153
For positioning of the energy saving mode temperature probe inside the enclosure. Cable length 2.9 m.		



Condensate bottle	**all units**	18314000100
External container for collecting the accumulating condensed water (1 l)		



Premium TTL-USB converter	**DTI/DTS 6000**	18310000004
Interface-adapter to connect Pfannenberg cooling units with the PC. For communication following software is required: "Pfannenberg Control Centre" or "εCOOL-Plant V2.0" or higher is required, depending on the controller type. Free download on pfannenberg.com		



Air diverter internal	**DTI/DTS 6201–6801**	18300000201
For diverting the cold air downwards.		



Air baffle internal	**DTI/DTS 6201–6801**	18300000141
	DTI 9041 | DTI 9441 | DTI 9541	18300000205
For diverting the cold air optionally to the right or to the left.		



PRODUCT	SUITABLE FOR ...	ARTICLE NUMBER
Filter mats	**DTI/DTS 6201–6801 | DTI/DTS 6201C–6301C DTT units produced since 2016**	
Fleece filter (standard, dust)		18300000147
Fluted filter (longer service life, dust)		18300000148
Aluminium filter (oily air)		18300000149
Filter adapter [1] (RAL 7035, different colours available on request)		18310000151

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



Filter kit (aluminium mesh)	**DTS 3031**	18881500008
	DTS 3061	18881500005
	DTS 3161 | 3181	18881500000
	DTS 3165 | 3185 [2]	18380000025
	DTS 3261 | 3281	18881500001
	DTS 3265 | 3285	18881500007
	DTS 3661 | 3681	18881500004

[2] for HT variants only



Transport eye bolts	**all units of the 6000 series**	18310000154



Quick installation frame	**DTT 6101 | DTT 6201 produced since 2016**	18310000007
	DTT 6101 | DTT 6201	18300000144
	DTT 6301 | DTT 6401	18300000145
	DTT 6601 | DTT 6801	18300000146
For quick and easy installation or replacement.		



Accessories

	PRODUCT	SUITABLE FOR ...	ARTICLE NUMBER
PAD air duct system			
1	PAD frame	DTT 6301 I DTT 6401	18315000000
		DTT 6601 I DTT 6801	18315000001
2	PAD system (air hose and 1 m tube)	DTT 6301 I DTT 6401	2x 18315000002
		DTT 6601 I DTT 6801	2x 18315000002
3	PAD optional tube extension (1 m)	DTT 6301 I DTT 6401	18315000004
		DTT 6601 I DTT 6801	
Pfannenberg Air Duct System in combination with top mounted cooling units is designed to serve applications with limited space in the enclosure.			

Installation frame
Sturdy frame for quick and easy installation of top mounted cooling units.

Long air tube
Allows easy delivery of cool air to the very bottom of the electrical enclosure, if the free airstream to the bottom is blocked.

Improved convection
Cooling from bottom to top supports the natural convection of warm air.

Optimal cooling
The system provides an optimal air distribution in the whole enclosure.



Industrial standard
The frame is made of steel with powder coating to meet industrial standards.

Flexible
Air hose offers very flexible positioning of exhaust.



Application example with top mounted cooling unit DTT 6101 and PAD system size 1

Pfannenberg Air Duct System for top mounted cooling units

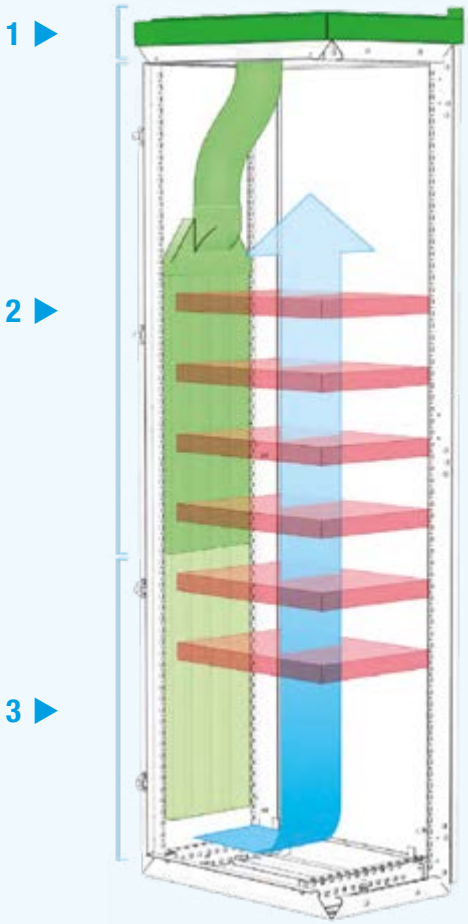
Application example

Even though our top mounted DTT units do not need any air ducts to cool down an electrical enclosure, there are special applications which might get challengings, such as:

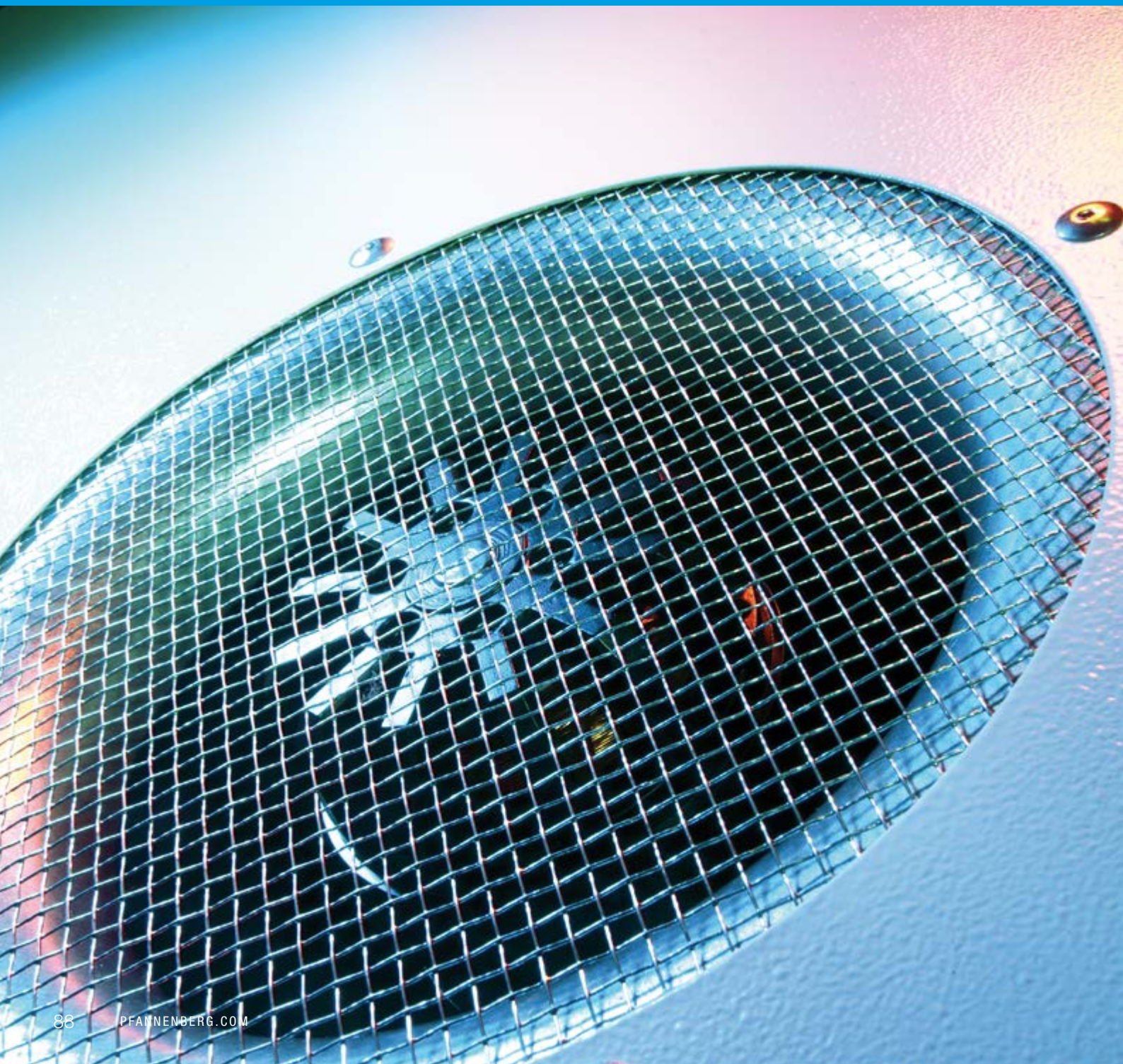
Enclosures with a lot of components, several intermediate floors and also IT server usually have no sufficient space for perfect cooling air distribution. This can lead to local hot spots in the lower parts of enclosure, thus effecting negatively the life span of components.

To counter this issue Pfannenberg Air Duct system has been developed. The system consists of a metal frame, air hoses and sturdy plastic air tubes, which provide secure and efficient air distribution to any place inside the enclosure.

The system is used to provide cool air directly to the bottom of the enclosure and makes it possible to focus the air stream on specific electrical components, which have exceptionally high heat emission.



Process reliability.



Air/Water Heat Exchangers from the PWI, 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 – thus water is already available.

Protecting people, machines and the environment.

Selecting the right air/water heat exchanger series.

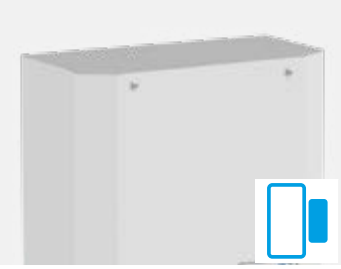
Pfannenberg's air/water heat exchangers are available in three different series. The three design concepts make it possible to select the appropriate air/water heat exchanger for different requirements.

Mounting options: PWI, PWS and PWD



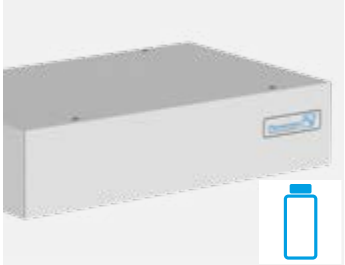
PWI

Air/water heat exchanger for partially recessed side or door mounting, extremely quick installation by one person in less than three minutes.



PWS

Air/water heat exchanger for side or door mounting. For cases when there is no available space for the air/water heat exchanger inside the control cabinet.



PWD/T

Air/water heat exchanger for space-saving top mounting.

6000 PWI/PWS series:

- Cutting edge air/water heat exchanger series for side mounting according to the latest developments in technology with strong air volume flow!
- More energy efficient than the 7000 series and partially integrated solution can be mounted in less than 3 minutes
- Service friendly, easy to exchange fan
- Cut-out compatible and harmonises in machine design with the 6000 cooling units and air/air heat exchangers
- Identical airflow as the 6000 cooling units enables a problem-free cooling concept exchange. Modern industry design, which fits in to the machine design and includes a steel cover to endure the hard industrial day-to-day routine.

7000 PWS series:

- Air/water heat exchanger in proven, simple industrial version
- This series is suitable for narrower control cabinets. Especially for mounting on the side of less deep cabinets or on narrower doors in 200 mm and 400 mm versions.
- For high performance requirements, units in 7,000 or 12,500 Watts are available

5000 PWD/6000 PWT series:

- Space-saving mounting on top of the control cabinet. Emergency escape routes and logistic paths are kept clear. Expensive storage space is saved.
- Perfect protection against mechanical damage in running production operation because it is "out of reach" of fork lift trucks and other vehicles
- PWD air/water heat exchangers fit on cabinets of all manufacturers

Air/Water Heat Exchangers at a glance

PWI for partially recessed mounting of the heat exchanger in the door or side
PWS for outer mounting of the heat exchanger on the door or side
PWD/T for top-mounting of the heat exchanger on the roof

TYPE	COOLING CAPACITY	RATED VOLTAGE	DIMENSIONS (HxWxD)	APPROVALS				PAGE
				cURus	EAC	CE	UKCA	
PWI/PWS Air/Water Heat Exchangers								
PWI 6102	1000 W	230 V	615 x 380 x 142 mm	●	●	●	●	92
PWS 6102			622.5 x 380 x 142 mm					
PWI 6152	1500 W	230 V	938 x 410 x 142 mm	●	●	●	●	94
PWS 6152			945.5 x 410 x 142 mm					
PWI 6302C	3000 W	400 V	938 x 410 x 142 mm	●	●	●	●	95
PWS 6302C			945.5 x 410 x 142 mm					
PWI 6302	3000 W	400 V	1549 x 485 x 142 mm	●	●	●	●	96
PWS 6302			1556 x 485 x 142 mm					
PWI 6502	5000 W	400 V	1544 x 485 x 186 mm	●	●	●	●	97
PWS 6502			1556 x 485 x 186 mm					
PWS 7032	300 W	24 V DC	300 x 150 x 93 mm			●	●	98
PWS 7062	600 W	230 V	500 x 200 x 100 mm	●	●	●	●	
PWS 7102	950 W		500 x 200 x 150 mm	●	●	●	●	
PWS 7152	1500 W		950 x 400 x 115 mm	●	●	●	●	100
PWS 7332	3150 W		950 x 400 x 190 mm	●	●	●	●	
PWS 7502	5200 W	230 V	1400 x 460 x 235 mm	●	●	●	●	
PWS 7702	7000 W	230 V | 400 V 3~	1800 x 460 x 310 mm	●	●	●	●	101
PWS 71002	10000 W		1800 x 600 x 315 mm	●	●	●	●	
PWS 71302	12500 W	230 V AC	2000 x 598 x 399 mm			●	●	
PWD Air/Water Heat Exchangers – Top Mounted								
PWD 5302	2150 W	230 V	140 x 600 x 390 mm		●	●	●	102
PWD 5402	3400 W		190 x 720 x 465 mm	●	●	●	●	
PWT 6402	3800 W	230 V | 400 V 2~	274 x 796 x 584 mm	●	●	●	●	
Accessories								
Internal enclosure fan		230 V						39
External condensate evaporation system		230 V						84
Condensate bottle								84
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.								

● available ○ pending

Further information can be found on the Internet: www.pfannenberg.com
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PWI/PWS 6000
▯COOL Air/Water Heat Exchangers
1000–5000 Watt

PWI Partially recessed in the side or door – elegantly integrated in the machine design; transport and escape routes are kept clear

PWS Door or side mounting – in the event of limited space in the cabinet; the routing of cold air to the important components in the cabinet is retained

Process reliability
- High airflow rate and cooling capacity.
- The heat load will not be transferred to the ambient air.
- Integrated temperature monitoring with alarm contact.

High resilience
- Very high IP protection.
- Independent from the ambient temperature at the place of installation.

Service and mounting-friendly
- Compact design.
- Seal requires no elaborate reworking of the mounting cut-out.
- Maintenance-free.

Easy mounting
with tool-less clamps system for partially sunk-in version PWI.



High efficiency
Offers the highest degree of safety and energy efficiency.

Cut-out compatible
with ▯COOL system e.g. for air/air heat exchangers and cooling units.

Steel cover
The cover is made of sheet steel and can therefore be coloured easily.

Economic
- System-compatible with chillers.
- Can be integrated in existing cooling circuits.
- Integrated thermostat and solenoid valve for energy-efficient temperature control.

AIR/WATER HEAT EXCHANGERS 1000 W

partially recessed mounting (PWI)
side mounting (PWS)
IP 55 protection system
top EER/ energy saving
cut out compatible to DT I A/A
tool-less mounting (PWI)
large distance in/out no hot spots
temperature control
temperature alarm

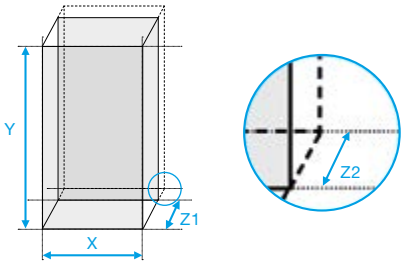


PRODUCT		PWI 6102 I PWS 6102		
ARTICLE NO.		12891401055	12881401055	Unit
DATA				
Rated voltage ±10 %		AC 50 I 60 Hz		
		230		V
Cooling capacity @ 200 l/h	W10/A35	1000		W
Power consumption	W10/A35	68 I 78		
Current consumption	W10/A35	0.3 I 0.34		A
Starting current	W10/A35	0.4		
Unimpeded airflow (free flow)	internal	520		m^3/h
Cooling water connection		G 3/8" internal thread I appropriate hose nozzle in accessory pack		
Ambient temperature		+1 … +70		°C
Control range (adjustable)		+8 … +50 I factory setting +35		
Water inlet temperature		> +2 … +35		
Permissible operating pressure		max. 10		bar
Dimensions (X x Y)		380 x 615 I 380 x 622.5		mm
Installation depth (Z2) + height (Z1)		60 + 82 I 0 + 142		
Weight (net)		10.5 I 11		kg
Degrees of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer		
Design	housing	galvanised sheet steel I electrostatically powder coated (200 °C)		
	heat exchanger	copper pipe with aluminium fins		
Type of connection	electro	spring-type terminal included with plug		
Colour	cover	RAL 7035 I different colours available on request		

ACCESSORIES	ARTICLE NUMBER	Page
Condensate hose extension 0.5 m	18312000002	
External condensate evaporation system	18314000001	84
Condensate bottle	18314000100	84

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 172



Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com

AIR/WATER HEAT EXCHANGERS 1500 W

partially recessed mounting (PWI)

side mounting (PWS)

IP 55 protection system

top EER/ energy saving

cut out compatible to DT I A/A heat exchangers

tool-less mounting (PWI)

large distance in/out no hot spots

temperature control

temperature alarm

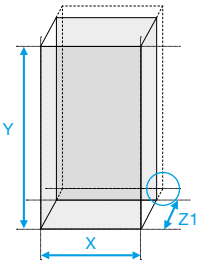


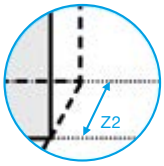
PRODUCT		PWI 6152 I PWS 6152		
ARTICLE NO.		12892301055	12882301055	Unit
DATA				
Rated voltage ±10 %		AC 50 I 60 Hz		
		230		V
Cooling capacity	W10/A35	1500 @ 200 l/h		W
Power consumption	W10/A35	91 I 122		
Current consumption	W10/A35	0.47 I 0.54		A
Starting current	W10/A35	0.6		
Unimpeded airflow (free flow)	internal	850		m^3/h
Cooling water connection		G 3/8" internal thread I appropriate hose nozzle in accessory pack		
Ambient temperature		+1 … +70		°C
Control range (adjustable)		+8 … +50 I factory setting +35		
Water inlet temperature		> +2 … +35		
Permissible operating pressure		max. 10		bar
Dimensions (X x Y)		410 x 938 I 410 x 945.5		mm
Installation depth (Z2) + height (Z1)		60 + 82 I 0 + 142		
Weight (net)		15 I 16		kg
Degrees of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer		
Design	housing	galvanised sheet steel I electrostatically powder coated (200 °C)		
	heat exchanger	copper pipe with aluminium fins		
Type of connection	electro	spring-type terminal included with plug		
Colour	cover	RAL 7035 I different colours available on request		

ACCESSORIES	ARTICLE NUMBER	Page
Condensate hose extension 0.5 m	18312000002	
External condensate evaporation system	18314000001	84
Condensate bottle	18314000100	84

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Performance curves on page 172





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AIR/WATER HEAT EXCHANGERS 3000 W

partially recessed mounting (PWI)

side mounting (PWS)

IP 55
protection system

top EER/ energy saving

cut out compatible to DT I A/A heat exchangers

tool-less mounting (PWI)

large distance in/out no hot spots

temperature control

temperature alarm

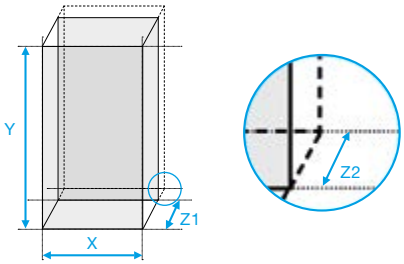


PRODUCT		PWI 6302C I PWS 6302C		
ARTICLE NO.		12892609055	12882609055	Unit
DATA				
Rated voltage ±10 %		AC 50 I 60 Hz		
		400		V
Cooling capacity	W10/A35	3000 @ 400 l/h		W
Power consumption	W10/A35	78 I 78		
Current consumption	W10/A35	0.36 I 0.35		A
Starting current	W10/A35	0.8		
Unimpeded airflow (free flow)	internal	940		m^3/h
Cooling water connection		G 3/8" internal thread I appropriate hose nozzle in accessory pack		
Ambient temperature		+1 … +70		°C
Control range (adjustable)		+8 … +50 I factory setting +35		
Water inlet temperature		> +2 … +35		
Permissible operating pressure		max. 10		bar
Dimensions (X x Y)		410 x 938 I 410 x 945.5		mm
Installation depth (Z2) + height (Z1)		60 + 82 I 0 + 142		
Weight (net)		20 I 21		kg
Degrees of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer		
Design	housing	galvanised sheet steel I electrostatically powder coated (200 °C)		
	heat exchanger	copper pipe with aluminium fins		
Type of connection	electro	spring-type terminal included with plug		
Colour	cover	RAL 7035 I different colours available on request		

ACCESSORIES	ARTICLE NUMBER	Page
Condensate hose extension 0.5 m	18312000002	
External condensate evaporation system	18314000001	84
Condensate bottle	18314000100	84

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Performance curves on page 172



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AIR/WATER HEAT EXCHANGERS 3000 W

partially recessed mounting (PWI)

side mounting (PWS)

IP 55 protection system

top EER/ energy saving

cut out compatible to DT I A/A heat exchangers

tool-less mounting (PWI)

large distance in/out no hot spots

temperature control

temperature alarm

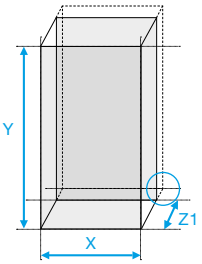


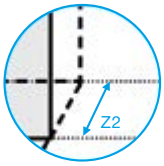
PRODUCT		PWI 6302 I PWS 6302		
ARTICLE NO.		12893309055	12883309055	Unit
DATA				
Rated voltage ±10 %		AC 50 I 60 Hz		
		400/460 2~		V
Cooling capacity @ 400 l/h	W10/A35	3000		W
Power consumption	W10/A35	53 I 75		
Current consumption	W10/A35	0.47 I 0.49		A
Starting current	W10/A35	0.6		
Unimpeded airflow (free flow)	internal	830		m^3/h
Cooling water connection		G 3/8" internal thread I appropriate hose nozzle in accessory pack		
Ambient temperature		+1 … +70		°C
Control range (adjustable)		+8 … +50 I factory setting +35		
Water inlet temperature		> +2 … +35		
Permissible operating pressure		max. 10		bar
Dimensions (X x Y)		485 x 1549 I 485 x 1556		mm
Installation depth (Z2) + height (Z1)		60 + 82 I 0 + 142		
Weight (net)		26 I 28		kg
Degrees of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer		
Design	housing	galvanised sheet steel I electrostatically powder coated (200 °C)		
	heat exchanger	copper pipe with aluminium fins		
Type of connection	electro	spring-type terminal included with plug		
Colour	cover	RAL 7035 I different colours available on request		

ACCESSORIES	ARTICLE NUMBER	Page
Condensate hose extension 0.5 m	18312000002	
External condensate evaporation system	18314000001	84
Condensate bottle	18314000100	84

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 173





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AIR/WATER HEAT EXCHANGERS 5000 W





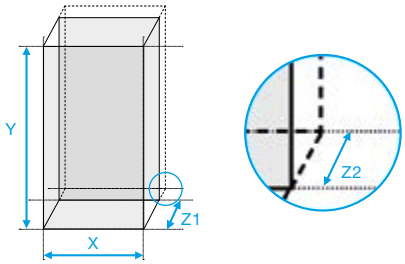
PRODUCT		PWI 6502 I PWS 6502		
ARTICLE NO.		12893509055	12883509055	Unit
DATA				
Rated voltage ±10 %		AC 50 I 60 Hz		
		400/460 2~		V
Cooling capacity @ 400 l/h	W10/A35	5000		W
Power consumption	W10/A35	79 I 130		
Current consumption	W10/A35	0.69 I 0.83		A
Starting current	W10/A35	1.6		
Unimpeded airflow (free flow)	internal	1410		m^3/h
Cooling water connection		G 3/8" internal thread I appropriate hose nozzle in accessory pack		
Ambient temperature		+1 … +70		°C
Control range (adjustable)		+8 … +50 I factory setting +35		
Water inlet temperature		> +2 … +35		
Permissible operating pressure		max. 10		bar
Dimensions (X x Y)		485 x 1544 I 485 x 1556		mm
Installation depth (Z2) + height (Z1)		100 + 86 I 0 + 186		
Weight (net)		36.5 I 31.5		kg
Degrees of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer		
Design	housing	galvanised sheet steel I electrostatically powder coated (200 °C)		
	heat exchanger	copper pipe with aluminium fins		
Type of connection	electro	spring-type terminal included with plug		
Colour	cover	RAL 7035 I different colours available on request		

ACCESSORIES	ARTICLE NUMBER	Page
Condensate hose extension 0.5 m	18312000002	
External condensate evaporation system	18314000001	84
Condensate bottle	18314000100	84

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 173

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PWS 7000
Air/Water Heat Exchangers
300–12500 Watt

For door or side mounting – in the event of limited space, in the cabinet;
the routing of cold air to the important components in the cabinet is retained.

Process reliability
- High airflow rate and cooling capacity.
- The heat load will not be transferred to the ambient air.
- Integrated temperature monitoring with alarm contact.

High resilience
- High IP protection.
- Usable under aggressive environmental conditions.
- Independent from the ambient temperature at the place of installation.



Service and mounting-friendly
- Compact design.
- Seal requires no elaborate reworking of the mounting cut-out.
- Maintenance-free.

Robust
design, to be used under toughest ambient conditions.

Economic
- System-compatible with chillers.
- Can be integrated in existing cooling circuits.
- Integrated thermostat and solenoid valve for energy-efficient temperature control.

AIR/WATER HEAT EXCHANGERS 300–950 W

side mounting

IP 55
protection system

temperature control

temperature alarm



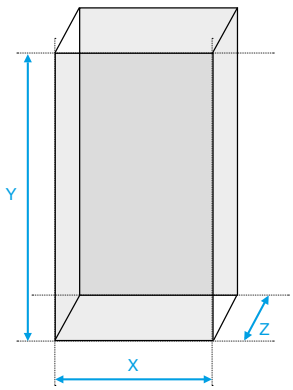
PRODUCT		PWS 7032	PWS 7062	PWS 7102	
ARTICLE NO.	IP 55	12050380055	12050610055	12051010055	Unit
DATA					
Rated voltage ±10 %		DC	AC 50 I 60 Hz		
		24	230		V
Cooling capacity @ 200 l/h	W10/A35	300	600	950	W
Power consumption	W10/A35	80	68 I 70	82 I 84	
Current consumption	W10/A35	0.31	0.35 I 0.38	0.35 I 0.4	A
Starting current	W10/A35	1	1.5 I 1.8	1.7 I 1.95	
Unimpeded airflow (free flow)	internal	80	440	570	m^3/h
Cooling water connection		13 mm hose nozzle			
Ambient temperature		+1 … +70			°C
Control range (adjustable)		n.a.	+8 … +50 I factory setting +35		
Water inlet temperature		+1 … +35			
Permissible operating pressure		max. 10			bar
Dimensions (X x Y x Z)		150 x 300 x 93	200 x 500 x 100	200 x 500 x 150	mm
Weight (net)		5	6	7.5	kg
Degrees of protection (EN 60529)		IP 55 towards the electrical enclosure if used as intended by the manufacturer			
Design	housing	galvanised sheet steel I electrostatically powder coated (200 °C)			
	heat exchanger	copper pipe with aluminium fins			
Type of connection	electro	spring-type terminal included with plug			
Colour	cover	RAL 7035 I different colours available on request			

ACCESSORIES	ARTICLE NUMBER	Page
Condensate hose extension 0.5 m	18312000002	
External condensate evaporation system	18314000001	84
Condensate bottle	18314000100	84

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 173–174

PWS 7062 PWS 7062
PWS 7102 PWS 7102



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AIR/WATER HEAT EXCHANGERS 1500–5200 W

side mounting

IP 55 protection system

temperature control

temperature alarm

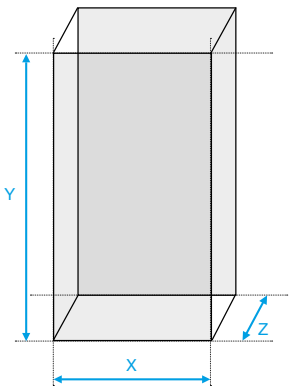


PRODUCT		PWS 7152	PWS 7332	PWS 7502	
ARTICLE NO.		12051510055	12053010055	12055010055	Unit
DATA					
Rated voltage ±10 %		AC 50 I 60 Hz			
		230			V
Cooling capacity	W10/A35	1500 @200l/h	3150 @200l/h	5200 @400l/h	W
Power consumption	W10/A35	125 I 182	295 I 385	295 I 385	
Current consumption	W10/A35	0.55 I 0.75	1.3 I 1.7	1.3 I 1.7	A
Starting current	W10/A35	2 I 2	5.8 I 6.6	5.8 I 6.6	
Unimpeded airflow (free flow)	internal	850	1670	1670	m³/h
Cooling water connection		13 mm hose nozzle I connections with G 3/8" internal thread on request			
Ambient temperature		+1 … +70			°C
Control range (adjustable)		+8 … +50 I factory setting +35			
Water inlet temperature		+1 … +35			
Permissible operating pressure		max. 10			bar
Dimensions (X x Y x Z)		400 x 950 x 115	400 x 950 x 190	460 x 1400 x 239	mm
Weight (net)		21	23	39	kg
Degrees of protection (EN 60529)		IP 55 towards the electrical enclosure if used as intended by the manufacturer I IP 65 on request			
Design	housing	galvanised sheet steel I electrostatically powder coated (200 °C)			
	heat exchanger	copper pipe with aluminium fins			
Type of connection	electro	spring-type terminal included with plug			
Colour	cover	RAL 7035 I different colours available on request			

ACCESSORIES	ARTICLE NUMBER	Page
Condensate hose extension 0.5 m	18312000002	
External condensate evaporation system	18314000001	84
Condensate bottle	18314000100	84

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 174–175



Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com

AIR/WATER HEAT EXCHANGERS 7000–12500 W

side mounting

IP 55
protection system

temperature control

temperature alarm



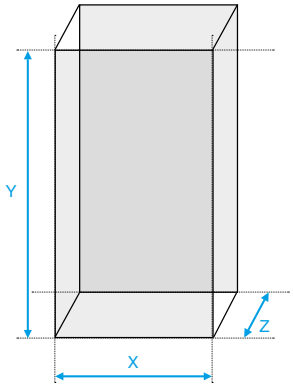
PRODUCT		PWS 7702		PWS 71002		PWS 71302	
ARTICLE NO.		12057702055	12057710055	12057802055	12057810055	12057910055	Unit
DATA							
Rated voltage ±10 %		AC 50 I 60 Hz					
		400 3~	230	400 3~	230	230	V
Cooling capacity	W10/A35	7000 @500l/h		10000 @600l/h		12500 @780l/h	W
Power consumption	W10/A35	550 I 790	520 I 680	1050 I 1450	820 I 1200	820 I 1200	
Current consumption	W10/A35	0.8 I 0.95	2.4 I 3.2	1.9 I 2.2	3.8 I 5.2	2.4 I 2.4	A
Starting current	W10/A35	3 I 3.8	9.2 I 12	8.3 I 9.4	13.5 I 18.8	2.5	
Unimpeded airflow (free flow)	internal	3630	4600	5900	6250	5770	m^3/h
Cooling water connection		13 mm hose nozzle I connections with G 3/8" internal thread on request				3/4" in. thread	
Ambient temperature		+1 … +70					°C
Control range (adjustable)		+8 … +50 I factory setting +35					
Water inlet temperature		+1 … +35					
Permissible operating pressure		max. 10					bar
Dimensions (X x Y x Z)		460 x 1800 x 293		600 x 1800 x 315		598 x 2000 x 399	mm
Weight (net)		58		73	75	80	kg
Degrees of protection according to EN 60529	IP 55	towards the electrical enclosure if used as intended by the manufacturer					
Design	housing	galvanised sheet steel I electrostatically powder coated (200 °C)					
	heat exchanger	copper pipe with aluminium fins					
Type of connection	electro	spring-type terminal included with plug					
Colour	cover	RAL 7035 I different colours available on request					

ACCESSORIES	ARTICLE NUMBER	Page
Condensate hose extension 0.5 m	18312000002	
External condensate evaporation system	18314000001	84
Condensate bottle	18314000100	84

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PWS 7702 PWS 7702
PWS 71002 PWS 71002

Performance curves on page 175–176



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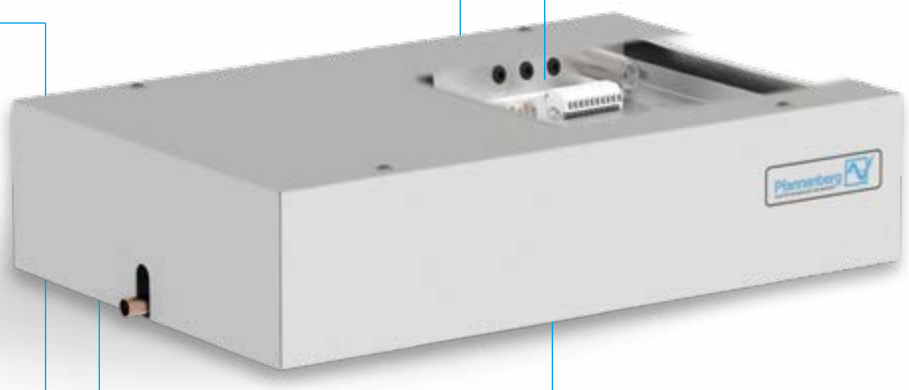
Basic PWD 5000 / ▫COOL PWT 6000
Air/Water Heat Exchangers for Roof Mounting
2150–3800 Watt

The concept of top-mounting saves storage space, keeps emergency escape routes clear and protects from mechanical damage when in operation.

Process reliability
- High airflow rate and cooling capacity.
- The heat load will not be transferred to the ambient air.
- Integrated temperature monitoring with alarm contact.

Economic
- System-compatible with chillers.
- Can be integrated in existing cooling circuits.
- Integrated thermostat and solenoid valve for energy-efficient temperature control.

Surface seal
to protect against the penetration of water via the roof surface of the control cabinet.



Service and mounting-friendly
- Compact design.
- Seal requires no elaborate reworking of the mounting cut-out.
- Maintenance-free.

Water circuit
- Pressure-tested to 30 bar.
- 10 bar maximum operating pressure.

High resilience
- Very high IP protection.
- Independent from the ambient temperature at the place of installation.

TOP MOUNTING AIR/WATER HEAT EXCHANGERS 2150–3400 W

top mounting

IP 54
protection system

temperature control

temperature alarm



PRODUCT	PWD 5302	PWD 5402	PWT 6402		
ARTICLE NO.	12065310055	12065410055	12813401055	12813409055	Unit
DATA					
Rated voltage ±10 %	AC 50 I 60 Hz				
	230		230	400 I 460	V
Cooling capacity @ 400 l/h W10/A35	2150	3400	3800		W
Power consumption W10/A35	85 I 100	115 I 165	177 I 209	195 I 242	W
Current consumption W10/A35	0.4	0.84	0.76 I 0.96	0.55 I 1.55	A
Starting current W10/A35	3	4	1.45	1.0 I 0.9	A
Unimpeded airflow (free flow) internal	500	720	1135		m³/h
Cooling water connection	13 mm hose nozzle I connections with G 3/8" internal thread on request		13 mm hose nozzle in accordance with DIN 8542 R 1/2“		
Ambient temperature	+1 … +70				°C
Control range (adjustable)	+8 … +50 I factory setting +35				°C
Water inlet temperature	+1 … +35				°C
Permissible operating pressure	max. 10				bar
Dimensions (X x Y x Z)	600 x 140 x 390	720 x 190 x 465	796 x 274 x 584		mm
Weight (net)	21	30	34.5	37	kg
Degrees of protection according to EN 60529	IP 54 towards the electrical enclosure if used as intended by the manufacturer		IP 55 towards the electrical enclosure if used as intended by the manufacturer		
Design housing	galvanised sheet steel I electrostatically powder coated (200 °C)				
Design heat exchanger	copper pipe with aluminium fins				
Type of connection electro	3.5 m of cable 3 x 0.75 mm²		spring-type terminal included with plug		
Colour cover	RAL 7035 I different colours available on request				

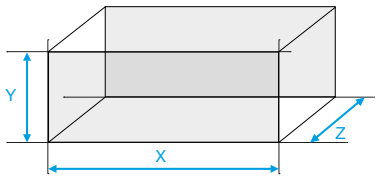
ACCESSORIES	ARTICLE NUMBER	Page
Condensate hose extension 0.5 m	18312000002	
External condensate evaporation system	18314000001	84
Condensate bottle	18314000100	84

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

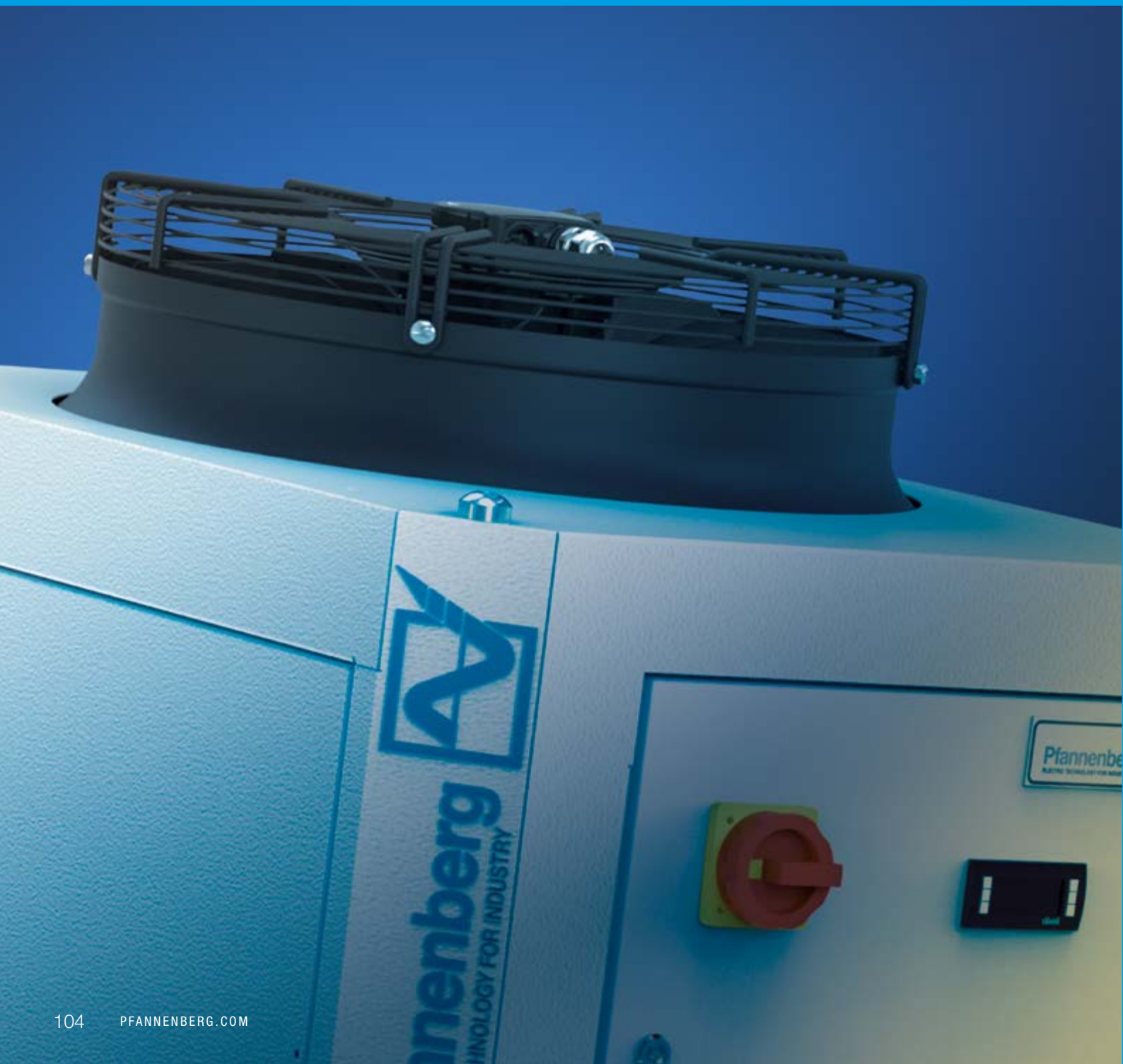
PWT 6402

Performance curves on page 176–177

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com



Process efficiency.



Closing the loop for all industrial liquid cooling applications.

CCE, EB, CPC, PC, BESS-units and PWW series – air and liquid cooled chillers.

With manufacturing space at minimum, machine designs have become smaller and liquid cooling has emerged as the most efficient and economical means of removing process heat. Liquid cooling is especially well adapted to hot and dirty environments where it provides a method of removing the heat not only from the machines, but also from the factory itself.

Pfannenberg standard chillers reflect many years of experience in numerous areas of industry. Our customised devices are developed for a wide range of applications.

Our knowledgeable applications staff is always on hand to discuss the application and to make sure that a proper selection is made. Use our service range, too (see page 190). Especially for chillers, the professional commissioning by trained service technicians from Pfannenberg is crucial for a long term and fail-safe cooling.

Protecting people, machines and the environment.

Whatever the application ...

Heat dissipation, temperature control and reliability of processes are mission critical for today‘s manufacturing machines that include the advanced automation technology required for high speed operation and high precision. Components such as spindle motors, variable frequency drives, laser and x-ray equipment all require cooling for proper operation and reliably – sometimes in harsh manufacturing environments.







...the perfect solution.

Pfannenberg‘s extensive background providing cooling for a wide variety of machines including machining centres, printing presses, wood working machines, welding systems, packaging machines and food processing machines – allows us to apply proven cooling technology to new applications as well. Our application engineering team works to match our standard products with as many applications as possible and also works closely with our product engineers to offer custom solutions when required. This continuous interaction allows continuous product development that is always in keeping with the needs of the market.







Product expertise

Design

Whether our products are cooling oil or water, Pfannenberg has well-developed global expertise in the design and manufacture of packaged refrigeration products for industrial environments. Pfannenberg process chillers optimise three basic areas to perform as one: the refrigeration circuit, the hydraulic circuit and controls.





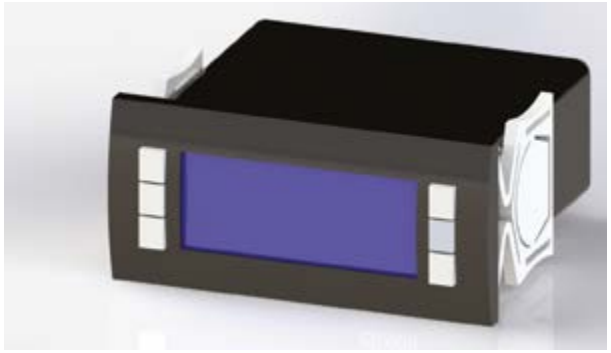
Refrigeration circuit

Given the fact that heat can only be transferred from higher temperature to lower temperature, active chillers must make use of the Carnot cycle to lift the heat from the cooling fluid to a temperature level at that it can be transferred to ambient air or process water. Pfannenberg engineers carefully select the components of this system to maximise performance, efficiency and serviceability. Industrial compressors and fans, extended surface evaporators and condensers, along with the right refrigerant for the application, are seamlessly integrated to achieve the optimum result.

Hydraulic circuit

Circulating and storing the chilled water, or coolant, is the function of the hydraulic circuit. Our standard chillers include high-quality hydraulic components that are selected to for a wide range of applications. Pumps provide flexibility in terms of both flow rate and pressure capabilities.





Controls

Proven and effective controls allow the mechanical components to work together to meet various operating requirements. Digital controllers, connected to sensors that measure temperature and switches that confirm pressure, flow and level, make the continuous logical decisions needed to provide reliable liquid cooling and circulation. Options are also available to provide remote monitoring and/or control.

Product expertise

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.



Microchannel technology

Microchannel heat exchanger (MCHX) for condenser coil design represents a more efficient and compact technology for air cooled chiller applications.

Benefits are:

- Reduced weight and size
- Lower content of refrigerant
- Increased component life



Pfannenberg Protect

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

PRODUCT	GLYCOL CONTENT	QUANTITY	ARTICLE NO.
Pfannenberg Protect 20P (PP20P)	20 % Propyleneglycol	20 kg	45783000123
Pfannenberg Protect 30P (PP30P)	30 % Propyleneglycol	20 kg	45783000124
Pfannenberg Protect 50P (PP50P)	50 % Propyleneglycol	20 kg	45783000128
		200 kg	45783000130
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
		200 kg	45783000129

Performance with different cooling fluids

MEDIUM	GLYCOL CONTENT	CORRECTION FACTOR
H_2O	0 %	1.00
PP20E	20 % Ethyleneglycol	0.99
PP30E	30 % Ethyleneglycol	0.98
PP40E	40 % Ethyleneglycol	0.97
PP50E	50 % Ethyleneglycol	0.96

To calculate the cooling capacity (H_2O) with different glycol concentration multiply the nominal cooling capacity by the correction factor.

Why choose a compact chiller?

Pfannenberg's ready-to-connect chillers are versatile and ideal for applications with cooling requirements of 1.1 kW up to 150 kW. Pfannenberg's CCE Chillers are ideal for quick setup and trouble free operation.



Coolant tank to compensate rapid changes in heat load

Large coolant tanks allow efficient cycling-based capacity control. Poly tanks are included for all CCE, EB and HK models. EB models can be operated as either vented or pressurised systems.



Controls support safe and efficient operation

High refrigerant pressure switch and freeze protection is included as standard. Low refrigerant pressure switch, flow and/or level monitoring are some of the many control components available from the comprehensive option list suitable for almost every application. IP 54 rated enclosure to protect electrical devices.



Designed to handle tough environments

Large, finned-tube condensers provide high energy efficiency and fouling resistance. Cleanable, mesh-type condenser air filters and filter monitoring are available. If process water is available, a water cooled condenser could be an option.





Continuous display info and remote operation

A plug-in, parametric controller with digital display provides a central processing and interface point. Chiller operating information is continuously available in the display, as are warning and alarm indications. General alarm output is included as standard. Remote start/stop input as well as customised single alarms are available upon request.



High airflow and efficient operation

Axial type condenser fans offer high airflow to reduce condensing temperatures and increase refrigeration efficiency. The optional low ambient package includes fan cycling control. Fan speed control is available on EB and HK models to provide condensing pressure control and to save energy.



High efficiency, long life compressors

Industrial reciprocating type or scroll compressors provide long service life and high efficiency.



Polyester powder coated to resist the elements

Galvanised steel panel construction with a polyester powder-coat finish in light grey (RAL 7035). Channel bases are included to facilitate lift truck handling and permanent foundation mounting. Optional casters are available.



Long service life and wider range of performance

High performance peripheral type pumps provide a wide range of flow and pressure capabilities to meet most application requirements. For higher pressure requirements we also offer special pumps with higher performance.



Extra surface area for lower energy usage

Compact and efficient, brazed plate type evaporators. The evaporators providing large heat transfer surface, low coolant pressure loss and a compact design. All evaporators are fed by externally equalised thermal expansion valves that continuously manage refrigerant flow based on load.

Selecting the correct Pfannenberg Chiller.

Use the chart below to help you select the proper chiller for your application. For questions please consult with the factory or visit our website for the latest charts, diagrams, drawings and sizing materials and PSS software.



STEP 1
WHAT IS THE HEAT LOAD?

Determine the heat load. There are several ways to determine the heat load depending on the application. Understanding the process is essential to calculating an accurate heat load.



STEP 2
COOLANT TYPE, TEMPERATURE AND FLOW RATE

Determine the coolant, its target temperature and the flow rate that the chiller must provide to the process. This is determined by the method from which the heat is transferred from the process to the coolant and the type of coolant being used. For example, water has different characteristics than oil.



STEP 3
IDENTIFY INSTALLATION ENVIRONMENT

In what environment will the chiller be installed? Indoor applications for example can see high temperatures and dirty atmospheres, while outdoor installations can experience both low and high ambient temperatures. This can effect chiller sizing and require accessories such as air filters, crank-case heaters, etc.



STEP 4
USE CHILLER PERFORMANCE CURVES

Now use the chiller performance curves available* to select a chiller model that meets or exceeds the required capacity based on the chilled water supply temperature and the highest expected ambient air temperature. Consideration should be given to the safety margin of the application with respect to available frame sizes to maximise the value of the chiller selection.

*Consult factory or website for current curve data.



STEP 5
CHECK PUMP PERFORMANCE CURVES

Check the pump performance curves available* to ensure that the pump will provide enough pressure at the design flow rate to satisfy the application. Some liquid cooled systems have small coolant flow paths or longer distances that can have higher than average pressure losses.

*Consult factory or website for current curve data.



STEP 6
FINAL SELECTION

Finally, consider that the remaining application requirements such as power characteristics, control options, footprint, distributors, colour, etc. are met by the selected standard Pfannenberg chiller. Choosing a standard chiller will bring you greater reliability, easier service with common spare parts and global support.

Chillers at a glance

TYPE	COOLING CAPACITY	RATED VOLTAGE	DIMENSIONS (HxWxD)	APPROVALS				PAGE
				UL508A	EAC	CE	UKCA	
CCE								
CCE 6101	1.1 kW	50 Hz I 60 Hz 230 V	634 x 600 x 495 mm	□	●	●	●	112
CCE 6201	1.7 kW			□	●	●	●	
CCE 6301	2.4 kW			●	●	●	●	
CCE 6401	3.5 kW	50 Hz I 60 Hz 400 V 3~ I 460 V 3~	983 x 600 x 676 mm	●	●	●	●	114
CCE 6501	5.0 kW			□	●	●	●	
CCE 6601	6.5 kW			●	●	●	●	
EB 2.0								
EB 65	6.5 kW	50 Hz I 60 Hz 400 V 3~ I 460 V 3~	1225 x 600 x 760 mm	□	□	●	●	116
EB 80	8.0 kW			●	□	●	●	
EB 95	9.5 kW			●	□	●	●	
EB 140	14 kW		1400 x 855 x 800 mm	●	□	●	●	118
EB 160	16 kW			●	□	●	●	
EB 180	18 kW		1435 x 856 x 761 mm	□	□	●	●	
EB 220	22 kW			●	□	●	●	
EB 2.0 L								
EB L 210	21 kW	50 Hz I 60 Hz 400 V 3~ I 460 V 3~	1410 x 1230 x 790 mm	□	□	●	●	120
EB L 260	26 kW			●	□	●	●	
EB L 310	31 kW		1410 x 1680 x 790 mm	●	□	●	●	122
EB L 360	36 kW			□	□	●	●	
EB L 410	41 kW			□	□	●	●	123
EB L 440	44 kW			●	□	●	●	
EB XT								
EB XT 400	37 kW	50 Hz 400 V 3 ~	2030 x 830 x 1240 mm	□	□	●	●	124
EB XT 500	47 kW			□	□	●	●	
EB XT 600	59 kW			□	□	●	●	
EB XT 700	67 kW		2030 x 830 x 1840 mm	□	□	●	●	126
EB XT 800	74 kW			□	□	●	●	
EB XT 900	82 kW			□	□	●	●	
EB XT 1000	95 kW			□	□	●	●	
EB XT 1200	116 kW		2030 x 1200 x 2665 mm	□	□	●	●	127
EB XT 1600	149 kW			□	□	●	●	
Special application								
CPC 1600	1.6 kW	50 Hz I 60 Hz 230 V	508 x 602 x 520 mm		●	●	●	128
PC 2500	2.5 kW	50 Hz I 60 Hz 230 V	473 x 708 x 654		●	●	●	130
BESS (Battery Energy Storage Solutions)								
VLV 4	4.2 kW	DC: 570 V I 800 V	938 x 866.5 x 447 mm		●	●	●	134
VLV 12	11.6 kW				●	●	●	
DMC 8.0	8.0 kW	50 Hz I 60 Hz 230 V	1202 x 880 x 320 mm	□	●	●	●	
IMC 8.0	8.0 kW	50 Hz I 230 V	1040 x 278 x 1150 mm		●	●	●	
PWW 2.0 (passive units)								
PWW 9.000	9 kW	50 Hz I 60 Hz 230 V	468 x 630 x 600 mm Mechanical variant: 468 x 500 x 600 mm	□	●	●	●	136
PWW 22.000	12 kW	50 Hz I 60 Hz 400 V 3~ I 460 V 3~		□	●	●	●	
PWW 36.000	18 kW			□	●	●	●	

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

● available ○ pending □ upon request

Compact chiller series CCE
1.1–6.5 kW

The compact units of series CCE 6101, CCE 6201 and CCE 6301 offer many features often found only in larger models. These chillers are a top choice for applications with increased demands regarding hydraulic system, process control and precision such as tool machines, energy systems and laboratory equipment. Due to single phase power requirements they can easily be installed in most commercial and industrial settings. The powerful units of series CCE 6401, CCE 6501, and CCE 6601 provide higher capacities up to 6.5 kW completing the portfolio of the CCE series.

Six compact chiller models in two sizes
covering cooling capacities from 1.1 kW to 6.5 kW. All units are available with configurations designed for needs of industrial applications.

Secure and simple handling
four pre-assembled eyebolts provide well defined lifting points for secure handling of the unit.

Corrosion protection as a standard
Hydraulic circuit made with non-ferrous components.

Various coolant applicable
water and water-glycol-mixtures can be used.

Reduced maintenance costs and extended life time
For use in polluted environment quick release filter mats and mounting frames are available.

Constructed for easy maintenance
Removable side and front panels and a well thought-out inner structure offer a full and quick access to internal components.

Reliable easy to read tank level
Improved level indication on the coolant tank.



CCE 1.1–2.4 kW

513A

protection system

small hysteresis

connectivity (option)

water cooled condenser (option)

RAL 7035

water | water/glycol

enhanced pump (option)

service friendly



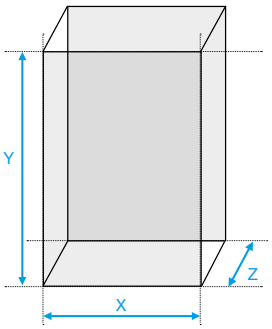
PRODUCT		CCE 6101	CCE 6201	CCE 6301	
ARTICLE NO.	BASIC	42130115001	42130175001	42130245002	Unit
ARTICLE NO.	H	42130115002	42130175002	42130245004	
ARTICLE NO.	HS	42130115004	42130175004	42130245006	
ARTICLE NO.	HSP	42130115006	42130175006	42130245008	
ARTICLE NO.	UL	on request	on request	42130245011	
DATA					
Rated voltage		50 | 60			Hz ±1 %
		230 1~			V ±10 %
Cooling capacity (with pump)	W18/A32	1.1	1.7	2.4	kW
Flow rate (pump) [1]		7.5			l/min
Pump pressure		3.5			bar
Ambient temperature		+15 … +50			°C
Medium		water | water/glycol			
Medium temperature (outlet)		+13 … +35 | factory setting +18			°C
Target value tolerance		±2 (HSP ±1)			K
Refrigerant	R513A	0.8	0.7	0.8	kg
Max power consumption		1.2 | 1.4	1.3 | 1.5	1.5 | 1.7	kW
Current consumption		7.0 | 7.5	6.5 | 7.5	7.5 | 8.0	A
Starting current		40 | 49	40 | 49	45 | 54	
Control voltage		AC 230			V
Airflow [1]	external	1300			m^3/h
Tank volume		10			l
Connections (medium)	IG	1/2"			BSP
Dimensions (X x Y x Z)		600 x 634 x 495			mm
Weight (net)		67		72	kg
Degrees of protection of electrical equipment (EN 60529)		IP 54			
Colour		RAL 7035			

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

[1] performance data based on 50 Hz operation

UL 508A EAC CE UKCA

Performance curves on page 178



Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD | EPLAN data** can be found at product www.pfannenberg.com

CCE 3.5–6.5 kW

513A

protection system

small hysteresis

connectivity (option)

water cooled condenser (option)

RAL 7035

water | water/glycol

enhanced pump (option)

service friendly



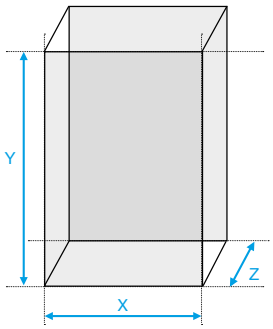
PRODUCT		CCE 6401	CCE 6501	CCE 6601	
ARTICLE NO.	BASIC	42130355001	42130505001	42130655001	Unit
ARTICLE NO.	H	42130355002	42130505002	42130655002	
ARTICLE NO.	HS	42130355005	42130505004	42130655004	
ARTICLE NO.	HSP	42130355007	42130505006	42130655006	
ARTICLE NO.	UL	42130355012	on request	42130655011	
DATA					
Rated voltage		50 | 60			Hz ±1 %
		400 3~ | 460 3~			V ±10 %
Cooling capacity (with pump)	W18/A32	3.5	5	6.5	kW
Flow rate (pump) [1]		17			l/min
Pump pressure		2.6			bar
Ambient temperature		+15 … +50			°C
Medium		water | water/glycol			
Medium temperature (outlet)		+13 … +35 | factory setting +18			°C
Target value tolerance		±2 (HSP ±1)			K
Refrigerant	R513A	1.8	1.2	1.5	kg
Max power consumption		2.5 | 3.1	3.4 | 4.2	4.1 | 5.0	kW
Current consumption		6.5 | 7.0	8.0 | 8.5	9.5 | 10	A
Starting current		33 | 35	41 | 44	52 | 48	
Control voltage		AC 24			V
Airflow [1]	external	2300			m^3/h
Tank volume		26			l
Connections (medium)	IG	3/4"			BSP
Dimensions (X x Y x Z)		600 x 983 x 676			mm
Weight (net)		109	111	114	kg
Degrees of protection of electrical equipment (EN 60529)		IP 54			
Colour		RAL 7035			

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

[1] performance data based on 50 Hz operation

UL 508A EAC CE UK CA

Performance curves on page 178–179



Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD | EPLAN data** can be found at product www.pfannenberg.com

CCE – Configurations

Easily find the right product.

PRODUCT CHARACTERISTIC	CONFIGURATION			
	BASIC	H	HS	HSP
Hydraulic Protection H	–	+	+	+
Smart Cooling S	–	–	+	+
Precision Cooling P	–	–	–	+

Product characteristic Hydraulic Protection (H)

Provides additional hydraulic features for protection of the system.

- Flow switch provides an alarm if volume flow is too low
- Water level check protects pump from damage caused by dry running
- Hydraulic bypass: protects pump by ensuring minimum flow and protects the application by limiting the system pressure

Product characteristic Smart Cooling (S)

Offers advanced temperature control and error detection.

- Optional differential temperature control: takes into account ambient temperature when the application has increased requirements regarding condensation and elongation.
- Temperature alarm T_{min}/T_{max} detects an unexpected increase or drop in temperature of the cooling fluid.
- Error message panel: very important for service and troubleshooting. Provides differentiated error codes (on common alarm signal).
  Please note: For single alarm messages and communication with a superior external control an additional RS 485 interface is needed.

Some errors occur if the chiller needs service: error code and data logging helps to achieve fast and effective elimination of faults and preventive maintenance. Some errors can occur in your system even if the chiller is working properly:

Flow alarm – volume flow of the cooling fluid of the application is out of range
Temperature alarm – chiller detects irregularities in the temperature profile

Product characteristic Precision Cooling (P)

Limits deviation from target temp to ±1 K (must be combined with product characteristic S).

- Hot gas bypass: Improves accuracy of temperature control without stressing the compressor by frequent on/off switching (operation >50 % of nominal power required).
- Fan on/off: improves accuracy of temperature control by influencing the performance of the condenser unit.
  Please note: Variable fan speed is only available for customised chillers with EC fans.

Large chiller series
EB 2.0
6.5–22 kW

The EB 2.0 series offers pre-configurated units in seven cooling capacities as well as many options to easily meet a wide range of applications such as tool machines, automotive industry, inspection technologies, packaging industry, laser applications, textile treatment, and many more. The design of these chillers takes into account requirements of high availability as well as possibility of good access for service and inspection.

MCHX technology
Using microchannel heat exchangers for condenser coil design allows more efficient and compact solutions. The additional air filter provides greater maintenance intervals.

Industrial design
Multi-functional basis (anti-vibration, adjustable feet, palletisable, wheels), two removable side panels for easy access to components, threaded inserts on top allowing four eye bolts lifting.

High efficiency
Eco-design and careful selection of the main components (compressors, pumps and fans) according to ErP 2018 ensures maximum efficiency without lowering the performances.

Ambient conditions
Suitable for environment temperatures up to +50 °C.

Smart hydraulic circuit
Entirely non-ferrous, it may be used with deionised water. Big tank volume with water refilling, level indicator and pressure gauge on the front panel. Hydraulic connections and tank draining on the back. Horizontal centrifugal pump as a standard offering compact design, high reliability and wide performance range.

Six standard configurations
plus options help finding the right chiller for many applications.



EB 2.0 6.5–9.5 kW



- 513A
- water | water/glycol
- microchannel technology
- small hysteresis
- large tank
- protection system
- different RAL available
- enhanced pump (option)
- inverter tech. (option)
- laser applications
- top EER/ energy saving
- water cooled condenser (option)
- service friendly
- connectivity (option)

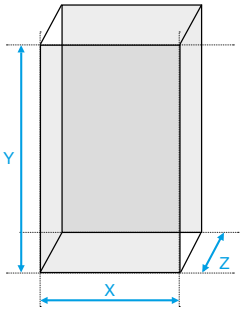
PRODUCT		EB 65	EB 80	EB 95	
ARTICLE NO.	BASIC	42030655501	42030805501	42030955501	Unit
ARTICLE NO.	H	42030655502	42030805502	42030955502	
ARTICLE NO.	HS	42030655503	42030805503	42030955503	
ARTICLE NO.	HSP	42030655504	42030805504	42030955504	
ARTICLE NO.	UL (CONTROL PANEL)	on request	42030805505	42030955505	
DATA					
Rated voltage		50 | 60			Hz ±1 %
		400 3~ | 460 3~			V ±10 %
Cooling capacity (with pump)	W18/A32	6.5 | 7.2	8.0 | 8.8	9.5 | 10.6	kW
Flow rate (pump) [1]		17.2	21.5	25.8	l/min
Pump pressure		3.0			bar
Ambient temperature		+15 … +50			°C
Medium		water | water/glycol			
Medium temperature (outlet)		+13 … +35 | factory setting +18			°C
Target value tolerance		±2 (HSP and UL: ±1)			K
Refrigerant		R513A			
Max power consumption		3.1 | 4.2	3.4 | 4.6	4.4 | 5.6	kW
Max current consumption		8 | 8.5	8.5 | 9	10.5 | 10.5	A
Starting current		24.5 | 25	27.5 | 28	35 | 35.5	
Control voltage		AC 24			V
Airflow [1]	external	4000 | 4400		5000 | 5500	m³/h
Tank volume		50			l
Connections (medium)	IG	3/4“			BSP
Dimensions (X x Y x Z)		600 x 1225 x 760			mm
Weight (net)		140	150	160	kg
Degrees of protection of electrical equipment (EN 60529)		IP 54			
Colour		RAL 7035 | different colours available on request			

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

[1] performance data based on 50 Hz operation

UL 508A CE UKCA

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Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD | EPLAN data** can be found at product www.pfannenberg.com

EB 2.0 14–22 kW



- protection system
- water | water/glycol
- microchannel technology
- small hysteresis
- large tank
- RAL 7035
- different RAL available
- enhanced pump (option)
- inverter tech. (option)
- laser applications
- top EER/ energy saving
- water cooled condenser (option)
- service friendly
- connectivity (option)

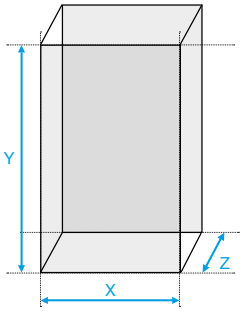
PRODUCT		EB 140	EB 160	EB 180	EB 220	
ARTICLE NO.	BASIC	42031405001	42031605001	42031805001	42032205001	Unit
ARTICLE NO.	H	42031405011	42031605012	42031805002	42032205002	Unit
ARTICLE NO.	HS	42031405013	42031605014	42031805004	42032205004	Unit
ARTICLE NO.	HSP	42031405015	42031605016	42031805006	42032205006	Unit
ARTICLE NO.	UL	42031405022	42031605026	on request	42032205007	Unit
DATA						
Rated voltage		50 | 60				Hz ±1 %
		400 3~ | 460 3~				V ±10 %
Cooling capacity (with pump)	W18/A32	14 | 15.4	16 | 17.6	18 | 21.5	22 | 26.4	kW
Flow rate (pump) [1]		37	43	48 / 57	52 / 62	l/min
Pump pressure		3.0				bar
Ambient temperature		+15 … +45 | +59 … +113				°C | °F
Medium		water/glycol				
Medium temperature (outlet)		+13 … +35 | +55 … +95; factory setting +18 | +64				°C | °F
Target value tolerance		±2 (HSP and UL: ±1)				K
Refrigerant		R410A				
Max power consumption		5.3 | 11.3	7.1 | 14.1	7.1 | 8.8	9.7 | 12	kW
Max current consumption		6.8 | 11.9	18.9 | 15.1	14.5 | 15.5	18 | 19	A
Starting current		46 | 47	46 | 47	55 | 57	74.5 | 75	
Control voltage		AC 24				V
Airflow [1]	external	7500 | 8250		8000		m^3/h
Tank volume		70				l
Dimensions (X x Y x Z)		855 x 1435 x 761				mm
Weight (net)		180	190	200	210	kg
Degrees of protection of electrical equipment (EN 60529)		IP 54				
Colour		RAL 7035 | different colours available on request				

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

[1] performance data based on 50 Hz operation

UL 508A CE UK CA

Performance curves on page 179–180



Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD | EPLAN data** can be found at product www.pfannenberg.com

EB 2.0 – Configurations

Easily find the right product.

PRODUCT CHARACTERISTIC	CONFIGURATION			
	BASIC	H	HS	HSP
Hydraulic Protection H	–	+	+	+
Smart Cooling S	–	–	+	+
Precision Cooling P	–	–	–	+

Product characteristic Hydraulic Protection (H)

Provides additional hydraulic features for protection of the system.

- Flow switch provides an alarm if volume flow is too low
- Water level check protects pump from damage caused by dry running
- Hydraulic bypass: protects pump by ensuring minimum flow and protects the application by limiting the system pressure

Product characteristic Smart Cooling (S)

Offers advanced temperature control and error detection.

- Optional differential temperature control: takes into account ambient temperature when the application has increased requirements regarding condensation and elongation.
- Temperature alarm T_{min}/T_{max} detects an unexpected increase or drop in temperature of the cooling fluid.
- Error message panel: very important for service and troubleshooting. Provides differentiated error codes (on common alarm signal).
  Please note: For single alarm messages and communication with a superior external control an additional RS 485 interface is needed.

Some errors occur if the chiller needs service: error code and data logging helps to achieve fast and effective elimination of faults and preventive maintenance. Some errors can occur in your system even if the chiller is working properly:

Flow alarm – volume flow of the cooling fluid of the application is out of range
Temperature alarm – chiller detects irregularities in the temperature profile

Product characteristic Precision Cooling (P)

Limits deviation from target temp to ±1 K

- Hot gas bypass: Improves accuracy of temperature control without stressing the compressor by frequent on/off switching (operation >50 % of nominal power required).
- Fan on/off: improves accuracy of temperature control by influencing the performance of the condenser unit.
  Please note: Variable fan speed is only available for customised chillers with EC fans.

Large chiller series
EB 2.0 L
21–44 kW

Specifically developed to meet the demanding requirements of today's industrial applications, the EB 2.0 L chillers allow higher cooling capacities in the smallest possible footprint. With a long list of standard features and many available options, Pfannenberg's EB series provides the best choice for cooling of machinery of any kind.

Powerful basic equipment
High-quality controllers enable numerous additional functions and error detection.

Numerous options
Many optional features including advanced sensors, communication and industrial connectors.

Flexible power supply
Possible use in different voltages. E.g. 400 V 50 Hz and 460 V 60 Hz.

Environmentally friendly
Thanks to microchannel technology the content of refrigerants is kept to a minimum in the refrigeration circuit.

CE and UL certification
Certified to CE and UL508a as a standard.

Cooling medium
Water | water/glycol mixtures.

Robust industry standard
Steel housing with thick powder coating.



High performance fans
Huge airflow to guarantee operation even at high ambient conditions.

EB 2.0 L 21–26 kW



IP 54 protection system

water I water/glycol

small hysteresis

microchannel technology

Modbus connectivity (option)

RAL 7035

different RAL available

enhanced pump (option)

outdoor (option)

service friendly

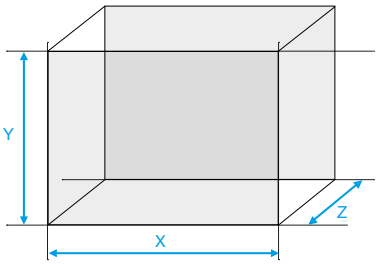
PRODUCT		EB L 210	EB L 260	
ARTICLE NO.	BASIC	42032105001	42032605001	Unit
ARTICLE NO.	UL	on request	42032605003	Unit
DATA				
Rated voltage		50 I 60		Hz ±1 %
		400 3~ I 460 3~		V ±10 %
Cooling capacity (with pump)	W18/A32	21.3 I 23.4	25.7 I 28.5	kW
Flow rate (pump) [1]		54 I 64	70 I 84	l/min
Pump pressure		2.5		bar
Ambient temperature		+15 … +45	+15 … +43	°C
Medium		water I water/glycol		
Medium temperature (outlet)		+13 … +30 I factory setting +18		°C
Target value tolerance		±2 (UL: ±1)		K
Refrigerant		R407C		
Max power consumption		9.9 I 12.6	12.1 I 14.2	kW
Max current consumption		20 I 22	22 I 22.5	A
Starting current		72.8 I 80.5	89.9 I 98.7	
Control voltage		AC 24		V
Airflow [1]	external	7000		m^3/h
Tank volume		70		l
Connections (medium)	IG	1 1/4"		BSP
Dimensions (X x Y x Z)		1230 x 1410 x 790		mm
Weight (net)		389	403	kg
Degrees of protection of electrical equipment (EN 60529)		IP 54		
Colour		RAL 7035 I different colours available on request		

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

[1] performance data based on 50/60 Hz operation

UL 508A EAC CE UKCA

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Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com

EB 2.0 L 31–36 kW



- IP 54 — protection system
- water I water/glycol
- small hysteresis
- microchannel technology
- Modbus — connectivity (option)
- RAL 7035
- different RAL available
- enhanced pump (option)
- outdoor (option)
- service friendly

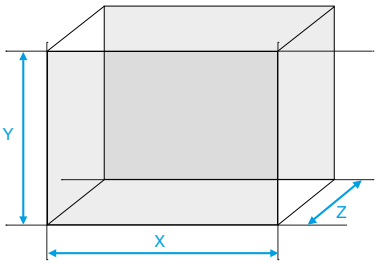
PRODUCT		EB L 310	EB L 360	
ARTICLE NO.	BASIC	42033105001	42033605001	Unit
ARTICLE NO.	UL	42033105002	on request	Unit
DATA				
Rated voltage		50 I 60		Hz ±1 %
		400 3~ I 460 3~		V ±10 %
Cooling capacity (with pump)	W18/A32	30.6 I 36.7	35.6 I 42.7	kW
Flow rate (pump) [1]		82 I 98	90 I 107	l/min
Pump pressure		2.5		bar
Ambient temperature		+15 … +45		°C
Medium		water I water/glycol		
Medium temperature (outlet)		+13 … +30 I factory setting +18		°C
Target value tolerance		±2 (UL: ±1)		K
Refrigerant		R407C		
Max power consumption		17.4 I 22.2	17.9 I 20.6	kW
Max current consumption		31 I 33	30 I 31	A
Starting current		127 I 132	123 I 126	
Control voltage		AC 24		V
Airflow [1]	external	12000		m^3/h
Tank volume		200		l
Connections (medium)	IG	1 1/2"		BSP
Dimensions (X x Y x Z)		1680 x 1410 x 790		mm
Weight (net)		434	448	kg
Degrees of protection of electrical equipment (EN 60529)		IP 54		
Colour		RAL 7035 I different colours available on request		

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

[1] performance data based on 50/60 Hz operation

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Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com

EB 2.0. L 41–44 kW



- IP 54 — protection system
- water I water/glycol
- small hysteresis
- microchannel technology
- Modbus — connectivity (option)
- RAL 7035
- different RAL available
- enhanced pump (option)
- outdoor (option)
- service friendly

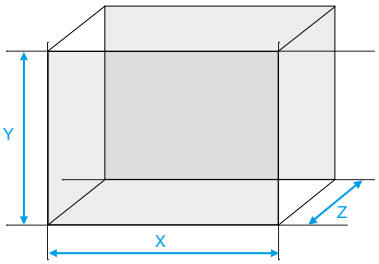
PRODUCT	EB L 410	EB L 440	
ARTICLE NO. BASIC	42034105001	42034405001	Unit
ARTICLE NO. UL	on request	42034405005	Unit
DATA			
Rated voltage	50 I 60		Hz ±1 %
	400 3~ I 460 3~		V ±10 %
Cooling capacity (with pump) W18/A32	40.5 I 48.5	43.5 I 52.2	kW
Flow rate (pump) [1]	105 I 125	105 I 125	l/min
Pump pressure	2.5		bar
Ambient temperature	+15 … +43		°C
Medium	water I water/glycol		
Medium temperature (outlet)	+13 … +30 I factory setting +18		°C
Target value tolerance	±2 (UL: ±1)		K
Refrigerant	R407C		
Max power consumption	18.1 I 21.8	19.1 I 23	kW
Max current consumption	31.5 I 33	34.5 I 35	A
Starting current	131 I 135	143 I 147	
Control voltage	AC 24		V
Airflow [1] external	12000		m^3/h
Tank volume	200		l
Connections (medium) IG	1 1/2"		BSP
Dimensions (X x Y x Z)	1680 x 1410 x 790		mm
Weight (net)	476	500	kg
Degrees of protection of electrical equipment (EN 60529)	IP 54		
Colour	RAL 7035 I different colours available on request		

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

[1] performance data based on 50/60 Hz operation

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Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com

Extreme chiller series
EB XT
36–150 kW

Pfannenberg introduced a new product series to extend our portfolio with a new extreme performance range up to 150 kW in cooling capacity. The EB XT consists of nine units in three different housing sizes following our high-level standards in efficiency, compact design and innovation in chiller technology.

Extreme cooling capacities
extending our range of chillers up to new high cooling capacities.

EC fans
Variable speed control, EC motor technology, further increasing energy savings.

Scroll compressor
Lower noise level and 20 % decreased power consumption than comparable piston compressors.

Cooling medium
Water | water/glycol mixtures.



Microchannel technology
Using microchannel heat exchangers (MCHX) for condenser coil design allows more efficient and compact solution.

Controller and sensor technology
Controller system and digital display of temperature, pressure, tank level and status values.

Electronic expansion valve
Operates with a much more sophisticated design allowing a superior control resolution in high peak/low peak applications.

Reduced emissions
due to high efficiency refrigerant R410A.

EB XT 37–59 kW

- IP 54 protection system
- water I water/glycol
- microchannel technology
- small hysteresis
- extreme T conditions
- large tank
- RAL 7035
- different RAL available
- enhanced pump (option)
- service friendly
- top EER/ energy saving
- laser applications
- EC fan
- outdoor (option)
- Modbus connectivity

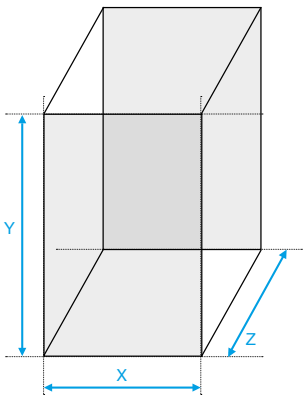


PRODUCT	EB XT 400	EB XT 500	EB XT 600	
ARTICLE NO.	42144005001	42145005001	42146005001	Unit
DATA				
Rated voltage	50			Hz ±1 %
	400 3~			V ±10 %
Cooling capacity (with pump) W15/A32	36.5	47.3	58.6	kW
Flow rate (pump)	117	150	183	l/min
Pump pressure	3.0			bar
Ambient temperature	+5 … +50			°C
Medium	water I water/glycol			
Medium temperature (outlet)	+8 … +30			°C
Target value tolerance	±1			K
Refrigerant	R410A			
Power consumption (with pump) W15/A32	12.8	15.7	21	kW
Full load amperage	23.1	28.3	37.9	A
Airflow external	9350	12600	20000	m^3/h
Tank volume	300			l
Connections (medium) IG	1 1/2"			BSP
Dimensions (X x Y x Z)	830 x 2030 x 1240			mm
Weight (net)	540	550	620	kg
Degrees of protection of electrical equipment (EN 60529)	IP 54			
Colour	RAL 7035 I different colours available on request			

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

CE UK CA

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Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com

EB XT 67–95 kW

IP 54 protection system

water | water/glycol

microchannel technology

small hysteresis

extreme T conditions

large tank

RAL 7035

different RAL available

enhanced pump (option)

service friendly

top EER/ energy saving

laser applications

EC fan

outdoor (option)

Modbus connectivity

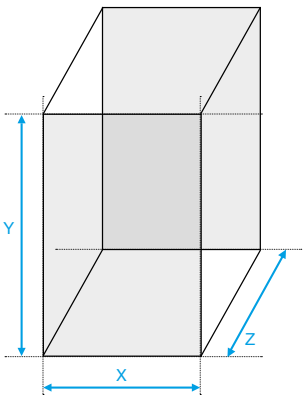


PRODUCT	EB XT 700	EB XT 800	EB XT 900	EB XT 1000	
ARTICLE NO.	42147005001	42148005001	42149005001	42151005001	Unit
DATA					
Rated voltage	50				Hz ±1 %
	400 3~				V ±10 %
Cooling capacity (with pump) W15/A32	66.5	74.2	82.1	94.9	kW
Flow rate (pump)	200	233	267	300	l/min
Pump pressure	3.0				bar
Ambient temperature	+5 … +50				°C
Medium	water | water/glycol				
Medium temperature (outlet)	+8 … +30				°C
Target value tolerance	±1				K
Refrigerant	R410A				
Power consumption (with pump) W15/A32	20.3	25.2	28	32.5	kW
Full load amperage	36.6	45.5	50.5	58.6	A
Airflow external	23270				m^3/h
Tank volume	500				l
Connections (medium) IG	2"				BSP
Dimensions (X x Y x Z)	830 x 2030 x 1840				mm
Weight (net)	650	650	700	720	kg
Degrees of protection of electrical equipment (EN 60529)	IP 54				
Colour	RAL 7035 | different colours available on request				

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

CE UKCA

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Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD | EPLAN data** can be found at product www.pfannenberg.com

EB XT 116–149 kW

- IP 54 protection system
- water I water/glycol
- microchannel technology
- small hysteresis
- extreme T conditions
- large tank
- RAL 7035
- different RAL available
- enhanced pump (option)
- service friendly
- top EER/ energy saving
- laser applications
- EC fan
- outdoor (option)
- Modbus connectivity

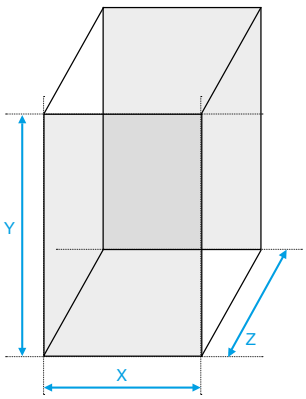


PRODUCT	EB XT 1200	EB XT 1600	
ARTICLE NO.	42151205001	42151605001	Unit
DATA			
Rated voltage	50		Hz ±1 %
	400 3~		V ±10 %
Cooling capacity (with pump) W15/A32	115.8	148.8	kW
Flow rate (pump)	333	367	l/min
Pump pressure	3.0		bar
Ambient temperature	+5 … +50		°C
Medium	water I water/glycol		
Medium temperature (outlet)	+8 … +30		°C
Target value tolerance	±1		K
Refrigerant	R410A		
Power consumption (with pump) W15/A32	36.6	47.1	kW
Full load amperage	66	85	A
Airflow external	45550		m^3/h
Tank volume	700		l
Connections (medium) IG	DN 65		BSP
Dimensions (X x Y x Z)	1200 x 2030 x 2665		mm
Weight (net)	1100	1200	kg
Degrees of protection of electrical equipment (EN 60529)	IP 54		
Colour	RAL 7035 I different colours available on request		

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

CE UK CA

Performance curves on page 182



Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com

Compact chiller series
CPC 1600
1.6 kW

Robust design and compact, the CPC chiller offer a convenient and economical solution for liquid chilling applications with relatively small heat loads. Tool machines and wood market are a few of the many applications to which this chiller is easily applied.

Easy integration in the machine design
The front air inlet allows the integration of the chiller inside the machinery, with the only need to leave the front and back side free.

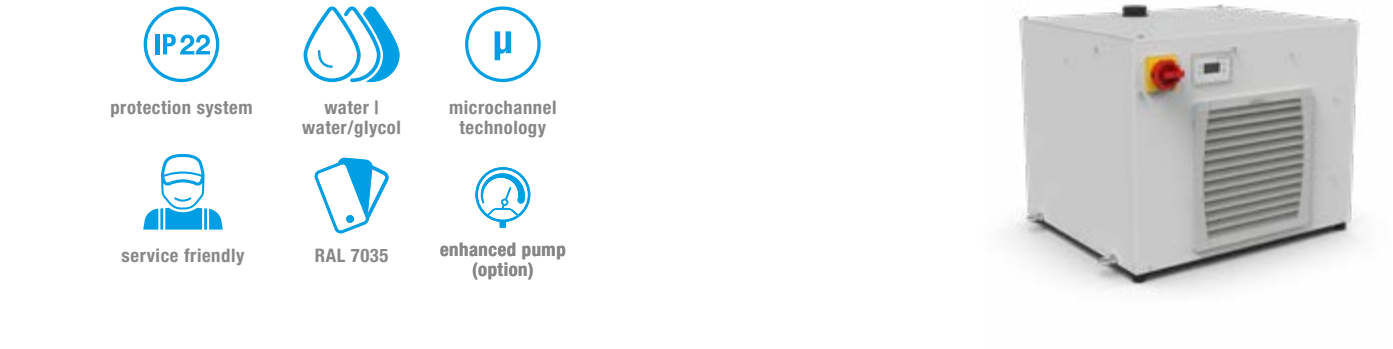
Compact and reliable design
The microchannel component in combination with capillary valves offer efficiency and compactness and ensure reliable refrigerant flow control.



Easy installation
Plug&Play installation.

Easy maintenance
Studied to minimize the service time at the customer side, in a small footprint. The tried-and-tested filter replacement mechanism also ensures the usual simple maintenance for this model.

CPC 1600 1.6 kW

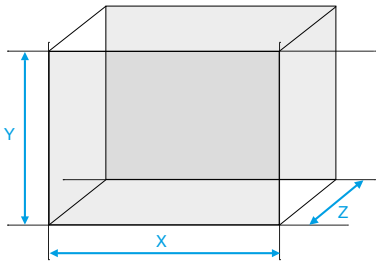


PRODUCT	CPC 1600	
ARTICLE NO.	42190165001	Unit
DATA		
Rated voltage	50 I 60	Hz ±1 %
	230	V ±10 %
Cooling capacity (with pump) W18/A32	1.6	kW
Flow rate (pump)	5	l/min
Pump pressure	2.9	bar
Ambient temperature	+15 … +45 I +50 … +113	°C I °F
Medium	water I water/glycol	
Medium temperature (outlet)	+13 … +30 I +55 … +86 factory setting +18 I +64	°C I °F
Target value tolerance	±2	K
Refrigerant / Quantity	R134a / 0.31	kg
Max power consumption	1.5 I 1.8	kW
Full load amperage	7.5 I 9	A
Starting current	25.5 I 26.5	
Airflow [1] external	1700	m^3/h
Tank volume	5	l
Dimensions (X x Y x Z)	602 x 508 x 520	mm
Weight (net)	65	kg
Degrees of protection of electrical equipment (EN 60529)	IP 22	
Colour	RAL 7035	
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.		

CE UKCA

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Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com



Compact chiller series
PC 2500
2.5 kW

Compact and ready to use air cooled water/glycol chiller. Highly recommended for applications characterised by high ambient temperature. It has been designed to ideally match your requirements in applications such as tool machines, manufacturing, industrial x-ray, induction, optical diagnostics.

Ambient temperature up to +50 °C
Thanks to our thoughtful design, our unit operates effectively in ambient temperatures between +10 °C and +50 °C.

Powerful low-noise pump
An energy efficient pump with reduced operating noise increases efficiency and provides better conditions for workers.

Low content of refrigerant
With as little as 0.8 kg of R513A – far less than 5 tonnes of CO_2 equivalent – there is no mandatory requirement for manually leak checks or fixed leak detection systems [1].



Micro-channel condenser
Using modern microchannel heat exchangers for condenser coil design allows more efficient and compact solutions.

Reduced maintenance costs
The optional tool-free quick release filter mat mounting frame and a standard Pfannenberg PFA exhaust filter extend the life of the unit and reduce maintenance costs.

[1] see EU F-gas Regulation.

PC 2500 2.5 kW

513A

protection system

water | water/glycol

RAL 7021

microchannel technology

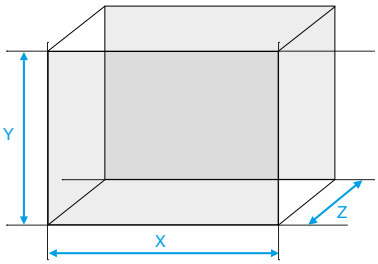
service friendly



PRODUCT	PC 2500				
CONFIGURATION	Basic	H	HS	HSP	Unit
ARTICLE NO.	42160256001	42160253003	42160253004	42160253005	
DATA					
Rated voltage	50				Hz ±1 %
	230 1~				V ±10 %
Cooling capacity (with pump) W15/A32	2.5				kW
Flow rate (pump)	7.5				l/min
Pump pressure	3				bar
Ambient temperature	+10 … +50				°C
Medium	water | water/glycol				
Medium temperature (outlet)	+13 … +30 | factory setting +18				°C
Target value tolerance	±2			±1	K
Refrigerant R513A	0.5				kg
Max power consumption	1.6				kW
Max current consumption	7.5				A
Starting current	26.5				
Control voltage	AC 230				V
Airflow external	1290				m^3/h
Tank volume	10				l
Connections (medium) IG	2x G3/8"				BSP
Dimensions (X x Y x Z)	708 x 473 x 654				mm
Weight (net)	65				kg
Degrees of protection of electrical equipment (EN 60529)	IP 22				
Colour	RAL 7021				

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Performance curves on page 178



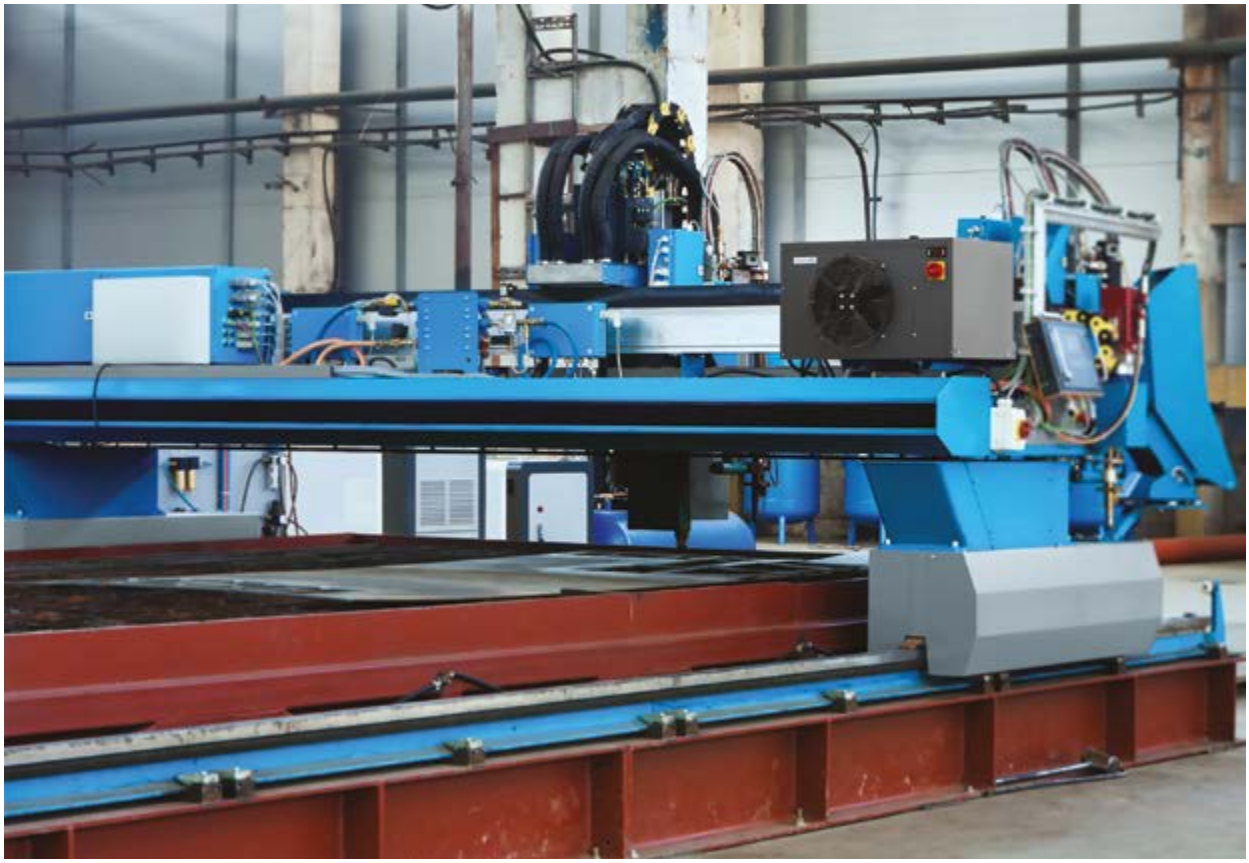
Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD | EPLAN data** can be found at product www.pfannenberg.com

PC 2500 – Configurations

Easily find the right product.

PRODUCT CHARACTERISTIC	CONFIGURATION			
	BASIC	H	HS	HSP
Hydraulic Protection H (1)	–	+	+	+
Smart Cooling S (2)	–	–	+	+
Precision Cooling P (3)	–	–	–	+

1. Pump protection available in all PC 2500 chiller configurations
2. Temperature difference control not available
3. Fan control not available



PC 2500 – Product characteristics

Product characteristic Hydraulic Protection (H)

Provides additional hydraulic features for protection of the system.

- Flow switch provides an alarm if volume flow is too low
- Water level check protects pump from damage caused by dry running
- Hydraulic bypass: protects pump by ensuring minimum flow and protects the application by limiting the system pressure

Please note: A control of the water level in the tank is standard on the PC 2500.

Product characteristic Smart Cooling (S)

Offers advanced temperature control and error detection.

- Temperature alarm T_{min}/T_{max} detects an unexpected increase or drop in temperature of the cooling fluid.
- Error message panel: very important for service and troubleshooting. Provides differentiated error codes (on common alarm signal).
  Please note: For single alarm messages and communication with a superior external control an additional RS 485 interface is needed.

Some errors occur if the chiller needs service: error code and data logging helps to achieve fast and effective elimination of faults and preventive maintenance. Some errors can occur in your system even if the chiller is working properly:

Flow alarm – volume flow of the cooling fluid of the application is out of range
Temperature alarm – chiller detects irregularities in the temperature profile

Product characteristic Precision Cooling (P)

Limits deviation from target temp to ±1 K (must be combined with product characteristic S).

- Hot gas bypass: Improves accuracy of temperature control without stressing the compressor by frequent on/off switching (operation >50 % of nominal power required).

Please note: For PC 2500 fan control is not available.

BESS Chillers
Liquid cooling solutions for Battery Energy Storage Systems (BESS)

Energy independence has never been so compact. Today's advanced battery systems fit into spaces as small and compact, making them ideal for businesses and households looking for efficiency without compromise. But compact doesn't mean basic—temperature stability is the key to unlocking battery performance and longevity. That's why our integrated liquid cooling solutions deliver precise thermal control, preventing overheating and ensuring optimal operating conditions. The result? Faster charging cycles, higher energy density, and maximum utilization of renewable resources. Choose VLV, DMC, and IMC for compact BESS applications and benefit from reliability, small footprint, and easy maintenance—all designed to keep your energy flowing seamlessly.







VLV 4-12

- Power supply up to 800 V DC for direct connection to the battery system
- Stabilizing the temperature of the cooling application with an integrated heater
- Brushless EC fans + microchannel capacitor: high energy efficiency and reliability
- Error/warning and status communication for integration with your battery management system via Modbus RTU/Modbus TCP
- Stand-alone unit for installation in a control cabinet or container
- 4.2–11.6 kw W30 | A32
  36–60 l/min @ 2 bar

DMC 8.0

- Energy-efficient inverter-driven compressor
- Stabilizing the temperature of the cooling application with an integrated heater
- Variable fan speed for low-noise operation
- Integration with battery management system via Modbus RTU / Modbus TCP
- Side or partially recessed mounting with variable installation depth
- Flexible installation on the door of the container to ensure ideal space-utilisation for the batteries. CE (UL on request)
- 8 kw W15 | A35
  60 l/min @ 1 bar

IMC 8.0

- Energy-efficient inverter-driven compressor
- Stabilizing the temperature of the cooling application with an integrated heater
- Variable fan speed for low-noise operation
- Integration with battery management system via Modbus RTU
- Slim design to fit into the smallest spaces of the container
- CE (UL on request)
- 8 kw W20 | A45
  50 l/min @ 1 bar

These products are available upon request.
Please contact your sales representative for lead time and availability.

When it comes to large-scale energy storage, performance and durability are non-negotiable. Containerized BESS systems face harsh environments and high-power demands, and our dedicated solutions of EB L and EB XT are engineered to thrive in these conditions. With active water cooling—the most effective thermal management method—you get uniform heat dissipation, enhanced safety, and extended battery life, even in extreme ambient temperatures. Our chillers guarantee fast commissioning, compact design, and unmatched reliability, making them the perfect choice for utility-scale projects. Optimize your charging and discharging cycles, boost energy capacity, and ensure operational stability with cooling technology that sets the standard for large-scale applications.



EB L 440

- Inverter technology components increase the energy saving and reduce noise levels
- Error/warning and status communication for integration with your battery management system via Modbus TCP
- Precise temperature control (within ±1 °C) enhances efficient charging and discharging cycles, maximizing energy output and optimizing the use of renewable resources.
- Compact design is ideal for installation close to the container. The robust steel housing with powder coating ensures durability in harsh environments
- Approvals CE (UL on request)



EB XT

- Inverter technology components increase the energy saving and reduce noise levels
- Error/warning and status communication for integration with your battery management system via Modbus TCP
- Precise temperature control (within ±1 °C) enhances efficient charging and discharging cycles, maximizing energy output and optimizing the use of renewable resources.
- Compact design is ideal for installation close to the container. The robust steel housing with powder coating ensures durability in harsh environments
- Approvals CE (UL on request)

These products are available upon request.
Please contact your sales representative for lead time and availability.

Passive cooling series
PWW 2.0
9–36 kW

The new PWW 2.0 is a compact passive cooling series which comes in 3 different sizes to cover a cooling capacity range of up to 36 kW. Especially in areas where environmental conditions are challenging, water/water heat exchangers are the ideal solution for providing the best thermal management for liquid cooled motors, spindles, inverters, UV and laser sources, tools or gearboxes.

Passive cooling system
Due to the smart design of the closed loop circuit PWW units can be easily adapted to the existing water supply.

Service friendly design
Easy removable panels allow quick access to internal components and reduced service cost.

3-way valve for primary water regulation
Means the highest reliability, complete accuracy, wide temperature control range and programmable set-point.

Plate heat exchanger
made of stainless steel to prevent corrosion and grant high performance.

Centrifugal pump
Multi stage pump for high flow rates even at high pressure resistance.



Expansion vessel
A properly sized thermal expansion tank will accommodate the additional volume of water created through expansion during the heating cycle.

Digital controller
with clear error message and easily editable set point.

PWW 2.0 9–36 kW

IP 54 protection system

water | water/glycol

passive cooling system

closed loop

RAL 7035

different RAL available

service friendly

top EER/ energy saving



Variant: Plug & Play

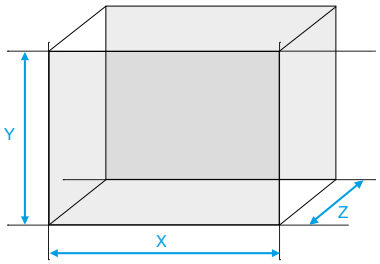
PRODUCT	VARIANT	PWW 9.000	PWW 22.000	PWW 36.000	Unit
ARTICLE NO.	MECHANICAL	42120905007	42120905008	42120905009	
ARTICLE NO.	ELECTRICAL	42122205001	42122205002	42122205003	
ARTICLE NO.	PLUG & PLAY	42123605001	42123605002	42123605003	
DATA					
Rated voltage		50 | 60			Hz ±1 %
		230 1~	400 3~ | 460 3~		V ±10 %
Cooling capacity	WP15/WS20	9	22	36	kW
Primary water inlet	temperature	+10 … +30 | +50 … +86			°C | °F
	flow rate	35	70	110	l/min
	pressure	1			bar
Secondary water outlet	temperature	+15 … +35 | +59 … +95; factory setting +20 | +68			°C | °F
	flow rate	13.5	40	52	l/min
	pressure	2.5 | 4	3 | 4.5	2.5 | 4	bar
Ambient temperature		+15 … +45 | +59 … +113			°C | °F
Target value tolerance		±2			K
Max power consumption		630 | 930	900 | 1100		W
Max current consumption		3.5 | 4.5	2.5 | 3		A
Connections (medium)	IG	see hydralic diagram at pfannenberg.com			BSP
Dimensions (x x Y x Z)		630 (500 Mech.Var.) x 468 x 600			mm
Weight (net)		35	45	47	kg
Degrees of protection of electrical equipment (EN 60529)		IP 54			
Colour		RAL 7035			

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Cooling capacity included power loss in the pump; WP: primary water inlet temperature | WS: secondary water outlet temperature; capacity calculated at standard flow rate for secondary and minimum flow rate for primary side.
Water inlet temperature in the primary circuit must be minimum 5 °C below the water outlet temperature in the secondary circuit.

EAC CE UK CA

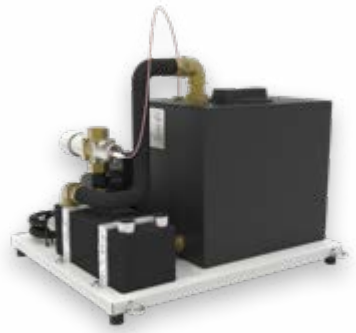
Performance curves on page 183



Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD | EPLAN data** can be found at product www.pfannenberg.com

PWW 2.0 Series – Variants: Mechanical - Electrical - Plug & Play

Easily find the right product.



Mechanical

Provides basic functionality to ensure a stable cooling temperature for the application.

- Mechanical valve to control the outlet temperature of the process water (±4.0 K accuracy)
- Non ferrous hydraulic circuit



Electrical

With the electronic thermostat and the 2-way valve this variant provides a more convenient way to adjust the required cooling temperature for the application. The thermostat is able to manage not only a fixed cooling temperature but in combination with an external temperature sensor (available as accessory) also a differential temperature control e.g. to avoid condensate on sensitive parts of the application.

- 2-way valve to control the outlet temperature of the process water (±2.0 K accuracy)
- Electronic thermostat to adjust the set point
- Non ferrous hydraulic circuit
- Differential temperature control feasible with separate temperature probe (not part of the delivery but available as accessory)

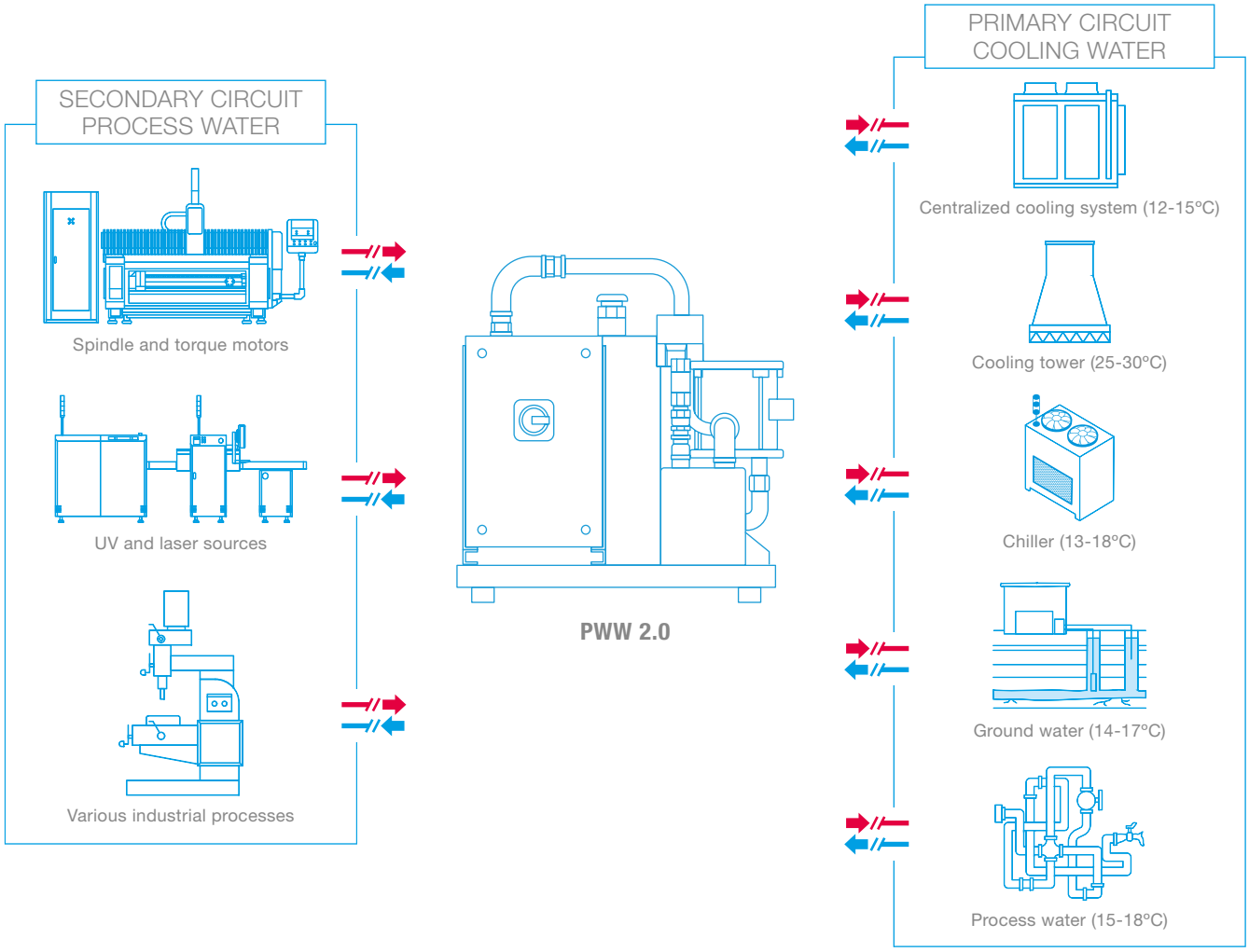


Plug & Play

The best equipped variant with a lot of features already installed. Just connect the power supply and all functions are manged by the unit. This variant is also the base for a wide range of additional options such like a high precision control vale (±0.2 K accuracy), hydraulic bypass valve, flow switch, UL certification (UL508a), Harting connector,…

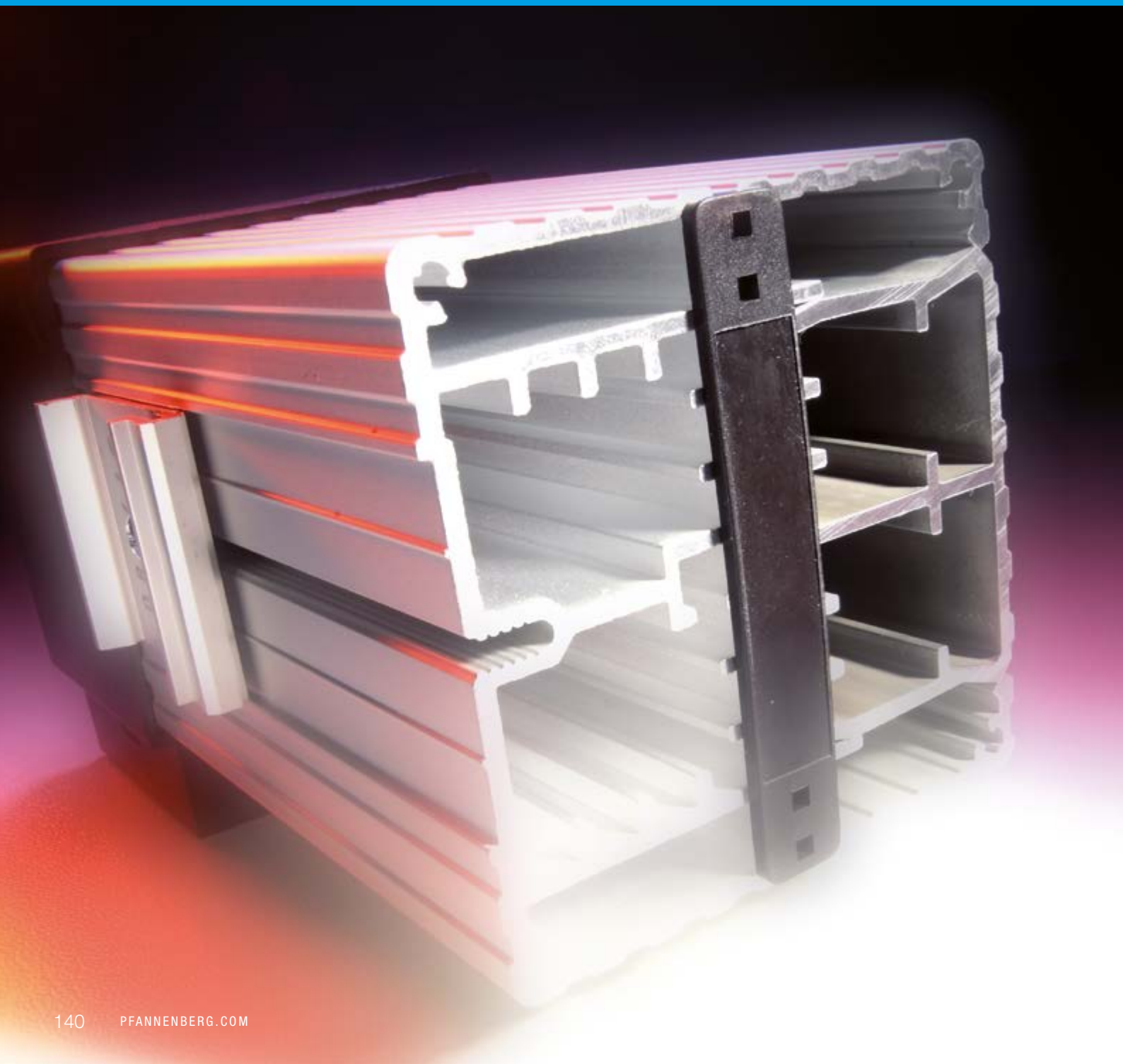
- 2-way valve to control the outlet temperature of the process water (±2.0 K accuracy)
- Electronic thermostat to adjust the set point
- Min-Max temperature alarm
- Electric level switch to protect pump from running dry
- Error message
- Non ferrous hydraulic circuit
- Remote control of the unit (ON/OFF)
- Differential temperature control feasible with separate temperature probe (not part of the delivery but available as accessory)
- Optionally available with UL approval (UL508a)

A wide range of successful applications:





Life insurance.



Heaters, Thermostats and Hygrostats.

The formation of condensation is one of the largest 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. And this is precisely where the function of the Pfannenberg control cabinet heaters begins (radiant heaters and fan heaters). With the addition of the PFH-T series, which is a collection 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 offers a better environmental balance through higher energy efficiency. It also results in greater reliability of your production process.

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

Protecting people, machines and the environment.

Seven different heating series: Always the right solution



PRH-M – Mini-Radiant Heaters

- For very compact housings
- Heating at certain points
- For small heating requirements



FLH – Radiant Heaters

- Standard radiant heating for all applications
- Wide performance range according to the application
- Various connection possibilities
- Ideal for small housings



FLH LST – Surface temperature-limited Radiant Heaters

- Radiant heaters with temperature limitation of the radiator surface
- Wide performance range according to the application
- Ideal for small housings



FLH SL – Fan Heaters

- With railway certification for all sectors with increased shock and vibration requirements, (wind energy, mobile)
- Ideal also for outdoor applications; starts up to –40 °C
- With classical screw fastening



FLH-T – Fan Heaters with integrated Thermostat

- With railway certification for all sectors with increased shock and vibration requirements (wind, telecom, train)
- Integrated thermostat for automatic control
- Ball bearing fan for long service life
- Plastic housing for safe operation



PFH – Compact Fan Heaters

- New fan heater; standard solution with PTC for all electrical enclosures
- Very compact construction, especially for smaller housings
- Due to quick heating-up, especially where the plant needs to start up quickly (wind)
- Plastic housing for safe operation



PFH-T – Compact Fan Heaters with integrated Thermostat

- Like PFH, but with integrated thermostat
- Same application – but no additional space for thermostat necessary
- Energy-saving automatic temperature control
- Plastic housing for safe operation

Three different thermostat and hygrostat series: For every application



FLZ 510–530 – Thermostats

- The standard solution to control heaters and filterfans
- All applications in industry
- Protects heating and fan



FLZ 541–543 – Twin Thermostats

- Combination for reduced space requirements
- All applications in industry
- Switching units in various temperature ranges



FLZ 600–610 – Hygrostats

- Humidity control, all applications in industry
- Best for environments with high air humidity
- Protection against condensate before it occurs

Heaters at a glance

TYPE	HEATING PERFORMANCE	RATED VOLTAGE	DIMENSIONS (HxWxD)	APPROVALS				PAGE
				cURus	CSA	CE	UKCA	
FLH Radiant Heaters								
FLH 015	15 W	230 V AC [1]	100 x 70 x 50 mm	●		●	●	146
FLH 030	30 W			●		●	●	
FLH 045	45 W			●		●	●	
FLH 060	60 W		175 x 70 x 50 mm	●		●	●	
FLH 075	75 W			●		●	●	
FLH 100	100 W			●		●	●	
FLH 150	150 W		250 x 70 x 50 mm	●		●	●	
FLH LST Surface temperature-limited Radiant Heaters								
FLH 020 LST	20 W	230 V AC [1]	132 x 70 x 50	●		●	●	148
FLH 030 LST	30 W		177 x 70 x 50	●		●	●	
FLH 050 LST	50 W		252 x 70 x 50	●		●	●	
PRH-M Mini-Radiant Heaters								
PRH 010-M	10 W	230 V AC [1]	45 x 75 x 29.5 mm	●		●	●	149
PRH 020-M	20 W			●		●	●	
PRH 030-M	30 W			●		●	●	
FLH Fan Heaters								
FLH 250	250 W	230 V AC	186.5 x 85 x 104 mm	●		●	●	150
FLH 400	400 W		226.5 x 85 x 104 mm	●		●	●	
FLH 275 SLM	275 W		110.5 x 118 x 92.5 mm	●		●	●	151
FLH-T Fan Heaters with integrated thermostat								
FLH-T 250	250 W	230 V AC	100 x 150 x 164 mm	●		●	●	152
FLH-T 400	400 W			●		●	●	
FLH-T 600	600 W			●		●	●	153
FLH-T 800	800 W			●		●	●	
FLH-T 1000	1000 W			●		●	●	
PFH Compact Fan Heaters								
PFH 200	200 W	230 V AC	142 x 88 x 126 mm	●	●	●	●	154
PFH 300	300 W			●	●	●	●	
PFH 400	400 W			●	●	●	●	
PFH 500	500 W			●	●	●	●	
PFH 650	650 W			●	●	●	●	
PFH 800	800 W			●	●	●	●	
PFH 1000	1000 W			●	●	●	●	
PFH 1200	1200 W			●	●	●	●	
PFH-T Compact Fan Heaters with integrated thermostat								
PFH-T 200	200 W	230 V AC	142 x 88 x 139 mm	●	●	●	●	155
PFH-T 300	300 W			●	●	●	●	
PFH-T 400	400 W			●	●	●	●	
PFH-T 500	500 W			●	●	●	●	
PFH-T 650	650 W			●	●	●	●	
PFH-T 800	800 W			●	●	●	●	
PFH-T 1000	1000 W			●	●	●	●	
PFH-T 1200	1200 W			●	●	●	●	

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

[1] voltage range 110–250 V AC

● available ○ pending

Thermostats and Hygrostats at a glance

TYPE	DIMENSIONS (HxWxD)	APPROVALS					PAGE
		cURus	EAC	CSA	CE	UKCA	
FLZ Thermostats							
FLZ 510	59.5 x 37 x 47.5 mm	●	●		●	●	156
FLZ 520	72 x 40 x 36 mm	●	●	●	●	●	
FLZ 530		●	●	●	●	●	
FLZ Twin Thermostats							
FLZ 541	80.5 x 59 x 38 mm	●	●		●	●	157
FLZ 542		●	●		●	●	
FLZ 543		●	●		●	●	
FLZ Hygrostats							
FLZ 600	60 x 37 x 47 mm	●	●		●	●	158
FLZ 610	80.5 x 59 x 38 mm	●	●		●	●	
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.							

● available ○ pending

FLH Radiant Heaters
15–150 Watt

Radiant heaters are built very compactly and cover a wide operating range.

Mounting
Integrated snap fastening for 35 mm DIN-rail.

Long life
and robust construction without fan.

Applications
Predominantly used in control cabinets for the avoidance of excessively low temperatures and formation of condensate.



Safe protection
against condensate forming in the cabinet by means of fast heating due to PTC technology.

Different performance ratings
ensure that the correct heating power is always available. The total heat necessary can be distributed according to the needs.

Electrical connection
Depending on the existing connecting conditions, options are available with a 500 mm connecting cable or a plug terminal connector.

RADIANT HEATERS 30–150 W

DIN rail mounting

multi voltage

extreme
T conditions



FLH 015 | FLH 030 | FLH 045



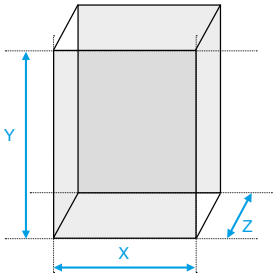
FLH 060 | FLH 075 | FLH 100

PRODUCT	FLH 015	FLH 030	FLH 045	FLH 060	
ARTICLE NO.	17001505007	17003005007	17004505007	17006005007	Unit
DATA					
Heating performance (Ta = +20 °C)	15	30	45	60	W
Rated voltage ±10 %	AC 50 | 60 Hz				
	230				V
Functional range	110–250 V AC 50 | 60 Hz				
Max. starting current	1.1	1.2	1.8	2.5	A
Max. surface temperature	65	90	105	105	°C
Operating temperature	–40 … +70				
Type of mounting	snap fastening for 35 mm profile bars according to EN 60715				
Type of connection	plug terminal connector				
Dimensions (X x Y x Z)	70 x 100 x 50			70 x 175 x 50	mm

PRODUCT	FLH 075	FLH 100	FLH 150	
ARTICLE NO.	17007505007	17010005007	17015005007	Unit
DATA				
Heating performance (Ta = +20 °C)	75	100	150	W
Rated voltage ±10 %	AC 50 | 60 Hz			
	230			V
Functional range	110–250 V AC 50 | 60 Hz			
Max. starting current	4.5	5	7.5	A
Max. surface temperature	120	130	150	°C
Operating temperature	–40 … +70			
Type of mounting	snap fastening for 35 mm profile bars according to EN 60715			
Type of connection	plug terminal connector			
Dimensions (X x Y x Z)	70 x 175 x 50		70 x 250 x 50	mm

ACCESSORIES	ARTICLE NUMBER	Page
Thermostat	17111000000	156
Hygrostat	17207000000	158
Internal enclosure fan	18110000000	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.



Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD | EPLAN data** can be found at product www.pfannenberg.com

LOW SURFACE TEMPERATURE RADIANT HEATERS 20–50 W

DIN rail mounting

multi voltage

extreme T conditions



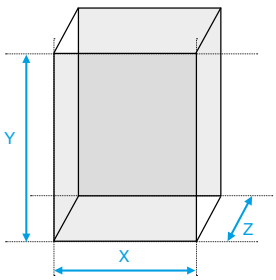
PRODUCT	FLH 020 LST	FLH 030 LST	FLH 050 LST	
ARTICLE NO.	17002105007	17003105007	17005105007	Unit
DATA				
Heating performance (Ta = +20 °C)	20	30	50	W
Rated voltage ±10 %	AC 50 I 60 Hz			
	230			V
Functional range	110–250 V AC 50 I 60 Hz			
Max. starting current	1.1	1.2	2.3	A
Max. surface temperature	55 [1]			°C
Operating temperature	–40 … +70			
Type of mounting	snap fastening for 35 mm profile bars according to EN 60715			
Type of connection	plug terminal connector			
Dimensions (X x Y x Z)	70 x 132 x 50	70 x 177 x 50	70 x 252 x 50	mm

ACCESSORIES	ARTICLE NUMBER	Page
Thermostat	17111000000	156
Hygrostat	17207000000	158
Internal enclosure fan	18110000000	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

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

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com



MINI-RADIANT HEATERS 10–30 W

DIN rail mounting

multi voltage

extreme T conditions

3 different performance ratings are available. The total heat necessary can be distributed according to the needs.

Electrical connection via a 300 mm connecting cable.

Suitable for use in small housings or to heat isolated spots in sensitive areas.



Applications for the avoidance of low temperatures and formation of condensate.

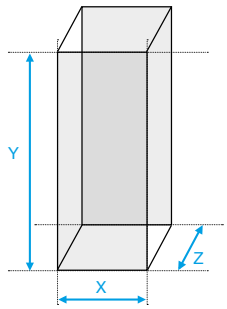
Snap fastening for 35 mm DIN-rail is integrated.

Long life and robust construction without fan.

PRODUCT	PRH 010-M	PRH 020-M	PRH 030-M	
ARTICLE NO.	17000105317	17000205317	17000305317	Unit
DATA				
Heating performance (Ta = +20 °C)	10	20	30	W
Rated voltage ±10 %	AC 50 I 60 Hz			
	230			V
Functional range	110–250 V AC 50 I 60 Hz			
Max. starting current	1	1.1	1.2	A
Max. surface temperature	95	115	140	°C
Operating temperature	–40 … +70			
Type of mounting	snap fastening for 35 mm profile bars according to EN 60715			
Type of connection	connecting cable (300 mm)			
Dimensions (X x Y x Z)	29.5 x 45 x 75			mm

ACCESSORIES	ARTICLE NUMBER	Page
Thermostat	17111000000	156
Hygrostat	17207000000	158
Internal enclosure fan	18110000000	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.



Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com

FAN HEATERS 250–400 W

DIN rail mounting

extreme T conditions

Heat distribution
The fan and the powerful heat output ensure quick and even distribution of heat.

Long life
and robust construction with integrated fan which supports the natural convection.

Electrical connection
via plug terminal connector.



Applications
predominantly used in larger control cabinets for the avoidance of low temperatures and formation of condensate.

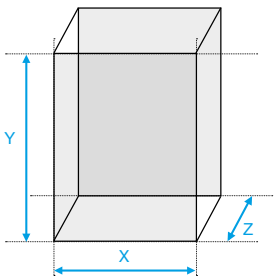
Mounting
Integrated snap fastening for 35 mm DIN-rail.

PRODUCT	FLH 250	FLH 400	
ARTICLE NO.	17025010007	17040010007	Unit
ARTICLE NO. with 2nd protective grille	17025010107	17040010107	
DATA			
Heating performance (Ta = +20 °C)	250	400	W
Rated voltage ±10 %	AC 50 I 60 Hz		
	230		V
Functional range	207–258 V AC 50 I 60 Hz		
Max. starting current	1.1	1.8	A
Max. surface temperature	70	85	°C
Operating temperature	–40 … +70		
Type of mounting	snap fastening for 35 mm profile bars according to EN 60715		
Type of connection	plug terminal connector		
Dimensions (X x Y x Z)	85 x 186.5 x 104	85 x 226.5 x 104	mm

ACCESSORIES	ARTICLE NUMBER	Page
Thermostat	17111000000	156
Hygrostat	17207000000	158
Internal enclosure fan	18110000000	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Comprehensive technical documentation such as **operating instruction, technical data, approvals cut-out drawing, CAD I EPLAN data** can be found at product www.pfannenberg.com



FAN HEATER 275 W

shock resistancy

extreme T conditions

Fan design
with ball bearing guarantees long service life.

The compact design
makes it ideal for use in enclosures with limited space.

All tests
were performed according to European Norms; EN 60068-2-6 I 60068-2-27 I 60068-2-29 Railway applications I Rolling stock equipment I Shock and vibration tests.



Applications
predominantly used in larger control cabinets for the avoidance of low temperatures and formation of condensate.

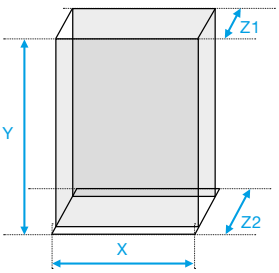
Electrical connection
via plug terminal connector.

Mounting
Integrated galvanised fixing support with 4 slot holes M6.

PRODUCT	FLH 275 SLM	
ARTICLE NO.	17027610007	Unit
DATA		
Heating performance (Ta = +20 °C)	276	W
Rated voltage ±10 %	AC 50 I 60 Hz	
	230	V
Functional range	207–258 V AC 50 I 60 Hz	
Max. starting current	1.5	A
Max. surface temperature	70	°C
Operating temperature	–40 … +70	
Type of mounting	M6 screw fastening	
Type of connection	plug terminal connector	
Dimensions (X x Y x Z1 + Z2)	118 x 110.5 x 75 + 92.5	mm

ACCESSORIES	ARTICLE NUMBER	Page
Thermostat	17111000000	156
Hygrostat	17207000000	158
Internal enclosure fan	18110000000	39

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FAN HEATERS WITH INTEGRATED THERMOSTAT 250–400 W

shock resistancy

extreme T conditions

integrated thermostat

High volume flow
created by the powerful fan means a quick and even distribution of heat.

Long life
Fan design with ball bearing guarantees long service life.

Electrical connection
via 2-pole terminal strip.



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.

Applications
predominantly used in larger control cabinets for the avoidance of low temperatures and formation of condensate.

Integrated thermostat
regulates the operation of the heater automatically. Therefore provides safe protection against condensate forming or energy waste.

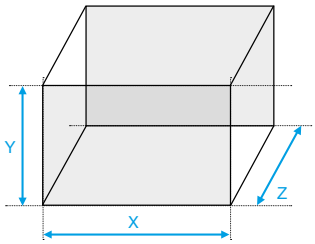
Specifically developed
for demanding environments, e.g. wind turbines and telecommunications sector.

PRODUCT	FLH-T 250	FLH-T 400	
ARTICLE NO.	17025310007	17040310007	Unit
DATA			
Heating performance (Ta = +20 °C)	250	400	W
Rated voltage ±10 %	AC 50 | 60 Hz		
	230		V
Functional range	207–253 V AC 50 | 60 Hz		
Max. starting current	0.7	2.6	A
Temperature setting range	–20 … +40		°C
Operating temperature	–40 … +70		
Type of mounting	4x M5 screws (not included)		
Type of connection	2-pole terminal strip		
Dimensions (X x Y x Z)	150 x 100 x 164		mm

ACCESSORIES	ARTICLE NUMBER	Page
Hygrostat	17207000000	158
Internal enclosure fan	18110000000	39

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FAN HEATERS WITH INTEGRATED THERMOSTAT 600–1000 W

shock resistancy

extreme T conditions

integrated thermostat

High volume flow
created by the powerful fan means a quick and even distribution of heat.

Long life
Fan design with ball bearing guarantees long service life.

Electrical connection
via 2-pole terminal strip.



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.

Applications
predominantly used in larger control cabinets for the avoidance of low temperatures and formation of condensate.

Integrated thermostat
regulates the operation of the heater automatically. Therefore provides safe protection against condensate forming or energy waste.

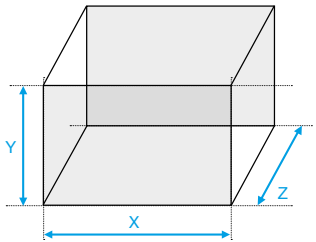
Specifically developed
for demanding environments, e.g. wind turbines and telecommunications sector.

PRODUCT	FLH-T 600	FLH-T 800	FLH-T 1000	
ARTICLE NO.	17060310007	17080310007	17099310007	Unit
DATA				
Heating performance (Ta = +20 °C)	600	800	1000	W
Rated voltage ±10 %	AC 50 | 60 Hz			
	230			V
Functional range	207–253 V AC 50 | 60 Hz			
Max. starting current	3.4	4.3	5.2	A
Temperature setting range	–20 … +40			°C
Operating temperature	–40 … +70			
Type of mounting	4x M5 screws (not included)			
Type of connection	2-pole terminal strip			
Dimensions (X x Y x Z)	150 x 100 x 164			mm

ACCESSORIES	ARTICLE NUMBER	Page
Hygrostat	17207000000	158
Internal enclosure fan	18110000000	39

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COMPACT FAN HEATERS 200–1200 W

DIN rail mounting

extreme T conditions

Variable mounting options
directly on the wall with screws or snap fastener on DIN rail.

Safe protection
against condensate forming in the cabinet by means of fast heating due to PTC technology.

Wide range
of heating capacities from 200 to 1,200 W in one slim compact housing.



Finger guard
at air inlet and outlet as well as a low surface temperature ensure secure handling.

Predominantly used
in larger control cabinets for the avoidance of low temperatures and formation of condensate.

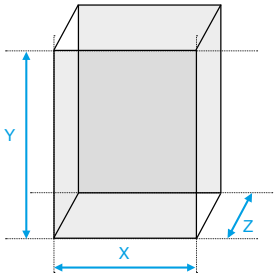
Electrical connection
via plug terminal connector

PRODUCT	PFH 200	PFH 300	PFH 400	PFH 500	
ARTICLE NO.	17020610030	17030610030	17040610030	17050610030	Unit
DATA					
Heating performance (Ta = +10 °C)	200	300	400	500	W
Max. starting current	2	3	4	5	A
Max. pre fuse T	6		10		
Max. surface temperature	55				°C

PRODUCT	PFH 650	PFH 800	PFH 1000	PFH 1200	
ARTICLE NO.	17065610030	17080610030	17099610030	17099910030	Unit
DATA					
Heating performance (Ta = +10 °C)	650	800	1000	1200	W
Max. starting current	7	8	10	12	A
Max. pre fuse T	10				
Max. surface temperature	70				°C
Operating temperature	–40 … +70				
Rated voltage ±10 %	AC 50 I 60 Hz				
	230				V
Functional range	207–253 V AC 50 I 60 Hz				
Type of mounting	snap fastening for 35 mm profile bars according to EN 60715 | 4x M5 screws (not included)				
Type of connection	plug terminal connector				
Dimensions (X x Y x Z)	88 x 142 x 126				mm

ACCESSORIES	ARTICLE NUMBER	Page
Hygrostat	17207000000	158
Internal enclosure fan	18110000000	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.



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COMPACT FAN HEATERS WITH INTEGRATED THERMOSTAT 200–1200 W

DIN rail mounting

extreme T conditions

integrated thermostat

Variable mounting options
directly on the wall with screws or snap fastener on DIN rail.

Safe protection
against condensate forming in the cabinet by means of fast heating due to PTC technology.

Wide range
of heating capacities from 200 to 1,200 W in one slim compact housing.

Electrical connection
via plug terminal connector.



Finger guard
at air inlet and outlet as well as a low surface temperature ensure secure handling.

Predominantly used
in larger control cabinets for the avoidance of excessively low temperatures and formation of condensate.

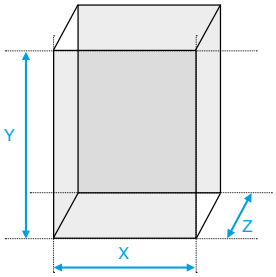
Integrated adjustable thermostat
for the automatic regulation of the cabinet's minimum temperature.

PRODUCT	PFH-T 200	PFH-T 300	PFH-T 400	PFH-T 500	
ARTICLE NO.	17020710034	17030710034	17040710034	17050710034	Unit
DATA					
Heating performance (Ta = +10 °C)	200	300	400	500	W
Max. starting current	2	3	4	5	A
Max. pre fuse T	6		10		A
Max. surface temperature	55				°C

PRODUCT	PFH-T 650	PFH-T 800	PFH-T 1000	PFH-T 1200	
ARTICLE NO.	17065710034	17080710034	17099710034	17099810034	Unit
DATA					
Heating performance (Ta = +10 °C)	650	800	1000	1200	W
Max. starting current	7	8	10	12	A
Max. pre fuse T	10				A
Max. surface temperature	70				°C
Operating temperature	–40 … +70				°C
Rated voltage ±10 %	AC 50 I 60 Hz				
	230				V
Functional range	207–258 V AC 50 I 60 Hz				
Type of mounting	snap fastening for 35 mm profile bars according to EN 60715 | 4x M5 screws (not included)				
Type of connection	plug terminal connector				
Dimensions (X x Y x Z)	88 x 142 x 139				mm

ACCESSORIES	ARTICLE NUMBER	Page
Hygrostat	17207000000	158
Internal enclosure fan	18110000000	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.



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THERMOSTATS

1K
switch point tolerance (FLZ 510)

3K
switch point tolerance (FLZ 510)

changeover spring contact (FLZ 510)

normally closed spring contact (FLZ 520)

normally open spring contact (FLZ 530)

The FLZ series
of thermostats consists of three versions. They are available with normally closed, normally open and changeover contacts.

In combination
with filterfans, they provide for additional savings on energy, materials and time – for a better environmental balance.

Electrical connection
using screw terminals, and fast snap fastening on DIN rail.



In combination
with control cabinet heaters they regulate the temperature inside the control cabinet.

Using thermostats
you can achieve greater reliability in the production process, reduced energy consumption due to need-based use and an improvement in the efficiency of the controlled heaters and filterfans.





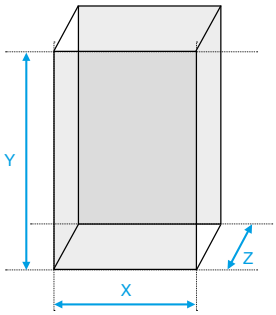
PRODUCT		FLZ 510		FLZ 520	FLZ 530	
ARTICLE NO.	–20 … +40 °C	17103000003	17105000003	17111000003	17121000003	Unit
ARTICLE NO.	0 … +60 °C	17103000000	17105000000	17111000000	17121000000	
ARTICLE NO.	+20 … +80 °C	17103000004	17105000004	17111000004	17121000004	

DATA						
Type of contact		changeover with spring contact		N.C. with spring contact	N.O. with spring contact	
Switching temperature difference		1	3	< 7		K
Switching point tolerance		±3		±4		
Max. switching power value in brackets: inductive load at cos φ = 0.6	N.C.	100–250 V AC / 10 (2)		120 V AC / 15 (2) 240 V AC / 10 (2)		A
	N.O.	100–250 V AC / 5 (2)			120 V AC / 15 (2) 240 V AC / 10 (2)	
	DC	max. 30		max. 30		W
Operating temperature		–40 … +80				°C
Suitable for the operation of		fan and heater		heater	fan	
Type of mounting		snap fastening for 35 mm profile bars according to EN 60715				
Type of connection		screw terminal for cable cross-section 0.5 to 2.5 mm²				
Dimensions (X x Y x Z)		37 x 59.5 x 47.5		40 x 72 x 36		mm
Colour		RAL 7035				

ACCESSORIES	ARTICLE NUMBER	Page
Hygrostat	17207000000	158
Internal enclosure fan	18110000000	39

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

FLZ 520
FLZ 530



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TWIN THERMOSTATS



N.C./N.O.
spring contact
(FLZ 541)



N.C./N.C.
spring contact
(FLZ 542)



N.O./N.O.
spring contact
(FLZ 543)

The FLZ series
twin thermostats integrate three independently switchable thermostats. They are available with normally closed/normally open, normally closed/normally closed and normally open/normally open contacts.

Using thermostats
you can achieve greater reliability in the production process, reduced energy consumption due to need-based use and an improvement in the efficiency of the controlled heaters and filterfans.



In combination
with filterfans, they provide for additional savings on energy, materials and time and – for a better environmental balance.

In combination
with control cabinet heaters they regulate the temperature inside the control cabinet.

Electrical connection
using screw terminals, and fast snap fastening on DIN rail.



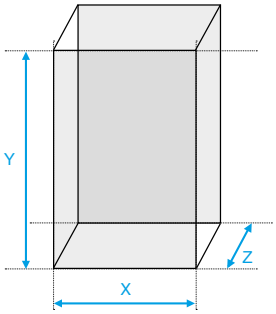




PRODUCT		FLZ 541	FLZ 542	FLZ 543	
ARTICLE NO.	0 … +60 °C	17141000000	17142000000	17143000000	Unit
DATA					
Type of contact		N.C./N.O. with spring contact	N.C./N.C. with spring contact	N.O./N.O. with spring contact	
Switching temperature difference		< 7			K
Switching point tolerance		±4			
Max. switching 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
Setting range		0 … +60			°C
Operating temperature		–20 … +80			
Suitable for the operation of		fan and heater	heater	fan	
Type of mounting		snap fastening for 35 mm profile bars according to EN 60715			
Type of connection		screw terminal for cable cross-section 0.5 to 2.5 mm²			
Dimensions (X x Y x Z)		59 x 80.5 x 38			mm
Colour		RAL 7035			

ACCESSORIES	ARTICLE NUMBER	Page
Hygrostat	17207000000	158
Internal enclosure fan	18110000000	39

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HYGROSTATS / HYGROTHERM

changeover spring contact

240V 8A

max load (FLZ 610)

Hygrostats
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 onto electrical components and the corrosion of unprotected sheet metal is prevented.

In combination
with filterfans, they provide for additional savings on energy, materials and time and, hence, for a better environmental balance.

Electrical connection
using screw terminals, and fast snap fastening on DIN rail.



In combination
with control cabinet heaters, they serve for temperature control inside the control cabinet.

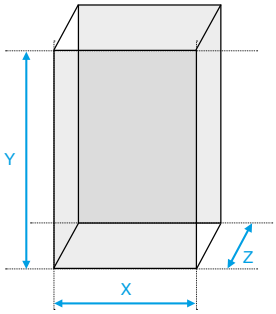
Using hygrostats
you can achieve greater reliability in the production process, reduced energy consumption due to need-based use and an improvement in the efficiency of the controlled heaters and filterfans.

The electronic combination device FLZ 610
unites thermostat and hygrostat in one housing and, at the same time, monitors the relative humidity and the temperature independently of each other.

PRODUCT		FLZ 600	FLZ 610	
ARTICLE NO.		17207000000	17218100000	Unit
DATA				
Device implementation		mechanical hygrostat	electronic hygrostat-thermostat combination device	
Type of contact		changeover with spring contact	changeover/relay	
Switching difference		approx. 5 %	approx. 2 K ±1 K / approx. 4 % R.H. ±1 %	
Contact resistance		–	< 10	mΩ
Max. switching power value in brackets: inductive load at cos φ = 0.6	N.C.	24–250 V AC / 5 (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	50 V, 1 A I 75 V, 0.5 A I min. 100 mA	–	
Setting range		40–90 % R.H.		
			0 … +60	°C
Operating temperature		0 … +60	–20 … +60	
Suitable for the operation of		fan and heater		
Type of mounting		snap fastening for 35 mm profile bars according to EN 60715		
Type of connection		screw terminal for cable cross-section 0.5 to 2.5 mm²		
Dimensions (X x Y x Z)		37 x 60 x 55	59 x 80.5 x 38	mm
Colour		RAL 7035		

ACCESSORIES	ARTICLE NUMBER	Page
Thermostat	17207000000	156
Internal enclosure fan	18110000000	39

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PRESSURE COMPENSATION DEVICE



PRODUCT	PPC
ARTICLE NO. 5 PIECES	17410050000
DATA	
Thread	M12 x 1.5–10 mm
Material	polyamide 6, O ring: perbunan
Colour	RAL 7035
Degrees of protection	IP 66 I IP 68 I IP 69K

MOUNTING SUPPORT



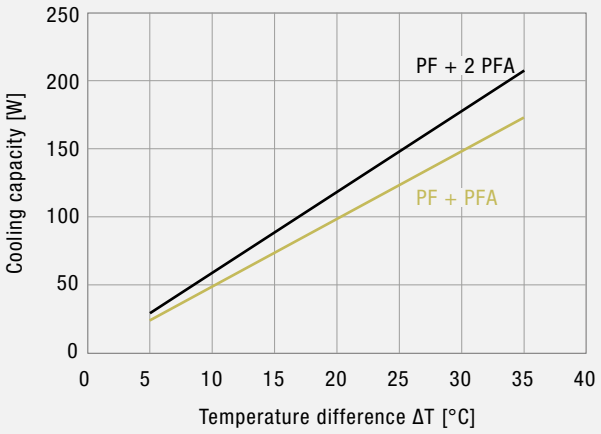
PRODUCT	PDR	
ARTICLE NO.	17411000000	Unit
DATA		
Fastening	self-adhesive	
Material	sheet steel, galvanised	
Dimensions (HxWxD)	35 x 70 x 7	mm
Load capacity after 24hrs waiting period	500	g

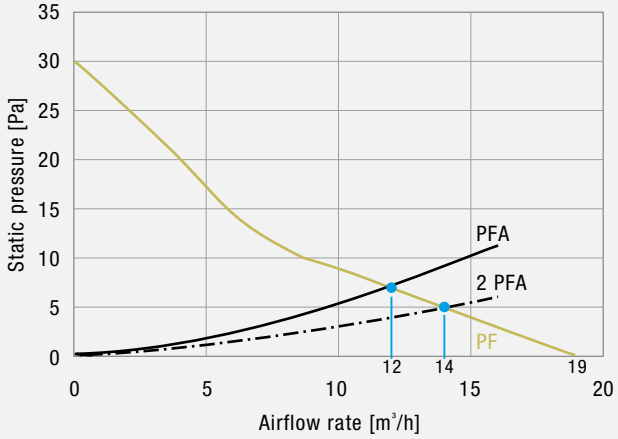
Performance curves – Filterfans 4.0

COOLING CAPACITY

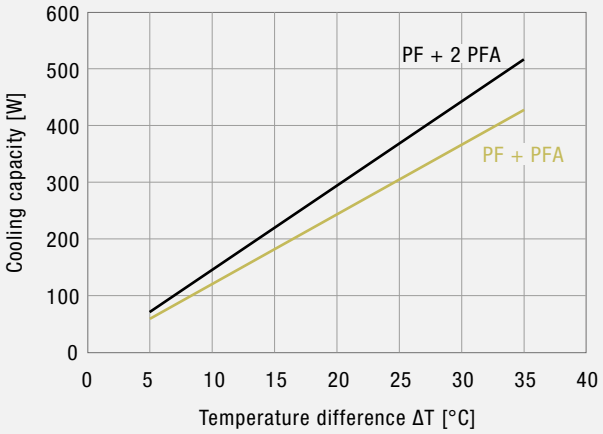
STATIC PRESSURE

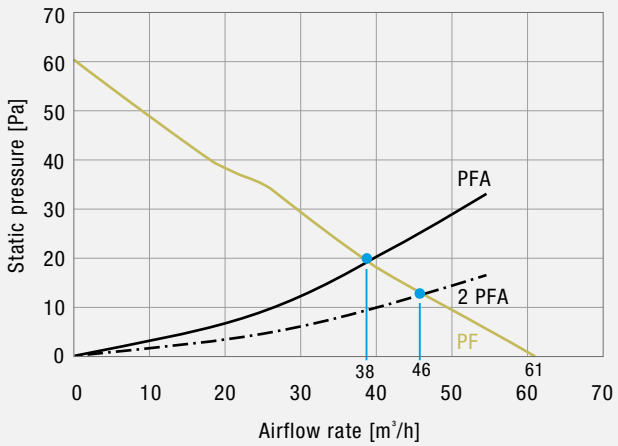
PF 11.000 IP 54 I PF 11.000 EMC



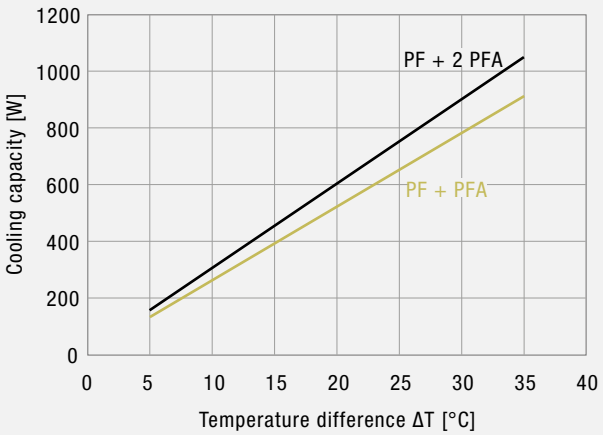


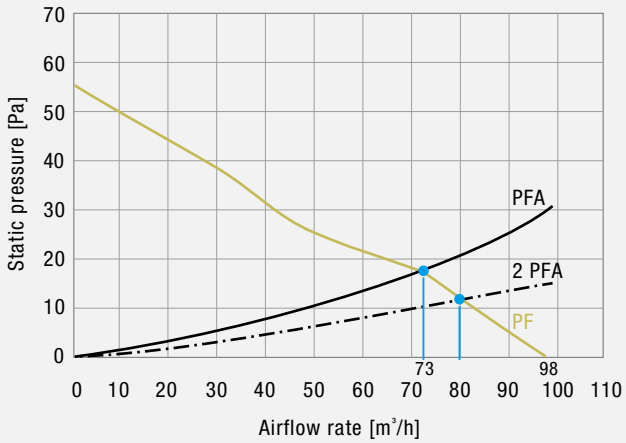
PF 22.000 IP 54 I PF 22.000 EMC





PF 32.000 IP 54 I PF 32.000 EMC

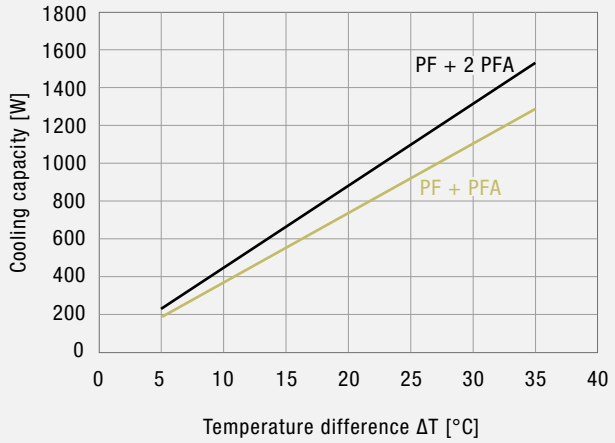


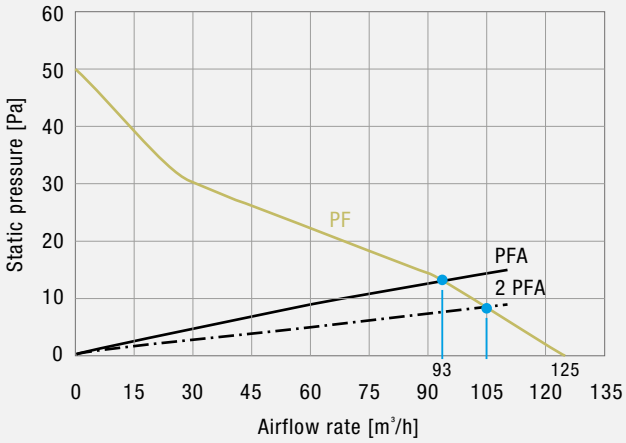


COOLING CAPACITY

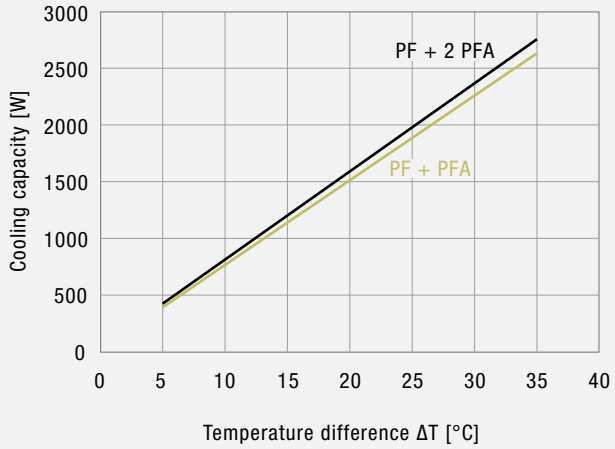
STATIC PRESSURE

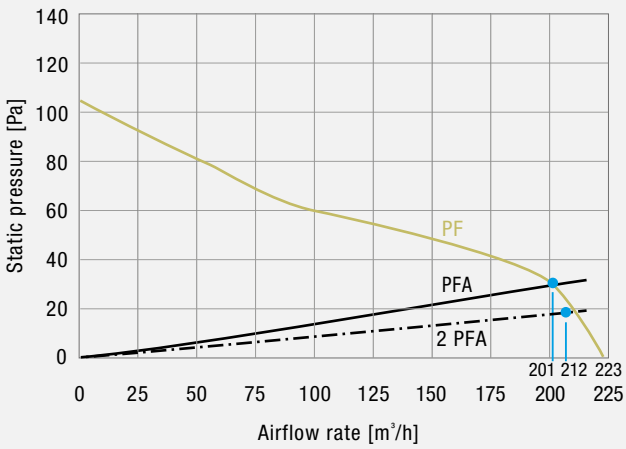
PF 42.500 IP 54 | PF 42.500 EMC



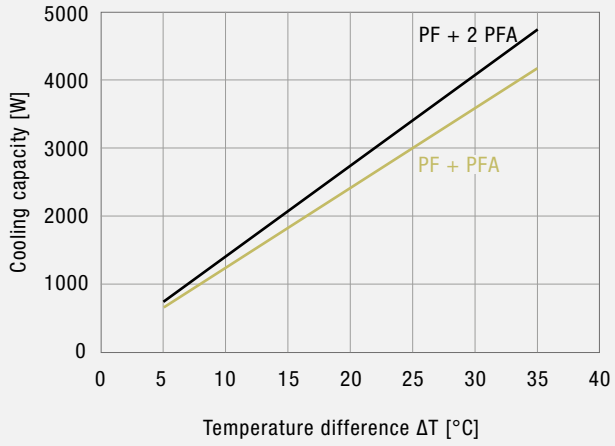


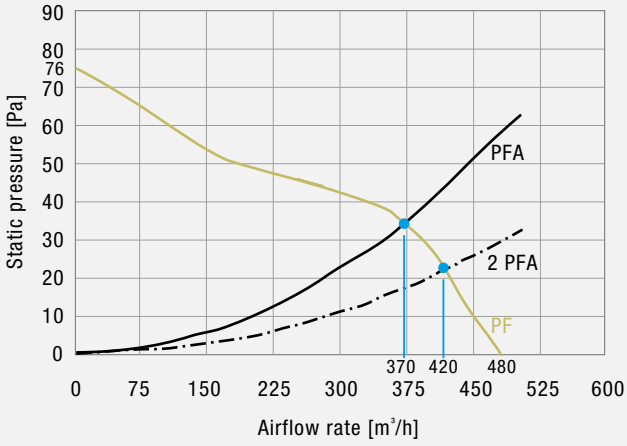
PF 43.000 IP 54 | PF 43.000 EMC





PF 65.000 IP 54 | PF 65.000 EMC

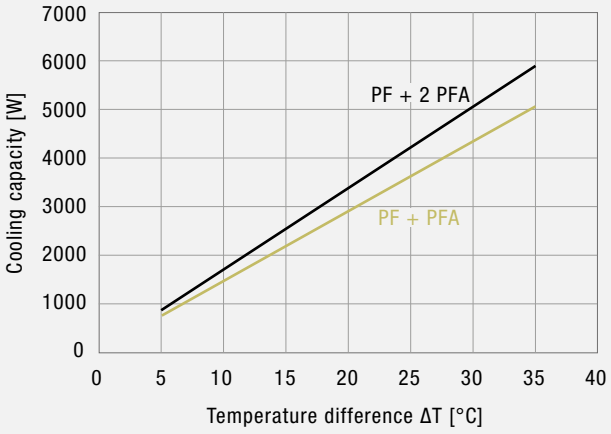


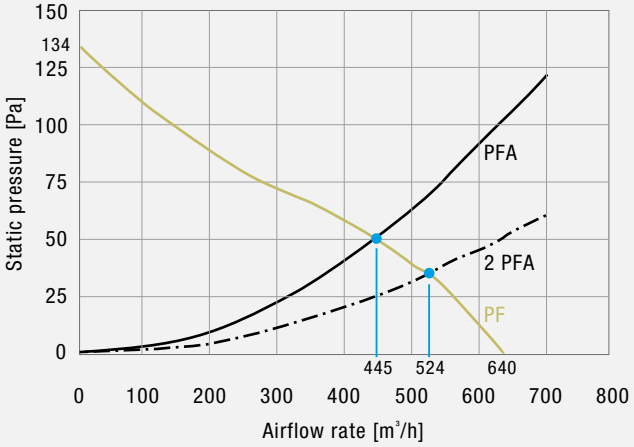


COOLING CAPACITY

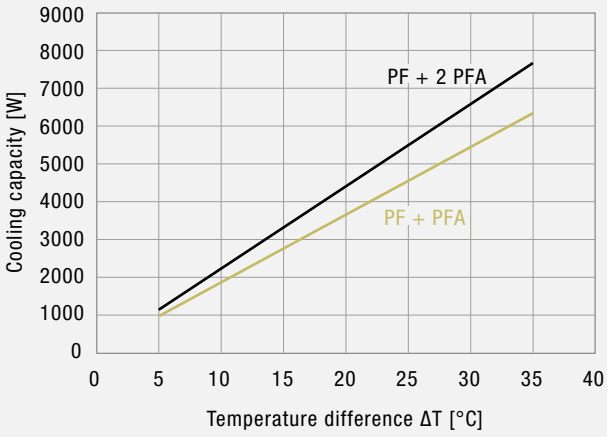
STATIC PRESSURE

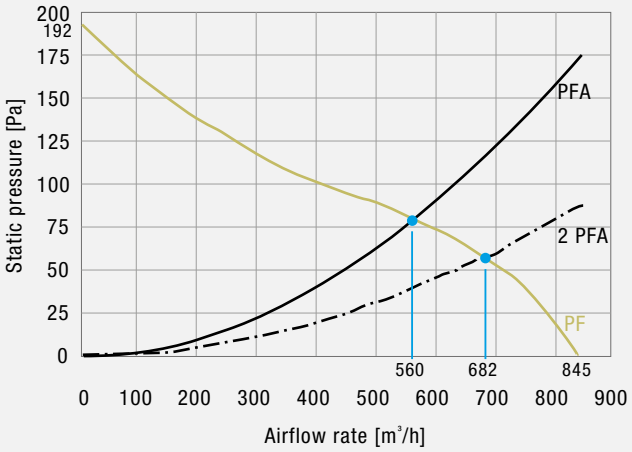
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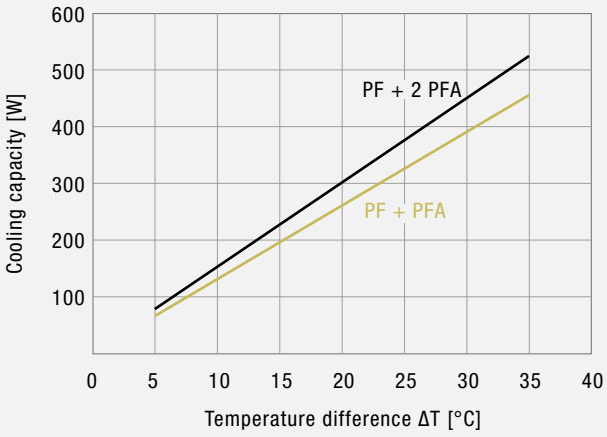


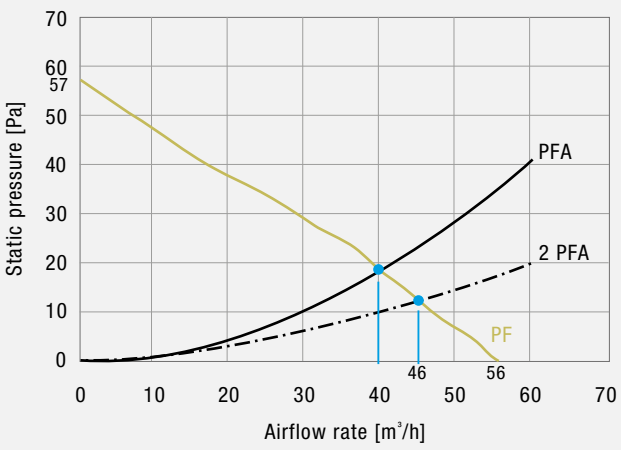
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PF 22.000 IP 55

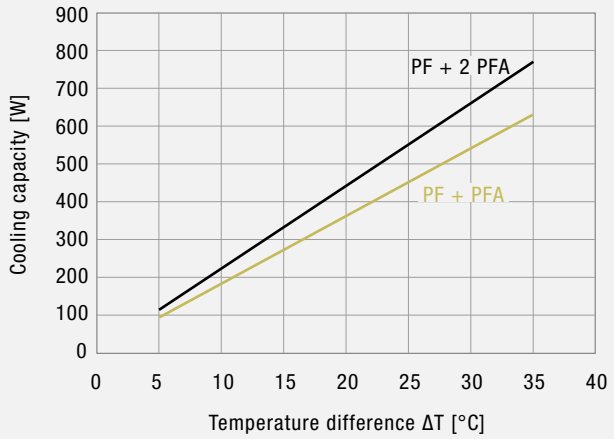


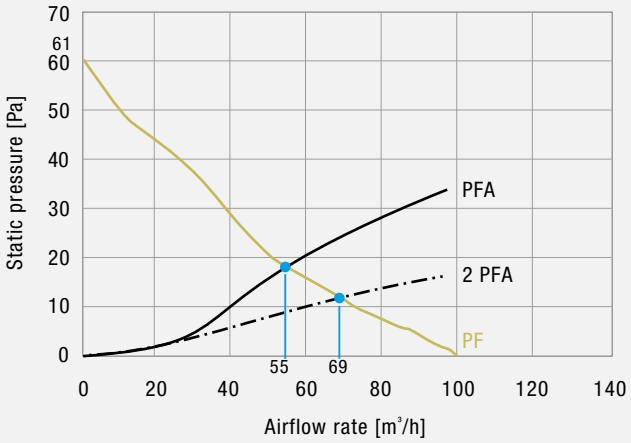


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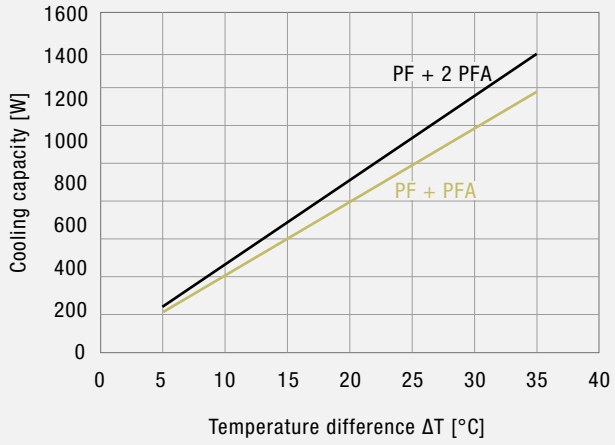
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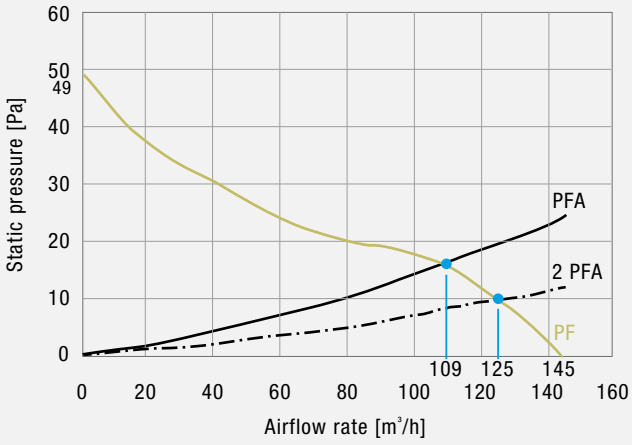
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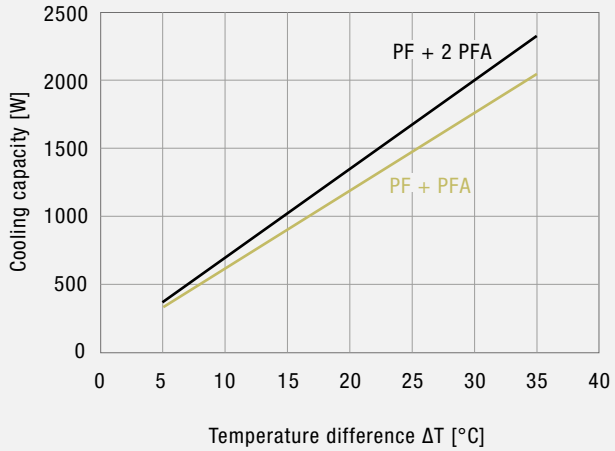


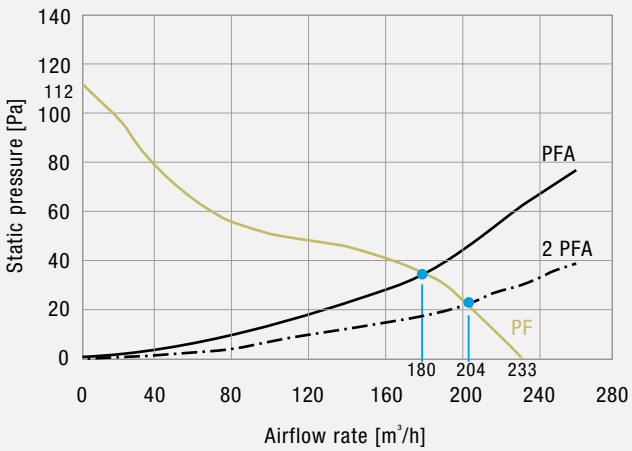
PF 42.500 IP 55





PF 43.000 IP 55

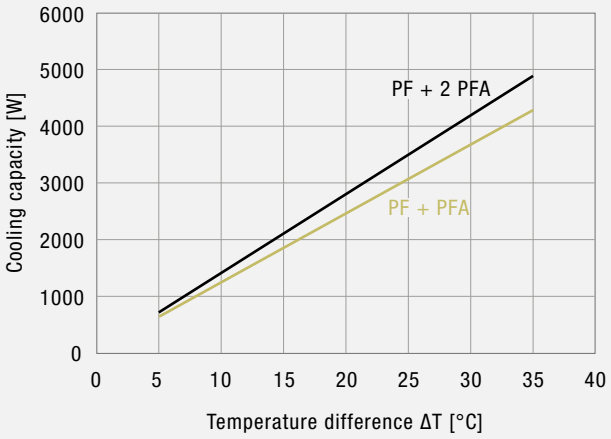


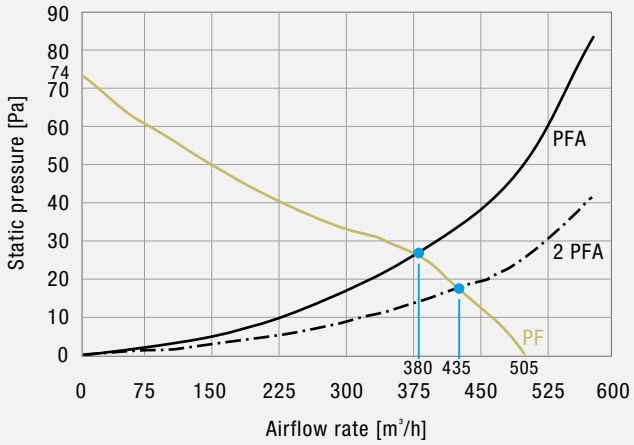


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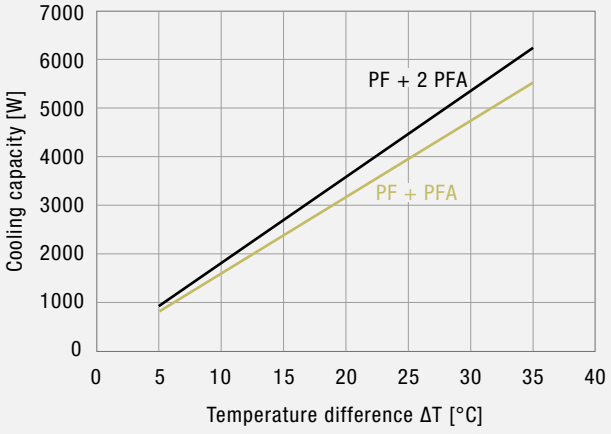
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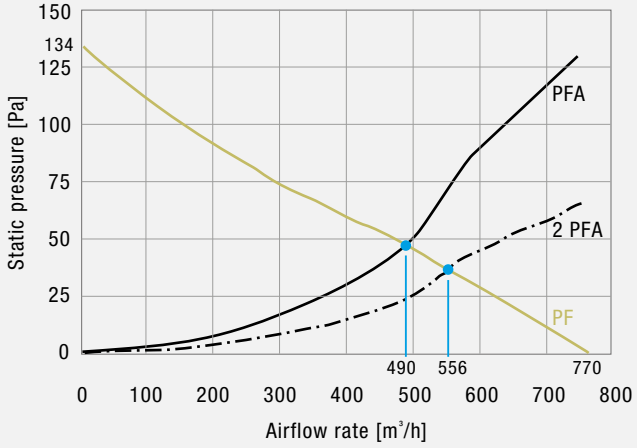
PF 65.000 IP 55



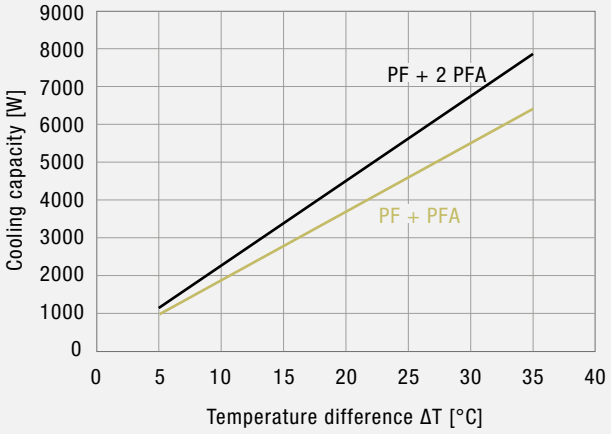


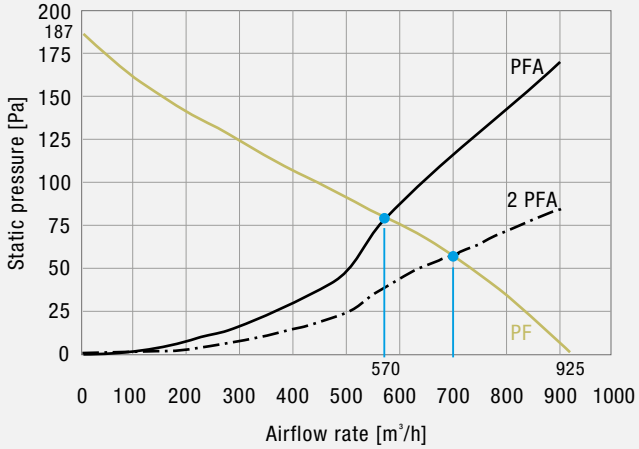
PF 66.000 IP 55





PF 67.000 IP 55

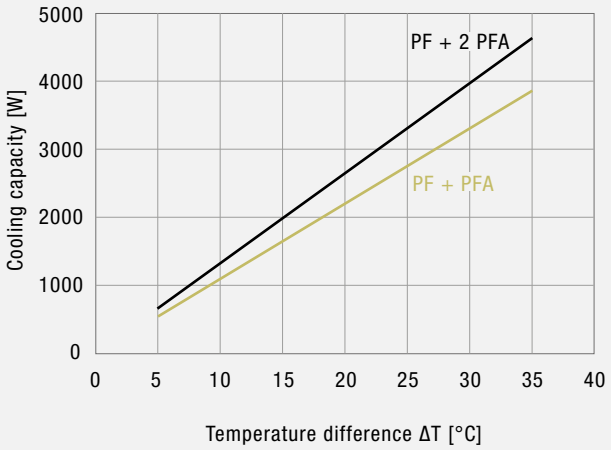


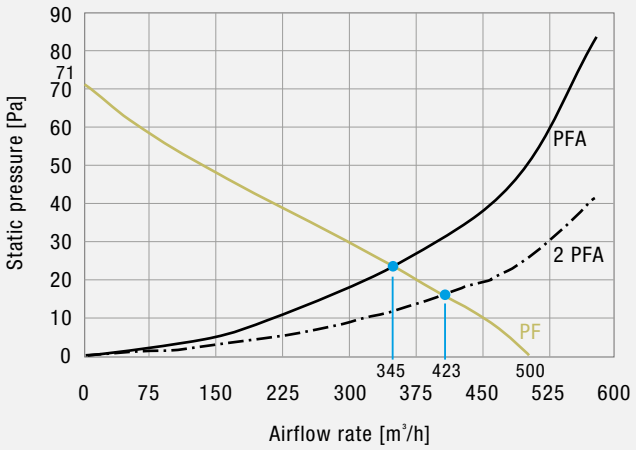


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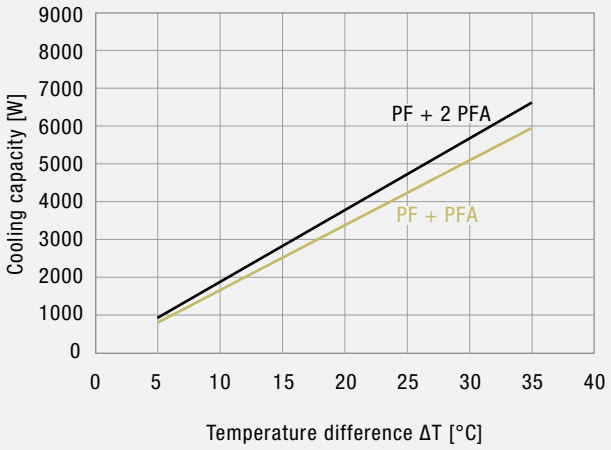
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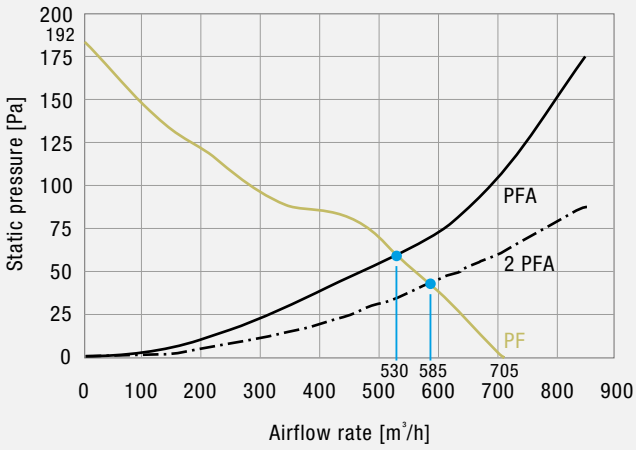
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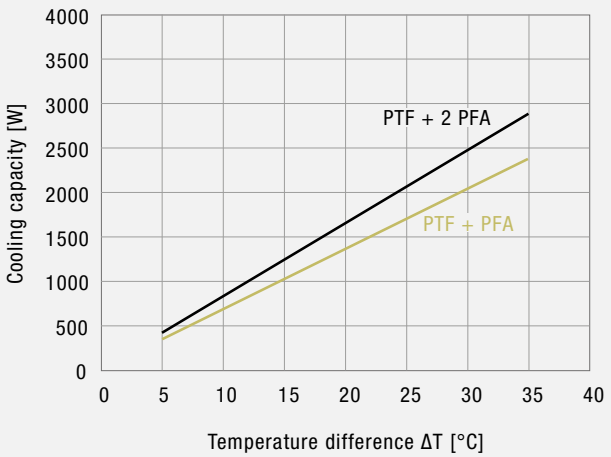


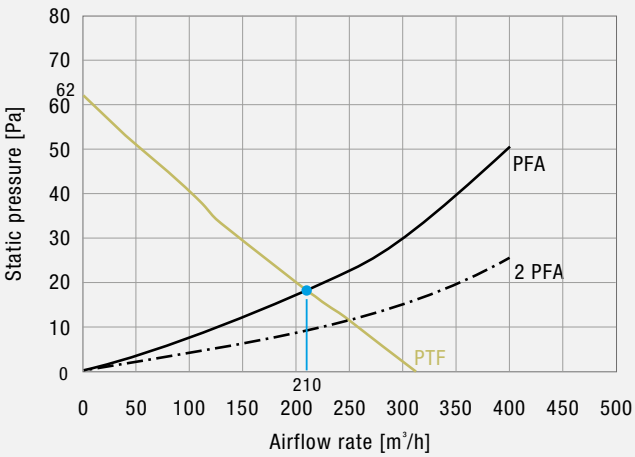
PF 67.000 SL IP 55





PTF 60.500 IP 54

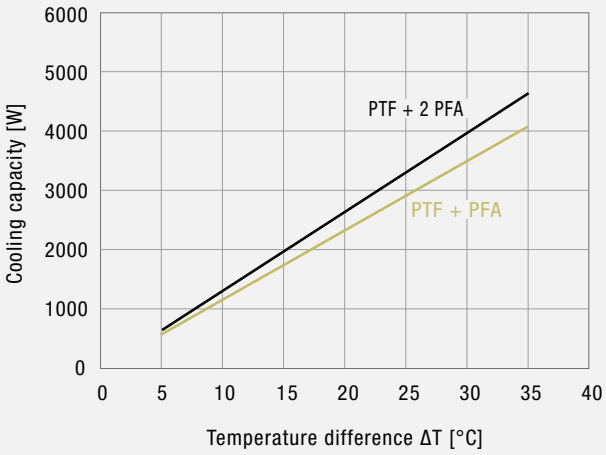


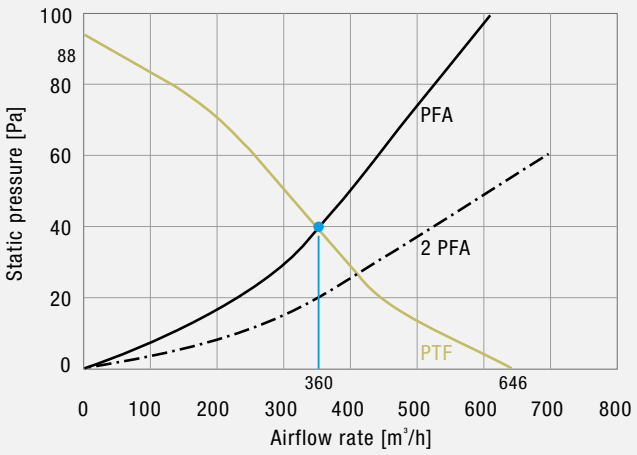


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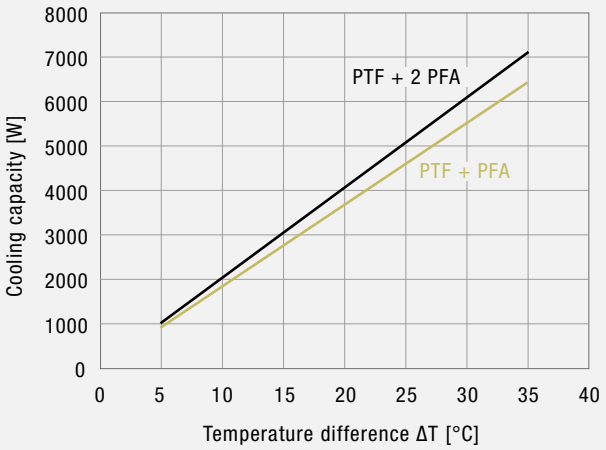
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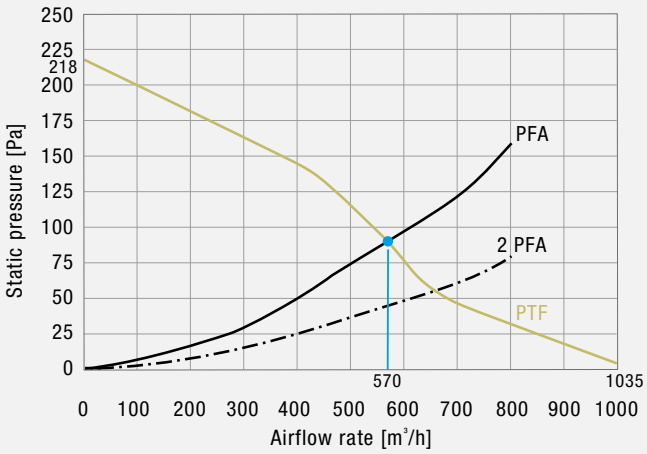
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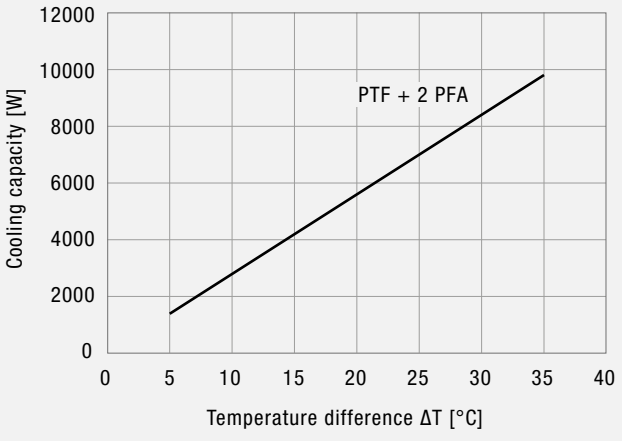


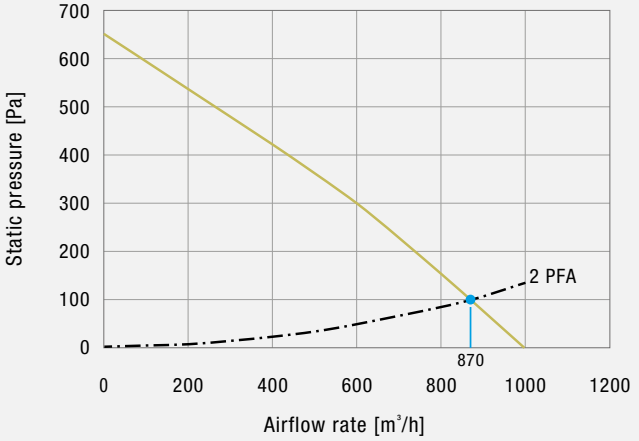
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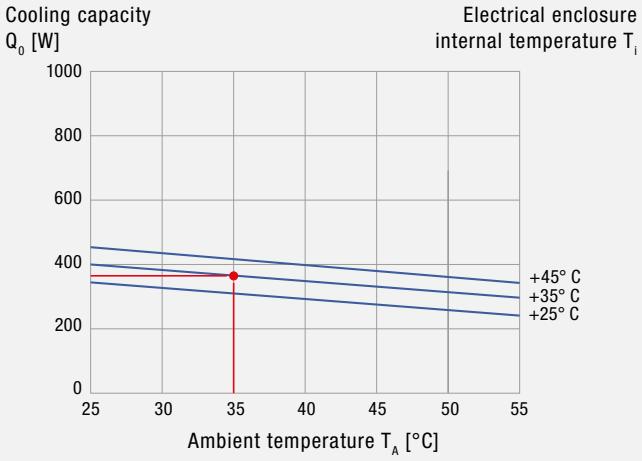




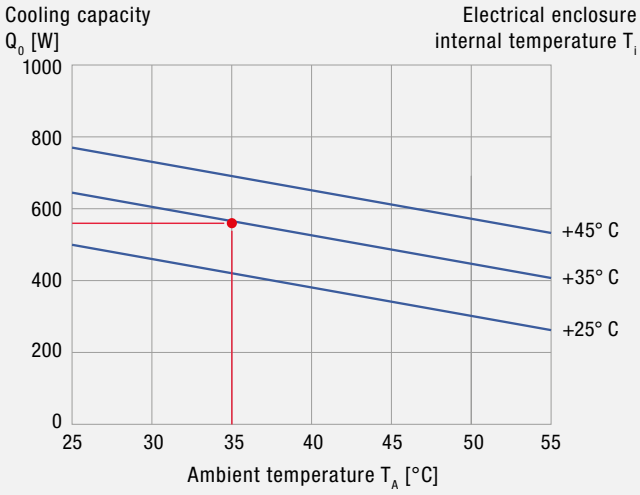
Performance curves – Cooling Units

COOLING CAPACITY

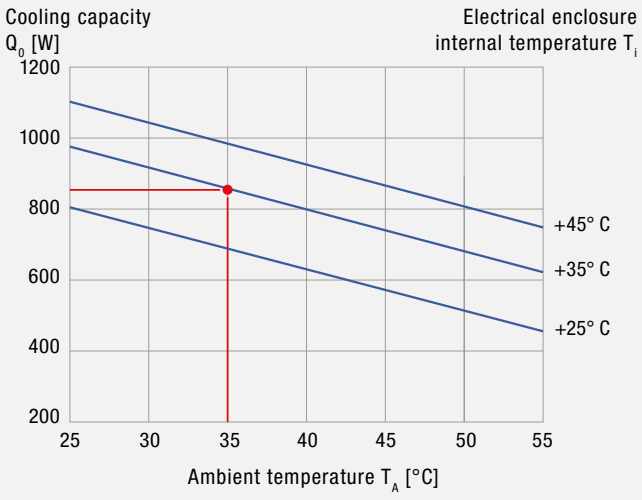
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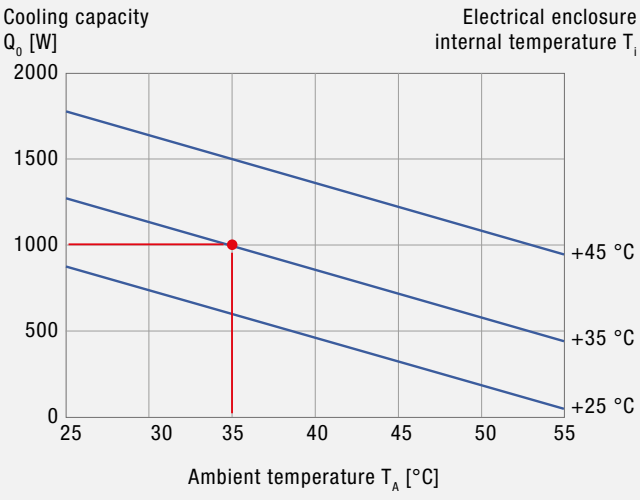
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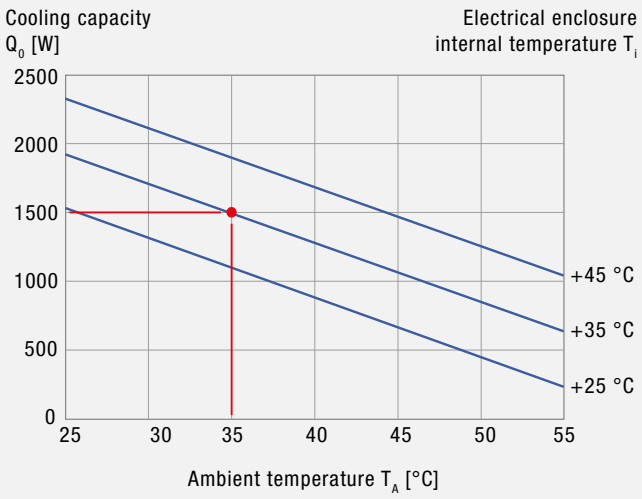
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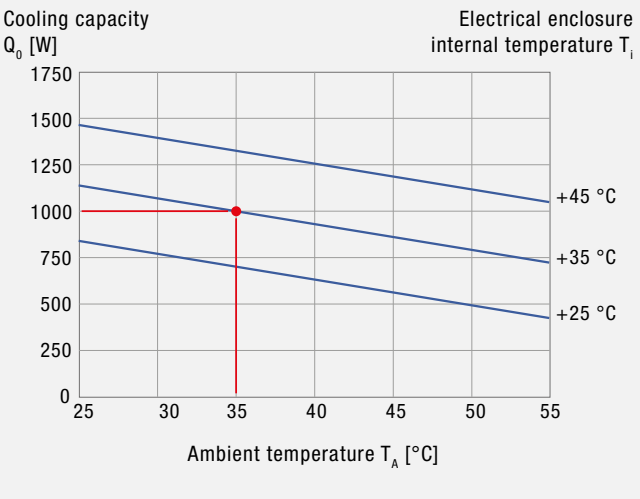
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DTI/DTS 6301C

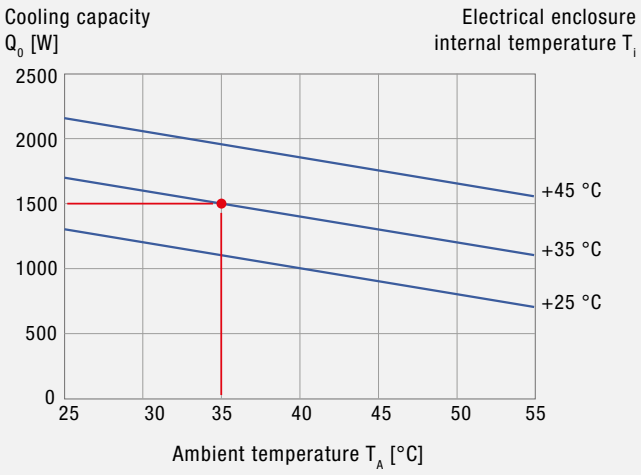


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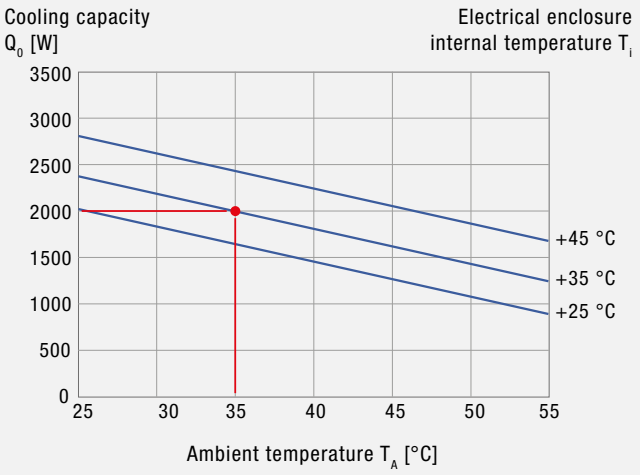


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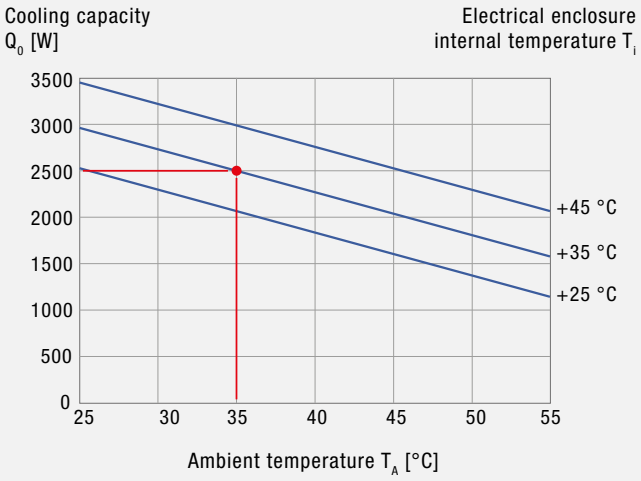
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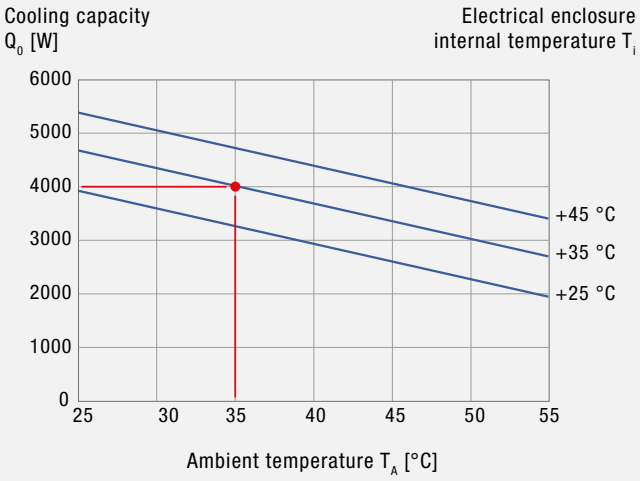
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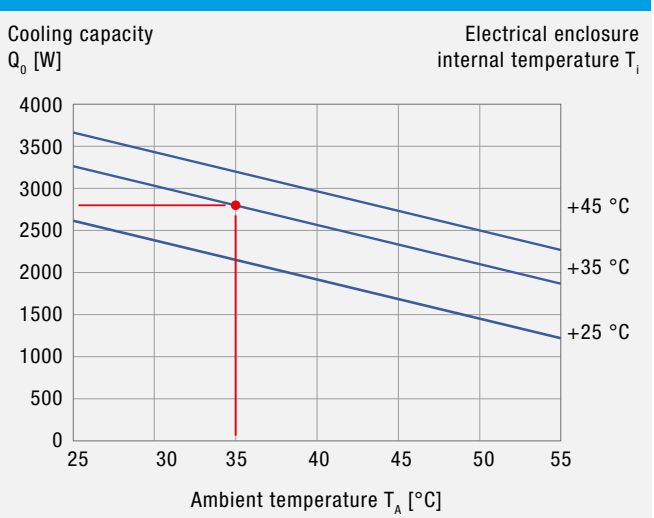
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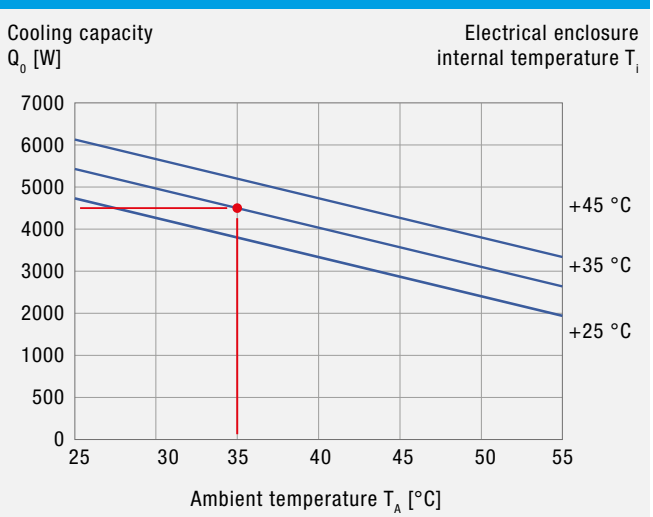
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DT 6X1E

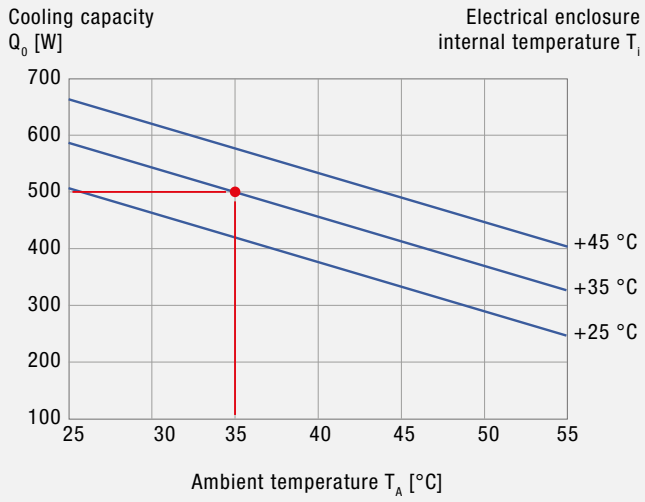


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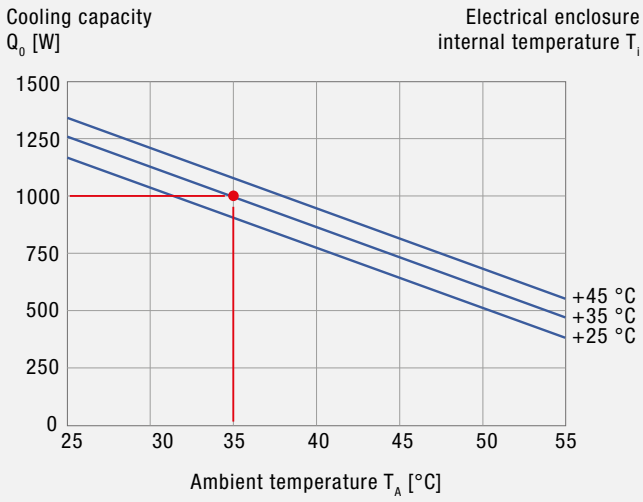


COOLING CAPACITY

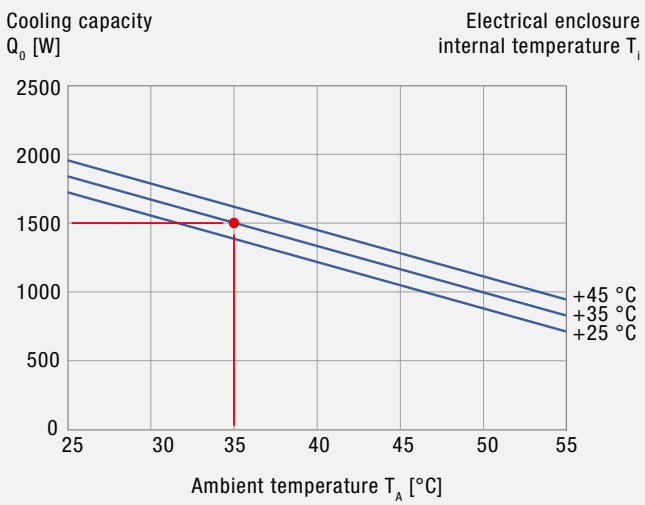
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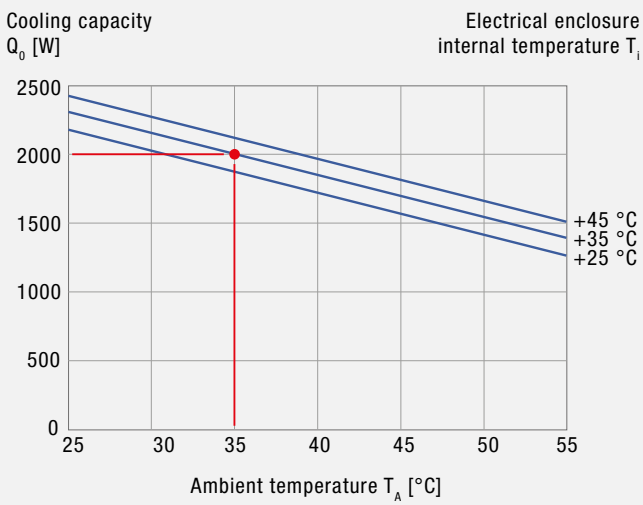
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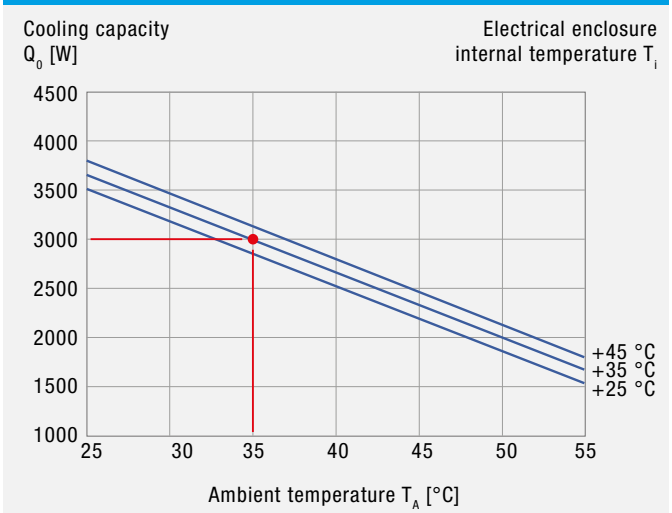
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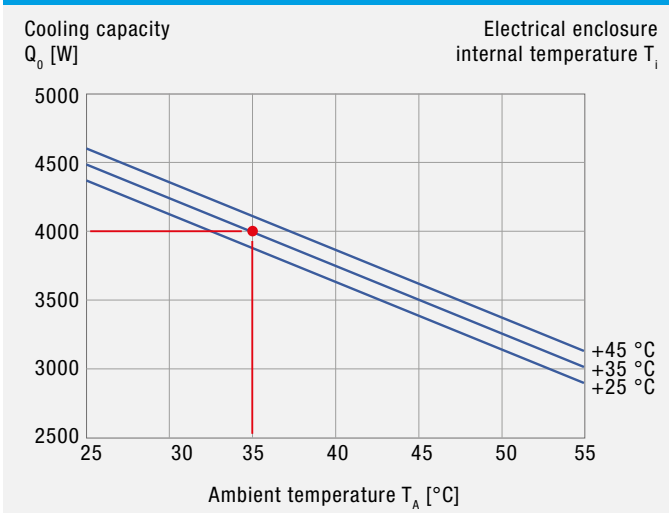
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DTT 6601

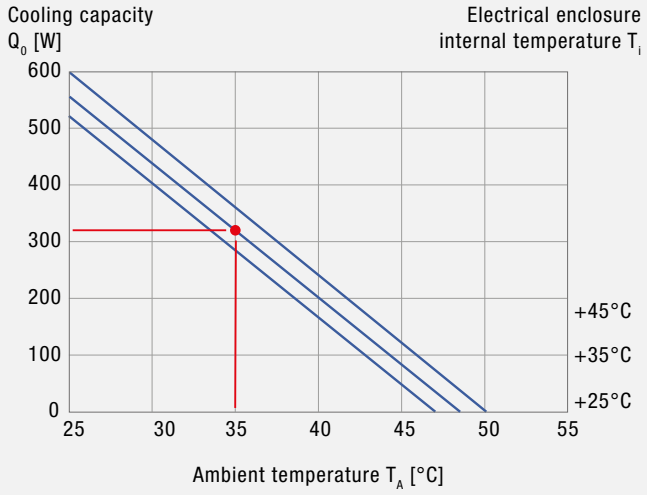


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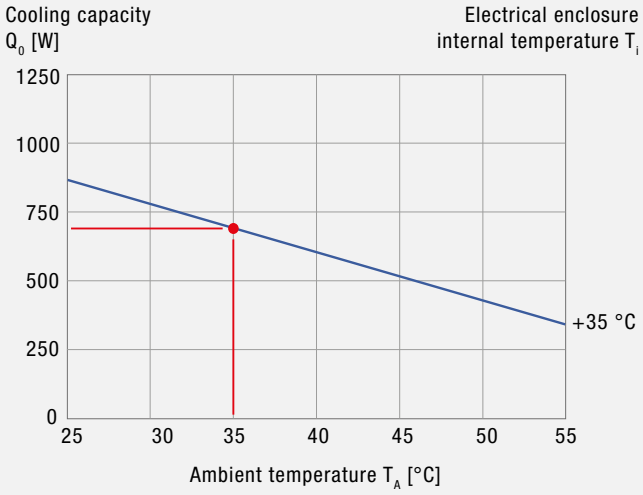


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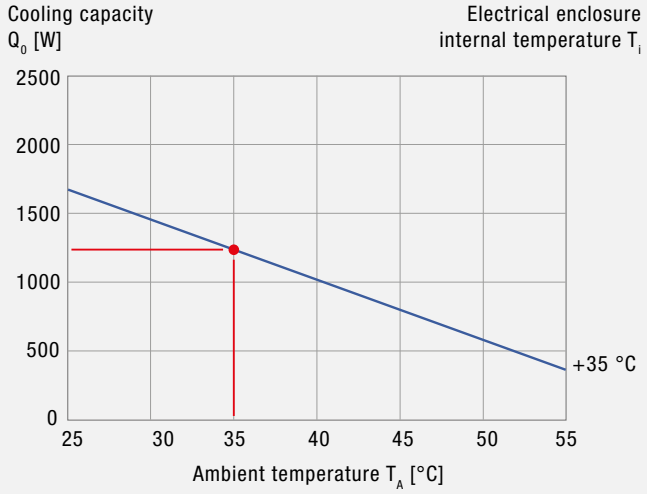
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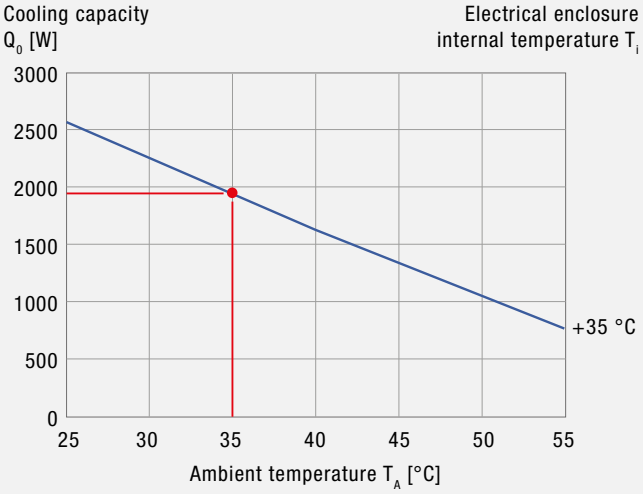
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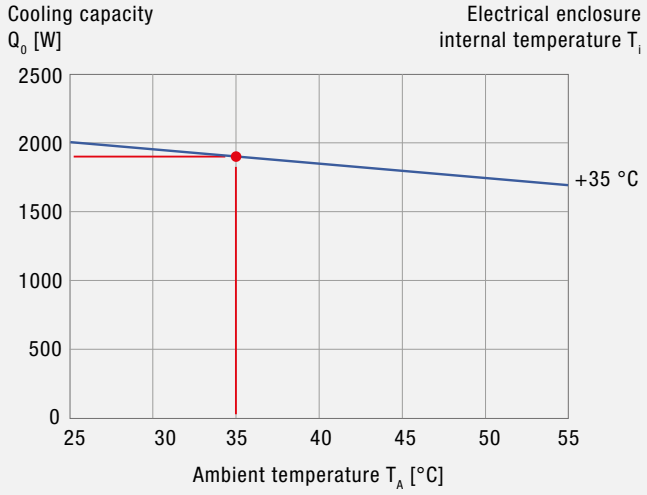
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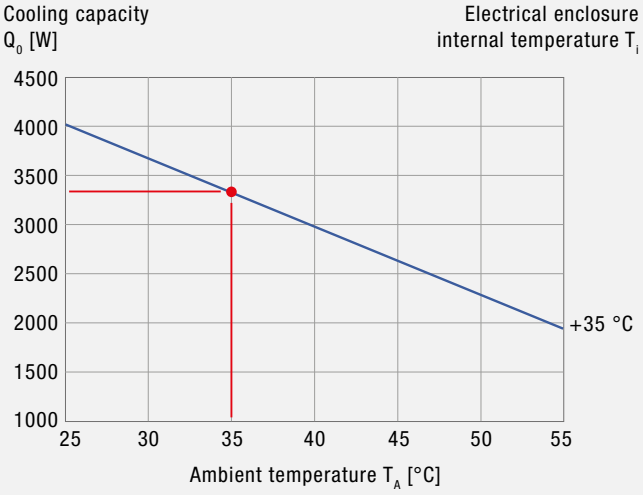
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DTS 3261 I DTS 3281

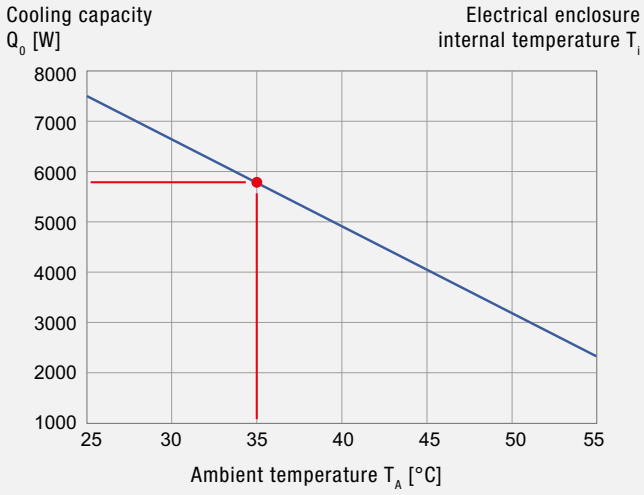


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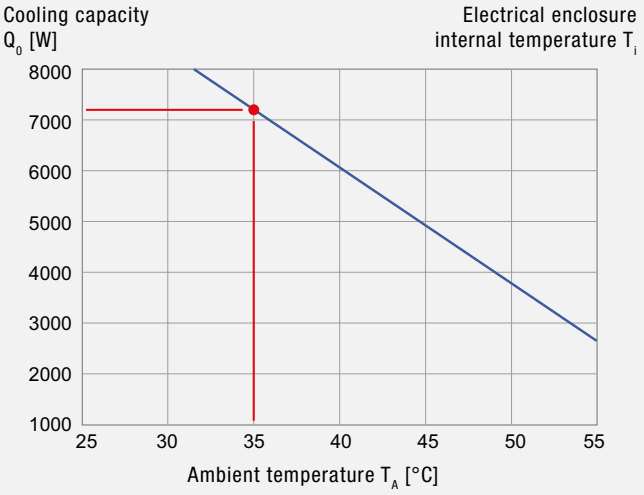


COOLING CAPACITY

DTS 3461C I DTS 3481C



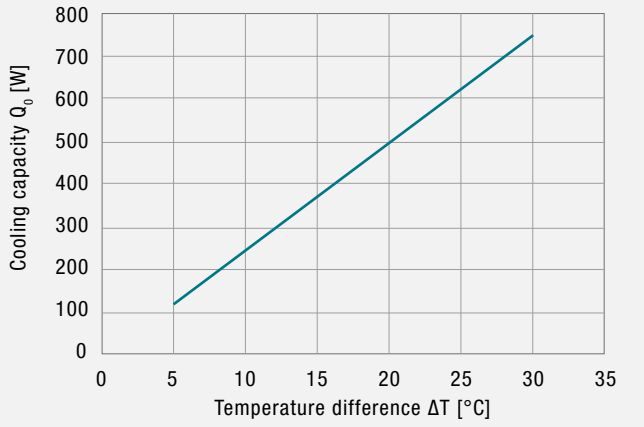
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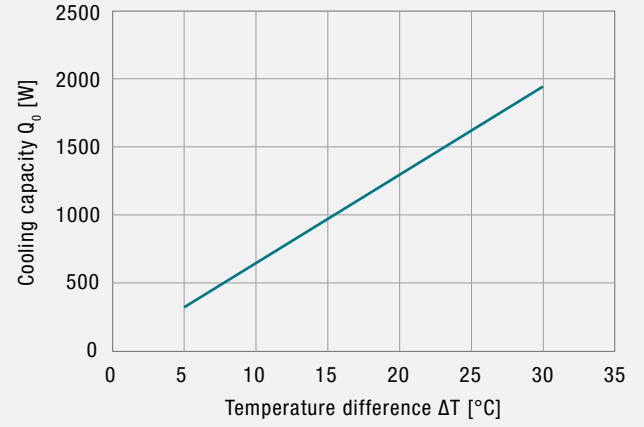
Performance curves – Air/Air Heat Exchangers

COOLING CAPACITY

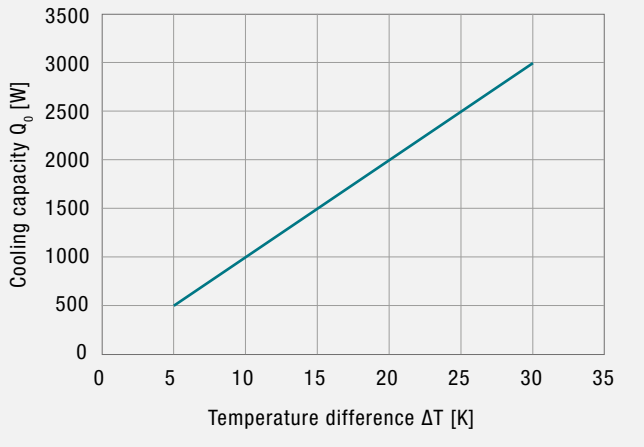
PAS 6043



PAS 6133



PAS 6203

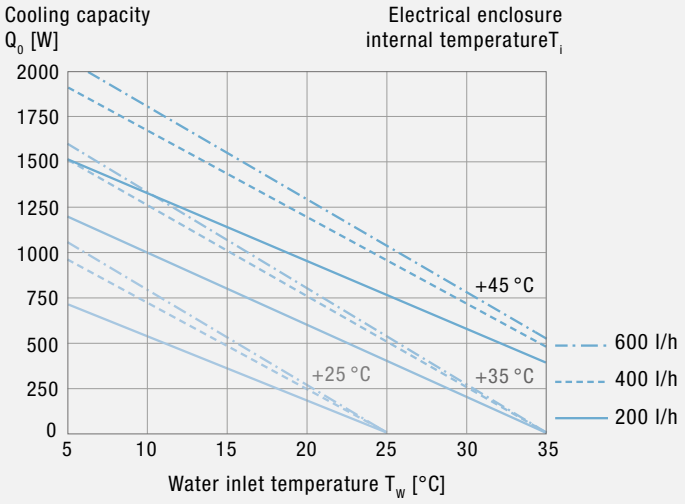


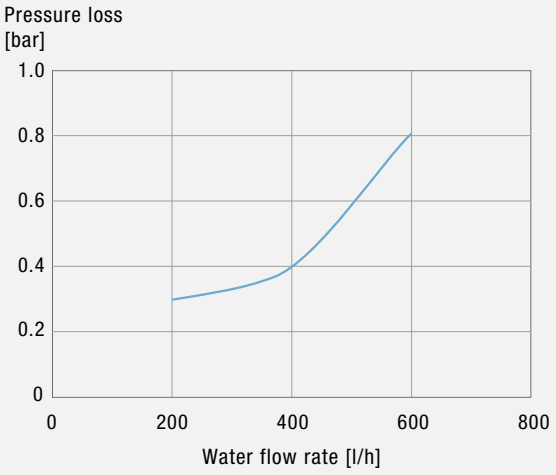
Performance curves – Air/Water Heat Exchangers

COOLING CAPACITY

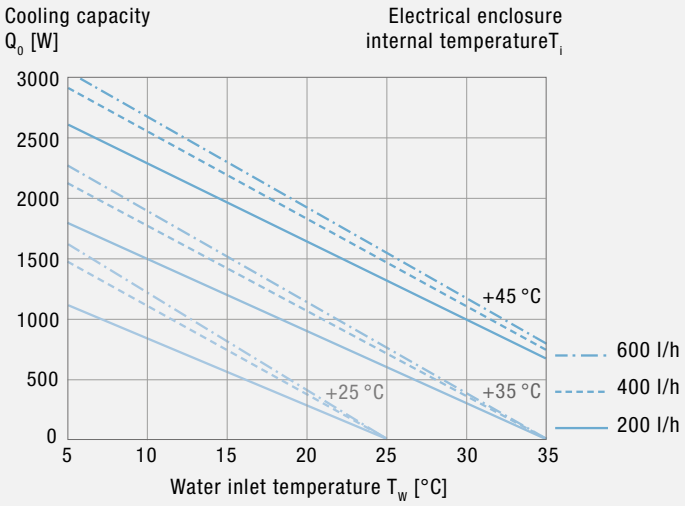
PRESSURE LOSS

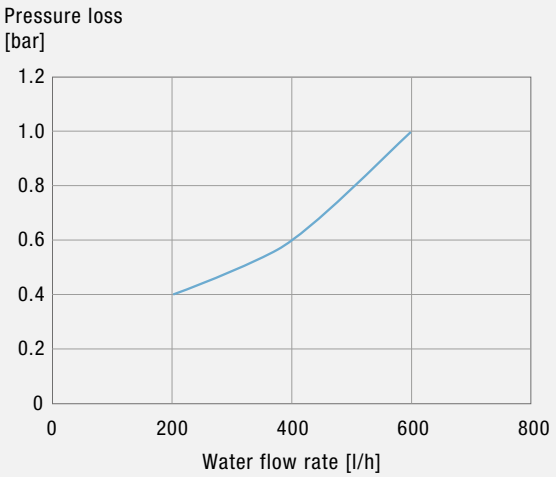
PWI/PWS 6102



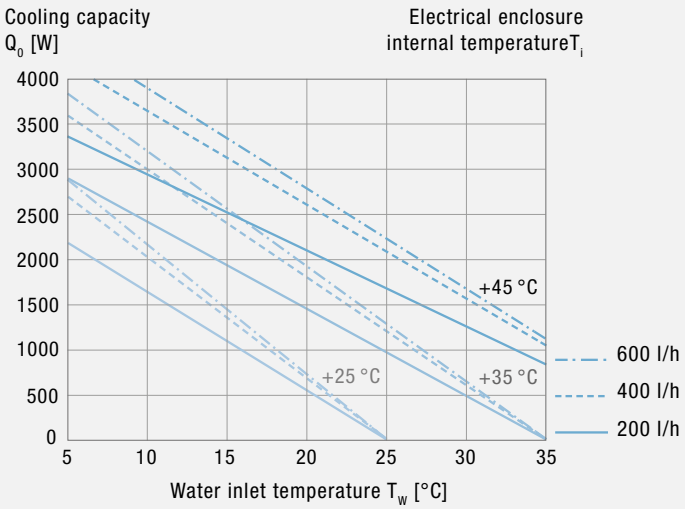


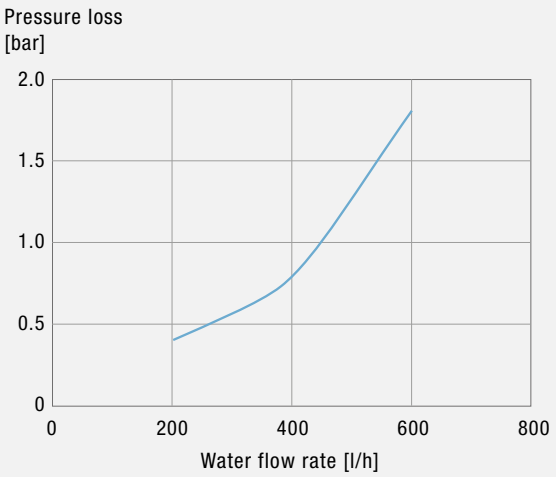
PWI/PWS 6152





PWI/PWS 6302C

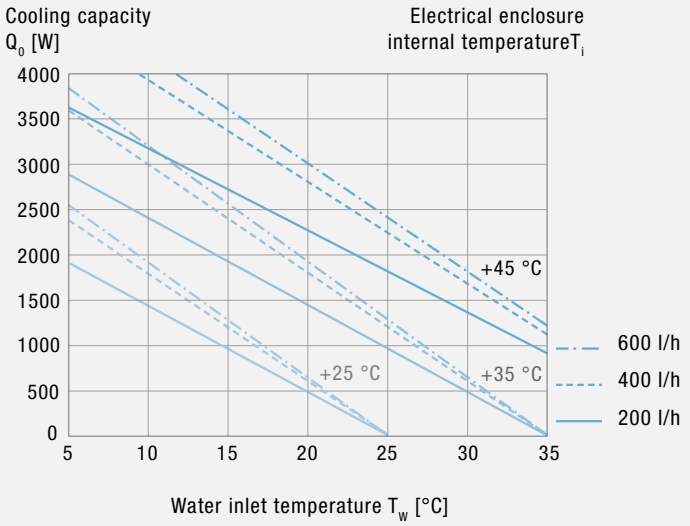


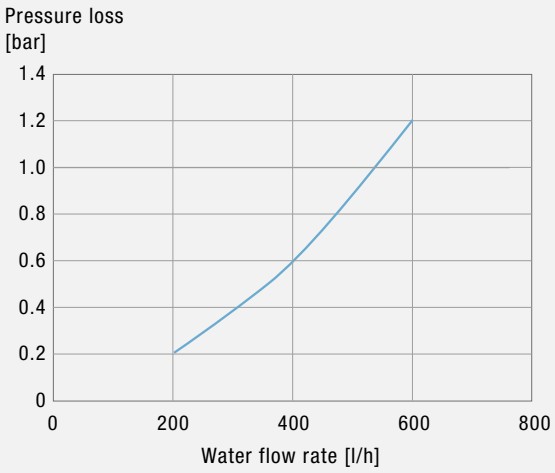


COOLING CAPACITY

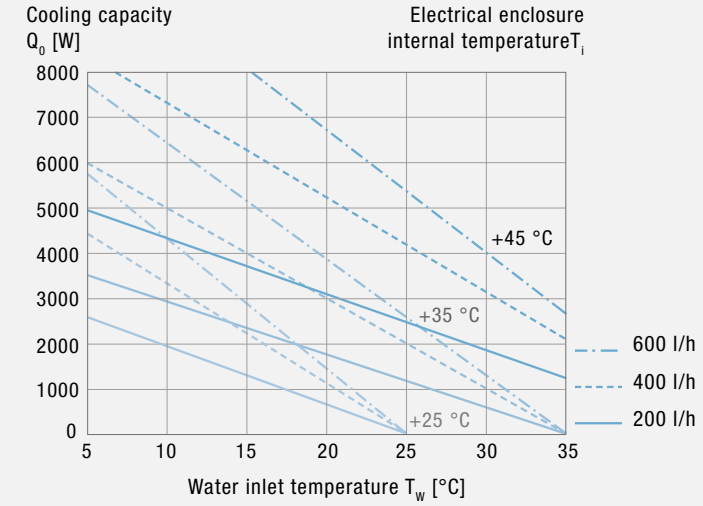
PRESSURE LOSS

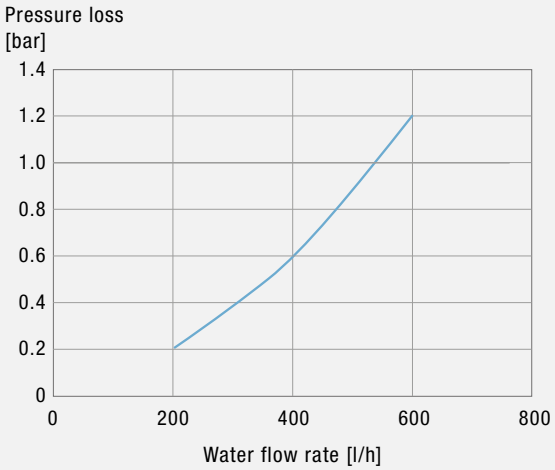
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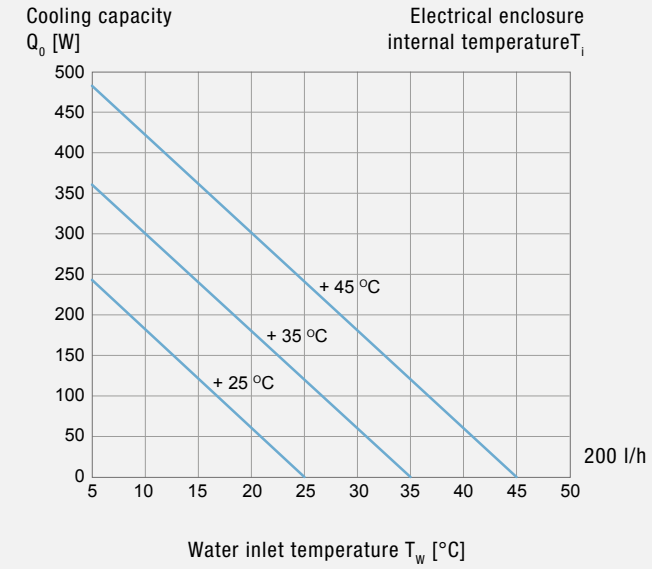


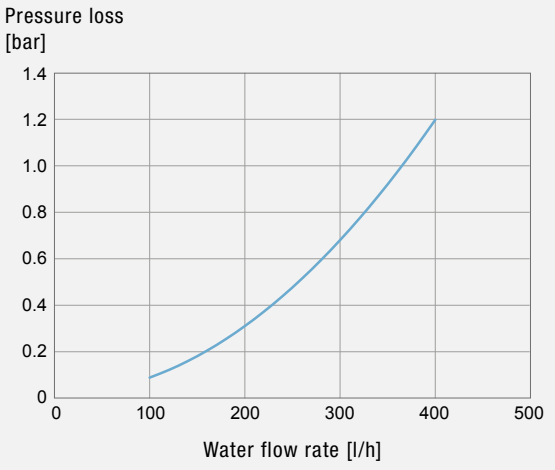
PWI/PWS 6502





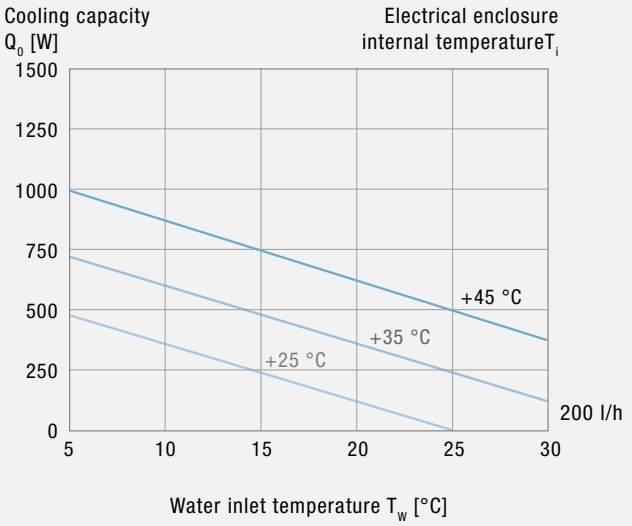
PWS 7032





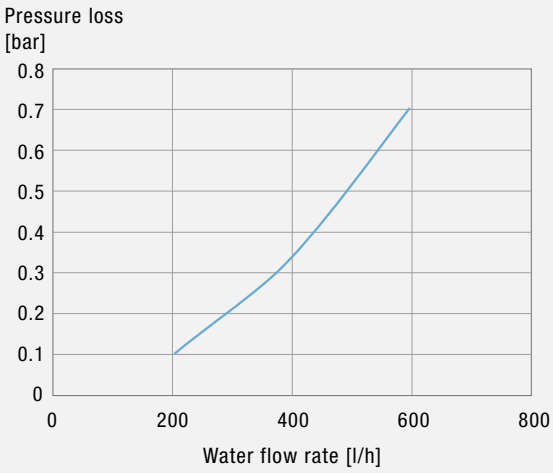
COOLING CAPACITY

PWS 7062

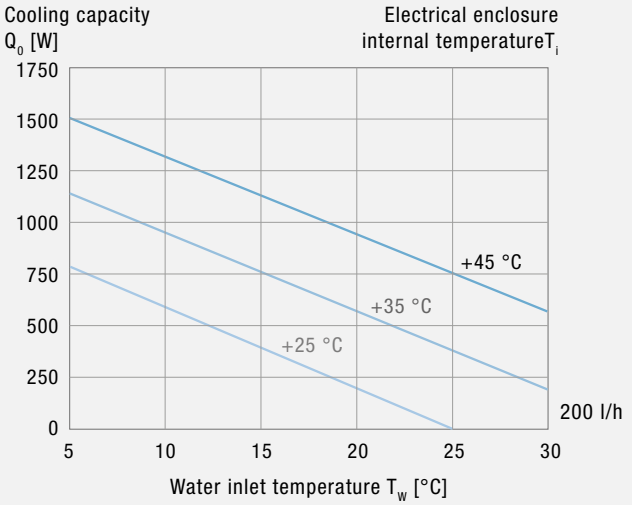


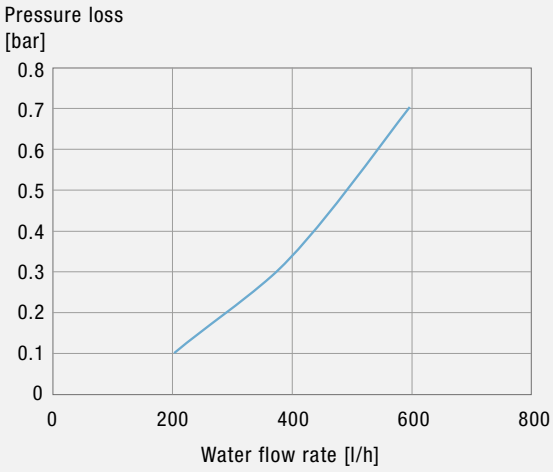
PRESSURE LOSS

PWS 7062

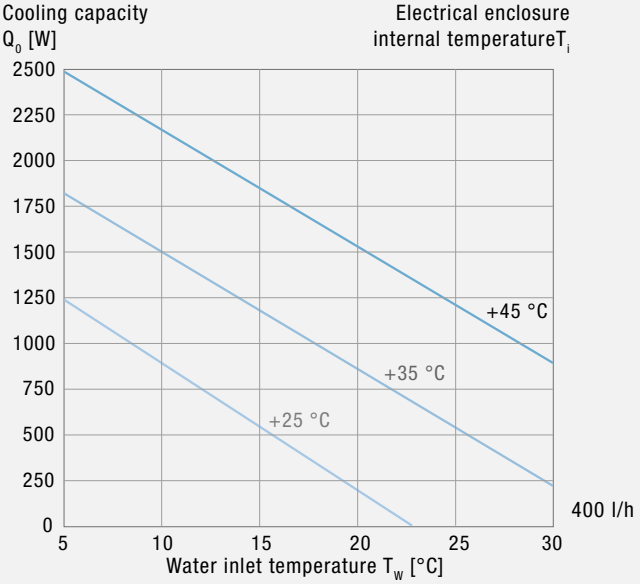


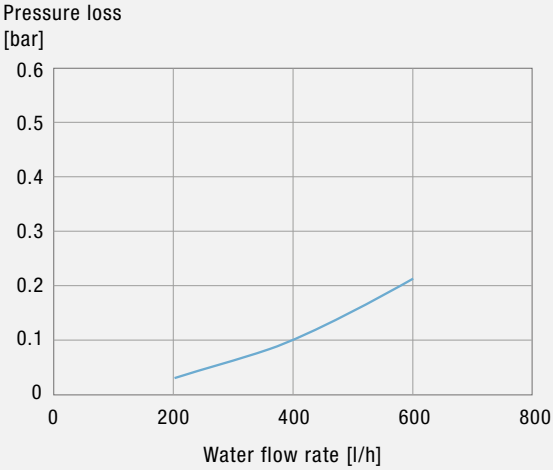
PWS 7102





PWS 7152

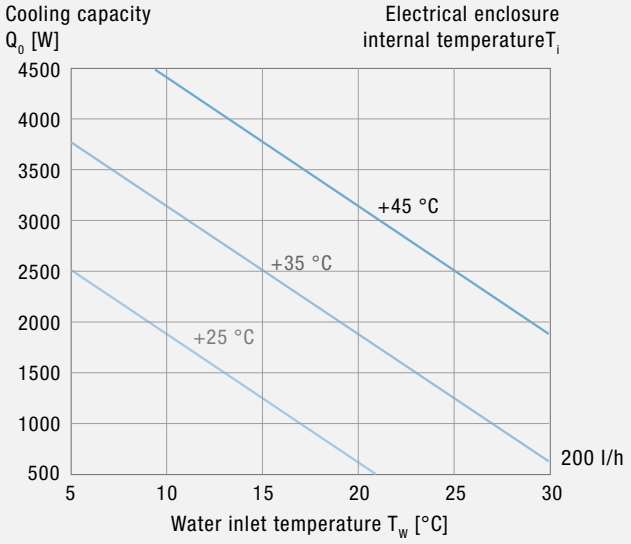


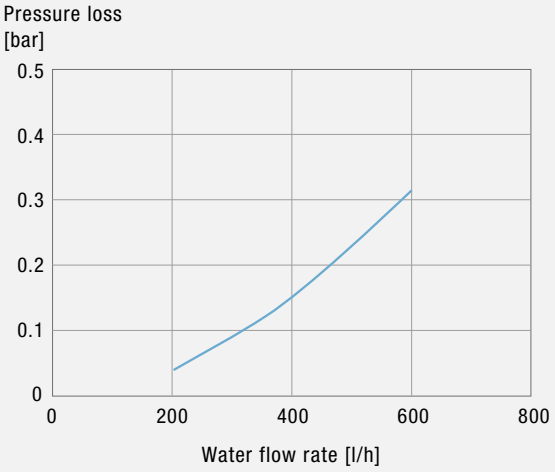


COOLING CAPACITY

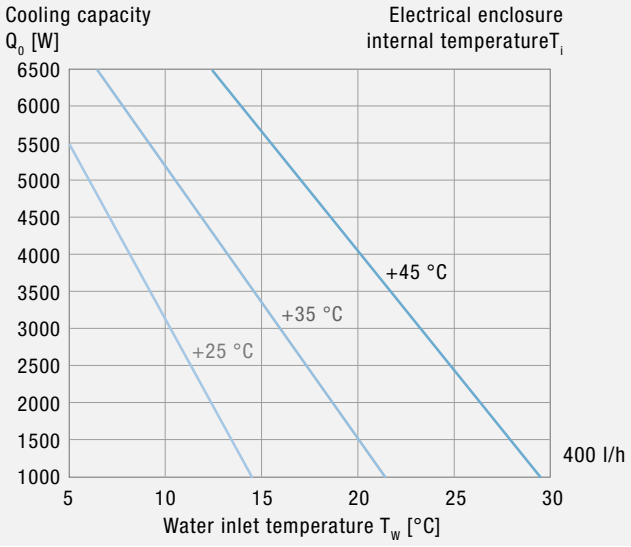
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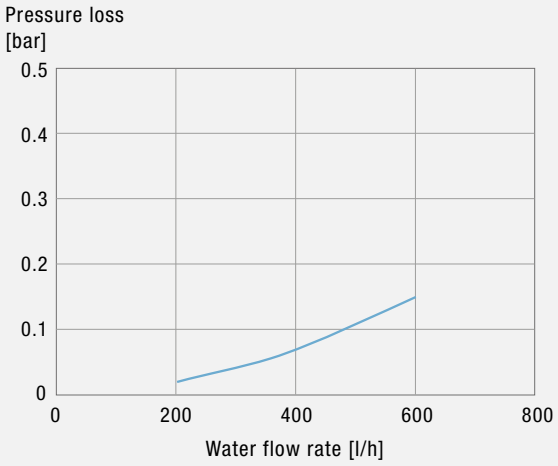
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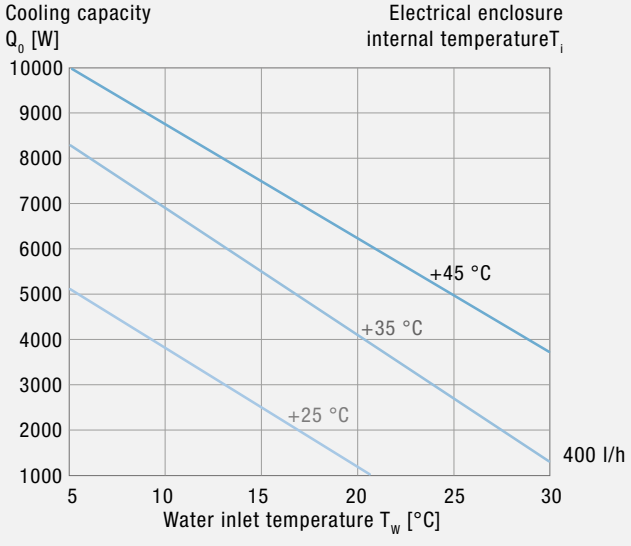


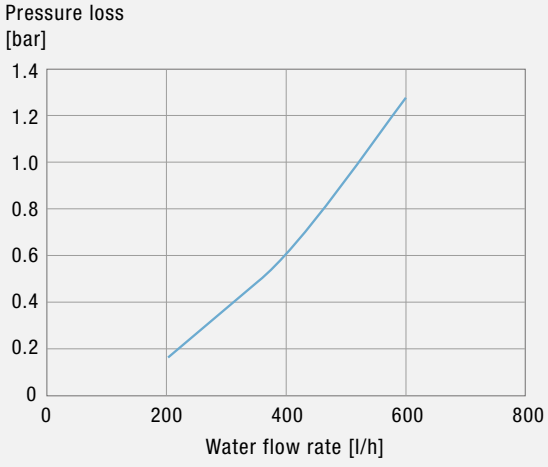
PWS 7502





PWS 7702

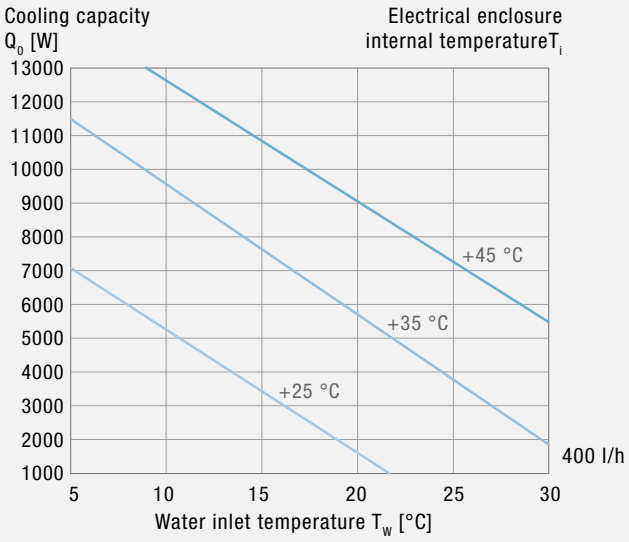


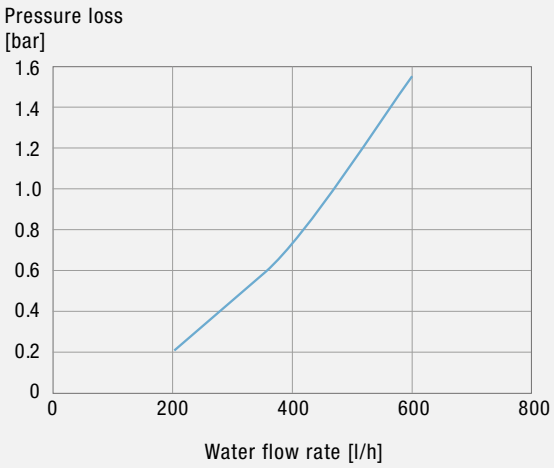


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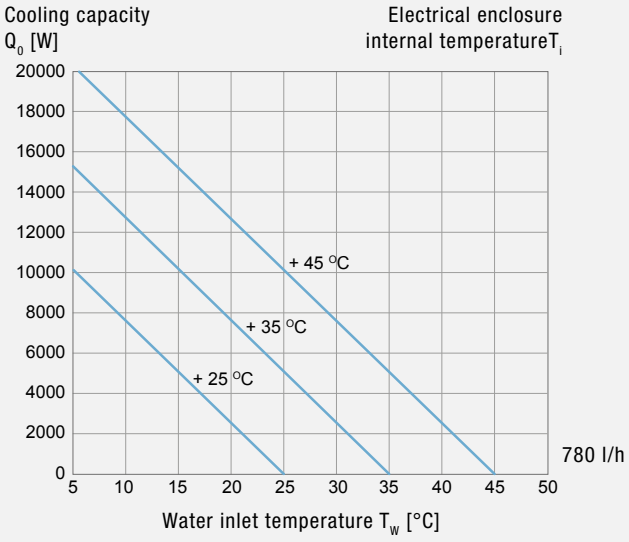
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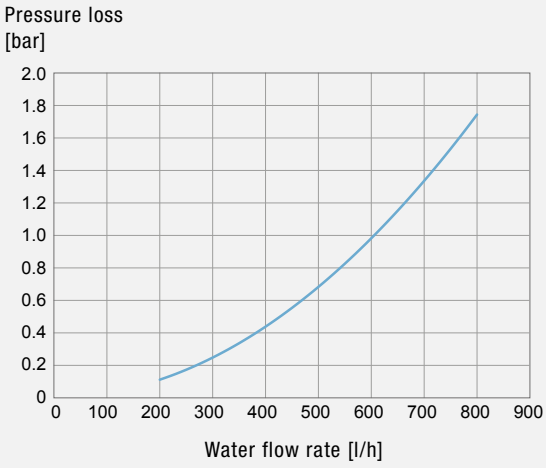
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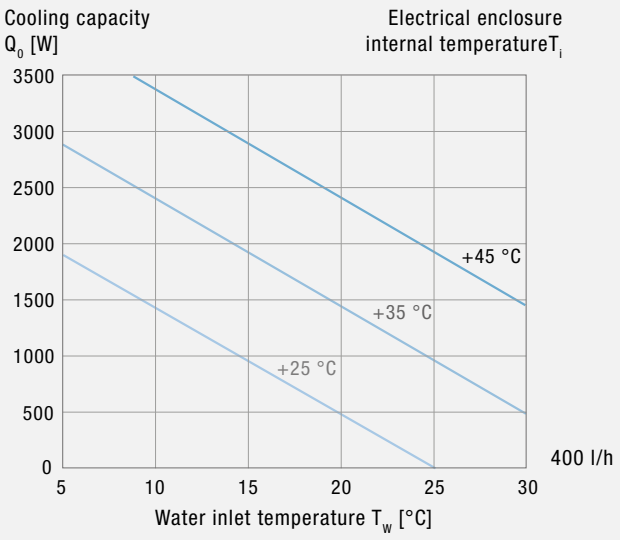


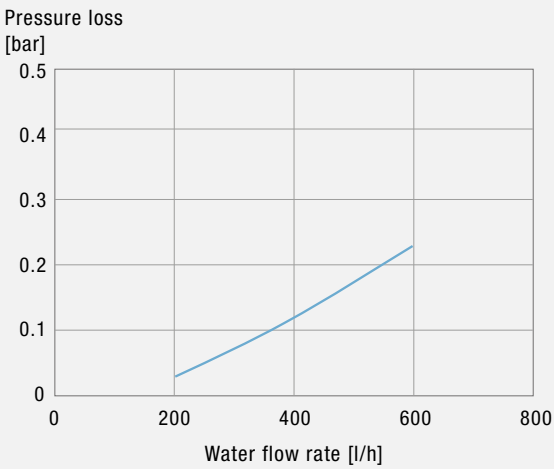
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PWD 5302

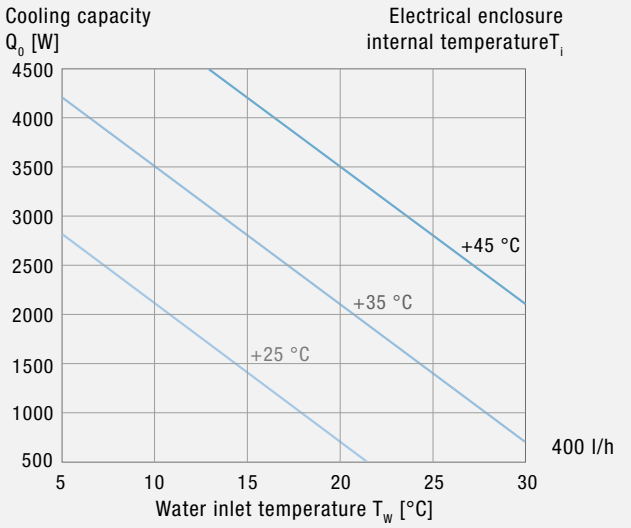


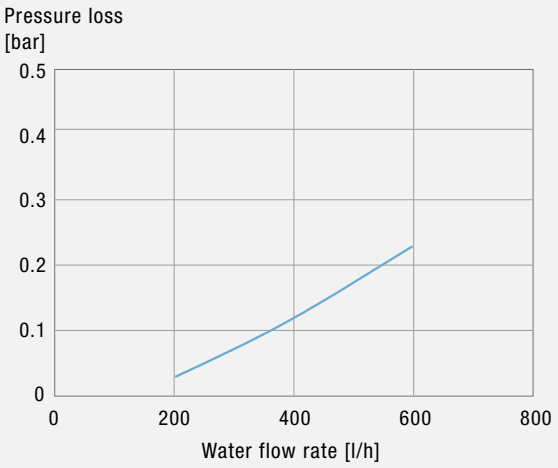


COOLING CAPACITY

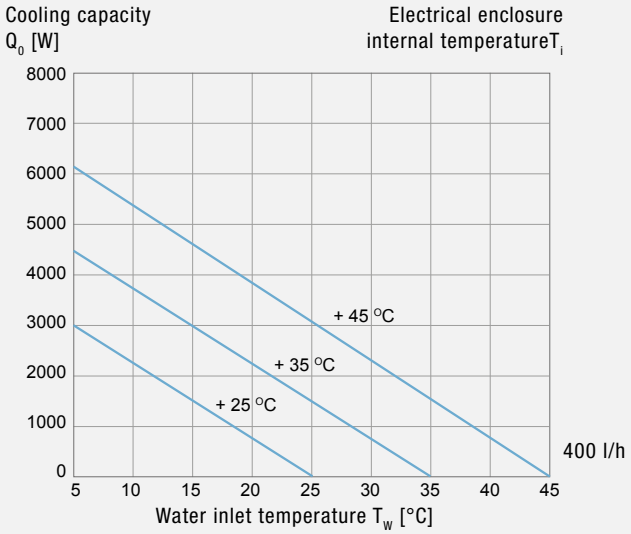
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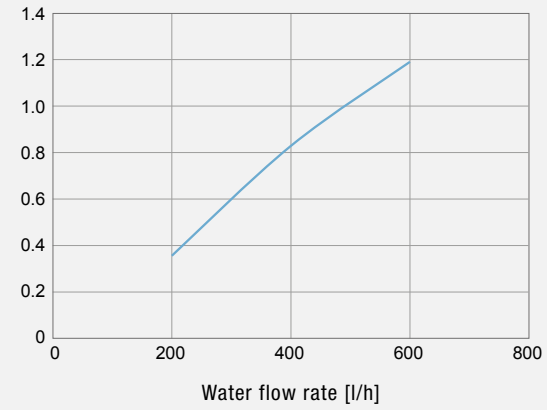
PWD 5402





PWT 6402

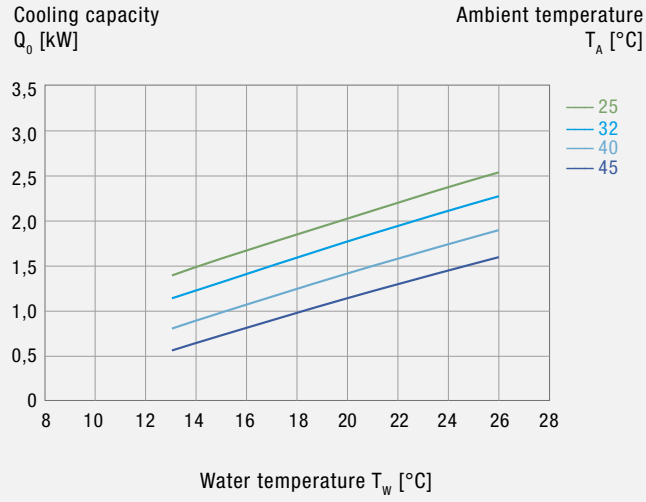




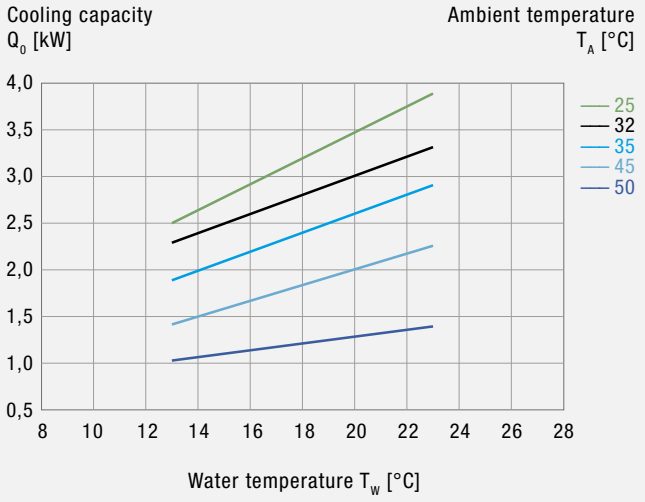
Performance curves Chillers

COOLING CAPACITY

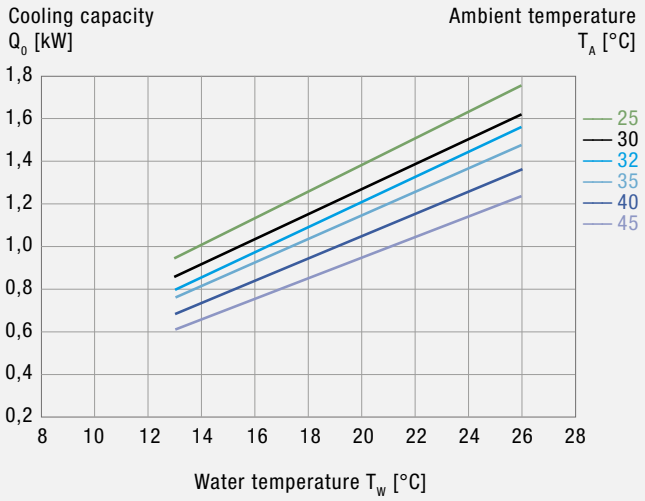
CPC 1600



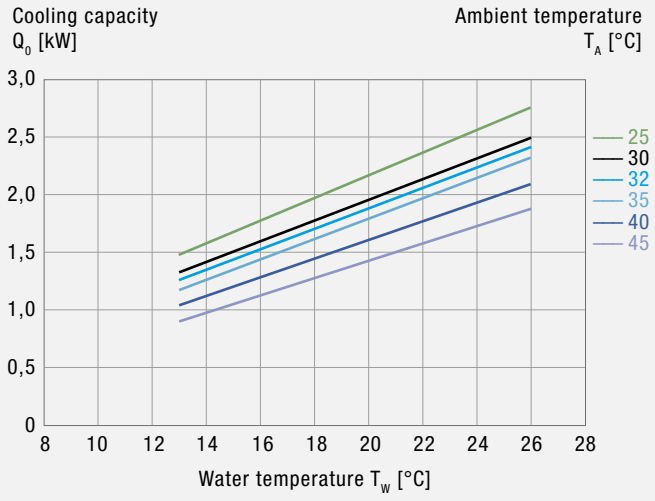
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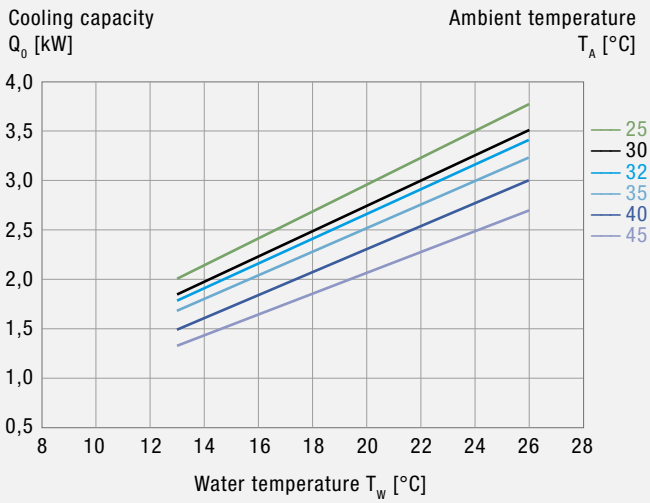
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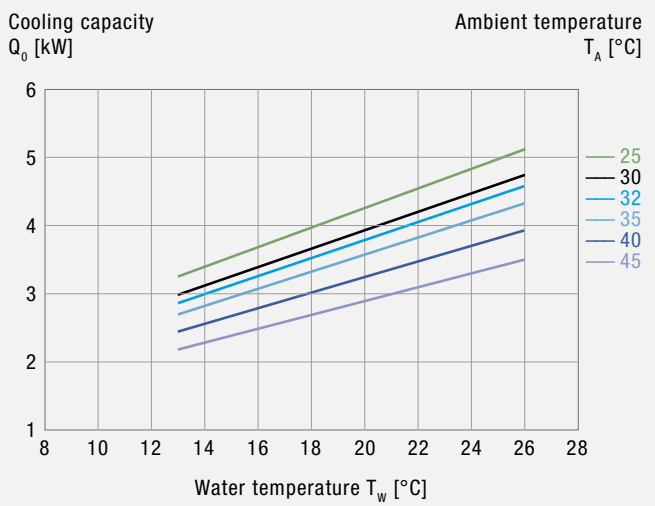
CCE 6201



CCE 6301

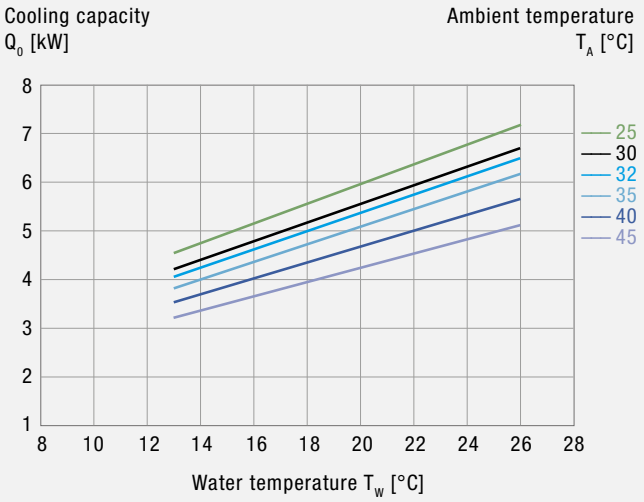


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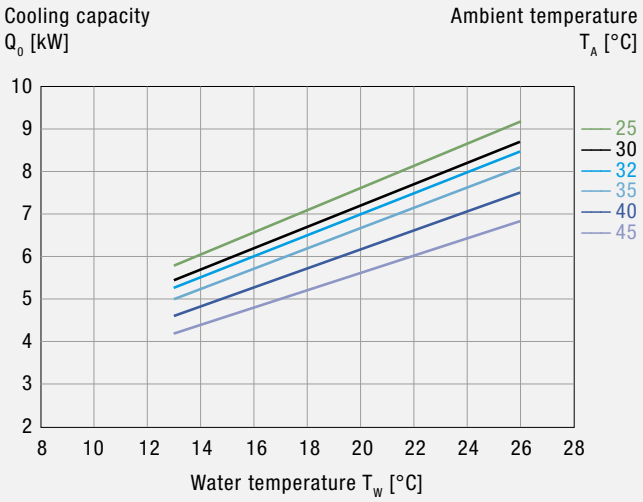


COOLING CAPACITY

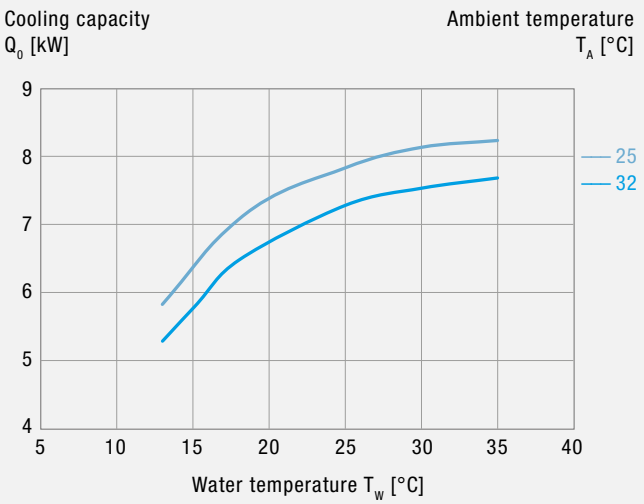
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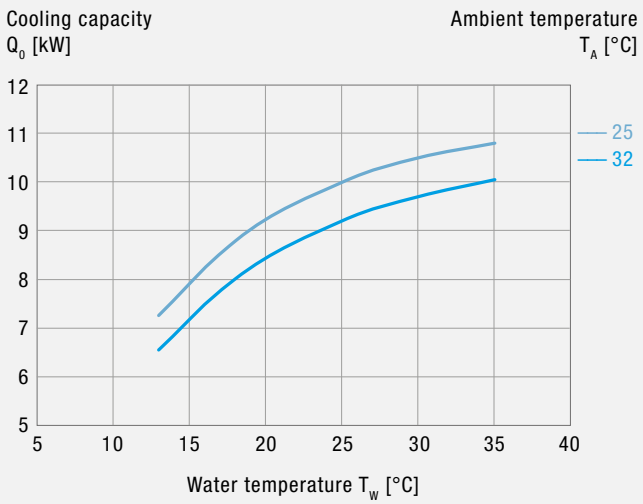
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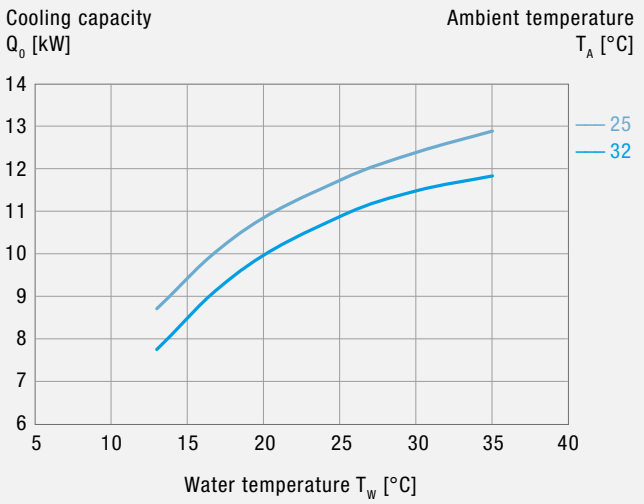
EB 65



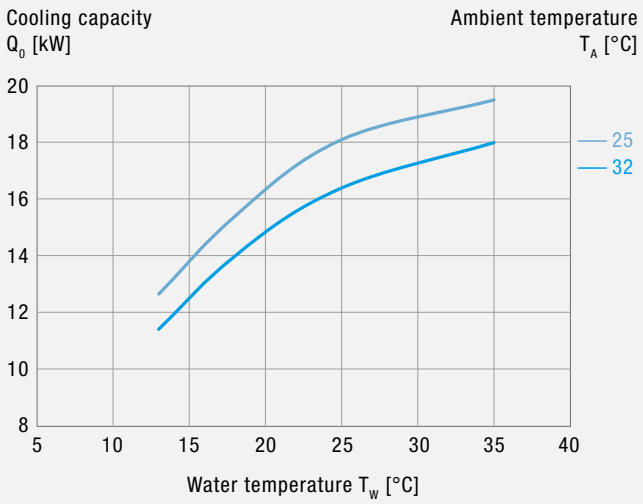
EB 80



EB 95



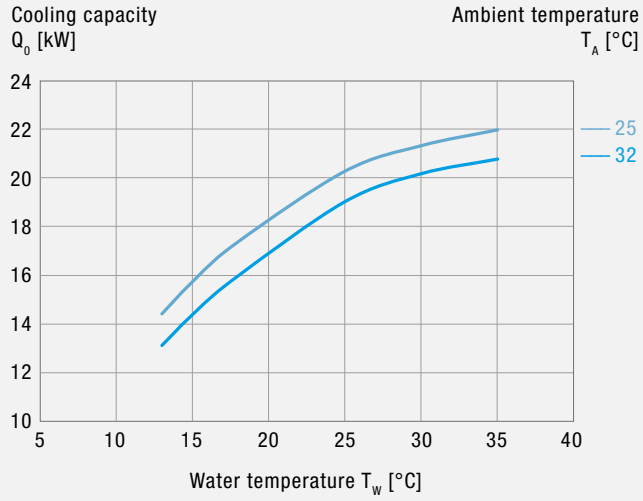
EB 140



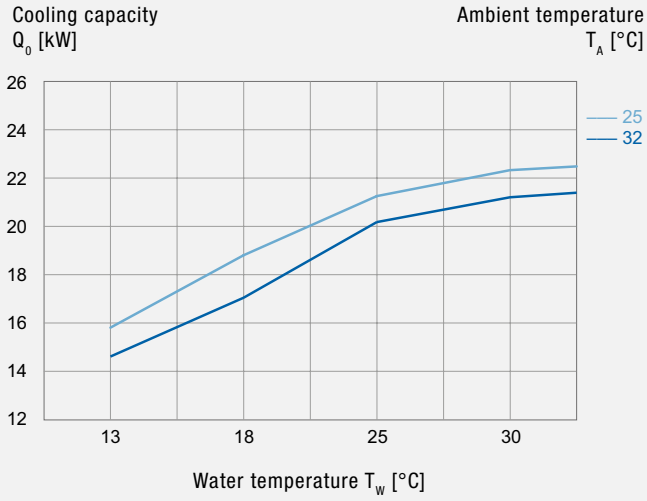
EB 2.0: The performance curves include standard pump losses and refer to operation at 50 Hz with water. Compared to values indicated for ambient temperature of 32 °C, capacity values will decrease by approximately 20 % (30 %) during operation at 40 °C (45 °C) ambient temperature.

COOLING CAPACITY

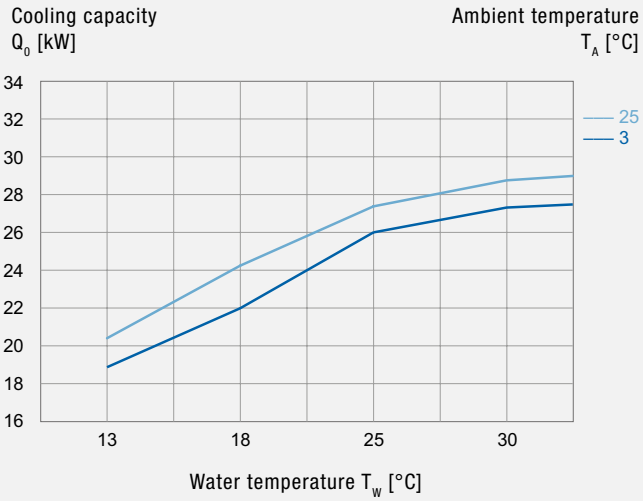
EB 160



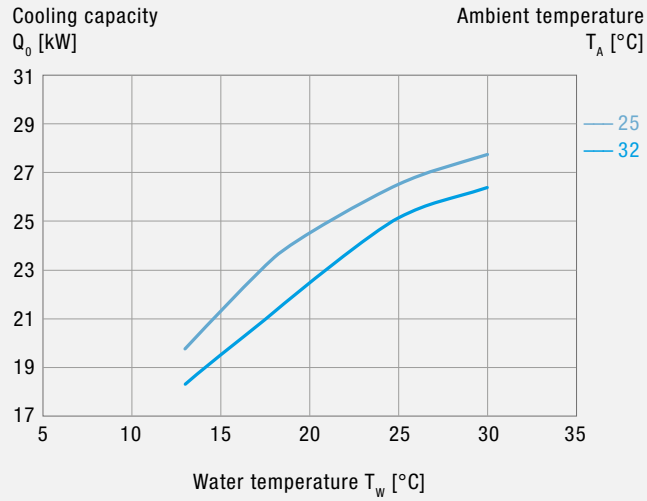
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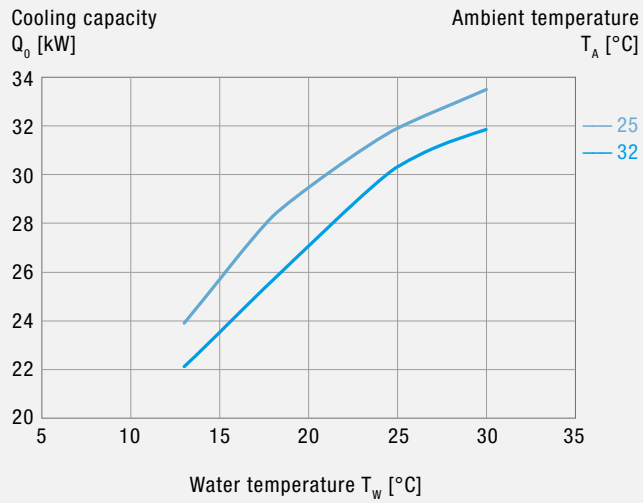
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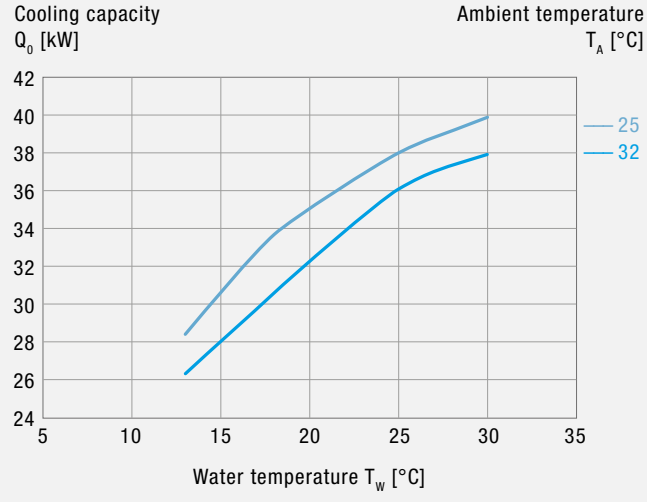
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EB L 260



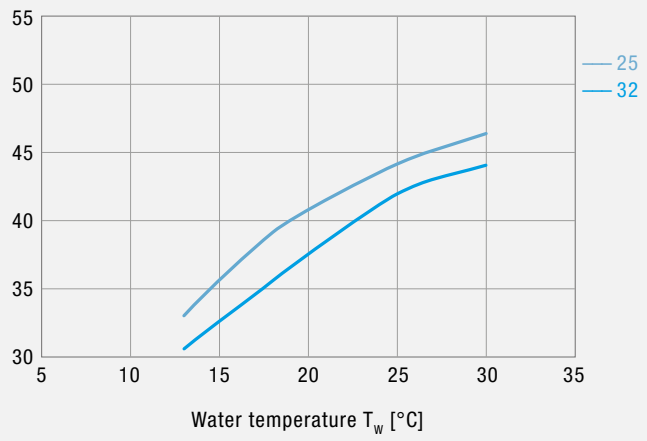
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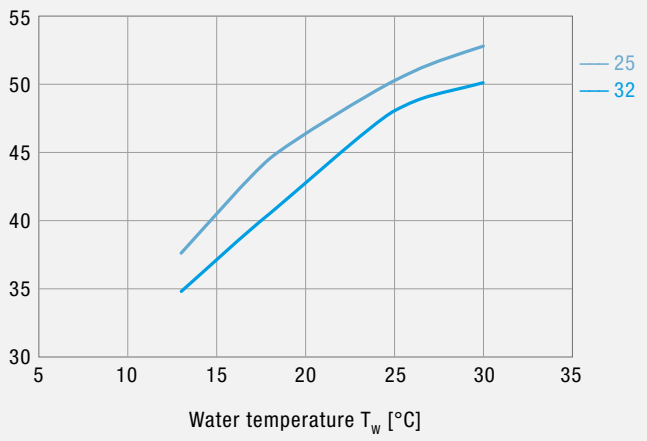
EB 2.0: The performance curves include standard pump losses and refer to operation at 50 Hz with water. Compared to values indicated for ambient temperature of 32 °C, capacity values will decrease by approximately 20 % (30 %) during operation at 40 °C (45 °C) ambient temperature.

COOLING CAPACITY

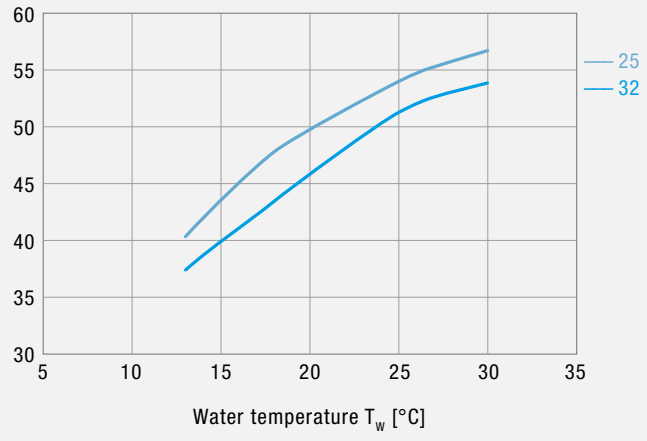
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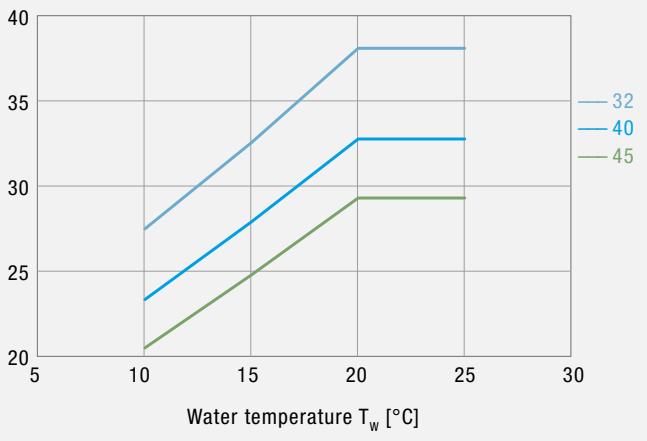
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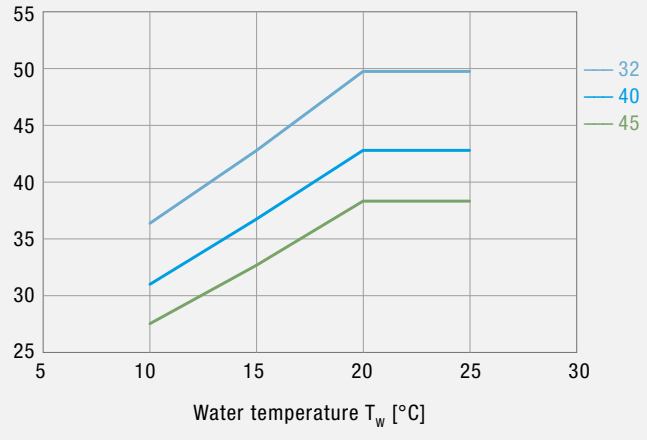
EB L 440



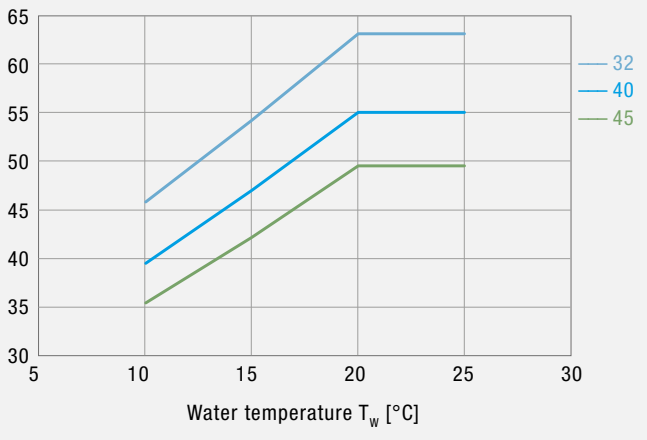
EB XT 400



EB XT 500



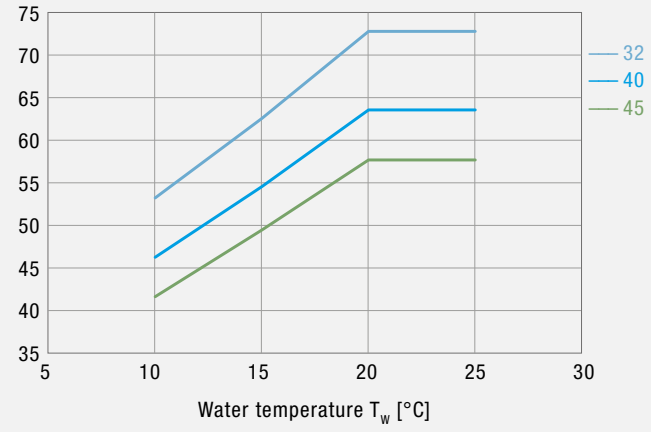
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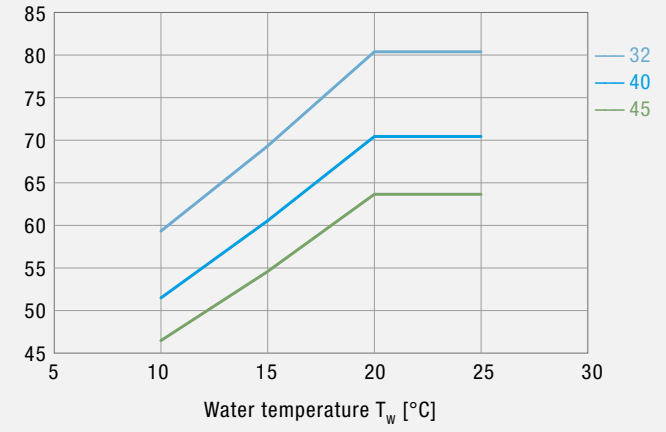
EB 2.0: The performance curves include standard pump losses and refer to operation at 50 Hz with water. Compared to values indicated for ambient temperature of 32 °C, capacity values will decrease by approximately 20 % (30 %) during operation at 40 °C (45 °C) ambient temperature.

COOLING CAPACITY

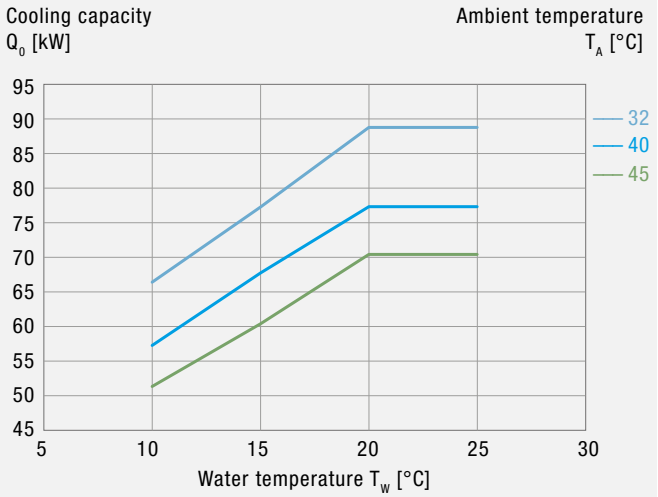
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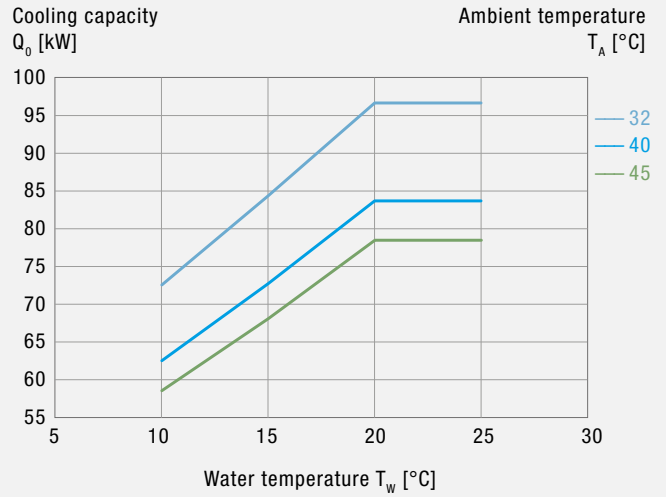
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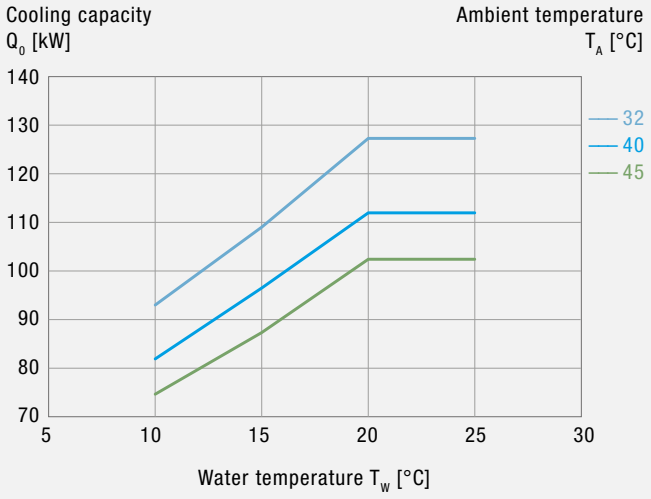
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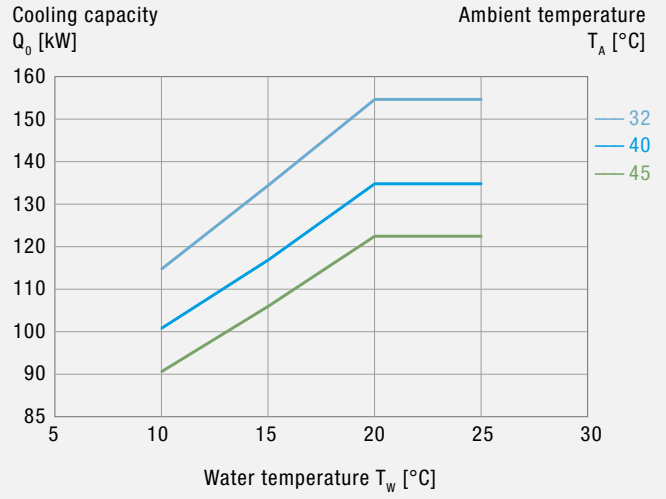
EB XT 1000



EB XT 1200



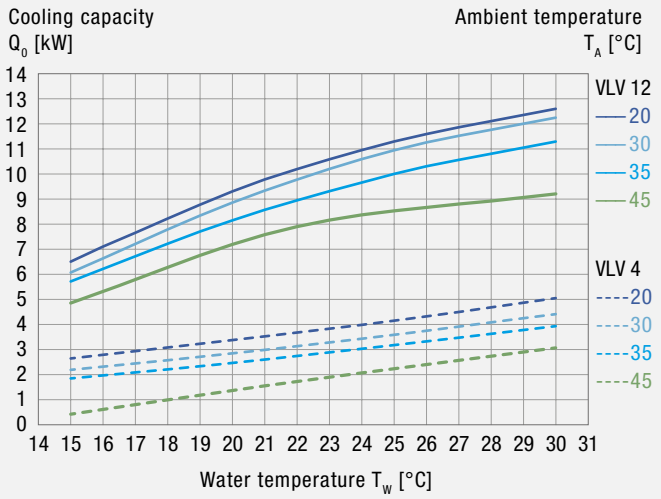
EB XT 1600



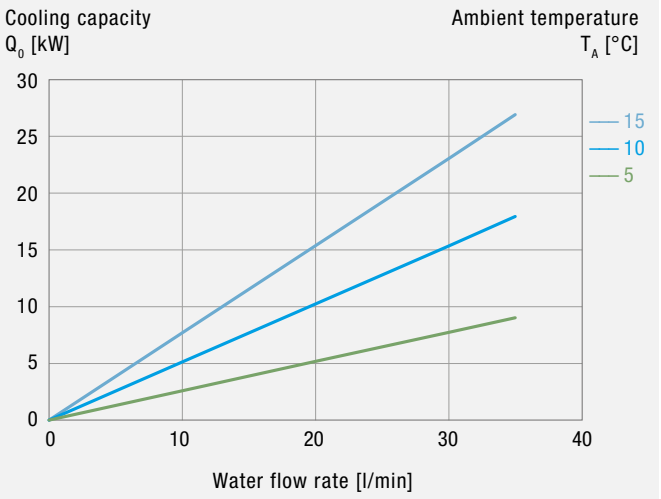
EB 2.0: The performance curves include standard pump losses and refer to operation at 50 Hz with water. Compared to values indicated for ambient temperature of 32 °C, capacity values will decrease by approximately 20 % (30 %) during operation at 40 °C (45 °C) ambient temperature.

COOLING CAPACITY

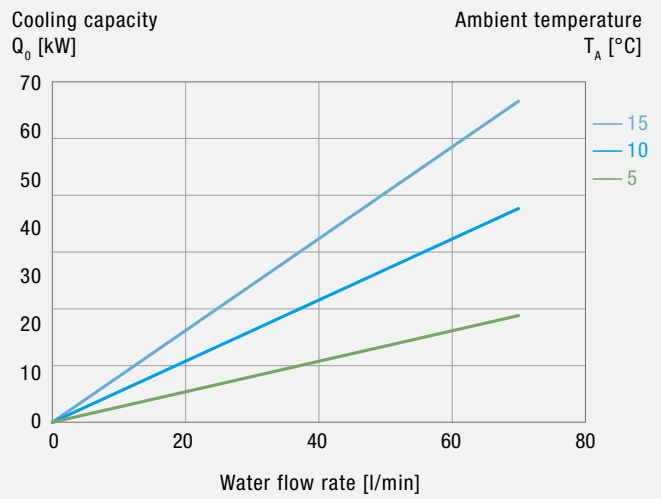
VLV 4 / VLV 12



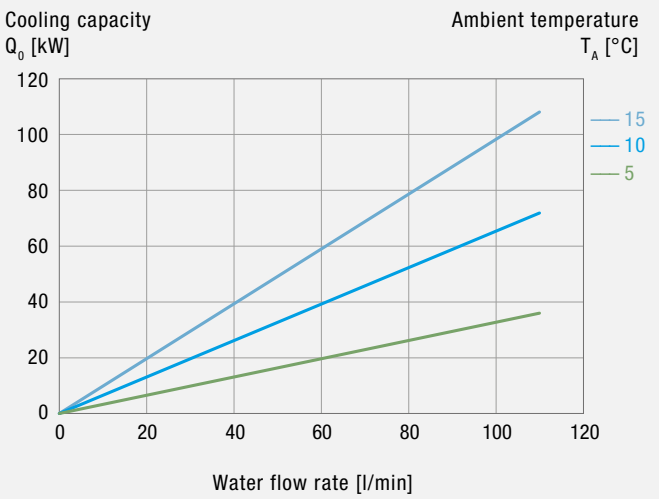
PWW 9.000



PWW 22.000



PWW 36.000



Safe signaling.



Flashing Lights, Sounders and Signal Towers.

Very few companies worldwide can comprehensively advise you in this area and supply you from one source the way that Pfannenberg can. We offer standard solutions with 10 year warranty as well as customised solutions.

Signaling devices from Pfannenberg can be used in the areas of industry, building technology, infrastructure projects, plant engineering, in the sector of renewable energy or on cranes and masts, and even in light art – e.g. in the illumination of the Eiffel Tower.

The devices are used for alerting, warning and to display the operating status of gas and fire alarms, start-up warnings, emergency displays and for the general protection of persons. For safety-relevant applications, Pfannenberg supplies SIL and PL conform products.

On the following pages you will find a brief selection of our signaling devices.

You can download or order your personal copy of the Pfannenberg Signaling Technology catalogue!
You can find the addresses at the end of the catalogue.

Protecting people, machines and the environment.

PYRA Series PY X-S-05
Flashing Lights
5 J

Connection
Simple electrical connection on the bottom of the housing.

SSM
Optional with Soft Start Module for reduction of starting current.

Safe and simple mounting
Installation options with external lugs or internal holes.

Panel mounting
Suitable for panel mounting.

IP 66
High protection system.



Colours
Housing colours: red | grey | white
Lens colours: clear | white | yellow | amber | red | green | blue

IK08
Impact-proof lens.

Modular design
Housing can be easily stacked side by side.

Approvals
EN 54-23 | VdS | UL | EAC
option: DNV.

10 YEARS WARRANTY

PYRA Series PY X-M-05 | PY X-M-10 Flashing Lights
PY X-MA-05 | PY X-MA-10 Flashing Light Sounders
5 J | 10 J | 100 dB(A)

4 different flash rates
Choice of four different flash rates via DIP switch (0.1 | 0.5 | 0.75 | 1 Hz)

IK08
Impact-proof lens.

Panel mounting
Suitable for panel mounting.

Connection
Simple electrical connection on the bottom of the housing.

Approvals
EN 54-23 | VdS | UL | EAC



Multi-flashing light systems
Providing full synchronisation on multi-flashing light systems.

Colours
Housing colours: red | grey | white
Lens colours: clear | white | yellow | amber | red | green | blue

IP 66
High protection system.

Options
Integrated inrush current limitation and undervoltage detection.

10 YEARS WARRANTY

PATROL Series PA 1 | PA 5 | PA 10 | PA 20
Sounders
105 dB(A) | 107 dB(A) | 117 dB(A) | 122 dB(A

Connection
Simple electrical connection on the bottom of the housing.

IK08
Impact-proof housing.

Safe and simple mounting
Installation options with external lugs or internal holes.

Mounting options
Panel mounting and surface mounting capabilities.



Colours
Housing colours: red | grey | white

IP 66
Fastener holes are outside the sealing area – IP rating cannot be compromised.

Approvals
EN 54-3 | VdS | UL | EAC
option: DNV | MED | CNBOP

10 YEARS WARRANTY



PA 1



PA 5



PA 10



PA 20

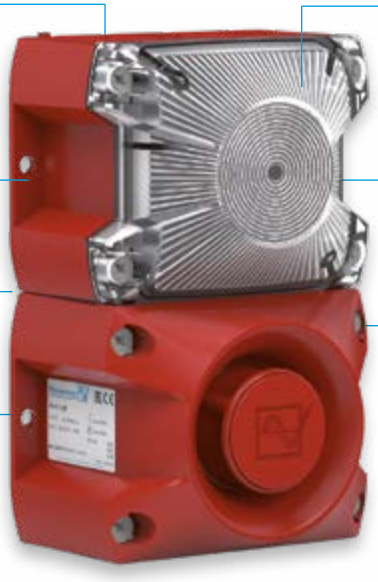
PATROL Series
PA X 1-05 | PA X 5-05 | PA X 10-10 | PA X 20-15
Flashing Sounders
5 J, 105 dB(A) | 5 J, 107 dB(A) | 10 J, 117 dB(A) | 15 J, 122 dB(A)

Connection
Simple electrical connection on the bottom of the housing.

Safe and simple mounting
Installation options with external lugs or internal holes.

IK08
Impact-proof

Mounting options
Panel mounting and surface mounting capabilities.



Colours
Housing colours: red | grey | white
Lens colours: clear | white | yellow | amber | red | green | blue

IP 66
Fastener holes are outside the sealing area – IP rating cannot be compromised.

Economical
All screw terminal clamps are redundant to support daisy-chaining of multiple sounders.

10 YEARS WARRANTY

! Visual-audible signaling devices for loud and bright environments, also for indoors and outdoors.



PA X 1-05



PA X 5-05



PA X 10-10



PA X 20-15

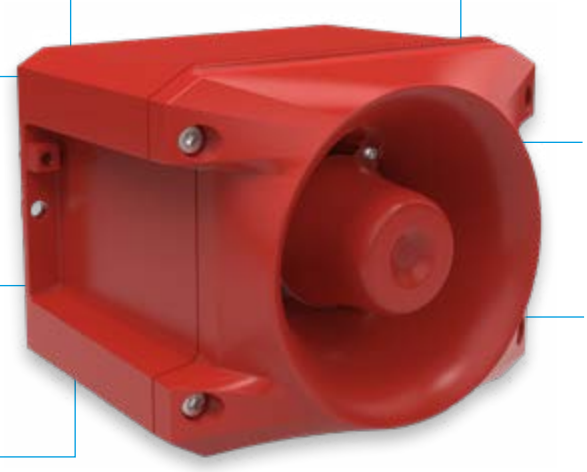
PROTECT Series PRO 10 (options: EX, SIL)
Protect Sounders and Flashing or LED Light Sounders
116 dB(A), 5 J | 23 cd

Excellent robustness
Cast aluminium housing guarantees long lasting use in tough applications.

Outstanding perceptibility
Ideal radiation characteristics and high penetration of acoustical obstacles reduce the required number of devices.

Multi-voltage-power supply
Made to connect with different voltages, no need to stock various units.

Selectable tone
80 different tones, 3 additional tones externally selectable.



Reducible sound pressure level
Up to 30 dB, internally or externally selectable.

Pre- & main alarm
Preventing shock reactions by pre-alarming due to reduced sound pressure level.

Safe & easy handling
Designed with unlosable seal and screws to significantly shorten wiring and installation times.

BR 50 Intense
Signal Towers with very bright LED technology

Visual
The light is amplified by the internal prisms of the impact-proof, heat-resistant and dust-proof polycarbonate lens and can be easily identified from all sides.

Modules
Continuous light | blinking light (1.5 Hz) | flashing light | sounder module 96 dB(A)

Mounting methods
Mounting stand | tube mounting | direct mounting

Applications
Modular design with sturdy housing for all indoor and outdoor applications in tough conditions.



IP 54
High protection system (optionally IP 65)

6 lens colours
Clear | yellow | amber | red | green | blue

Easy handling
Flexible building kit system guarantees easy handling.

Variable
Up to 5 modules with 6 lens colours can be combined as desired by simply plugging together, even retrospectively.



SERVICES

Comprehensive advice and worldwide support – with our services, we provide you with all the necessary service to secure your machines' uptime and also to optimise their energy efficiency – from the planning of individual thermal management solutions, to comprehensive plant audits and maintenance. Our service is not limited to Pfannenberg products, but also includes the units of all other manufacturers.



Advised better.



Operational safety right from the start: Customised for maximum machine availability.

Choose from our modular additional services.
And put a hook to it!

Installation and assembly on site
We take care of piping and on-schedule installation for you: for new installations and rebuilding measures/retrofit.

Professional commissioning
Only a perfect start avoids malfunctions and expensive machine damage.

Leak tests (F-gases)
Mission: Detect the smallest leaks, stop refrigerant loss immediately. Your advantage: With us, you at once comply with statutory inspection obligations as an operator.

Retrofits & modernisations
Whether you need to change the refrigerant for old devices or optimise your cooling solution, we make you fit for the future.

Technical trainings
We make your commissioning and maintenance personnel fit for the essentials.

Backup devices planning
Increase your flexibility in day-to-day service: especially if you have to take care of a large stock of equipment.

Preventative maintenance
Preventive against disturbances and standstills. We actively maintain your entire equipment inventory – manufacturer-independent.

Remote support with ACTY
Acty is an app for visual remote support that uses augmented reality technology to improve interaction between our service technician and your employee.



Recommended spare parts
You should always have these original parts ready: because their availability makes all the difference when speed counts.

Repair service
Whether in the Service Center against a cost estimate or directly on site in an emergency: We repair your equipment – reliably and manufacturer-independently.

Warranty extension
Get a secure calculation base for a small surcharge.

Please contact us: Use our 24/7 ticket system at:
pfannenberg.com/service-request with response guarantee within 24 hours (during business hours)
or write an email to: **service@pfannenberg.com**

Reliability from the beginning: Commissioning and maintenance.

The reliability of your plants depends on the thermal management devices and cooling solutions functioning constantly. In order to guarantee this, we are there for you at any time. Worldwide.

Commissioning. The perfect start.
There is no substitute for professional commissioning. It prevents malfunctions and damage to machines. This applies to the complex configuration of cold water aggregates in particular.

Our service technicians support you in:
- Conversion, expansion or dislocation of your existing cooling units
- Questions on technical support for your cooling applications
- Commissioning new devices in your production plants
- Handling and completing the organisation's commissioning

Maintenance – The perfect prevention.
The highest quality components are always exposed to unavoidable wear and tear. That's why we recommend checking the optimum functionality of the units and components at regular intervals.

Depending on the application, maintenance once or twice a year is sufficient to achieve increased reliability and a significantly improved machine uptime.

Increased reliability and more.
You benefit in many ways from our maintenance service. Our trained technicians come to your plant and can review current measurement and control software, to check unit functions and if necessary make appropriate adjustments. Additionally, they support you with cleaning the device, inspections and further maintenance measures for the optimisation of your plant and your production.

Commissioning includes the following:
- Checking the coolant piping system at cold water plants for professional dimensioning and designing prior to the piping assembly
- Connection of the cold water aggregates to the coolant piping system
- Professional installation of devices to the power supply network
- Filling the cold water aggregates and the connected piping system with the coolant, such as water, salt water, etc.
- Test operation and commissioning of the complete plant system
- Measuring and documenting all relevant technical data
- System transfer to the operator
- Creating a system transfer log

! Maintenance contracts can be combined with a warranty extension. Our service staff and you develop a model adjusted to your individual needs.

Maintenance includes:
- Checking the essential aggregate functions
- Checking and exchanging wear and tear parts
- Carrying out required cleaning
- Readjusting control and regulation modules
- Providing tools and measuring devices
- Creating a maintenance log and specification of the parts which might be needed for maintenance work

The most expensive machine is one that is idle.

A benefit of our worldwide service network is its ability to react. If a cooling system loses its efficiency or threatens to lose it, we can be with you promptly.

Repairs that take less time.
Our repair service guarantees an error diagnosis as quickly as possible and on-site repairs. This has several advantages: it means units do not have to be transported back and forth which is time consuming and expensive. And it reduces downtime to a minimum.

Of course, you can also use our repair service when the cooling systems in question are from another manufacturer.

The tests which provide more security.
In order to guarantee the proper function of chillers and to prevent machine downtime effectively, we carry out professional leak tests on your systems in compliance with statutory requirements.

Our service technicians are certified for this work as per EU Regulation No. 2024/573.

Services:
- Check cooling systems for tightness and possible damage due to vibrations, corrosion or ageing fatigue by qualified staff. Documentation in respect of relevant regulations.

Benefits:
- Preventing machine downtime due to loss of refrigerant
- Compliance with legal requirements
- Can be combined with device maintenance
- Secured availability of equipment

F-GAS
REGISTERED COMPANY



Our service includes the following:
- Checking defect units for causes of failure
- Error diagnosis
- Creating repair cost estimates
- Repairing units on site
- Processing unit returns

Service trainings: Practical knowledge for employees.

The security of your plant is not only guaranteed by technology. The fact that your staff is able to have an eye on the processes, having the ability and knowledge to react correctly in time (if needed) is imperative for the smooth running of the plant. Our trainings put your staff in the position to learn the practical knowledge to be able to act accordingly.

Expert tips – directly applied.
How do thermal management circuits work? How do the systems used in the plant work? How do you detect faults and how are they resolved? In our trainings, experienced technicians give answers. Your staff extends their knowledge in the area of cooling technology and learns how to cope with failures in concrete scenarios.

The effect: Your staff can not only recognise failures more quickly, but they also know how to help themselves. By making the right decisions regarding the repair of faults for the continuation of production, they ensure a more economical and smooth operation of the systems.

We offer you this training on site or at our facility.

As standard, our service training comprises the following:

- General information on the cooling technology (circuit, components, functional processes)
- The cooling unit – in direct relationship to the customer application
- Commissioning a cooling unit and the customer systems
- Fault simulation, fault detection
- Fault correction measures during commissioning
- Information about establishing contact in event of a fault
- Information about the work processes and the document stream in the event of a problem



When it matters: Only original spare parts.

There is only one substitute for the high quality of our components: our original parts. With these, you benefit from our many years' experience in the development and manufacturing of cooling units for electrical enclosures, filterfans, chillers and signaling devices.

Perfect functionality – guaranteed.
Our original parts go through comprehensive tests and fulfil the highest quality standards. They are optimally adapted to our units and not only offer the desired functionality but also contain the guarantee for the respective whole product. Additionally, every improvement within the framework of our product development is of direct value to you.

Durability and an excellent price-performance-ratio make our original parts particularly economical.

Recommended spare parts for your equipment.
You should always have the most frequently required spare and wear parts at hand. The availability of these recommended spare parts makes all the difference when speed counts. In the best case, these few original parts are stored directly by the equipment operator. Only then the hardware is immediately available and any downtimes are reduced to a minimum.

Our recommended spare parts include, depending on the product family, among others:

- Fans
- Electronic components
- Compressors
- Expansion valves
- Pressure switch

The advantages of our recommended spare parts:
- In the event of failure, the immediate availability of the spare parts that are needed most frequently
- Downtime is reduced to a minimum or longer downtime is avoided
- Many spare parts can be installed independently by a trained electrician (without interfering with the refrigeration circuit)

Only with our recommended original parts from Pfannenberg can you be sure that ...
- they are the right parts
- they fit
- they are in stock
- they can be quickly available on site
- you don't lose any valuable time
- the proper functionality is guaranteed
- the guarantee for your whole unit remains intact



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Representation Office Austria
Straßwalchen-Flachgau
Austria



How can we support you?

Specialists in Thermal Solutions and Experts in Signaling Solutions

1954 Company foundation by Otto Pfannenberg in Hamburg, Germany

1958 Invention of the Industrial Filterfan

1962 Invention of the Industrial Flashing Light

Thermal Management for Enclosures

Thermostats & Hygrostats
Heaters
Filterfans
Cooling Units
Air/Water Heat Exchangers
Air/Air Heat Exchangers

Liquid Cooling Solutions

Chillers
Water/Water Heat Exchangers
Air/Water Heat Exchangers

Signaling Technologies for Machines and Buildings

Audible Signaling
Visual Signaling
Signal Towers
Ex-ATEX Signaling
Obstacle Lights

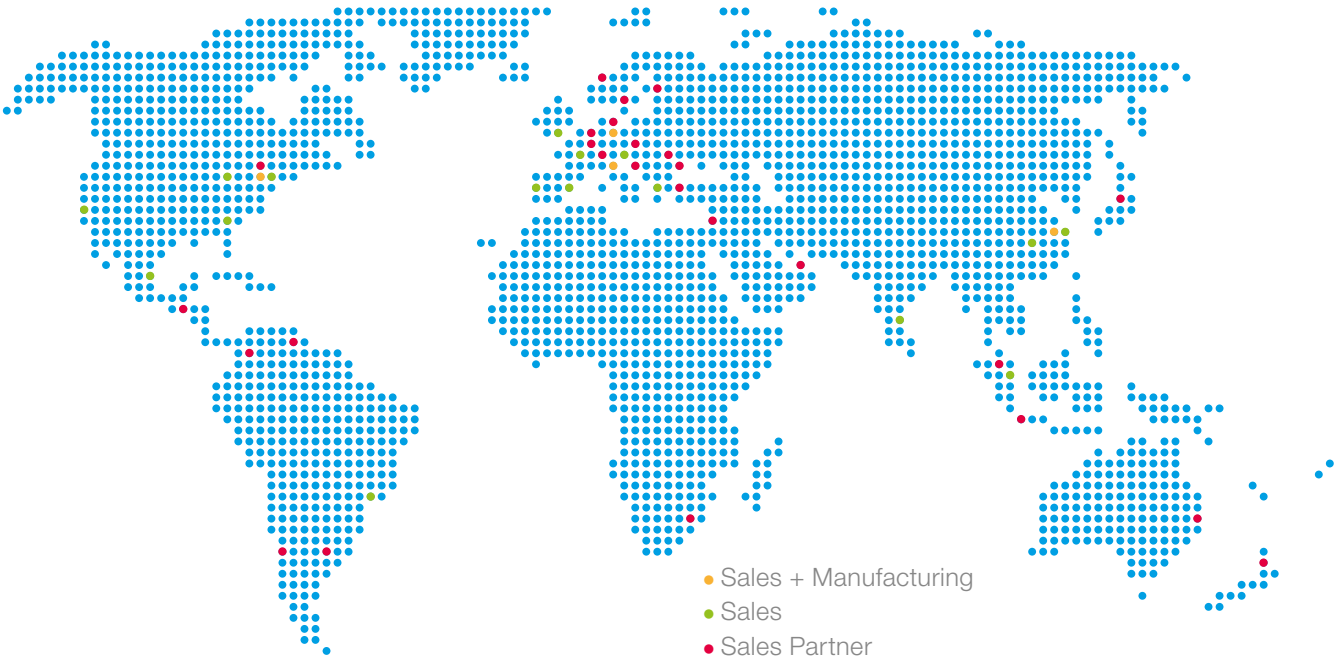
Your Global Partner

3rd Generation Family Business with 12 Locations

Operations and R&D Center in America, Europe and Asia

Global Sales and Service Network for 24h reaction

Innovation proven by more than 220 Patents



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