

# Pamir 3500



## Sleek and energy efficient air curtain for commercial premises

Pamir 3500, with a recommended installation height of 3,5 m or width of 5 m, has a modern and sleek design developed to fit all entrances. The air curtain is available for horizontal, vertical and recessed installation. The Pamir series is equipped with energy-efficient EC motors which enable stepless control of the airflow. An easy to open front allows quick access to facilitate both installation and maintenance.

### Energy efficient and sustainable

The air curtain is equipped with EC motors that are up to 50% more energy efficient than traditional AC motors, and have a lower weight which makes for easier installations and greener transports.

### Intelligent control options

The Pamir series is supplemented with an intelligent control system that allows you to optimize your comfort with minimum effort. Smart and automatic features enable simple set-up and operation for different Frico products groups.

### High performance

Frico air curtains are developed and manufactured in Sweden. The air curtains are tested in one of the most modern and advanced air and sound laboratories in Europe which means that we can guarantee a high performance product.

### Pamir 3500

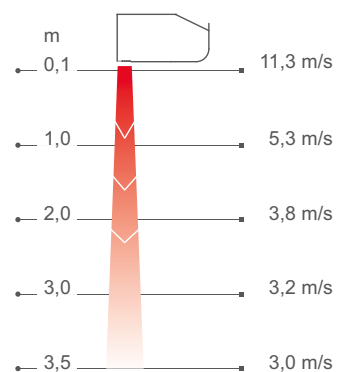


#### Available in 3 versions:

- 🌀 Ambient (without heat)
- ⚡ Electrical heating
- 💧 Water heating



### Air velocity profile



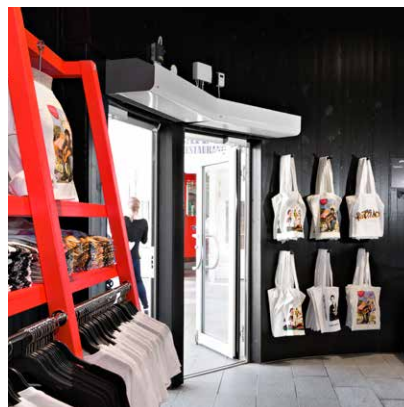
Measurements according to ISO 27327-1. Average values for products in the series.

Pamir 3500

# Frico's Thermozone technology optimizes the air curtain



Frico air curtains create an invisible barrier at openings and doors which separates different temperature zones without limiting access for people and vehicles. Thermozone technology creates a highly uniform air barrier with a perfect balance between air volume and air velocity, regardless of whether it is the heat or the cold that you want to keep inside.



## Great energy savings

In many premises doors remain open for a significant part of the day, this results in huge losses of expensively heated or cooled air, especially when the temperature difference between outdoor and indoor air is great. With correctly installed air curtains great energy savings can be obtained.

## Comfortable indoor climate

Air curtains with Thermozone technology have optimized performance to provide a comfortable indoor climate free from drafts. The air curtain also keeps out emissions and insects.

## Low sound level

With Thermozone technology Frico manufactures air curtains with very high airflow performance. This does not just make the air curtain more effective, but also has other advantages such as extremely low sound levels and reduced turbulence.

## Create the optimal solution to suit your specific needs

After you selected the air curtain to suit your specific needs (ambient, electrical heating, water heating) and length 1, 1,5, 2, or 2,5 m you assemble your control and accessory options:

### Select control system

Choose one of our FC Control systems.



### Add valve system

Water heated units must be supplemented with a valve system.



### Select mounting options

Horizontal, recessed or vertical installation.



🌬️ Ambient, no heat - PAFEC3500 A (IP24\*\*)

Voltage motor: 230V~

Item number	Type	Output	Airflow* <sup>1</sup>	Sound power* <sup>2</sup>	Sound pressure* <sup>3</sup>	Amperage motor [A]	Length [mm]	Weight [kg]
		[kW]	[m <sup>3</sup> /h]	[dB(A)]	[dB(A)]			
189577	PAFEC3510A	0	900/1800	75	44/60	2,3	1039	33
189581	PAFEC3515A	0	1400/2700	78	46/63	3,2	1549	41,5
189585	PAFEC3520A	0	1900/3500	79	47/64	4,1	2039	63
189589	PAFEC3525A	0	2350/4400	80	47/65	5,1	2549	71,5

⚡ Electrical heat - PAFEC3500 E (IP20)

Item number	Type	Output steps	Airflow* <sup>1</sup>	$\Delta t$ * <sup>4</sup>	Sound power* <sup>2</sup>	Sound pressure* <sup>3</sup>	Amperage motor [A]	Voltage [V] Amperage [A] (heat)	Length [mm]	Weight [kg]
		[kW]	[m <sup>3</sup> /h]	[°C]	[dB(A)]	[dB(A)]				
189576	PAFEC3510E08	2,7/5,4/8,1	900/1800	27/13	76	44/60	2,3	400V3~/11,7	1039	37
189580	PAFEC3515E12	3,9/7,8/12	1400/2700	26/13	79	46/63	3,2	400V3~/16,9	1549	50
189584	PAFEC3520E16	5,4/11/16	1900/3500	25/14	80	47/64	4,1	400V3~/23,4	2039	70
189588	PAFEC3525E20	6,6/13/20	2350/4400	25/14	81	47/65	5,1	400V3~/28,6	2549	89

💧 Water heat - PAFEC3500 WL, coil for low water temperature ( $\leq 80$  °C) (IP24\*\*)

Item number	Type	Output* <sup>5</sup>	Airflow* <sup>1</sup>	$\Delta t$ * <sup>4,5</sup>	Water volume	Sound power* <sup>2</sup>	Sound pressure* <sup>3</sup>	Amperage motor [A]	Length [mm]	Weight [kg]
		[kW]	[m <sup>3</sup> /h]	[°C]	[l]	[dB(A)]	[dB(A)]			
189579	PAFEC3510WL	11	850/1700	24/19	1,5	75	42/59	2,3	1039	42
189583	PAFEC3515WL	18	1350/2600	25/20	2,4	77	45/61	3,2	1549	57,5
189587	PAFEC3520WL	24	1800/3400	25/21	3,2	78	45/62	4,1	2039	73
189591	PAFEC3525WL	31	2250/4300	26/21	4,0	80	47/64	5,1	2549	89,5

💧 Water heat - PAFEC3500 WH, coil for high temperature water ( $\geq 80$  °C) (IP24\*\*)

Item number	Type	Output* <sup>6</sup>	Airflow* <sup>1</sup>	$\Delta t$ * <sup>4,6</sup>	Water volume	Sound power* <sup>2</sup>	Sound pressure* <sup>3</sup>	Amperage motor [A]	Length [mm]	Weight [kg]
		[kW]	[m <sup>3</sup> /h]	[°C]	[l]	[dB(A)]	[dB(A)]			
189578	PAFEC3510WH	9,9	850/1700	22/17	1,1	75	42/59	2,3	1039	39
189582	PAFEC3515WH	15	1350/2600	22/17	1,6	77	45/61	3,2	1549	55,5
189586	PAFEC3520WH	21	1800/3400	23/18	2,2	78	45/62	4,1	2039	71
189590	PAFEC3525WH	26	2250/4300	23/18	2,7	80	47/64	5,1	2549	84,5

💧 Water heat - PAFEC3500 WLL, coil for very low temperature water ( $\leq 60$  °C) (IP24\*\*)

Item number	Type	Output* <sup>7</sup>	Airflow* <sup>1</sup>	$\Delta t$ * <sup>4,7</sup>	Water volume	Sound power* <sup>2</sup>	Sound pressure* <sup>3</sup>	Amperage motor [A]	Length [mm]	Weight [kg]
		[kW]	[m <sup>3</sup> /h]	[°C]	[l]	[dB(A)]	[dB(A)]			
189594	PAFEC3510WLL	6,8	800/1600	15/13	2,0	74	42/58	2,3	1039	44
189592	PAFEC3515WLL	10	1250/2500	14/12	4,1	76	44/60	3,2	1549	62,5
189593	PAFEC3520WLL	15	1700/3300	15/13	5,6	77	44/61	4,1	2039	80
189595	PAFEC3525WLL	19	2100/4200	15/13	8,3	79	46/63	5,1	2549	96,5

\*<sup>1</sup>) Low/high airflow (2V/10V).

\*<sup>2</sup>) Sound power ( $L_{WA}$ ) measurements according to ISO 27327-2: 2014, Installation type E.

\*<sup>3</sup>) Sound pressure ( $L_{PA}$ ). Conditions: Distance to the unit 5 metres. Directional factor: 2. Equivalent absorption area: 200 m<sup>2</sup>. At low/high airflow (2V/10V).

\*<sup>4</sup>)  $\Delta t$  = temperature rise of passing air at maximum heat output and low/high airflow (2V/10V).

\*<sup>5</sup>) Applicable at water temperature 60/40 °C, air temperature, in +18 °C.

\*<sup>6</sup>) Applicable at water temperature 80/60 °C, air temperature, in +18 °C.

\*<sup>7</sup>) Applicable at water temperature 40/30 °C, air temperature, in +18 °C.

\*<sup>5,6,7</sup>) See [www.frico.net](http://www.frico.net) for additional calculations.

\*\*\*) Horizontal mounting and vertical mounting to the right (seen from the inside): IP24.

Vertical mounting to the left (seen from the inside): IP21.

Manufactured in Sweden with a corrosion proof housing made of hot zinc-plate and powder coated steel panels. Front and service hatch are made of powder coated aluminium. Colour front and service hatch: white, RAL 9016. Colour grille, rear section and ends: grey, RAL 7046.





## Horizontal mounting

The recommended installation height of Pamir 3500 is 3,5 m. The air curtain can be installed on a wall or suspended from a ceiling. It can also be installed recessed into suspended ceilings.

When the air curtain is mounted horizontally the outlet air grille must be facing downwards as close to the door as possible. For the protection of wider openings, several units can be mounted next to each other using a joining kit. Design kits which conceals cables, pipes and mountings are available for both wall and ceiling installations.

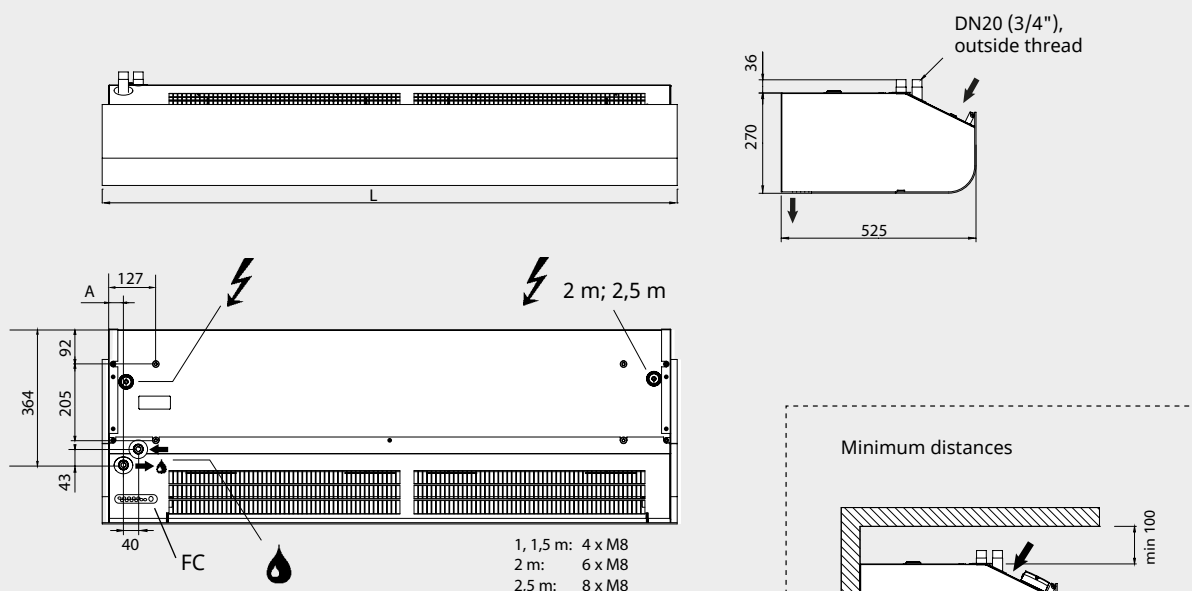
## Connection

An easy to open front allows quick access to facilitate both installation and maintenance.

The air curtain has an integrated PC board which is connected to the selected external control system FC. Control is supplied by 230V~ to the PC board. The PC board is accessed via cable glands on the top of the unit. Communication- and sensor cables are connected to the PC board.

The electrical connection is made on the top of the unit. Power supply for electrical heated air curtains (400V3~) is routed via the motor compartment.

Water heated units are connected to the water system on top of the unit. Flexible hoses are available as accessories. Water heated units must always be supplemented with a valve kit mounted outside the unit. See Valves and Accessories.



For wiring diagrams and other technical information, please see the manual and [www.frico.net](http://www.frico.net).

	L [mm]	A [mm]
PAFEC3510	1039	40
PAFEC3515	1549	40
PAFEC3520	2039	40
PAFEC3525	2549	39





## Vertical mounting

The recommended installation width of Pamir 3500 is 5 m with air curtains on both sides of the opening. Units from 1,5 metres and longer may be used vertically. They can be reversed and placed on either side of the door.

The air curtain is mounted vertically as close as possible to the door. For the best effect air curtains should be placed on both sides of the opening. Each unit must be supplemented with a vertical kit (accessory) to mount it on the floor and also to mount two units on top of each other for higher entrances. The air curtain must always be secured at the top. The design kit (accessory) is used to hide pipes and cables.

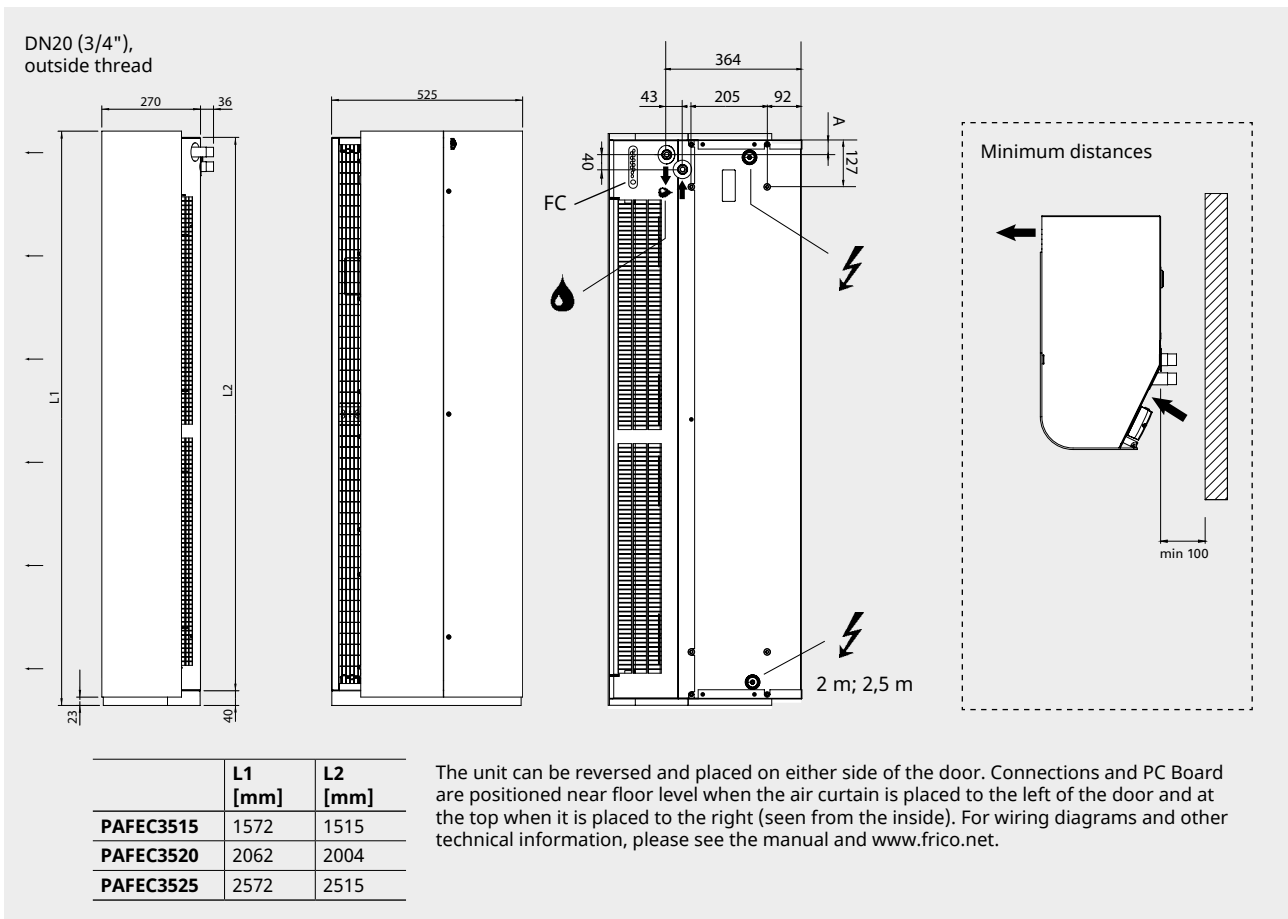
## Connection

An easy to open front allows quick access to facilitate both installation and maintenance.

The air curtain has an integrated PC board which is connected to the selected external control system FC. Control is supplied by 230V~ to the PC board. The PC board is accessed via cable glands on the back of the unit. Communication- and sensor cables are connected to the PC board.

The electrical connection is made on the back of the unit. Power supply for electrical heated air curtains (400V3~) is routed via the motor compartment.

Water heated units are connected to the water system on the back of the unit. Flexible hoses are available as accessories. Water heated units must always be supplemented with a valve kit mounted outside the unit. See Valves and Accessories.



Frico air curtains come with an integrated PC-board and are supplemented with the intelligent control system FC of your choice, working together to create many smart and energy saving features. There are four different packages to choose from, depending on your requirements.

### FC Direct

Entry level

- Door contact
- Calendar function
- Filter timer
- Built-in temperature sensor

### FC Smart

FC Direct +

- Control via app (Bluetooth)
- Wireless sensors possible
- Adjustable calendar function
- Away and Boost function
- Adjustable filter timer
- Vestibule function
- Zone possibility
- Enhanced water control possible

### FC Pro

FC Direct + FC Smart +

- Automatic air flow control
- Automatic heat blocking

### FC Building - BMS

FC Direct +

- 0-10V, potential free contact or Modbus
  - Automatic air flow control\*
  - Automatic heat blocking\*
  - Heat and fan settings
  - Alarm indication
  - Read values
  - Enhanced water control possible
- \* Requires outdoor temp signal



#### FC Direct

Entry level control system for a great start. The door contact provides an automatic energy-saving function, as the air curtain becomes active only when the door is open. When the door is closed, it remains on stand-by or runs on a lower fan speed if extra heat is needed. With the calendar function, you can choose periods of comfort and reduced mode. The control panel has a built-in temperature sensor, which is used for control when external sensors are not used.



#### FC Smart

Second level control system for full freedom. FC Smart comes with all features from FC Direct plus additional energy saving features and the possibility of app control (Bluetooth). The app gives you access to all functions in the system, allowing you to set it up exactly the way you want it. It also enables you to create different zones with different settings in a larger system. The app FRICO CONTROL is available for both iOS and Android.



#### FC Pro

Third level control system for maximum savings. FC Pro comes with all features from FC Direct and FC Smart plus additional automatic energy saving features. By receiving and reacting to information about indoor and outdoor temperatures, the right amount of heat and air flow is added to avoid overshoots and thus reducing energy consumption.



#### FC Building - BMS system

Comprehensive control system for buildings, with the option to control via 0-10V, potential free contact (e.g. a relay) and/or Modbus RTU (RS485). FC Building enables you to receive product information status and alarms. Modbus allows for full use of all the energy saving features within the control system.

Item number	Type	Description
74684	FCDA	FC Direct, first level control system
74685	FCSA	FC Smart, second level control system
74686	FCPA	FC Pro, third level control system
74687	FCBA	FC Building, BMS system

FC Control system helps to create many smart and energy saving features. In addition to our four packages, components can be added to expand and customize the system. With the app levels (FC Smart and FC Pro) it is also possible to create and control different zones. Each added zone needs to be equipped with one FC Direct and can be designed to fit its specific needs by adding different accessories.



### FC Direct, control kit

Control panel for fan and heat, door contact and 5 m communication cable. Used for additional zones with FC Smart and FC Pro. IP44.



### FCRTX, external room temperature sensor

For reading of the room temperature on another location than that of the control panel, incl. 10 m sensor cable. IP20.



### FCOTX, outdoor temperature sensor

Reading the outdoor temperature, incl. 10 m sensor cable. Enables automatic air curtain control and heat blocking. IP44.



### FCLAP, local access point

Local access point for extra wireless sensors (when operating more than 8 sensors) and extended range for wireless sensors or app control (Bluetooth), incl. 10 m communication cable. IP44.



### FCSC/FCBC, cable

FCSC Sensor cable available in 10 or 25 m for extra length. FCBC Communication cable for additional products within the same zone, available in 5, 10 or 25 m.



### FCDC, door contact

The door contact regulates the airflow on/off. Allows you to control air curtains at different doorways individually within the same zone.



### FCTXRF, indoor/outdoor wireless sensor

Indoor/outdoor wireless sensor with same features as FCRTX and FCOTX. The set up as outdoor or indoor sensor is made by a switch inside the sensor. Range up to 50 m. Battery life: 3-5 years. IP44.

#### FC Direct

*Content*

- FCCF control panel
- FCBC05
- FCDC

#### FC Smart

*Content*

- FCCF control panel
- FCBC10
- FCDC
- FCLAP

#### FC Pro

*Content*

- FCCF control panel
- FCBC10
- FCDC
- FCLAP
- FCTXRF

#### FC Building - BMS

*Content*

- FCCF control panel
- FCBC10
- FCDC
- FCBAP building access point

Item number	Type	Description	Dimensions
74684	<b>FCDA</b>	FC Direct, first level control system	89x89x26 mm (FCCF)
74694	<b>FCRTX</b>	External room temperature sensor	39x39x23 mm
74695	<b>FCOTX</b>	Outdoor temperature sensor	39x39x23 mm
74699	<b>FCLAP</b>	Local access point for extra wireless sensors and extended range	89x89x26 mm
74718	<b>FCBC05</b>	Extra communication cable, 5 m	5 m
74719	<b>FCBC10</b>	Extra communication cable, 10 m	10 m
74720	<b>FCBC25</b>	Extra communication cable, 25 m	25 m
74721	<b>FCSC10</b>	Extra sensor cable, 10 m	10 m
74722	<b>FCSC25</b>	Extra sensor cable, 25 m	25 m
17495	<b>FCDC</b>	Door contact	
74703	<b>FCTXRF</b>	Indoor/outdoor wireless sensor (for FC Smart, FC Pro)	89x89x26 mm

Water heated units must be supplemented with valves. The valve system controls the water flow and activates maximum heat only when needed. By activating the built-in bypass feature, a small leakage flow is let through to make sure there is always hot water in the heating coil, providing frost protection and faster heating. The return water temperature sensor is making sure that as much energy as possible from the water in the coil is used, thus reducing energy consumption.



#### VPFC, pressure independent and modulating valve system

Two way pressure independent control and adjustment valve with modulating actuator and shut-off valve.



#### FCWTA, return water temperature sensor

Enables control of return water temperature and automatic bypass function, which provides extended frost protection and reduced energy consumption.

Item number	Type	DN	Flow range l/s
238293	VPFC15LF	DN15	0,012-0,068
238294	VPFC15NF	DN15	0,024-0,13
238295	VPFC20	DN20	0,058-0,32
238296	VPFC25	DN25	0,10-0,60
238297	VPFC32	DN32	0,22-1,03
74702	FCWTA	Return water temperature sensor	

## Accessories - water heated units



#### FHDN20, flexible hoses

Flexible hoses for easy and practical installation of water heated unit. FHDN20: length 350 mm. FHDN2010: length 1 m. DN20, inside thread, 90° bend.



#### PA34EF, external intake filter

Fine mesh filter that prevents ingress of dirt and deposits to water heated units. The filter is easy to attach and remove thanks to the integrated magnetic strips. Makes maintenance easier since the unit does not need to be opened.



#### DTV200S, filter pressure guard

Measures the differential pressure, which indicates how dirty the filter is in water heated units. The metering hose is connected to the suction side of the unit (after the filter). Adjustment is performed on site depending on the unit and the environment. Adjustable range 20-300 Pa. Potential free, changeover alarm contact.

Item number	Type	Used for	Consists of
18055	FHDN20	PAFECW3510/3515/3520/3525	2
88906	FHDN2010	PAFECW3510/3515/3520/3525	2
19064	PA34EF10	PAFECW3510	1
19065	PA34EF15	PAFECW3515	1
19066	PA34EF20	PAFECW3520	1
19067	PA34EF25	PAFECW3525	1
17597	DTV200S	PAFECW3510/3515/3520/3525	1





### PA34WB/PAWBL, wall brackets

Brackets for installing unit horizontally on a wall. PAWBL is used when the unit must be mounted further out from the wall. PA34WB: length 400 mm, PAWBL: length 560 mm.



### PA34CB, ceiling brackets

Ceiling brackets for installing the unit from the ceiling using wires or threaded bars (not included). Best combined with vibration dampers (PA34VD) when using threaded bars.



### PA34WS, wire suspension kit

Galvanized wires with wire locks to secure the unit from the ceiling. Length 3 m. Used together with ceiling brackets (PA34CB).



### PA34TR, threaded bars

Threaded bars for installing unit on to a ceiling. Length 1 m. Used together with ceiling brackets (PA34CB). Supplemented with vibration dampers (PA34VD) for reduced vibration.



### PA34VD, vibration dampers

Reduces vibrations for ceiling installations with threaded bars.



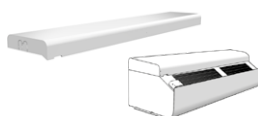
### PA3JK, joining kit

Used to join horizontal units together for a sleek and unified installation. Consists of joint bracket and mounting parts.



### PA3XT, outlet extension

Outlet extension with telescopic function. Used for recessed installation of units in suspended ceilings. 130-200 mm.



### PA3DW, design kit for wall mounting

Used to conceal mountings, cables and pipes. Used together with ceiling brackets PA34WB.



### PA3DC, design kit for ceiling mounting

Used to conceal mountings, cables and pipes. The design kit has a telescope function that can be adapted for the installation. It can also be extended with one or more extension parts. Two design kits are required for 1 and 1.5 metre units, while 2 metre units need three kits and 2.5 metre units need four kits. Available in: small 200-300 mm, medium 300-500 mm, large 500-900 mm, extension 420 mm.

Item number	Type	Used for	Consists of
18044	PA34WB15	PAFEC3510/3515	2
18045	PA34WB20	PAFEC3520	3
18046	PA34WB30	PAFEC3525	4
214951	PAWBL15	PAFEC3510/3515	2
214952	PAWBL20	PAFEC3520	3
214953	PAWBL30	PAFEC3525	4
18059	PA34CB15	PAFEC3510/3515	4
18060	PA34CB20	PAFEC3520	6
18061	PA34CB30	PAFEC3525	8
18062	PA34WS15	PAFEC3510/3515	4
18063	PA34WS20	PAFEC3520	6
18064	PA34WS30	PAFEC3525	8
18056	PA34TR15	PAFEC3510/3515	4
18057	PA34TR20	PAFEC3520	6
18058	PA34TR30	PAFEC3525	8
18065	PA34VD15	PAFEC3510/3515	4

Item number	Type	Used for	Consists of
18066	PA34VD20	PAFEC3520	6
18067	PA34VD30	PAFEC3525	8
110759	PA3JK	PAFEC3500	1
19085	PA3XT10	PAFEC3510	1
19086	PA3XT15	PAFEC3515	1
19087	PA3XT20	PAFEC3520	1
19088	PA3XT25	PAFEC3525	1
110834	PA3DW10	PAFEC3510	1
110835	PA3DW15	PAFEC3515	1
110836	PA3DW20	PAFEC3520	1
110837	PA3DW25	PAFEC3525	1
13552	PADCS	PAFEC3500	1
13553	PA3DCM	PAFEC3500	1
13555	PA3DCL	PAFEC3500	1
13556	PA3DXT	PAFEC3500	1

## Pamir 3500

## Accessories - vertical mounting



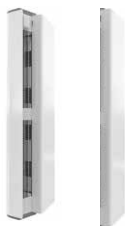
### PA3JK, vertical kit

Used to adapt a horizontal unit for vertical installation. Includes floor frame and mounting parts to support the top. Vertical kit allows two units to be installed on top of each other. One vertical kit is needed per unit.



### AXP300, collision protection

Floor placed protection against impact from e.g. shopping trolleys.



### PA3VDW, design kit for vertical mounting

Used to conceal cables and pipes.



### PA3HE, extension hood

Fills the space between the unit and the ceiling for vertical mounting and provides a neater installation. Height 100-2000 mm. **State distance between the top of the air curtain and the ceiling when ordering. A vertical kit is included.** PA3HEVDW: extension hood for units with design kit.

Item number	Type	Used for	Consists of
110759	PA3JK	PAFEC3510/3515/3520/3525	1
10028	AXP300	PAFEC3510/3515/3520/3525	1
110751	PA3VDW15	PAFEC3515	1
110752	PA3VDW20	PAFEC3520	1
110753	PA3VDW25	PAFEC3525	1
FE10244	PA3HE	PAFEC3510/3515/3520/3525	1
FE10246	PA3HEVDW	PAFEC3510/3515/3520/3525	1



Vertical mounted Pamir 3500 with a design kit used to hide pipes and cables.