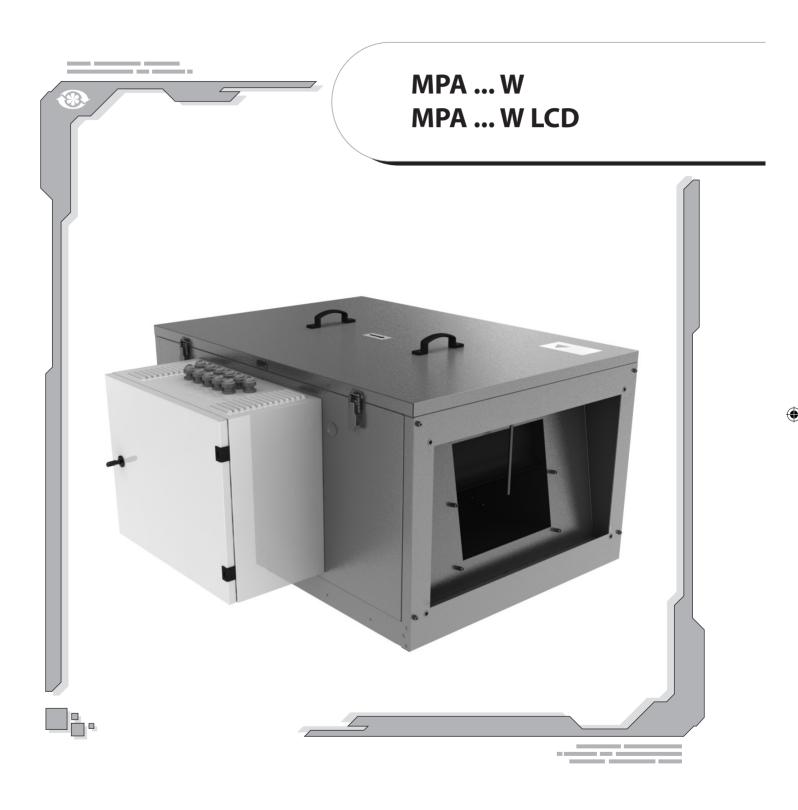


# **USER'S MANUAL**



# Single-block air supply unit with water heater





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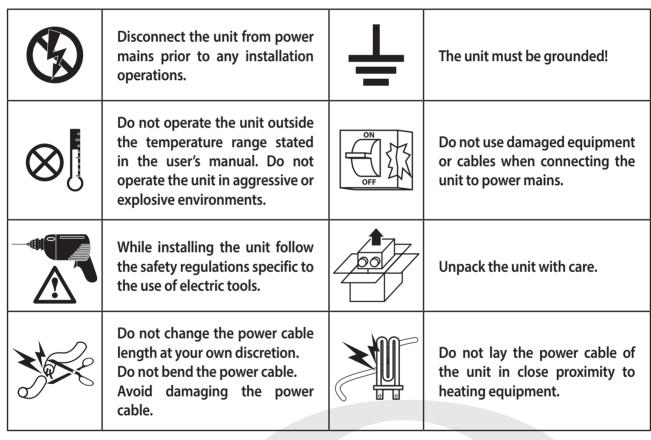
#### ■ SAFETY REQUIREMENTS

- Read the user's manual carefully prior to the operation and installation of the MPA...W / MPA...W LCD air supply unit.
- Fulfil the operation manual requirements as well as the provisions of all the applicable local and national construction, electrical and technical codes and standards.
- The warnings contained in the user's manual must be considered most seriously since they contain vital personal safety information.
- Failure to follow the safety requirements may result in an injury or unit damage.
- Read the manual carefully and keep it as long as you use the unit.
- While transferring the unit control the user's manual must be turned over to the receiving operator.

#### Symbol legend used in the manual:

$\triangle$	WARNING!			
$\otimes$	DO NOT!			

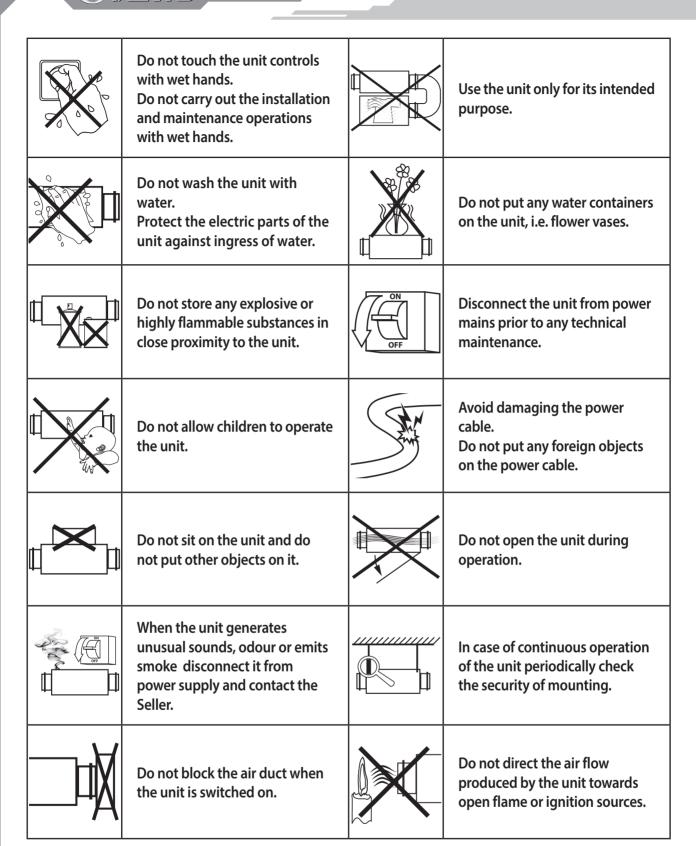
#### **UNIT MOUNTING AND OPERATION SAFETY PRECAUTIONS**

















#### ■ INTRODUCTION

The user's manual consisting of the technical details, operating instructions and technical specification applies to the installation and mounting of the MPA... W / MPA... W LCD air supply unit (hereinafter referred to as «the unit»).

#### **■** PURPOSE

The air supply unit is intended for supplying pre-heated outdoor air and cleaning it of any flammable or explosive substances, chemically active vapours, dust, soot etc. To ensure the necessary air quality the unit must be mounted in an enclosed dry space with ambient temperatures from +1 °C to +40°C.

The air supply unit is integrated into an air distribution system by connecting to rectangular air ducts. Alternatively it may be connected to round ductwork by means of the appropriate duct fittings available as special accessories.

The air supply unit is a component and, therefore, may not be commissioned for standalone operation.



THE UNIT IS NOT INTENDED TO BE USED BY CHILDREN, PHYSICALLY MENTALLY DISABLED PERSONS, **PERSONS** WITH **SENSORY PERSONS** DISORDER, WITH NO **APPROPRIATE** QUALIFICATION. ALL OPERATIONS WITH THE UNIT MUST BE PERFORMED ONLY BY PROPERLY QUALIFIED PERSONNEL AFTER THE APPROPRIATE SAFETY BRIEFING. THE UNIT INSTALLATION SITES MUST PREVENT ACCESS BY UNATTENDED CHILDREN.

# **■** DELIVERY SET

Air supply unit

User's manual

Instruction manual for the air supply unit control system (MPA ... W LCD)

Packaging

1 item

1 item

1 item

# **■** DESIGNATION KEY

# MPA X W LCD

Unit type

MPA – single-block air supply unit

Maximum air capacity, [m³/h]

800, 1200, 1800, 2500, 3200, 3500, 5000

Water heater availability

W - water type

Control unit availability





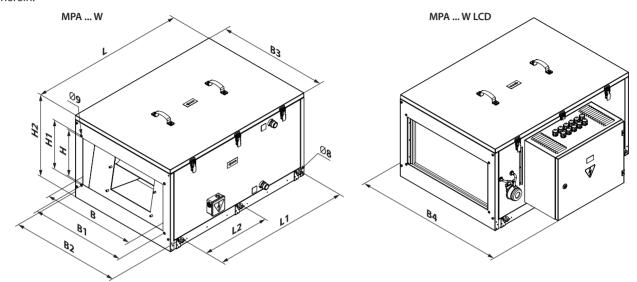


# **TECHNICAL DATA**

Hazardous parts access and water ingress protection:

- the air supply unit utilises IP 44 compliant motors (protection against bodies 1.0 mm in diameter or larger; splash-proof);
- the air supply unit installed in ducts is IP 22 compliant:
  - the assembly is protected against bodies larger than 12.5 mm in diameter;
  - the conductive parts are protected against accidental touch;
  - water drops falling at an angle up to 15° remain harmless the equipment.

The unit design undergoes continuous improvement - therefore, some models may slightly differ from the ones described herein.



Model	Overall and mounting dimensions, [mm]											
Model	В	B1	B2	В3	B4	Н	H1	H2	L	L1	L2	K
MPA 800 W / MPA 800 W LCD	400	420	549	500	674	200	220	352	650	530	-	G ¾"
MPA 1200 W / MPA 1200 W LCD	400	420	549	500	674	200	220	352	650	530	-	G ¾"
MPA 1800 W / MPA 1800 W LCD	500	520	649	600	775	250	270	480	800	680	-	G ¾"
MPA 2500 W / MPA 2500 W LCD	500	520	649	600	775	300	320	480	800	680	-	G ¾"
MPA 3200 W / MPA 3200 W LCD	600	620	759	710	1000	300	320	530	1000	880	440	G ¾"
MPA 3500 W / MPA 3500 W LCD	600	620	759	710	1000	350	370	530	1000	880	440	G ¾"
MPA 5000 W / MPA 5000 W LCD	800	820	971	925	1212	500	520	670	1299	720	360	G 1"

	Main technical data									
Parameter	MPA 800 W	MPA 1200 W	MPA 1800 W	MPA 2500 W	MPA 3200 W	MPA 3500 W	MPA 5000 W			
Supply voltage, V / 50 Hz		1~230 3~400Y			.00Y	3~400				
Number of water heating coils	4									
Total unit power, [kW]	0,245	0,41	0,49	0,65	1,2	1,8				
Total unit current, [A]	1,08	1,8	2,15	2,84	2,3 4,5			2,3		4,5
Max. air capacity, [m³/h]	750	1200	1870	2150	3000	3250	6500			
Rotation speed, [min-1]	1650	1850	1100	1000	1200 1400					
Sound pressure at 3 m, [dB(A)]	35	38	40	45	53					
Maximum transported air temperature, [°C]	from -40 to +45									
Casing material	Aluzinc									
Insulation	25 mm, mineral wool									
Filter	- G4									
Connected air duct size, [mm]	400	x200	500x250	500x300	600x300	600x350	800x500			
Weight, [kg]	42 (45)	43 (46)	62,5 (62,5)	63 (63)	90 (101)	90 (101)	136 (136)			

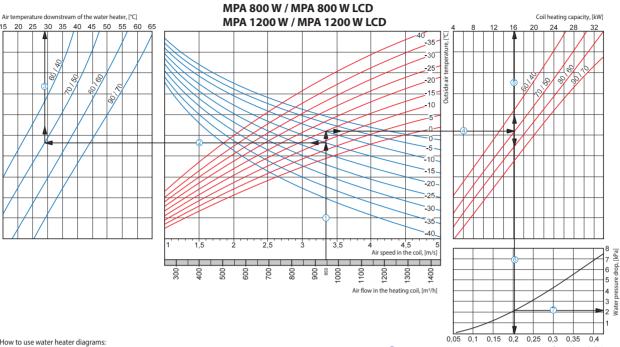
The weight of the MPA... W LCD series units featuring a control unit is given in parentheses while the rest of the parameters are identical for the MPA ... W and MPA ... W LCD series.







#### **WATER HEATER DIAGRAMS**

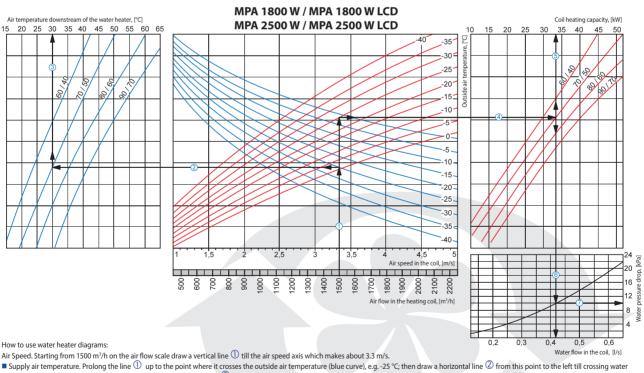


Air Speed. Starting from 950 m³/h on the air flow scale draw a vertical line (1) till the air speed axis which makes about 3.35 m/s ①.

- Supply air temperature. Prolong the line ① up to the point where it crosses the outside air temperature (blue curve), e.g. -15 °C; then draw a horizontal line ② from this point to the left till crossing water
- Juppy an temperature. Proford the line ② up to the point where it crosses the outside air temperature (blue Curve), e.g. -13 °C, then draw a horizontal line ② from this point to the left until crossing water in/out temperature curve (70/50 °C). From this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ③ up to the scale representing the heating coil capacity (16.0 kW).

   Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (0.2 l/s).

   Water pressure drop. Draw the line ⑥ from the point where the line ⑥ crosses the black curve to the pressure drop axis. (2.1 kPa).



- Supply air temperature. Prolong the line ② up to the point where it crosses the outside air temperature (blue curve), e.g. -25 °C; then draw a horizontal line ② from this point to the left full crosses water in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+30 °C).

   Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -25 °C (red curve) and draw a horizontal line ② from this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ③ up to the scale representing the heating coil capacity (33.0 kW).

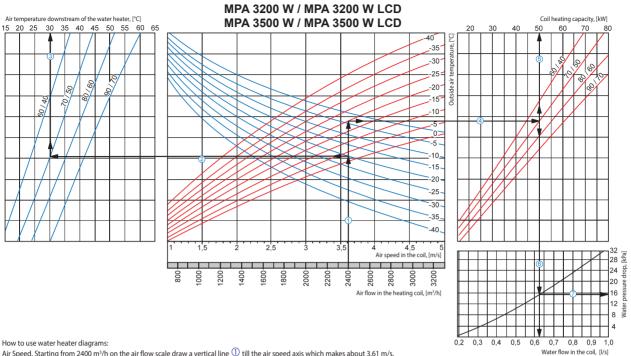
   Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (0.42 l/s).

   Water pressure drop. Draw the line ⑦ from the point where the line ⑥ crosses the black curve to the pressure drop axis. (10.0 kPa).





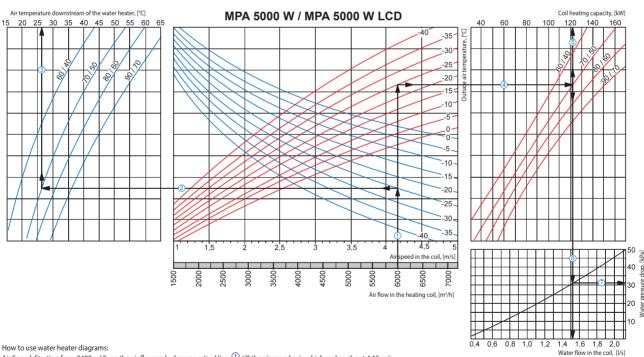




Air Speed. Starting from 2400 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 3.61 m/s.

- Supply air temperature. Prolong the line ① up to the point where it crosses the outside air temperature (blue curve), e.g. -20 °C; then draw a horizontal line ② from this point to the left till crossing water
- in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+30 °C).

  Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -20 °C (red curve) and draw a horizontal line ② from this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (50.0 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (0.62 l/s).
   Water pressure drop. Draw the line ⑦ from the point where the line ⑥ crosses the black curve to the pressure drop axis. (15.0 kPa).



Air Speed. Starting from 2400 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 4.15 m/s.

Supply air temperature. Prolong the line ① up to the point where it crosses the outside air temperature (blue curve), e.g. -25 °C; then draw a horizontal line ② from this point to the left till crossing water in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+27 °C).

Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature axis on top of the graphic (+27 °C).

temperature curve (70/50 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (121.0 kW).

Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (1.52 l/s).

Water pressure drop. Draw the line ⑦ from the point where the line ⑥ crosses the black curve to the pressure drop axis. (31.0 kPa).







#### DESIGN AND OPERATING LOGIC

MPA W / MPA W LCD are the complete air supply units which ensure filtering, pre-heating and supply of fresh outdoor air into the serviced spaces. The units fit rectangular air ducts with nominal size of 400x200, 500x250, 500x300, 600x300, 600x350 and 800x500 mm.

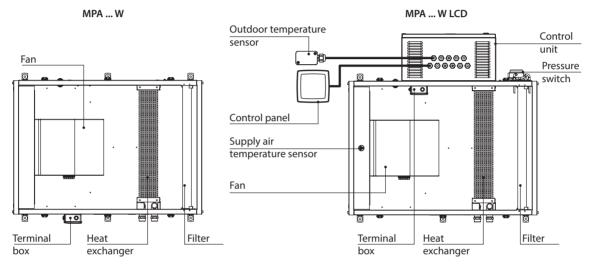
The steel casing has a protective aluzinc coating and a 25 mm mineral wool layer for heat and sound insulation.

The built-in G4 filter ensures high-quality purification of the supply air.

During the winter time and the off-season the supply air is pre-heated by means of a water (glycol) heater. The water heaters are rated for maximum operating pressure of 1.0 MPa (10 bar) and maximum heat medium temperature of +95 °C.

The air supply unit features a double-inlet type centrifugal fan with forward bent blades and a built-in protection thermostat which restarts automatically. The electric motor and impeller of the fan undergo two-plane dynamic balancing. The ball bearings of the electric motor are completely maintenance-free with a minimum service life of 40,000 hours.

MPA ... W LCD features an automatic control system (ACS). The ACS provides comprehensive control of the air supply unit and adjustment of the vital parameters of ventilation and air conditioning systems. The control units of MPA 800 W LCD ... 2500 W LCD series units are housed in plastic casings while those of the MPA 3200 W LCD ... MPA 5000 W LCD series units have metal casings. The control unit casing incorporates automatic equipment circuit board as well as control and protective elements of the power components.



# **■** MOUNTING AND SET-UP



DISCONNECT THE UNIT FROM THE POWER SUPPLY PRIOR TO ANY OPERATIONS. THE ELECTRIC MAINS CONNECTION MUST BE PERFORMED BY A PROFESSIONAL ELECTRICIAN. THE RATED ELECTRICAL PARAMETERS OF THE UNIT ARE STATED ON THE MANUFACTURER'S LABEL.



THE UNIT MUST BE MOUNTED BY A QUALIFIED EXPERT ONLY, PROPERLY TRAINED AND HAVING THE REQUIRED TOOLS AND MATERIALS.

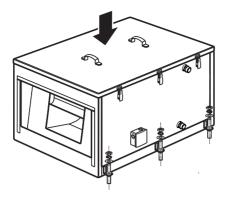
The unit must be installed in such a way so that the direction of the arrow shown on the lid matches the direction of air flow in the system. The unit mounting locations must enable adequate access to the removable lid for maintenance, technical service and replacement operations.

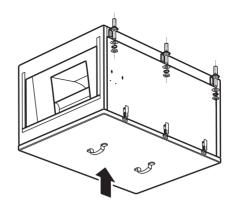
The unit can be mounted or suspended with threaded rods. The air supply unit must be secured in such a way so as to entirely prevent its disconnection or collapse (in consideration of the unit weight and the mating surface material) using all the available L-shaped support brackets with vibration dampers attached to the air supply unit base.











The air supply unit is designed to fit rectangular air ducts.

- To avoid noise transfer and accidental vibrational motion the air ducts should be connected via a flexible insert.
- The mounting dimensions of the mated air duct must match those of the air supply unit.

To maximise the unit performance and reduce the aerodynamic losses due to air flow turbulence the unit should be preceded and followed by straight duct sections.

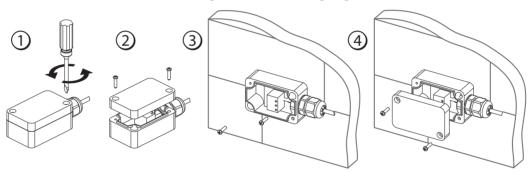
Minimum recommended straight section length:

- 1 air duct diameter on the intake side (or at least one diagonal of the air channel section for a rectangular duct);
- a diameters on the exhaust side (or at least three diagonals of the air duct section for a rectangular duct). If the air ducts on one or several unit pipe fittings are not available or too short the unit internals must be covered with a protective grille or other similar device with a minimum cell size of 12.5 mm restricting access to the fan to prevent any foreign objects.

#### TE1 outdoor temperature sensor installation

The air supply unit is equipped with an external temperature sensor.

- 1. Undo the two screws securing the sensor cover.
- 2. Remove the sensor cover.
- 3. Install the sensor on the outside surface of the wall. The wall must not be subject to direct sunlight.
- 4. Re-install the sensor cover.
- 5. Connect the sensor to terminal block X1 according to the external wiring diagram.

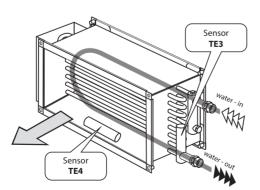


P1 control panel installation (see ASC Instruction Manual -> control panel installation).

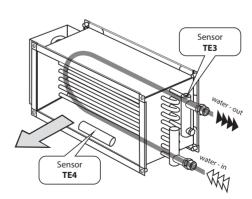
The return heat medium temperature sensor TE3 protects the water heating coils from freezing. The sensor is mounted inside the return water pipeline in such a way so that to ensure its sufficient contact with the pipe surface.

The water heater freezing protection sensor TE4 is mounted on the water heater surface on the warm air exhaust outlet side and measures the air temperature downstream of the water heating coils.





# Direct flow connection

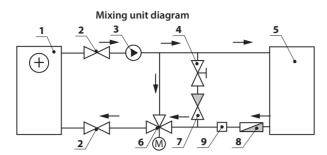


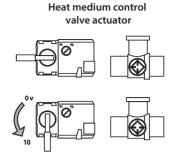






The heating water circuit must ensure all the required functions specific to the water heater control and safety in addition to maintaining the proper hot water temperature and heat medium flow according to the specifications contained in the design documentation.





- 1. Water heater
- Shutoff ball valves.
- 3. Circulation pump.
- 4. Bypass damper.
- 5. Boiler.
- 6. Heat medium control valve.
- 7. Non-return valve.
- 8. Coarse filter.
- 9. Water pressure sensor (NC).

The supply air temperature sensor TE5 is installed downstream of the water heater (along the air flow stream) and provides supply air temperature regulation.

The filter pressure switch PD1 is installed in such a way that the relay negative input (-) is placed in the lower pressure area (i.e. downstream of the filter along the air stream) by means of a tube whereas the positive input (+) - in the higher pressure area (i.e. upstream of the filter along the air stream). The pressure differential value on the pressure switch must correspond to the maximum pressure differential on a contaminated filter (250 Pa).

# CONNECTION TO ELECTRIC MAINS



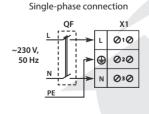
# ANY TAMPERING WITH THE INTERNAL CONNECTIONS IS PROHIBITED AND WILL VOID THE WARRANTY.

The air supply unit is designed for an AC electric mains:

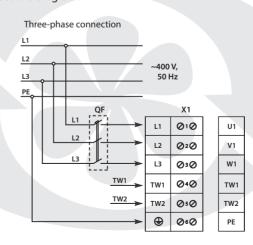
- 230 V / 50 Hz single-phase for MPA 800 W ... 2500 W / MPA 800 W ... 2500 W LCD;
- 400 W / 50 Hz three-phase for MPA 3200 W ... 5000 W / MPA 3200 W ... 5000 W LCD.

The unit connection must be made using durable, insulated and heat-resistant conductors (cables and wires) with the minimum section of 1 mm2. The conductors are routed to the terminal box and the control unit through sealed lead-ins. The air supply unit is connected to the electric mains via an automatic cut-out switch with a magnetic breaker built into the stationary wiring. The minimum cut-out switch trip current must higher than the rated current consumption of the unit. The QF external switch location must ensure free access for quick shutdown of the air supply unit. The protection trip current must be consistent with the current consumption of the air supply unit.

MPA ... W air supply units are connected via terminal block X1 inside the terminal box in accordance with the terminal designations given inside the terminal box and the connections diagram:



QF – automatic circuit breaker (to be purchased separately); X1 – terminal block.

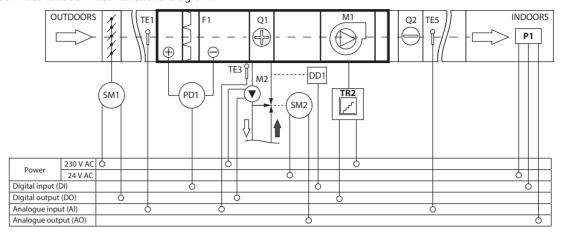




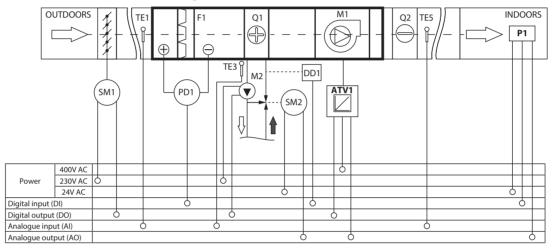


MPA ... W LCD air supply units are connected via the terminal block inside the control unit in accordance with the external connections diagram and the terminal designations (see the ACS Instruction manual -> MPA ... W external wiring diagram):

MPA 800 W LCD ... 2500 W LCD functional diagram:



MPA 3200 W LCD ... 5000 W LCD functional diagram:



# **UNIT CONTROL**

The air supply unit is controlled by means of the control unit (see the ACS instruction manual -> air supply unit control).









#### **■** MAINTENANCE



DISCONNECT THE UNIT FROM POWER MAINS PRIOR TO ANY MAINTENANCE OPERATIONS.



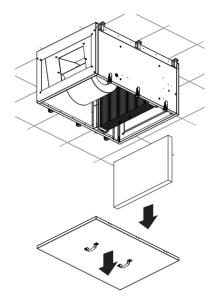
AVOID FREEZING OF THE WATER HEATER! WATER FREEZING IN THE WATER HEATING COILS LEADS TO THE DEFORMATION AND BREACH OF THE COPPER TUBES AND RESULTS IN THE WATER OUTFLOW AND THE HEATER MALFUNCTION.

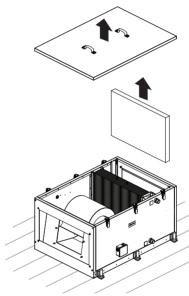
Maintenance operations of the unit are required 3-4 times per year. Maintenance includes regular cleaning and the following operations:

#### Filter maintenance.

Filter cleaning:

- Pull the cover to detach it from the metal clamps.
- Pull the filters to remove.





Dirty filters increase air resistance in the system and reduce supply air volume. The filters require cleaning as required, in any case not less than 3-4 times per year. Vacuum cleaning is allowed. After two consecutive cleanings filters must be replaced. Contact the unit Seller to purchase new filters.

#### Fan maintenance (once per year).

Even in case of regular maintenance of the filters, some dust may accumulate inside the fan and reduce the fan performance and supply air flow.

Clean the fan with a soft brush or cloth. No water and abrasive detergent, sharp objects or solvents are allowed for cleaning to prevent the impeller damage.

# ■ STORAGE AND TRANSPORTATION REGULATIONS

Store the unit in the manufacturer's original packing box in a dry ventilated premise at ambient temperatures from  $+5^{\circ}$ C up to  $+40^{\circ}$ C. Storage environment must not contain aggressive vapours and chemical mixtures provoking corrosion, insulation and sealing deformation

Use suitable hoist machinery for handling and storage operations to prevent possible damage to the unit. Follow the handling requirements applicable for the particular type of cargo.

The unit can be carried in the original packing by any mode of transport provided proper protection against precipitation and mechanical damage.

Avoid sharp blows, scratches or rough handling during loading and unloading.







#### MANUFACTURER'S WARRANTY

The manufacturer hereby warrants normal operation of the unit for 24 months after the retail sale date provided the user's observance of the transportation, storage, mounting and operation regulations.

Should any malfunctions occur in the course of the unit operation through the Manufacturer's fault during the guaranteed period of operation the user is entitled to elimination of faults by the manufacturer by means of warranty repair at the factory free of charge.

The warranty repair shall include work specific to elimination of faults in the unit operation to ensure its intended use by the user within the guaranteed period of operation. The faults are eliminated by means of replacement or repair of the unit components or a specific part of such unit component.

#### The warranty repair does not include:

- · Routine technical maintenance;
- Unit installation / dismantling;
- Unit setup.

To benefit from warranty repair the user must provide the unit, the user's manual with the purchase date stamp and the payment document certifying the purchase.

The unit model must comply with the one stated in the user's manual.

Contact the Seller for warranty service.

#### The manufacturer's warranty does not apply to the following cases:

- User's failure to submit the unit with the entire delivery package as stated in the user's manual including submission with missing component parts previously dismounted by the user.
- Mismatch of the unit model and the brand name with the information stated on the unit packing and in the user's manual.
- · User's failure to ensure timely technical maintenance of the unit.
- External damage to the unit casing (excluding external modifications as required for installation) and internal components caused by the user.
- Redesign or engineering changes to the unit.
- Replacement and use of any assemblies, parts and components not approved by the manufacturer.
- Unit misuse
- User's violation of the unit installation regulations.
- User's violation of the unit control regulations.
- Unit connection to the power mains with a voltage different from the one stated in the user's manual.
- Unit breakdown due to voltage surges in the power mains.
- Discretionary repair of the unit by the user.
- Unit repair by any persons without the manufacturer's authorization.
- Expiration of the unit warranty period.
- User's violation of the unit transportation regulations.
- User's violation of the unit storage regulations.
- Wrongful actions against the unit committed by third parties.
- · Unit breakdown due to circumstances of insuperable force (fire, flood, earthquake, war, hostilities of any kind, blockades).
- · Missing seals if provided by the user's manual.
- Failure to submit the user's manual with the unit purchase date stamp.
- · Missing payment document certifying the unit purchase.



FOLLOWING THE REGULATIONS STIPULATED HEREIN WILL ENSURE A LONG AND TROUBLE-FREE OPERATION OF THE UNIT.



USERS' WARRANTY CLAIMS SHALL BE SUBJECT TO REVIEW ONLY UPON PRESENTATION OF THE UNIT, THE PAYMENT DOCUMENT AND THE USER'S MANUAL WITH THE PURCHASE DATE STAMP.







# ■ ACCEPTANCE CERTIFICATE

	ECERTIFICATE							
Unit Type	Single-block air supply unit with water heater							
Model			MPA	W W LCD				
Serial Number								
Manufacture Date								
«We hereby declare Directive 2004/108/EC, the app		s with the age Direct the Memb	e essential p ive 2006/95 per States re	rotection requirements of /EC, 73/23/EEC and CE-m lating to electromagnetic	of Electromagnetic Council narking Directive 93/68/EEC on c compatibility.			
Quality Inspector's Stamp								
■ SELLER INFO	RMATION							
Seller								
Address								
Phone Number					]/			
E-mail					<b>」</b>			
Purchase Date					] \			
					$_{\perp}$ $^{\prime}$			
This is to certify accepta terms are acknowledged	nce of the complete unit and accepted.	delivery	with the us	er's manual. The warrant	y ····································			
Customer's Signature								
■ INSTALLATIO	ON CERTIFICATE							
The single-block air si	upply unit with water hea	ter			7			
The single block all s		MPA_	W	1				
has been connected to	D power mains pursuant to th		W nents stated i		47 A			
Company Name		<u> </u>		The present ase, smarrau	<del>"</del>			
Address					┪.			
Phone Number					11 /			
Installation					┪ ҉			
Technician's Full Name					Installation			
Installation Date:	!	Signature	<b>:</b> :		Company Stamp			
	•				_			
	stalled in accordance with ectrical and technical code cturer.							
Signature:								
■ WARRANTY	CARD							
Unit Type	The single-blo	ock air sup	ply unit wit	n water heater				
Model		MPA_	w	LCD				
Serial Number					1/			
Manufacture Date					7			
Purchase Date								
Warranty Period								
Seller					,			
					Seller's Stamp			

**(** 









