



**WEGER**  
air solutions

# Mundaria

THE NEW SERIES OF AIR-CONDITIONING UNITS  
FOR OPERATING THEATRES

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AIR-CONDITIONING UNITS FOR OPERATING THEATRES





„Munda“ is the Latin definition for clean, pure and „aria“ is the Italian word for air. Therefore the new range of air-conditioning units for operating theatres by WEGER bear the descriptive name „Mundaria“. These are the two concepts that best describe the elementary functionality of this new device design. For the last 30 years Weger has been “treating” air. For good reason the company is known and estimated worldwide for being a specialized manufacturer of high quality air handling products. There is no need to say that no compromises can be made on the cleanliness of air conveying installations in the hygiene sector. Consequently no better appellation than **Mundaria** may describe the functionality and quality execution of this product.

The air-conditioning series **Mundaria** is based on the latest version of the Weger housing construction known by the name of DIWER EVO. This design is the result of the continuous development towards improvement of thermal insulation, sound absorption and leakage reduction. This is shown by laboratory test results, conducted by independent TÜV institute.

The measurement results nearly reach the highest values identified by the European standard EN 1886:

- > Heat transmission coefficient class T2
- > Heat bridges factor class TB2
- > Leakage over housing class L1
- > Enclosure deflection class D2 with mineral wool/class D1 with PUR foam
- > Sound reduction index RW = 33 dB

These values speak for itself and reassure customers and operators to have taken the right decision choosing a MUNDARIA air-conditioning device from Weger.



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TERMINAL BLOCKS WITHOUT SCREW CONNECTIONS  
GUARANTEE A HIGH DEGREE OF AIR TIGHTNESS





The enclosure of the DIWEREVO series is as follows: massive construction consisting of double-walled panels, which are placed in the frame and fixed with the well known terminal blocks without screw connection. Thus, a full support of the panels inside the frame is achieved guaranteeing a high degree of air leak tightness. This system, without screws or rivets, meets the highest servicing standards and ease of maintenance, since all panels can be dismantled without special tools if necessary. The frame is made of anodised aluminium with a dimension of 65 mm and has a thermal separation by means of plastic bridge. The frames are connected via plug-in connection and linked with the corners, available in plastic or either die-cast aluminium, by means of the unique axial screw connections. Double-walled panels are provided as standard in stainless steel and with a plastic coating on the outside. The panels have a thickness of 40 mm and are filled with mineral wool for thermal and acoustic insulation. Alternatively, the panels can be equipped also with rigid polyurethane foam. The doors are delivered in the same finish as the panels, but fixed with three-dimensional adjustable hinges. The locking system can be either a door handle or a lockable clasp. On the pressure side of the fan, a standard safety protection is mounted to minimize the risk of injury. In general, the materials used meet the highest requirements in terms of hygiene and corrosion resistance. Apart from the mechanical properties, the relevant points of the DIN standards 1946 part 4, EN 13053 and EN 13779 are met. Through the

use of built-in components that meet the highest technical and quality levels, one of the most economical standard devices that can be found on the market is available at your choice. Thanks to generously designed inspection openings and doors easy access and comfortable maintenance and cleaning are possible.





## STATE OF THE ART TECHNOLOGY GUARANTEES

### A TROUBLE-FREE OPERATION



The air-conditioning units of the MUNDARIA series have been especially designed for highest demands on hygienic safety of air treatment systems. This may be appropriate, for example, in the following cases:

- > Surgical clinics
- > Emergency treatment in first aid rooms
- > Operating theatres of general medicine
- > Experimental laboratories requiring constant air conditions
- > Clean rooms
- > Production process areas in biotechnology
- > Sterilization areas
- > Intensive care stations
- > Autopsy rooms and storage halls



State of the art components guarantee a trouble-free operation of the system and the intelligent control always finds automatically the most economical operating point depending on the requirements of use. Following information are available in detail:

#### MULTI-LEAF DAMPER

Airtight multi-leaf damper built according to the German/European standard DIN 1946/4 and DIN EN 1751 from aluminium with integrated plastic gears within the framework. As a consequence a simple bearing is guaranteed and the gears remain fully protected against dirt. Because of the innovative design of the flap inside the framework no great effort is required for the replacement of a single gear or bearing part. There's no need to replace the complete flap in the event of failure. A protruding control axis enables a simple installation and if necessary operation or maintenance of the servo-motor. It is part of the standard equipment of the system and comes in a "continuously variable" version. A simple hand-fixing device can be supplied on request. On the aspiration and exhausting side the flaps are positioned to optimally protect the interior of the air-handling unit from dirt, impurities and contamination.

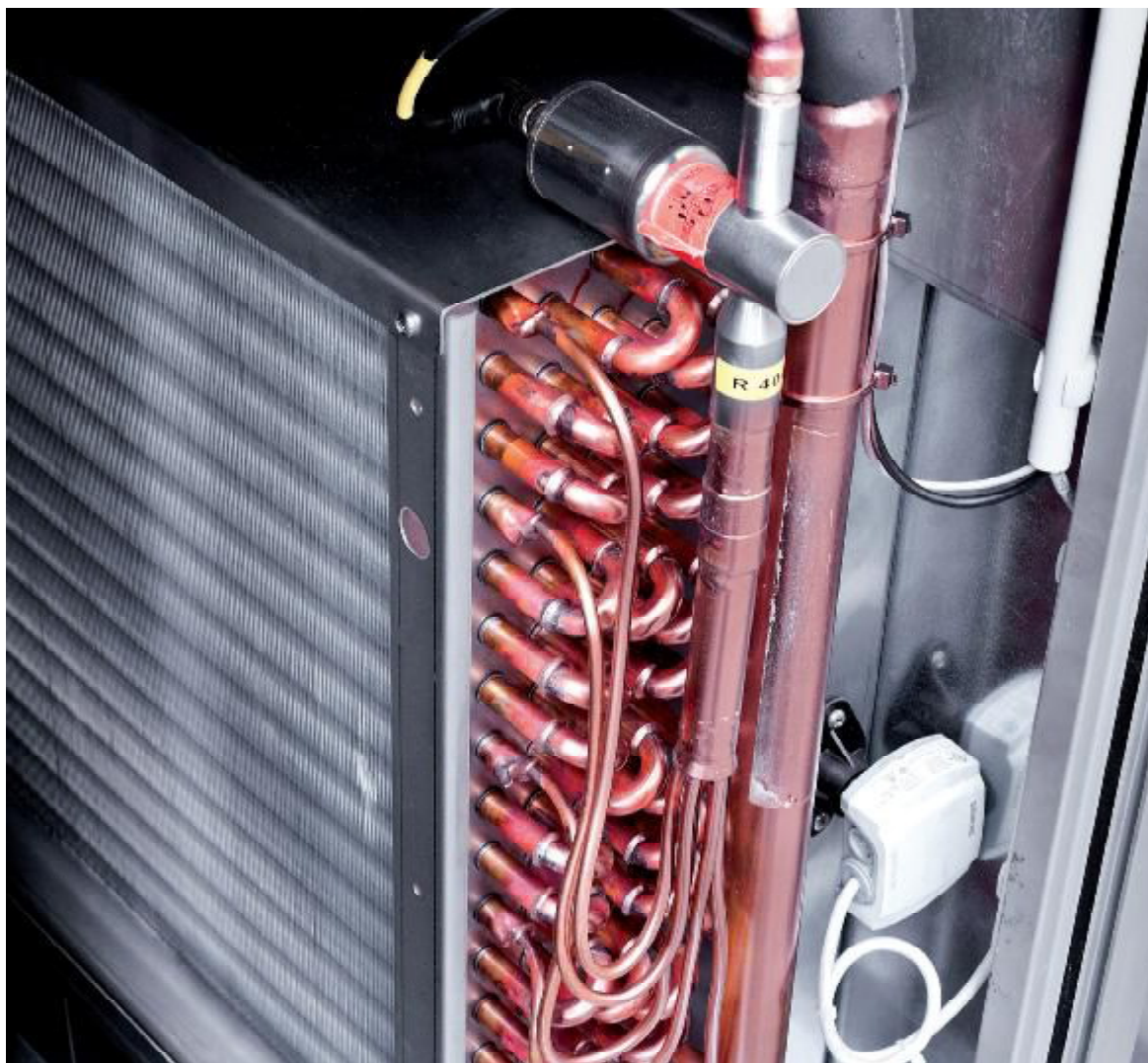
Should a project-related air recirculation be allowed or requested, a standard recirculating multi-leaf damper shall be integrated in the control system and work in relation to the requirements of the area to be treated.

#### FILTER

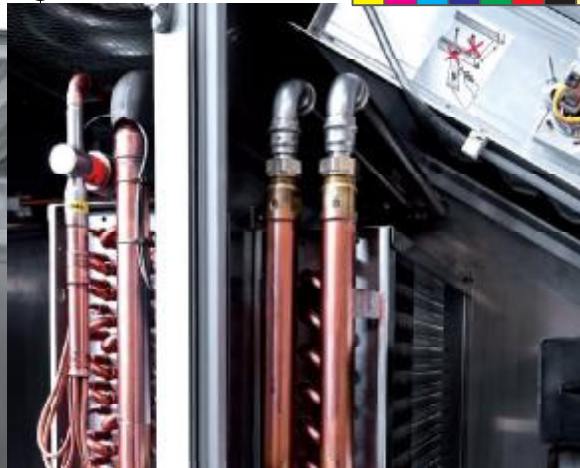
Bag filters with stable pockets and extremely large filter surface to increase efficiency and durability. On the aspiration and the exhausting side a class F6 filter is installed as a standard pre-filter, while a secondary class F9 filter is mounted on the supply air side. The fixing of the filters is done through a specially developed fixing system, that ensures friendly maintenance on the dust-air side.



HIGHLY EFFICIENT IN OPERATION AND  
COST-EFFECTIVE TO PURCHASE







## FANS

Single-sided suction fans free-wheel-type „Plug fan“ with high efficiency motor, equipped with the last generation of EC technology that already meets the standards of the ErP2015 directive. Motors with such technology have built in electronic commutator modules wherefore a frequency converter is unnecessary, since the speed control may be set via a simple potentiometer. Therefore, the benefit of high-energy efficiency not only lies in the operation, but already in the purchase cost. Another advantage is the almost constant efficiency of the fan also in partial-load operation. The manufacturer promises an operating time of approximately 40,000 hours, without significant maintenance intervals.

## HEAT EXCHANGING SYSTEM "HEATING"

Finned heat exchanger consisting of seamless copper tubes and high-performance fins from coated aluminium. For best heat transmission the copper tubes are mechanically expanded and tightly connected to the fins. The test pressure is 30 bar. The special fixing of the exchanger package within the framework impedes thermally induced stresses between the frame and copper tubes. The air con-

ditioning units of the MUNDARIA series have a standard 3-way mixing valve including servo-motor and circulating pump for supply.

## HEAT EXCHANGING SYSTEM "COOLING"

Design of heat exchangers as previously described, except for the cooling system, that is implemented using an integrated refrigerant circuit. Direct evaporator connected to compressor of „digital scroll“ kind for a continuous regulation of the supplied air temperature according to customer-specific requirements, respectively by the temperature adjustment control. The system has an electronic expansion valve to reach highest COP values at low energy costs.



## LONG SERVICE LIFE OF THE SYSTEM - REDUCED CAPITAL AND OPERATING COST



### REFRIGERATION

#### Refrigerant compressor:

The Copeland Scroll Digital™ stands for continuous power regulation. CoreSense™ Diagnostics for extended protection, diagnosis and preventive maintenance. Steam injection or sound insulation enclosure by Emerson, are the right tools for manufacturers, installers and consumers to reduce the CO<sub>2</sub>-balance of the equipment and to optimize system design, efficiency, noise and reliability. At the same time a long service life of the equipment can be ensured and the capital and operating costs will be reduced.

#### Features:

- > High energy efficiency during the whole year, since the geometry of the Copeland scroll spiral is construed for operating conditions, under which the systems are run throughout the year
- > Easy continuous power control with the use Copeland scroll
- > Digital technology for continuous, step-less control from 10 to 100 %
- > Compact design and up to 50% less weight compared with semi-hermetic technologies





- > Robustness and reliability thanks to Compliant scroll mechanism
- > Silent and smooth operation, especially when using the sound insulation housing by Emerson for a noise reduction up to 10 dBA
- > Extended protection, diagnosis and preventive maintenance with CoreSense Diagnostics
- > One model for all HFCs-containing refrigerants and thus reduction of the several models required for applications in the field of refrigeration technology

#### Control:

Emerson EC3 are electronic overheating controllers for air conditioning, refrigeration and industrial applications. They are universally suitable for different refrigerants and controlling valves and may be used in single operation. The typical applications include water chillers, industrial process cooling, rooftop air conditioning units, heat pumps, air conditioning technology for air-handling units, compact refrigerators, refrigerators for computing facilities, cold storage rooms, industrial food processing and air dryers.

#### Features:

- > Adapting overheat control in conjunction with the step motor controlled valves
- > Evaporation pressure limiter
- > Too high or too low overheat alarm
- > Low pressure switch - function with alarm
- > Transmission of the 4-20mA signal of the pressure transmitter to control of additional controllers with one pressure transmitter only
- > Monitoring of sensors and connections, detection of sensor and connection defects
- > Intelligent alarm management for guaranteeing compressor protection and safe operation
- > Built-in, interruption-free power supply shuts off the control valve in case of power black-out
- > Electrical connections via pluggable screw terminals
- > Solid aluminium enclosure for DIN rail mounting
- > Overheating control of conventional evaporators such as tube bundle evaporators, plate heat exchangers, air coolers.



A HIGH-QUALITY  
AND FUTURE-PROOF CONTROL

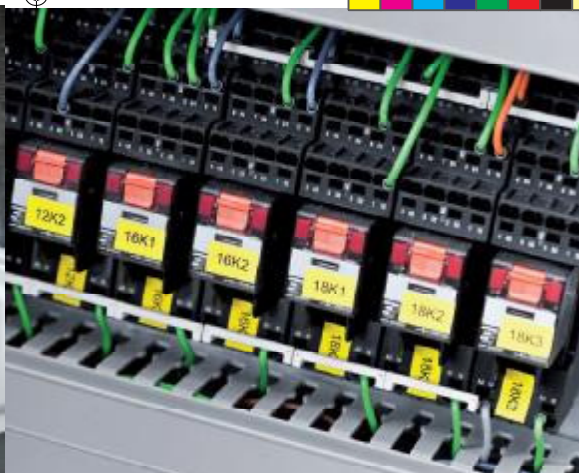


**Mundaria**

AIR-CONDITIONING UNITS FOR OPERATING THEATRES







## CONTROLLER *imperia*<sup>3</sup>

With the *imperia*<sup>3</sup>, operating the unit is easy. The high quality and future-proof control offers several key benefits, such as the platform-independent programming. The controller corresponds to the current version of IEC 61131 and on the hardware side, is already executed with all the necessary components in the maximum stage of expansion so an upgrade of the basic unit with the available additional components is possible without the need of extension. All components are mounted on a mounting plate (motherboard) which is integrated in the unit and thus easily accessible for maintenance purposes. For operating the controller, a colour touch screen (size 4.3", 256 colours) is recessed mounted at a comfortable working height in housing panel. The representation which is freely selectable (graphical or schematical) of all measurement data and control signals, ensures easy and intuitive operation by means of index cards, symbols and texts. The configurations of all aggregates and unit equipment can be done directly on the display. All inputs and outputs can be simulated. The software has several password levels (customer, service technicians, manufacturer), so that ultimate protection against vandalism is guaranteed. All configurations and alarms are saved in history and can be displayed. Software updates can be carried out via the USB interface.

The logic of the control adapts to the specific needs of the premises to be supplied. To avoid contamination of the operating rooms, as well as to prevent any kind of contamination through adjoining rooms of lower hygiene class, the control administers the systems by measuring the differential pressures of the main room compared to the adjoining rooms. The amount of incoming air is kept constant and the pressure ratio is controlled through the exhaust air reduction so that the area to be checked has a higher pressure ratio and thus avoids penetration of particles.

The standard configuration of the *imperia*<sup>3</sup> control is set to offer the temperature and humidity control functions. Integrated cooling and heating circuit are controlled in the same way.





HIGH-EFFICIENCY WET ROTOR PUMP WITH  
PERMANENT MAGNET MOTOR





## PUMP AND PIPING

high-efficiency wet rotor pump with permanent magnet motor (ECM technology) and integrated electronic performance adjustment through step-less speed change to the conveyance of pure, low-viscosity substances without solid or fibrous components.

### > Features and product advantages:

Compact design, ideal alternative for unregulated pump in constant applications with constant flow rate such as boiler charging, low energy consumption thanks to energy-efficiency class A, available also in 130 mm length, speed controlled pump complies with the requirements of the Energy Saving Regulations (EnEV) §14(3) and the EuP directive, regulated or fixed speed, easy positioning through "soft-touch", setting of the control mode and control curve through "soft-touch", easy electrical connection through ALPHA connector, slotted tube, bearing plate and rotor cap out of stainless steel, no external motor protection required thanks to stalling-current-proof, single-phase motor.

### > Fluid substance:

water temperature 2-110° C Substance temperature: 60 ° C density: 983.2 kg/m<sup>3</sup> kinematic viscosity: 1 mm<sup>2</sup>/s

### > Technical data:

actual flow capacity of the pump: 0.536 m<sup>3</sup>/h actual pumping height: 1.36 m temperature class: 110 test mark on the model plate: VDE, GS, CE

### > Materials:

Pump housing: cast iron pump housing: EN-JL 1020 pump housing: ASTM A48-25 B running wheel: composite, PP

### > Installation: ambient

ambient temperature: 0-40° C max. operating pressure: 10 bar nominal width: G 1 nominal pressure (bar): PN 10 mounting length: 130 mm

### > Electric data:

power consumption P1: 0,05-22 W max. power consumption: 0,05-0.19 A mains frequency: 50 Hz nominal voltage: 1 x 230 V protection class (IEC 34-5): 42-isolation class (IEC 85): F

### > Others:

net weight: 1.9 kg gross weight: 2.1 kg Energielabel A

### > Optional Humidifier

A steam humidification system with diving electrodes may be installed on request. If necessary, the steam generator comes complete with accessories such as distributor lance, steam hose, etc.



## TECNICAL DATA

**SERIE PT-KV-B**

type	parts	length (L)	width (B)	height (H)	base (F)	weight	duct connections	
							width	height
PT-49-KV-B-V1	1	2800	1011	2200	80	1160	915	567
PT-59-KV-B-V1	1	2800	1011	2200	80	1190	915	567
PT-67-KV-B-V1	1	2800	1316	2300	80	1390	1220	567
PT-81-KV-B-V1	1	2800	1316	2300	80	1420	1220	567
PT-104-KV-B-V2	1	2800	1926	2300	80	1920	1830	567

type	air volume	engine power kw		SFP value		sound power level db(A)	
		supply	exhaust	supply	exhaust	supply	exhaust
PT-49-KV-B-V1	2400	1 kw	1 kw	3	3	83.8	80.7
PT-59-KV-B-V1	3500	1,7 kw	1,7 kw	4	3	86.9	83.3
PT-67-KV-B-V1	4500	3 kw	3 kw	4	3	89.9	86.9
PT-81-KV-B-V1	6500	5,37 kw	2,73 kw	4	4	92.9	87
PT-104-KV-B-V2	11500	5,37 kw	2,73 kw	3	2	93.5	87

pre heating coil		post heating coil		cooling coil		run around coil syst.
in/out	pump power	in/out	pump power	in/out	power	efficiency
70/50	Alpah2L 15-40 5-22W	70/50	Alpah2L 15-40 5-22W	`7/13	18 kw	45-50 %
70/50	Alpah2L 15-40 5-22W	70/50	Alpah2L 15-40 5-22W	`7/13	25,5 kw	45-50 %
70/50	Alpah2L 15-40 5-22W	70/50	Alpah2L 15-40 5-22W	`7/13	32,2 kw	45-50 %
70/50	Alpah2L 15-40 5-22W	70/50	Alpah2L 15-40 5-22W	`7/13	46,2kw	45-50 %
70/50	Magnus 25-40 10-37W	70/50	Magnus 25-40 10-37W	`7/13	82 kw	45-50 %

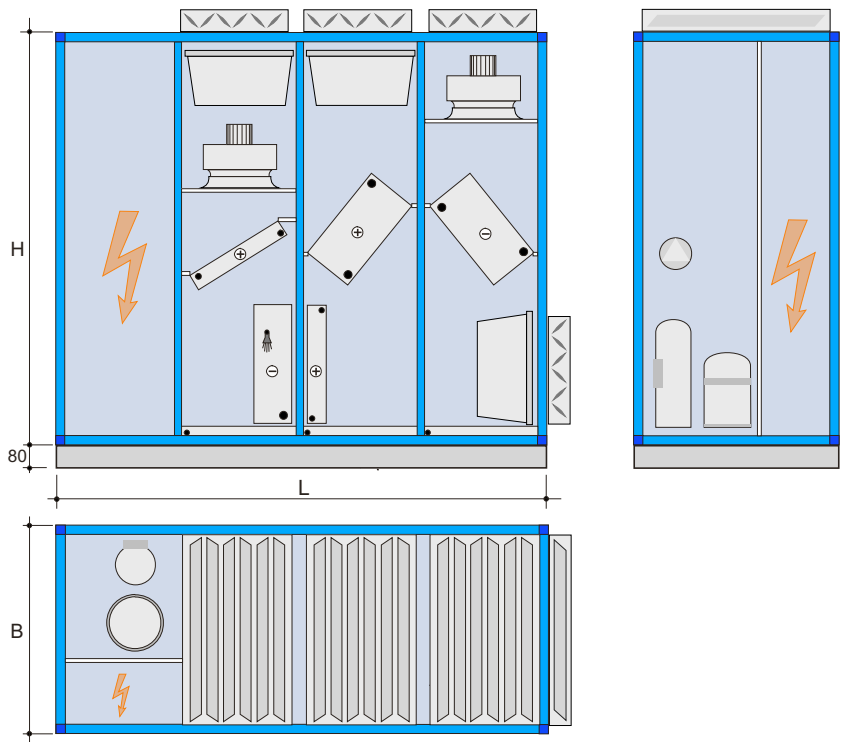
**SERIE PT-KV-E**

type	parts	length (L)	width (B)	height (H)	base (F)	weight	duct connections	
							width	height
PT-49-KV-E-V1	1	2800	1011	2200	80	1160	915	567
PT-59-KV-E-V1	1	2800	1011	2200	80	1190	915	567
PT-67-KV-E-V1	1	2800	1316	2300	80	1390	1220	567
PT-81-KV-E-V1	1	2800	1316	2300	80	1420	1220	567
PT-104-KV-E-V2	1	2800	1926	2300	80	1920	1830	567

type	air volume	engine power kw		SFP value		sound power level db(A)	
		supply	exhaust	supply	exhaust	supply	exhaust
PT-49-KV-E-V1	2400	1 kw	1 kw	3	3	83.8	80.7
PT-59-KV-E-V1	3500	1,7 kw	1,7 kw	4	3	86.8	83.3
PT-67-KV-E-V1	4500	3 kw	3 kw	4	3	89.9	86.9
PT-81-KV-E-V1	6500	5,37 kw	2,73 kw	4	4	92.8	87
PT-104-KV-E-V2	11500	5,37 kw	2,73 kw	3	3	93.1	87

pre heating coil		post heating coil		dx cooling coil		run around coil syst.
in/out	pump power	in/out	pump power	refrigeration circuit	max absorbed power	efficiency
70/50	Alpah2L 15-40 5-22W	70/50	Alpah2L 15-40 5-22W	18 kW bei to=7°C, tc=45°C	max. 7,7 kw	45-50 %
70/50	Alpah2L 15-40 5-22W	70/50	Alpah2L 15-40 5-22W	25.5 kW bei to=7°C, tc=45°C	max 10,9 kw	45-50 %
70/50	Alpah2L 15-40 5-22W	70/50	Alpah2L 15-40 5-22W	32.2 kW bei to=7°C, tc=45°C	max 14,2 kw	45-50 %
70/50	Alpah2L 15-40 5-22W	70/50	Alpah2L 15-40 5-22W	46.2 kW bei to=7°C, tc=45°C	max 23,6 kw	45-50 %
70/50	Magnus 25-40 10-37W	70/50	Magnus 25-40 10-37W	82 kW bei to=7°C, tc=45°C	max 31,00 kw	45-50 %

SCALE SERIE PT-KV-B AND SERIE PT-KV-E



FOR A SMOOTH PROCESS



HOW TO ORDER

1	2	3	4	5	6
PT	- 49 -	E -	MR -	MV -	MD
1	2	3	4	5	6
Mundaria	size	execution	controller	piping	steam humidifier
	49	<b>KV:</b> run around coil system (with pre and after heating coil)	<b>MR</b> with controller	<b>MV:</b> with piping	<b>MD:</b> with steam humidifier
	59	<b>B:</b> cooling coil (with heating coil)	<b>OR:</b> without controller	<b>OV:</b> without piping	<b>OD:</b> without steam humidifier
	67	<b>E:</b> dx cooling coil with refrigeration circuit with a connection to an external condenser (with heating coil)			
	81				
	104				



## TECNICAL DATA

**SERIE PT-B**

type	parts	length (L)	width (B)	height (H)	base (F)	weight	duct connections	
							width	height
PT-49-B-V1	1	1960	1011	2000	80	960	915	567
PT-59-B-V1	1	1960	1011	2000	80	980	915	567
PT-67-B-V1	1	1960	1316	2100	80	1120	1220	567
PT-81-B-V1	1	2040	1316	2100	80	1180	1220	567
PT-104-B-V1	1	2040	1926	2200	80	1480	1830	567

type	air volume	engine power kw		SFP value		sound power level db(A)	
		supply	exhaust	supply	exhaust	supply	exhaust
PT-49-B-V1	2400	1 kw	1 kw	3	2	81.9	78.4
PT-59-B-V1	3500	1,7 kw	1,7 kw	3	2	84.1	80.7
PT-67-B-V1	4500	3 kw	3 kw	3	3	87.7	84.8
PT-81-B-V1	6500	2,73 kw	2,73 kw	3	3	87.8	84.8
PT-104-B-V1	11500	5,5 kw	5,5 kw	3	3	96.9	97.5

pre heating coil		cooling coil	
in/out	pump power	in/out	pump power
70/50	Magnus 25-40 - 10-37w	7/13	18 kw
70/50	Magnus 25-40 - 10-37w	7/13	25,5 kw
70/50	Magnus 25-40 - 10-37w	7/13	32,2 kw
70/50	Magnus 25-40 - 10-37w	7/13	46,2kw
70/50	Magnus 25-60 - 10-81w	7/13	82 kw

**SERIE PT-E**

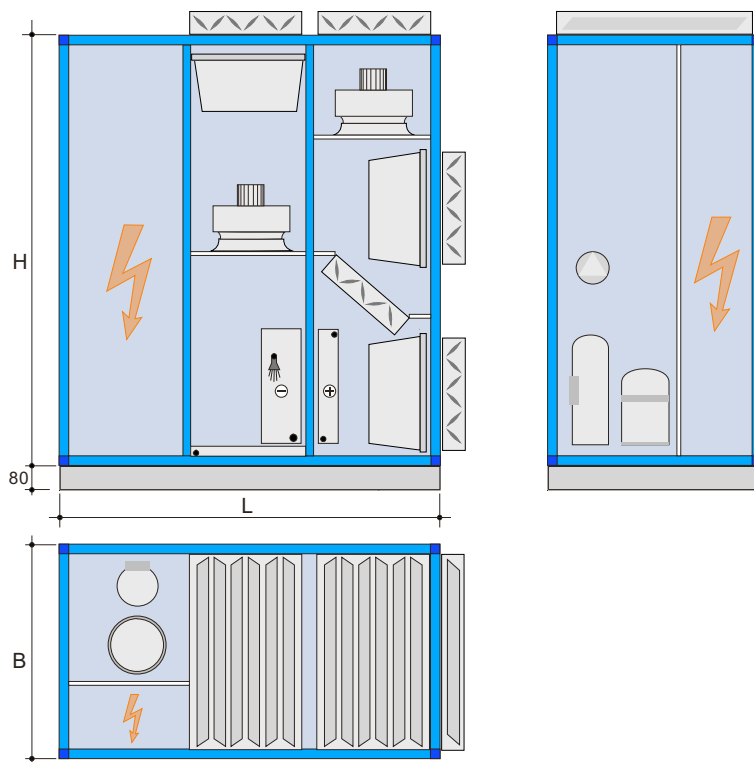
type	parts	length (L)	width (B)	height (H)	base (F)	weight	duct connections	
							width	height
PT-49-E-V1	1	1960	1011	2000	80	960	915	567
PT-59-E-V1	1	1960	1011	2000	80	980	915	567
PT-67-E-V1	1	1960	1316	2100	80	1120	1220	567
PT-81-E-V1	1	2040	1316	2100	80	1180	1220	567
PT-104-E-V1	1	2040	1926	2200	80	1480	1830	567

type	air volume	engine power kw		SFP value		sound power level db(A)	
		supply	exhaust	supply	exhaust	supply	exhaust
PT-49-E-V1	2400	1 kw	1 kw	3	2	81.9	78.4
PT-59-E-V1	3500	1,7 kw	1,7 kw	3	2	84.1	80.7
PT-67-E-V1	4500	3 kw	3 kw	3	3	87.7	84.8
PT-81-E-V1	6500	2,73 kw	2,73 kw	3	3	87.3	84.8
PT-104-E-V1	11500	5,5 kw	5,5 kw	4	3	96.9	97.5

post heating coil		dx cooling coil	
in/out	pump power	refrigeration circuit	max absorbed power
70/50	Magnus 25-40 - 10-37w	18 kW bei to=7°C, tc=45°C	max. 7,7 kw
70/50	Magnus 25-40 - 10-37w	25.5 kW bei to=7°C, tc=45°C	max 10,9 kw
70/50	Magnus 25-40 - 10-37w	32.2 kW bei to=7°C, tc=45°C	max 14,2 kw
70/50	Magnus 25-40 - 10-37w	46.2 kW bei to=7°C, tc=45°C	max 23,6 kw
70/50	Magnus 25-60 - 10-81w	82 kW bei to=7°C, tc=45°C	max 31,00 kw



## SCALE SERIE PT-B AND SERIE PT-E



### OPEN-MINDED, INNOVATIVE AND VISIONARY

1977 Walter Weger laid the foundation stone for the Weger company in the small South Tyrol town of Kiens. Principal activity is the manufacture and assembly of ventilation and air conditioning systems.

Staying rooted in South Tyrol tradition the company developed into one of the leading suppliers of ventilation and climate control units in Europe. Liberal mindedness, high adaptability and a strong tendency towards innovation characterize the track record for Weger.

Intelligent solutions in reaction to the needs of the market. Growing customer requirements and our own pursuit of perfection call for an uninterrupted research and development process.

The high quality construction of all products is also guaranteed by running an inhouse quality management system ISO 9001-2000. Recognition and satisfaction of customer demands are our vision.

We set up the fundamental principles for pleasant and hygienic room air conditions using innovative and flexible solutions in the realm of air conditioning and ventilation technology.





**WEGER**  
air solutions



## Mundaria

AIR-CONDITIONING UNITS FOR OPERATING THEATRES

Contacts in your area:

WEGER Walter GmbH  
Handwerkerzone 5  
I-39030 Kiens/Ehrenburg (BZ)  
T +39 0474 565 253  
F +39 0474 565 011  
info@weger.it  
www.weger.it

