

■ Operating and installation instructions

REMKO PWN H/HK series
Hot water heaters with EC fan for low
temperature applications

PWN 35-1 H/HK, PWN 42-2 H/HK, PWN 75-3 H/HK, PWN 95-2 H/HK, PWN 105-3 H/HK



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Carefully read this operating manual prior to commissioning/using the units!

This operating manual is a translation of the German original.

This manual is an integral part of the unit and must always be kept in the vicinity of the installation location or on the unit itself.

Subject to modifications; no liability accepted for errors or misprints!

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Safety notes

The units were subjected to extensive material, functional and quality inspections prior to delivery.

However, dangers can emanate from the units if they are used improperly or not as intended by untrained personnel.

Always observe the following safety instructions:

- The respective building code regulations must be observed as a basic rule
- The operator is responsible for proper unit installation, correct electrical installation and safe operation of the units
- The units must be set up, installed and operated in such a way that no one is endangered or stressed by radiated heat
- The units may only be fastened to structures or ceilings made of construction materials of sufficient load bearing capacity
- Installation, connection of the heating medium, connection of the electrical system and maintenance may only be carried out by trained, qualified staff
- The units may not be set up, installed or operated in potentially flammable or explosive environments
- The units must be installed away from traffic zones and installed by crane, for example. A safety zone with a clearance of 1 m must be ensured
- The units may only be operated in completely assembled condition
- Safety components (e.g. protection grids) must not be removed or rendered inoperative
- The units may only be used as intended within the specified output limits and with the approved conveying media **Observe name plate!**
- The intake protective grate must always be free of dirt and loose objects; the unit outtake may not be covered or closed
- Never insert foreign objects into the unit
- The units may not be exposed to direct jets of water
- Never allow water to enter the units
- All electrical cables for the units must be protected against damage (e.g. by animals etc.)



NOTE

Fault-free function of the units is only guaranteed if the inlet temperature at the unit inlet and the pump performance are appropriate for the selected unit classification.

Unit description

The units are stationary, indirectly fuelled air heaters with Cu/Al finned heat exchangers for connection to a pumped hot water network up to max. 105 °C.

The units can be installed on the wall or ceiling.

The units can be used in heating or cooling mode. However, cooling mode is only possible when used vertically (wall installation), as long as the units are installed at a 90° angle.

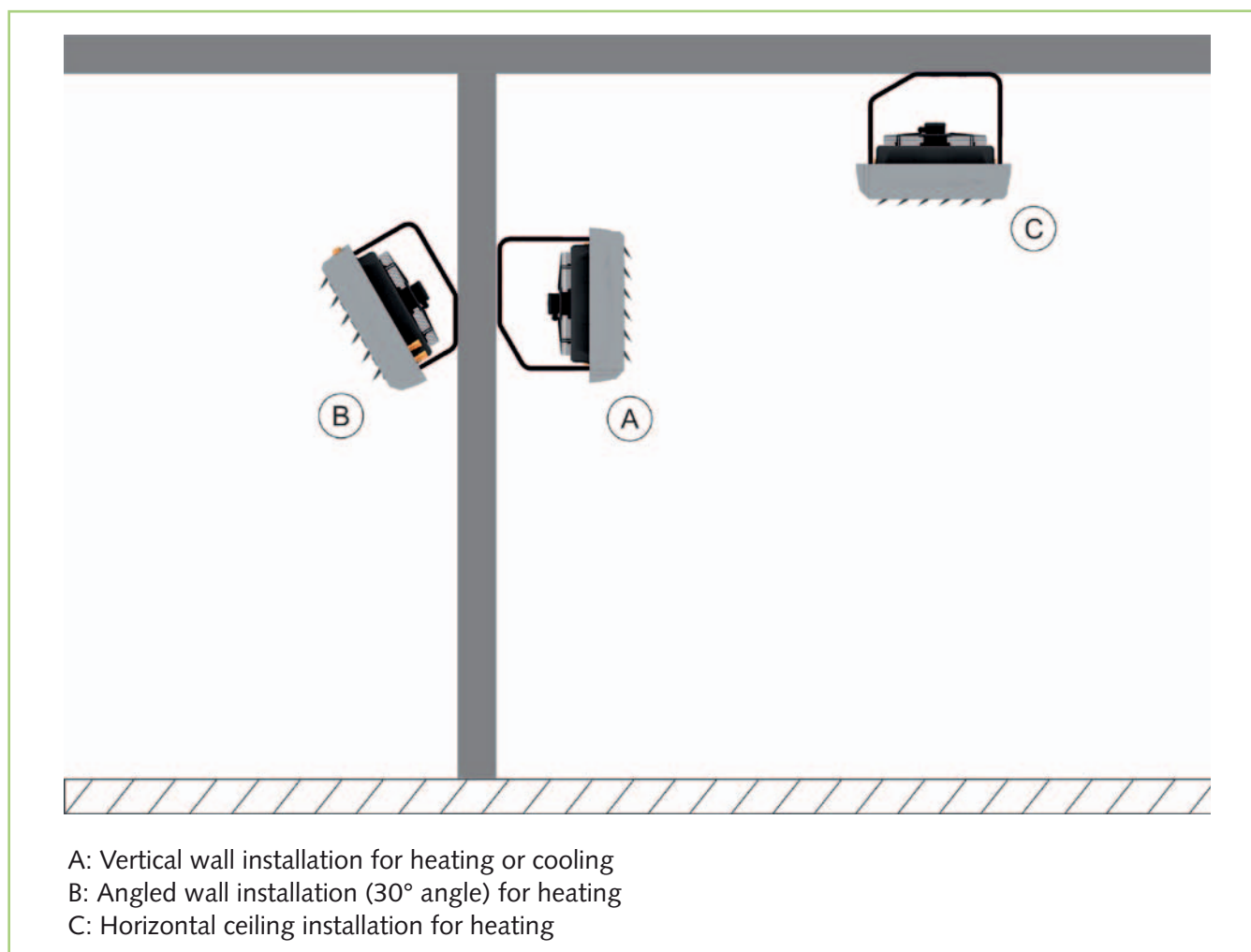
The units are equipped with horizontal, individually adjustable air discharge fins as standard.

The units are equipped with an axial fan, individually adjustable air discharge fins and an electrical connection terminal box.

The units are equipped with a 230 V/50 Hz stepless external rotor motor as standard.

The units conform to the fundamental health and safety requirements of the appropriate EU stipulations and are simple to operate.

Installation examples



Unit installation

For the safe installation of the units, observe the following instructions:

- The units are to be arranged so that persons working and standing near them are not in the direct air flow
- The units may only be installed on ceilings or roof constructions with sufficient load-bearing capacity
- The heat exchangers must be connected in such a way that no vibrations can be transferred from the unit to the piping system or vice versa
- When installing on the wall, a minimum height of 2.5 m to the top edge of the unit should be observed
- When installing higher than 4 m on the wall, a circulating air intake from the ground should take place for consistent heating
- Before connecting the units to an existing hot water heating system, the boiler and pump output must be checked for sufficient capacity
- For maintenance and repair work, a repair switch should be installed near the unit

Heat exchanger Cu/Al

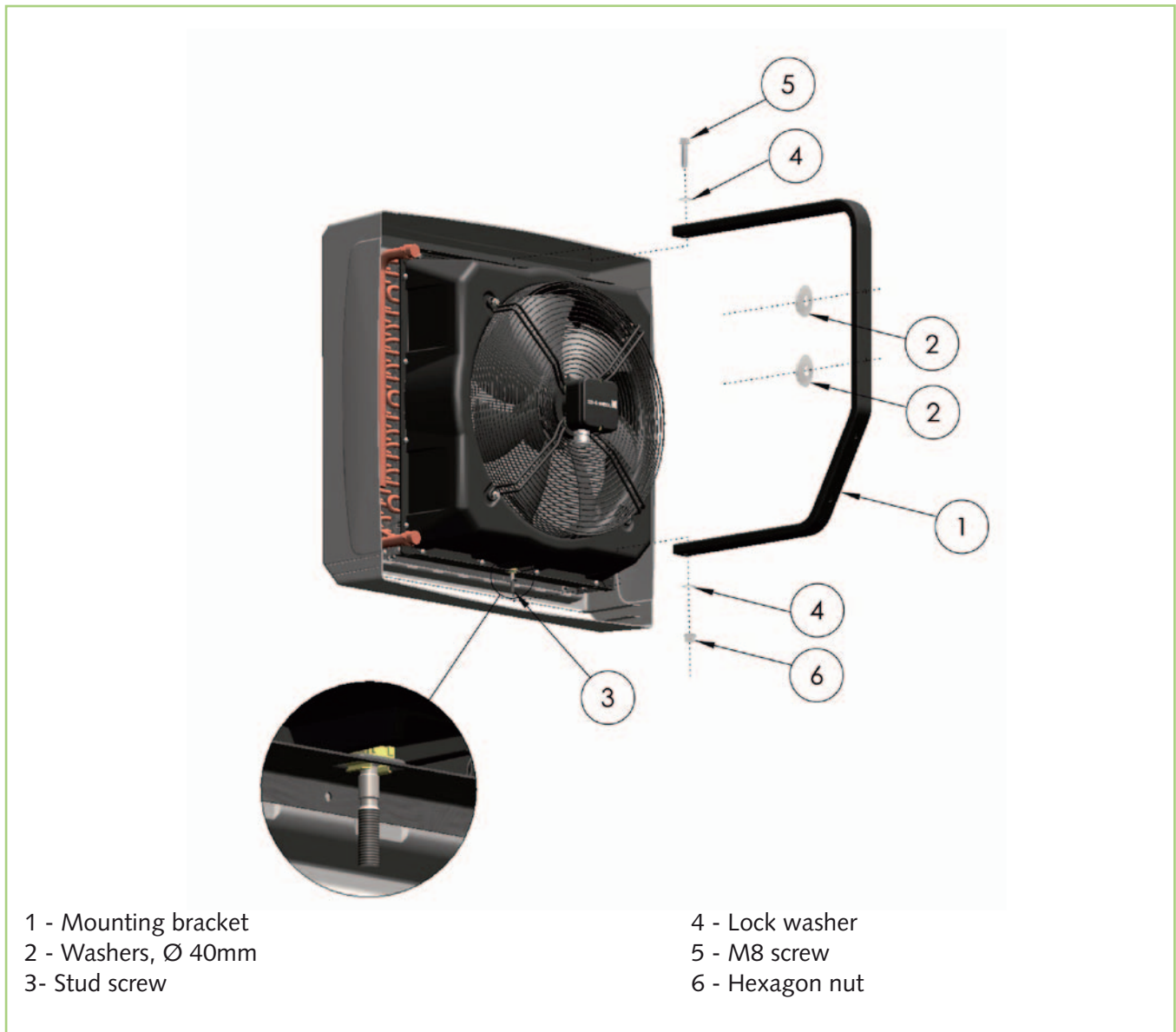
The finned heat exchangers are comprised of copper tubes with pressed aluminium fins.

- The heating medium connections are provided via threaded ports
- The heat exchangers are not suitable for operation with steam or heat transfer oil

The units are suitable for heating and, thanks to the condensate catch pan available as an accessory, also for cooling as long as the aforementioned installation conditions are adhered to.

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Installation



Installation

1. 2 holes must be drilled 130mm apart in the wall/ceiling to which the unit is to be attached and the customer must provide wall plugs and screws for these, which are designed for the unit's weight and are suitable for the wall/ceiling (max. M10).
2. Attach the mounting bracket to the wall using washers with Ø 40mm.
3. Screw in the stud pin completely with the short side in the unit's bottom screw nut.
4. Attach the unit to the mounting bracket and guide the stud screw through the mounting bracket's long hole. To do this, tilt the unit at an angle in order to be able to insert the stud screw into the long hole.
5. Put the washer and the lock washer on the stud screw and tighten using the hexagonal nut.
6. Affix the mounting bracket to the top of the unit. To do this, put the washer and lock washer onto the M8 screw. Then guide the M8 screw through the mounting bracket from the top and screw into the screw nut on the unit.

Electrical wiring

The electrical unit wiring is only permitted to be established by authorised specialists in accordance with the applicable stipulations and the regulations of the local utility, as well as the unit-specific VDE installation regulations.

⚠ CAUTION

*A failure to adhere to the applicable regulations, the operating manual and the unit-specific electrical circuit diagrams can cause malfunctions with subsequent damage.
This voids all guarantee claims!*

Terminal box on the unit

The corresponding power fuse in the supply line to the switchgear must be provided by the customer in accordance with the applicable regulations.

The connections in the terminal box must be connected using the appropriate switchgear (accessory).

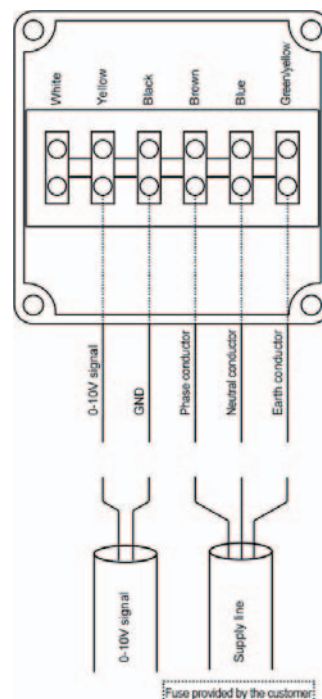
Cable connections must be provided by the customer and must be screwed in instead of the blanking plugs in the connection box. The connection box's protection type should not be reduced by this.

⚠ CAUTION

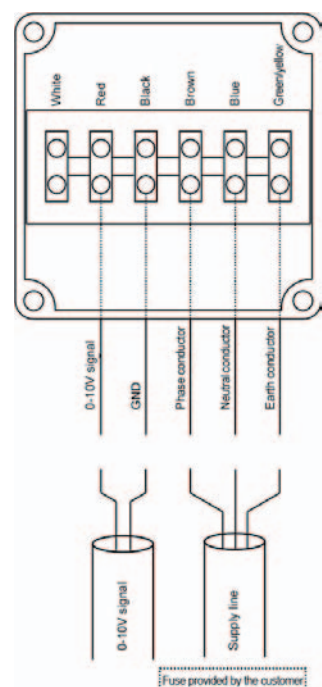
The electrical wiring may only be established by trained specialists.

Electrical wiring diagram

PWN 35-1 to 75-3 H / HK



PWN 95-2 to 105-3 H / HK



⚠ CAUTION

Pay attention to the polarity both when connecting the supply line and when connecting the 0-10V signal!

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Heating medium connection

Connection to the hot water heating system

Before connecting to the on-site heating system, ensure that the respective unit-specific output requirements can always be provided.

- The water-side unit connection is to be carried out by the customer using suitable pipe screw connections and shut-off valves in the supply and return flow

We recommend using compensators and automatic bleeders!

- Appropriate directional arrows are applied to the pipes to indicate the supply and return flow

- The finned heat exchangers are to be carefully bled after installation is complete

Air pockets in the heat exchanger cause a reduction in the heating capacity!

- The technical data provide information on the thread sizes for the pipe connections



NOTE

In order to prevent damage from the connecting pipes turning, an appropriate tool must be used to hold against them while connecting the screw connections for the heating medium connection.

Drainage when at risk of freezing

Complete static drainage of the finned heat exchanger is not possible. Complete drainage of the finned heat exchanger is only possible with compressed air.

Important information for anti-freeze protection!

In order to prevent frost damage, an anti-freeze protection device must be attached when temperatures are below 0 °C.

If systems that are decommissioned are in rooms at risk of freezing, the heat exchanger may never contain water. The residual water should be blasted out with compressed air.

If this is not possible, the heating medium (water) must be mixed with suitable anti-freeze protection agent.



CAUTION

No guarantee claims can be accepted for frost damage on the finned heat exchangers!

Commissioning

Before the initial commissioning

CAUTION

Commissioning can only take place once it has been assured that the proper assembly and electrical installation correspond to the applicable provisions of the EC Directives.

1. Checked to ensure that mechanical installation was carried out correctly.
2. Proper connection to the heating system provided by the customer must be checked.
3. Check whether hot surfaces are protected against unintentional contact.
4. Check whether the electrical wiring of the units has been established in accordance with the valid guidelines and standards and in accordance with the accompanying circuit diagrams.
5. The fan chamber and the intake and exhaust areas must be checked for foreign objects.
6. Check whether all blower outlets are open.
7. Check that the fan moves easily.
8. Disconnect the power supply to the switchgear (accessory) and switch on the unit with the control switch on the switchgear.

During initial commissioning

All regulating, control and safety equipment must be checked to ensure that it is functioning and that the settings are correct during initial commissioning.

1. The current consumption of the fan must be measured.
The rated current may not exceed the value specified on the name plate at the respective switching speeds.
2. Check the fan's control/regulation function.
3. Check the motor protection function of the fan if installed externally.
4. If installed, check that anti-freeze protection device and the room thermostats are functioning.
5. Check the entire system for tension-free installation and potential vibrations.
6. Check the heating medium supply lines for proper connection and tightness.

Shutdown

Set the operating switch for the relevant switchgear to the "Off" or "0" position.

With longer breaks in operation:

- Disconnect the electrical connection at all poles
- Shut off the heating medium connection
- If there is a danger of frost, the complete system should be emptied if the heating medium (water) has not been mixed with suitable anti-freeze protection agent

NOTE

Complete drainage of the heat exchanger is only possible with the aid of compressed air.

NOTE

After disconnecting the switchgear from the power supply, following a power supply failure or a fault shut-down, the control switch must always be returned to the "0" position before starting the unit again.

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Care and maintenance

In normal operation, the units are almost maintenance-free. However, in order to guarantee continuous fault-free operation, they should be checked at regular intervals and cleaned when necessary.

Important precautions prior to maintenance:

- The units should be fully disconnected (all poles) from the electrical power supply and secured to prevent unauthorised reactivation

CAUTION

It is not sufficient to switch off the unit via the operating switch!

- Wait for the fan to stop
- Shut off the water circuit and secure to prevent it being opened inadvertently
- Allow the finned heat exchanger to cool

NOTE

The fan blades and the aluminium fins shall not be damaged or bent.

Cleaning the units

- Clean all intake openings and discharge fins
- Clean the fan blades.
If required, first remove the motor or the protection grid
- Clean the heat exchanger fins by blowing, with suction or using a smooth brush
- Clean severe soiling on the fan and the aluminium fins with soap solution

CAUTION

An electrical safety check must be carried out in accordance with VDE 0701 after any work on the units.

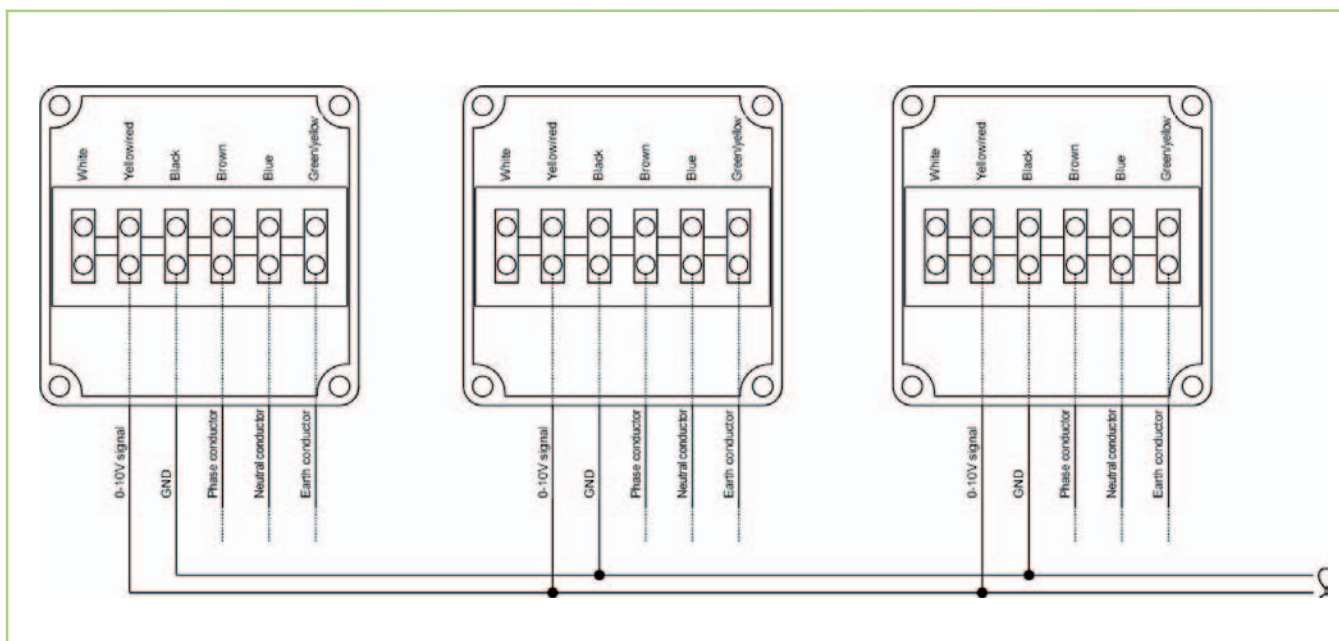
NOTE

Repair and maintenance work may only be carried out by authorised specialists.

Cleaning agents

- Clean the units dry or with a damp cloth and some soap solution if necessary
- High pressure cleaners or steam cleaners shall not be used under any circumstances
- Never use abrasive or solvent-based cleaners
- Use only suitable cleaners, even for extreme contamination

Group control



- When installing a group control, ensure that all units that are connected have the same polarity
- Observe the minimum impedance of the controller used (see the technical data for the controller used)
- The detailed schematic diagrams are located on the outside of the control box

Sample calculation

- Connected units: 4 x PWN 75-3 HK
- Impedance of one unit: 100 kOhm
- Minimum impedance of the controller provided by the customer: 1.5 kOhm

$$\frac{1}{\text{Impedance}_{\text{Complete}}} = \frac{1}{\text{Impedance}_{\text{Unit 1}}} + \frac{1}{\text{Impedance}_{\text{Unit 2}}} + \frac{1}{\text{Impedance}_{\text{Unit 3}}} + \dots + \frac{1}{\text{Impedance}_{\text{Unit n}}}$$

$$\frac{1}{\text{Impedance}_{\text{Complete}}} = \frac{1}{100 \text{ kOhm}} + \frac{1}{100 \text{ kOhm}} + \frac{1}{100 \text{ kOhm}} + \frac{1}{100 \text{ kOhm}}$$

$$\frac{1}{\text{Impedance}_{\text{Complete}}} = 0.04 \text{ kOhm}$$

$$\text{Impedance}_{\text{Complete}} = 25 \text{ kOhm}$$

Result:

The 4 PWN 75-3 HK units can be connected to a controller in which the minimum controller impedance (1.5 kOhm) is always reached.

Intended use

The units are designed exclusively for heating and ventilation purposes in industrial or commercial use (no living space heating) on the basis of their structural design and equipment.

The unit design allows for the use of the air inlet and air outlet side and unit accessories approved by the manufacturer.

The units must only be operated by appropriately instructed personnel.

The manufacturer shall not be liable for damage resulting from non-observance of the manufacturer's specifications, the respective local legal requirements or from unauthorised alterations to the units.

NOTE

*Operation other than the types listed in this operating manual is prohibited.
With non-observance, any manufacturer liability or guarantee claims are voided.*

CAUTION

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REMKO GmbH & Co. KG.*

Customer service and Guarantee

As a prerequisite for any guarantee claims to be considered, it is essential that the ordering party or their representative complete and return the **"Certificate of guarantee"** to REMKO GmbH & Co. KG at the time when the units are purchased and commissioned.

The units were tested at the factory several times to verify their correct function. However, if malfunctions should arise that cannot be remedied by the operator with the assistance of the troubleshooting section, please contact your specialist dealer or contractual partner.



NOTE

Setting and maintenance work may only be carried out by authorised and qualified technicians.



Environmental protection and recycling

Disposal of packaging

When disposing of packaging material, please consider our environment.

Our units are carefully packed and delivered in stable cardboard transport packaging and, if applicable, on a wooden pallet. The packaging materials are environmentally-friendly and can be recycled.

By recycling packaging materials, you make a valuable contribution to the reduction of waste and conservation of raw materials.

Therefore, only dispose of packaging material at appropriate collection points.

Disposal of the old unit

The manufacturing process for the units is subject to continuous quality control.

Only high-grade materials are processed, the majority of which are recyclable.

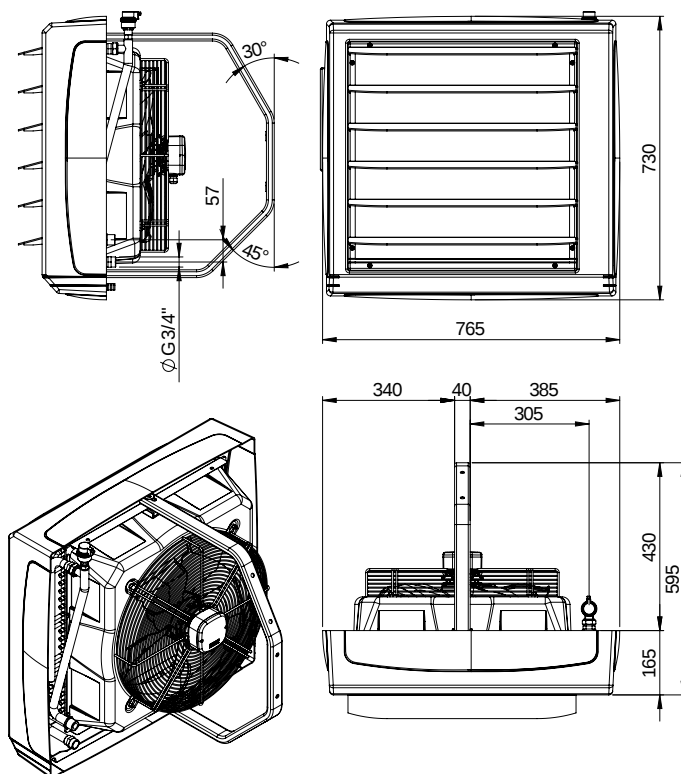
You also contribute to environmental protection by ensuring that your old equipment is only disposed of in an environment friendly manner.

Therefore, only bring the old unit to an authorised recycling business or to an appropriate collection point.

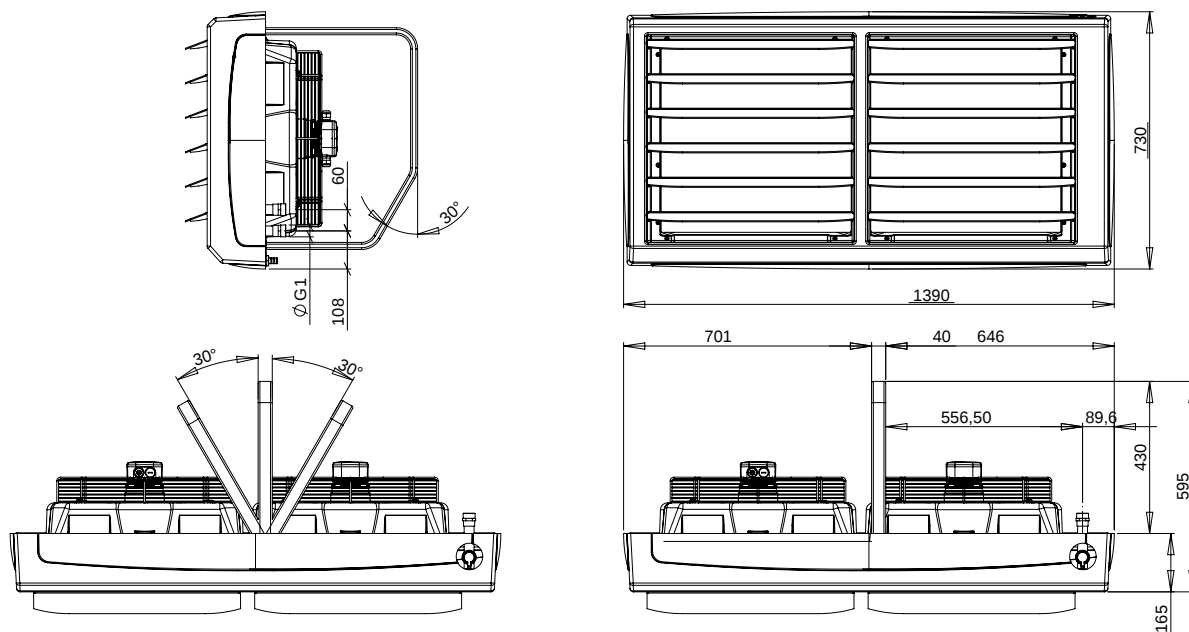


Unit dimensions

PWN 35-1 to 75-3 H / HK



PWN 95-2 to 105-3 H / HK



We reserve the right to modify the dimensions and design as part of the ongoing technical development process.

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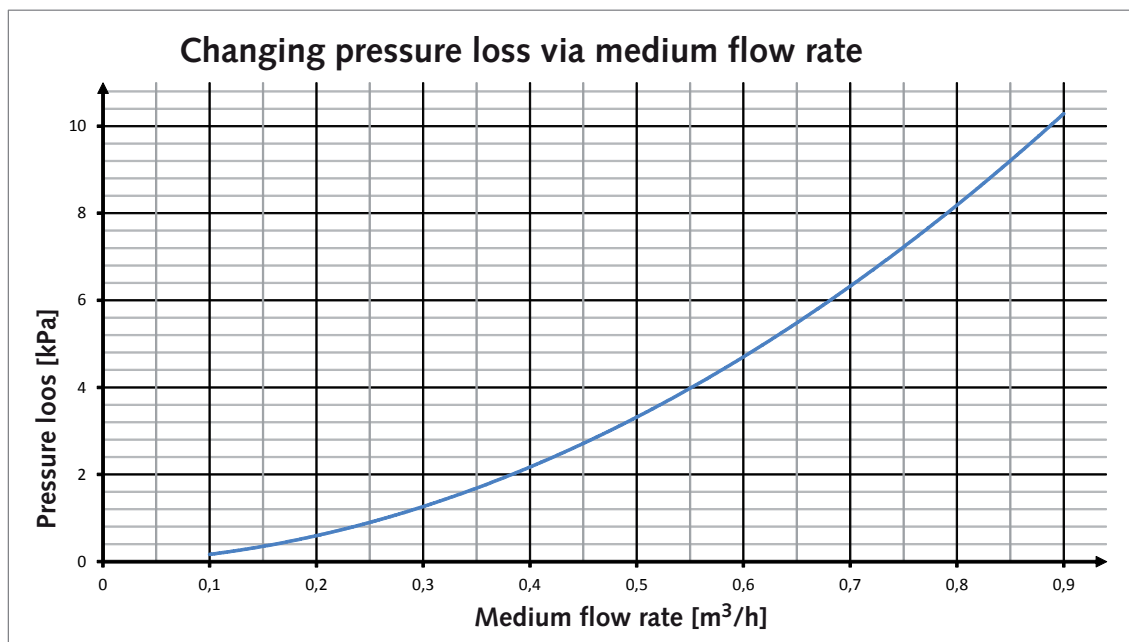
PWN 35-1 H / HK output tables • Technical data

Utilised heating capacity (voltage)		20 % (2 V)	40 % (4 V)	50 % (5 V)	60 % (6 V)	80 % (8 V)	100 % (10 V)
Air flow volume	m ³ /h	300	780	1220	1560	2240	2850
Sound pressure level	db(A)	29	44	49	53	60	64
Current consumption	A	0,09	0,12	0,18	0,24	0,46	0,77
Power consumption	W	6	13	19	30	60	108
Max. casting distance (wall)	m	2,6	5,8	7,4	9,0	12,2	15,4

Heating medium		t _{L1} [°C]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]
70 / 50 °C	+ 5		2,9	33,4	0,13	5,5	25,9	0,24	7,3	22,8	0,32	8,5	21,2	0,37	10,6	19,1	0,47	12,2	17,8	0,54
	+ 10					4,9	28,8	0,22	6,5	25,9	0,29	7,6	24,5	0,33	9,5	22,7	0,42	11,0	21,5	0,48
	+ 15					4,3	31,5	0,19	5,8	29,1	0,25	6,7	27,9	0,30	8,4	26,2	0,37	9,7	25,2	0,43
	+ 20					3,7	34,3	0,16	5,0	32,2	0,22	5,8	31,2	0,26	7,3	29,7	0,32	8,5	28,9	0,37
55 / 45 °C	+ 5		2,5	29,8	0,22	4,7	23,0	0,41	6,3	20,3	0,55	7,3	19,0	0,64	9,2	17,2	0,80	10,6	16,1	0,93
	+ 10		2,2	31,8	0,19	4,2	25,9	0,36	5,5	23,5	0,48	6,5	22,3	0,56	8,1	20,8	0,71	9,4	19,8	0,82
	+ 15		1,9	33,8	0,17	3,6	28,8	0,32	4,8	26,7	0,42	5,6	25,7	0,49	7,0	24,3	0,61	8,1	23,5	0,71
	+ 20		1,6	35,7	0,14	3,0	31,6	0,27	4,0	29,9	0,35	4,7	29,0	0,41	5,9	27,9	0,52	6,8	27,1	0,60
50 / 40 °C	+ 5		2,2	26,4	0,19	4,1	20,7	0,36	5,5	18,4	0,48	6,4	17,2	0,56	8,0	15,6	0,70	9,3	14,7	0,81
	+ 10		1,9	28,4	0,16	3,5	23,6	0,31	4,7	21,6	0,41	5,5	20,5	0,48	6,9	19,2	0,60	8,0	18,4	0,70
	+ 15					3,0	26,4	0,26	4,0	24,7	0,35	4,6	23,9	0,40	5,8	22,7	0,51	6,7	22,0	0,59
	+ 20					2,4	29,1	0,21	3,2	27,8	0,28	3,7	27,1	0,33	4,7	26,2	0,41	5,4	25,7	0,47
45 / 35 °C	+ 5					3,5	18,3	0,30	4,6	16,4	0,40	5,4	15,4	0,47	6,8	14,0	0,59	7,9	13,2	0,69
	+ 10					2,9	21,1	0,25	3,9	19,5	0,34	4,5	18,7	0,40	5,7	17,6	0,50	6,6	16,9	0,57
	+ 15					2,3	23,8	0,20	3,1	22,6	0,27	3,6	22,0	0,32	4,6	21,1	0,40	5,3	20,5	0,46
	+ 20								2,3	25,6	0,20	2,7	25,2	0,23	3,4	24,5	0,30	4,0	24,2	0,35

Utilised cooling capacity (voltage)		10 % (1 V)	20 % (2 V)	30 % (3 V)	40 % (4 V)	50 % (5 V)
Air flow volume	m ³ /h	285	570	855	1140	1425
Sound pressure level	db(A)	19	29	38	44	49
Current consumption	A	0,08	0,09	0,1	0,12	0,18
Power consumption	W	5	6	9	13	19
Max. casting distance (wall)	m	1,5	2,6	3,9	5,8	7,4

Cooling medium		t _{L1} [°C]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m³/h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m³/h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m³/h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m³/h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m³/h]
7 / 12 °C	+ 25		0,49	0,41	14,7	0,08	0,79	0,71	17,5	0,14	1,07	1,07	19,3	0,18	1,26	1,26	20,2	0,22	1,90	1,80	20,6	0,33
	+ 27		0,60	0,45	15,9	0,10	0,97	0,80	19,1	0,17	1,27	1,17	20,8	0,22	1,86	1,45	21,4	0,32	2,65	1,95	22,2	0,46
	+ 30		0,77	0,50	17,6	0,13	1,24	0,86	21,4	0,21	2,14	1,34	22,9	0,37	2,71	1,67	23,6	0,46	3,62	2,20	24,6	0,62
	+ 32		0,90	0,53	18,8	0,15	1,60	0,95	22,6	0,27	2,59	1,46	24,2	0,45	3,23	1,80	25,1	0,56	4,28	2,37	26,2	0,73



PWN 45-2 H / HK output tables • Technical data

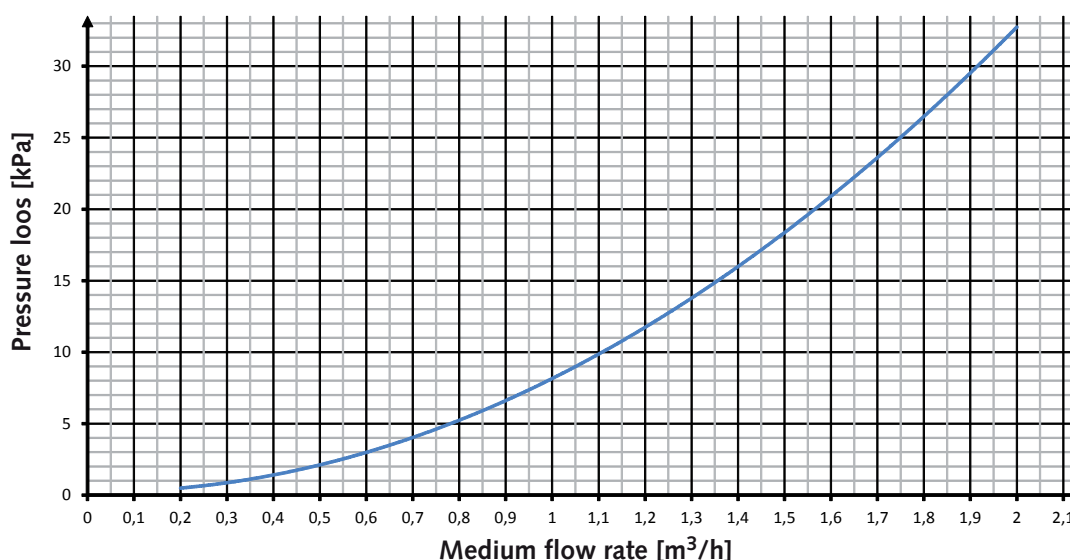
Utilised heating capacity (voltage)		20 % (2 V)	40 % (4 V)	50 % (5 V)	60 % (6 V)	80 % (8 V)	100 % (10 V)
Air flow volume	m ³ /h	250	560	930	1370	2100	2550
Sound pressure level	db(A)	29	44	49	53	60	64
Current consumption	A	0,1	0,12	0,18	0,24	0,45	0,83
Power consumption	W	7	13	21	31	63	111
Max. casting distance (wall)	m	2,3	5,2	6,7	8,1	11	13,9

Heating medium		t _{L1} [°C]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]
70 / 50 °C	+ 5		4,1	54,2	0,18	7,9	47,0	0,35	11,5	41,9	0,51	15,2	38,1	0,67	20,5	34,1	0,90	23,4	32,4	1,03
	+ 10					7,2	48,1	0,31	10,4	43,5	0,46	13,8	40,1	0,61	18,6	36,4	0,82	21,2	34,8	0,93
	+ 15					6,4	49,2	0,28	9,4	45,1	0,41	12,3	41,9	0,54	16,6	38,6	0,73	19,0	37,2	0,83
	+ 20					5,6	50,1	0,25	8,3	46,5	0,36	10,9	43,7	0,48	14,6	40,8	0,64	16,7	39,6	0,73
55 / 45 °C	+ 5		3,4	45,6	0,30	6,5	39,8	0,57	9,6	35,7	0,84	12,7	32,7	1,11	17,2	29,4	1,51	19,7	28,0	1,72
	+ 10		3,0	46,1	0,26	5,8	40,9	0,51	8,5	37,3	0,74	11,3	34,6	0,99	15,3	31,7	1,34	17,5	30,5	1,53
	+ 15		2,6	46,6	0,23	5,1	42,1	0,44	7,5	38,9	0,65	9,9	36,5	0,86	13,3	33,9	1,16	15,2	32,9	1,33
	+ 20					4,3	43,1	0,38	6,4	40,4	0,56	8,4	38,3	0,74	11,4	36,1	1,00	13,0	35,2	1,14
50 / 40 °C	+ 5		3,0	40,8	0,26	5,8	35,7	0,50	8,4	32,1	0,74	11,2	29,4	0,98	15,1	26,5	1,32	17,3	25,3	1,51
	+ 10		2,6	41,2	0,23	5,0	36,8	0,44	7,4	33,7	0,64	9,8	31,3	0,85	13,2	28,8	1,15	15,1	27,7	1,32
	+ 15					4,3	37,8	0,37	6,3	35,2	0,55	8,3	33,1	0,73	11,2	31,0	0,98	12,8	30,0	1,12
	+ 20					3,5	38,8	0,31	5,2	36,6	0,45	6,9	34,9	0,60	9,2	33,1	0,81	10,5	32,3	0,92
45 / 35 °C	+ 5		2,6	35,7	0,22	5,0	31,5	0,43	7,3	28,4	0,64	9,7	26,1	0,84	13,0	23,6	1,13	14,9	22,5	1,30
	+ 10					4,2	32,6	0,37	6,2	29,9	0,54	8,2	27,9	0,72	11,1	25,8	0,97	12,7	24,8	1,11
	+ 15					3,5	33,5	0,30	5,1	31,4	0,44	6,8	29,7	0,59	9,1	27,9	0,79	10,4	27,2	0,91
	+ 20					2,6	34,1	0,23	3,9	32,7	0,34	5,2	31,4	0,46	7,1	30,0	0,62	8,1	29,4	0,70

Utilised cooling capacity (voltage)		10 % (1 V)	20 % (2 V)	30 % (3 V)	40 % (4 V)	50 % (5 V)
Air flow volume	m ³ /h	255	510	765	1020	1275
Sound pressure level	db(A)	19	29	37	44	49
Current consumption	A	0,08	0,1	0,11	0,12	0,18
Power consumption	W	5	7	10	13	21
Max. casting distance (wall)	m	1,2	2,3	3,8	5,2	6,7

Cooling medium		t _{L1} [°C]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]
7 / 12 °C	+ 25		0,96	0,71	10,8	0,16	1,31	1,07	12,2	0,23	1,53	1,35	13,0	0,26	2,00	2,00	14,4	0,34	3,69	2,94	15,6	0,63
	+ 27		1,16	0,79	11,3	0,20	1,59	1,17	13,0	0,27	1,86	1,47	13,9	0,32	3,12	2,23	15,1	0,54	4,74	3,25	16,6	0,81
	+ 30		1,50	0,90	12,1	0,26	2,07	1,34	14,1	0,35	2,79	1,74	14,5	0,48	4,32	2,59	16,2	0,74	6,32	3,74	18,0	1,09
	+ 32		1,74	0,98	12,6	0,30	2,62	1,50	14,0	0,45	3,42	1,91	15,0	0,59	5,14	2,82	16,9	0,88	7,44	4,06	19,0	1,28

Changing pressure loss via medium flow rate



REMKO PWN H / HK

PWN 75-3 H / HK output tables • Technical data

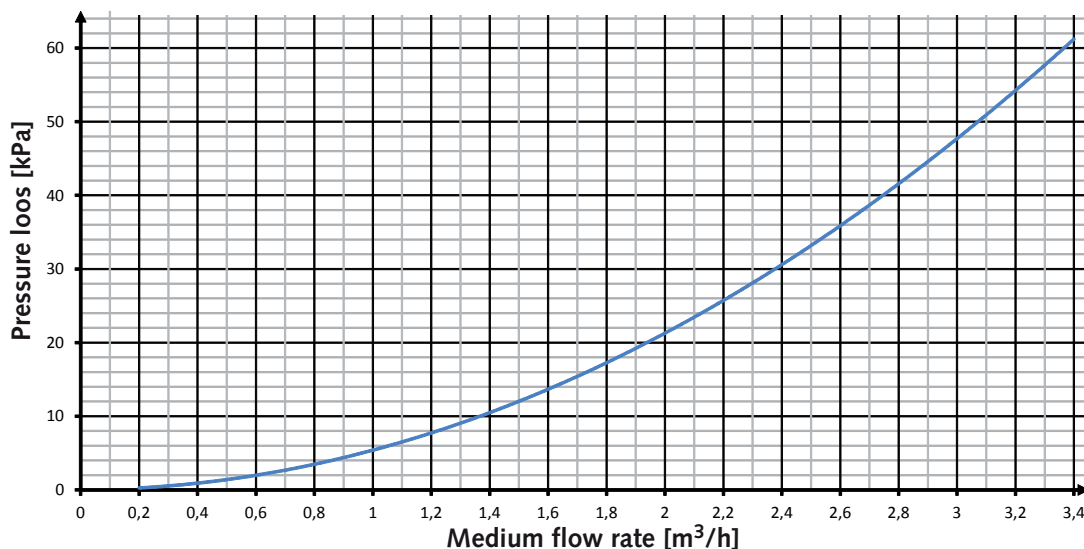
Utilised heating capacity (voltage)		20 % (2 V)	40 % (4 V)	50 % (5 V)	60 % (6 V)	80 % (8 V)	100 % (10 V)
Air flow volume	m ³ /h	350	980	1430	1940	2950	3900
Sound pressure level	db(A)	32	48	52	56	62	67
Current consumption	A	0,11	0,22	0,36	0,54	1,16	2,1
Power consumption	W	10	31	48	73	174	315
Max. casting distance (wall)	m	5,1	9	11,1	13,2	17,1	21,2

Heating medium		t _{L1} [°C]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]
70 / 50 °C		+ 5	6,3	59,0	0,28	14,9	50,3	0,65	19,9	46,6	0,87	25,1	43,6	1,1	34,1	39,5	1,5,0	41,7	36,9	1,83
		+ 10	5,8	59,1	0,25	13,5	51,3	0,59	18,1	47,9	0,80	22,8	45,1	1,0	31,0	41,3	1,36	37,8	38,9	1,66
		+ 15	5,2	59,0	0,23	12,2	52,1	0,54	16,3	49,0	0,72	20,5	46,5	0,9	27,8	43,1	1,22	33,9	40,9	1,49
		+ 20	4,5	58,7	0,21	10,8	52,8	0,47	14,4	50,1	0,63	18,1	47,9	0,8	24,5	44,8	1,08	29,9	42,9	1,31
55 / 45 °C		+ 5	5,1	48,8	0,45	12,2	42,2	1,07	16,4	39,4	1,44	20,8	37,0	1,82	28,4	33,8	2,49	34,8	31,6	3,05
		+ 10	4,6	49,1	0,40	10,9	43,2	0,95	14,6	40,6	1,28	18,5	38,5	1,62	25,3	35,6	2,21	30,9	33,7	2,70
		+ 15	4,0	49,3	0,35	9,5	44,1	0,83	12,8	41,8	1,12	16,2	39,9	1,42	22,1	37,3	1,93	27,0	35,7	2,36
		+ 20	3,5	49,4	0,30	8,2	44,9	0,72	11,0	42,9	0,96	13,8	41,3	1,21	18,9	39,1	1,65	23,1	37,7	2,02
50 / 40 °C		+ 5	4,6	43,8	0,40	10,8	37,9	0,94	14,5	35,4	1,27	18,4	33,2	1,61	25,0	30,4	2,18	30,7	28,5	2,68
		+ 10	4,0	44,0	0,35	9,5	38,8	0,83	12,7	36,6	1,11	16,1	34,7	1,41	21,9	32,1	1,91	26,8	30,5	2,34
		+ 15	3,4	44,1	0,30	8,1	39,7	0,71	10,9	37,7	0,95	13,7	36,1	1,20	18,7	33,9	1,63	22,8	32,5	1,99
		+ 20	2,8	43,9	0,24	6,7	40,5	0,59	9,0	38,8	0,79	11,3	37,5	0,99	15,4	35,6	1,35	18,8	34,4	1,64
45 / 35 °C		+ 5	4,0	38,7	0,34	9,4	33,6	0,82	12,6	31,3	1,10	15,9	29,5	1,39	21,7	26,9	1,89	26,5	25,3	2,31
		+ 10	3,4	38,7	0,29	8,0	34,4	0,70	10,8	32,5	0,94	13,6	30,9	1,19	18,5	28,7	1,61	22,6	27,3	1,97
		+ 15	2,7	28,2	0,24	6,6	35,2	0,58	8,9	33,6	0,78	11,2	32,3	0,98	15,2	30,4	1,32	18,6	29,2	1,62
		+ 20				5,2	35,8	0,45	7,0	34,6	0,61	8,8	33,5	0,77	11,9	32,1	1,04	14,5	31,1	1,26

Utilised cooling capacity (voltage)		10 % (1 V)	20 % (2 V)	30 % (3 V)	40 % (4 V)	50 % (5 V)
Air flow volume	m ³ /h	390	780	1170	1560	1950
Sound pressure level	db(A)	24	37	45	48	52
Current consumption	A	0,08	0,11	0,15	0,22	0,36
Power consumption	W	6	10	16	31	48
Max. casting distance (wall)	m	2,6	5,1	7,3	9	11,1

Cooling medium		t _{L1} [°C]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m³/h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m³/h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m³/h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m³/h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m³/h]
7 / 12 °C	+ 25		1,10	0,75	8,90	0,19	2,10	1,61	11,3	0,36	3,11	2,60	12,5	0,53	4,81	3,87	13,2	0,82	6,69	5,18	14,2	1,15
	+ 27		1,32	0,84	9,10	0,23	2,54	1,77	11,9	0,44	4,11	2,98	12,6	0,71	6,22	4,30	13,9	1,07	8,45	5,74	15,0	1,45
	+ 30		1,69	0,96	9,40	0,29	3,54	2,12	11,9	0,61	5,75	3,47	13,3	0,99	8,37	4,96	14,9	1,44	11,2	6,60	16,2	1,92
	+ 32		1,96	1,05	9,60	0,34	4,26	2,35	11,9	0,73	6,86	3,79	13,7	1,18	9,89	5,42	15,5	1,70	13,2	7,20	17,0	2,26

Changing pressure loss via medium flow rate



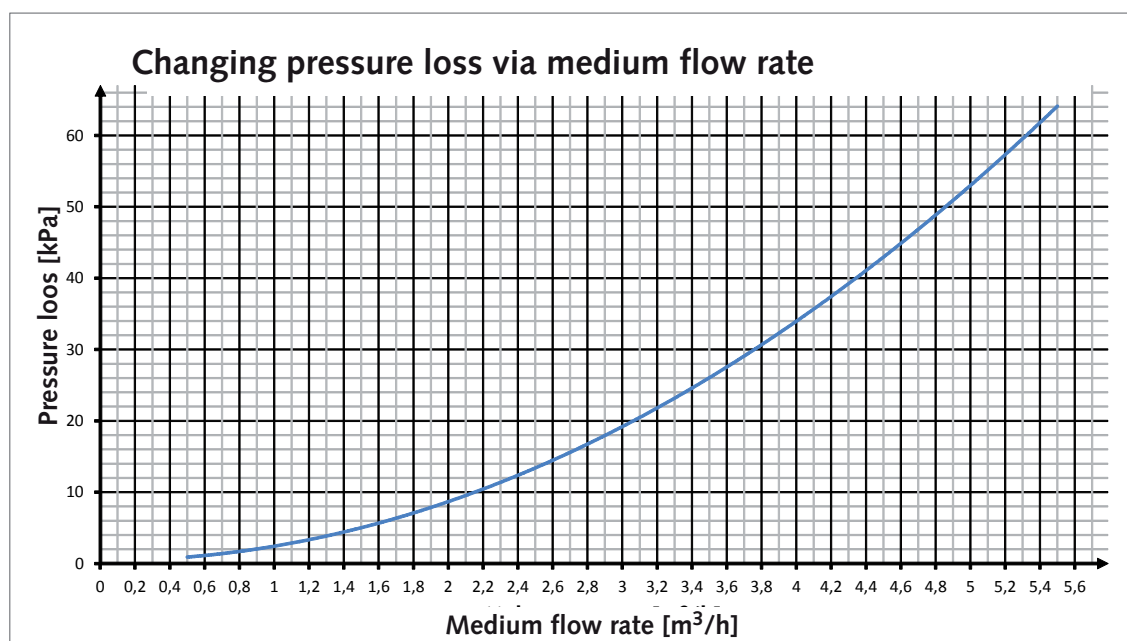
PWN 95-2 H / HK output tables • Technical data

Utilised heating capacity (voltage)		20 % (2 V)	40 % (4 V)	50 % (5 V)	60 % (6 V)	80 % (8 V)	100 % (10 V)
Air flow volume	m ³ /h	1270	2620	3540	4560	6560	8560
Sound pressure level	db(A)	37	52	57	60	66	71
Current consumption	A	0,17	0,46	0,71	1,08	2,29	4,24
Power consumption	W	17	53	93	143	335	635
Max. casting distance (wall)	m	5,5	10,1	12,3	14,6	19,1	23,6

Heating medium		t _{L1} [°C]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]
70 / 50 °C		+ 5	17,6	46,5	0,77	30,0	39,2	1,32	37,1	36,3	1,63	44,2	33,9	1,94	56,6	30,8	2,49
		+ 10	16,0	47,7	0,70	27,2	41,1	1,19	33,7	38,4	1,48	40,1	36,3	1,76	51,3	33,3	2,25
		+ 15	14,4	48,9	0,63	24,4	42,9	1,07	30,2	40,5	1,33	35,9	38,5	1,58	46,0	35,9	2,02
		+ 20	12,7	49,9	0,56	21,6	44,6	0,95	26,7	42,5	1,17	31,7	40,8	1,39	40,5	38,4	1,78
55 / 45 °C		+ 5	14,6	39,2	1,28	25,0	33,4	2,19	30,9	31,1	2,70	37,0	29,2	3,24	47,5	26,6	4,16
		+ 10	13,0	40,5	1,14	22,2	35,3	1,94	27,5	33,2	2,41	32,9	31,5	2,88	42,2	29,2	3,69
		+ 15	11,4	41,7	1,00	19,4	37,1	1,70	24,1	35,3	2,11	28,7	33,8	2,51	36,9	31,8	3,23
		+ 20	9,70	42,8	0,85	16,6	38,9	1,45	20,5	37,3	1,79	24,5	36,0	2,14	31,4	34,3	2,75
50 / 40 °C		+ 5	12,9	35,2	1,13	22,0	30,1	1,92	27,3	28,0	2,38	32,6	26,3	2,85	41,8	24,0	3,65
		+ 10	11,3	36,5	0,99	19,2	31,9	1,68	23,8	30,1	2,08	28,4	28,6	2,48	36,5	26,6	3,19
		+ 15	9,60	37,6	0,84	16,4	33,7	1,43	20,3	32,1	1,77	24,2	30,9	2,11	31,1	29,2	2,72
		+ 20	8,00	38,7	0,69	13,6	35,5	1,19	16,8	34,2	1,47	20,0	33,1	1,75	25,6	31,6	2,24
45 / 35 °C		+ 5	11,1	31,2	0,97	19,0	26,7	1,66	23,6	24,9	2,06	28,1	23,4	2,45	36,1	21,4	3,15
		+ 10	9,5	32,4	0,83	16,2	28,5	1,41	20,1	27,0	1,75	24,0	25,7	2,09	30,7	24,0	2,68
		+ 15	7,8	33,4	0,68	13,4	30,3	1,17	16,6	29,0	1,45	19,7	27,9	1,72	25,3	26,5	2,20
		+ 20	6,1	34,3	0,53	10,5	31,9	0,92	12,9	30,9	1,12	15,4	30,1	1,34	19,7	29,0	1,72

Utilised cooling capacity (voltage)		10 % (1 V)	20 % (2 V)	30 % (3 V)	40 % (4 V)	50 % (5 V)
Air flow volume	m ³ /h	860	1700	2570	3420	4280
Sound pressure level	db(A)	25	37	45	52	57
Current consumption	A	0,1	0,17	0,26	0,46	0,71
Power consumption	W	9	17	31	53	93
Max. casting distance (wall)	m	3	5,5	7,8	10,1	12,3

Cooling medium		t _{L1} [°C]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]
7 / 12 °C		+ 25	3,26	3,17	13,9	0,56	5,65	4,52	14,4	0,97	7,90	6,04	15,4	1,36	10,2	7,70	16,3	1,75
		+ 27	5,16	3,69	14,1	0,89	7,34	5,03	15,2	1,26	9,93	6,68	16,4	1,71	12,7	8,50	17,4	2,18
		+ 30	7,19	4,29	14,9	1,23	9,84	5,80	16,4	1,69	13,1	7,70	17,8	2,25	16,6	9,70	19,0	2,85
		+ 32	8,56	4,70	15,5	1,47	11,6	6,30	17,1	1,99	15,4	8,30	18,7	2,64	19,4	10,5	20,0	3,33



REMKO PWN H / HK

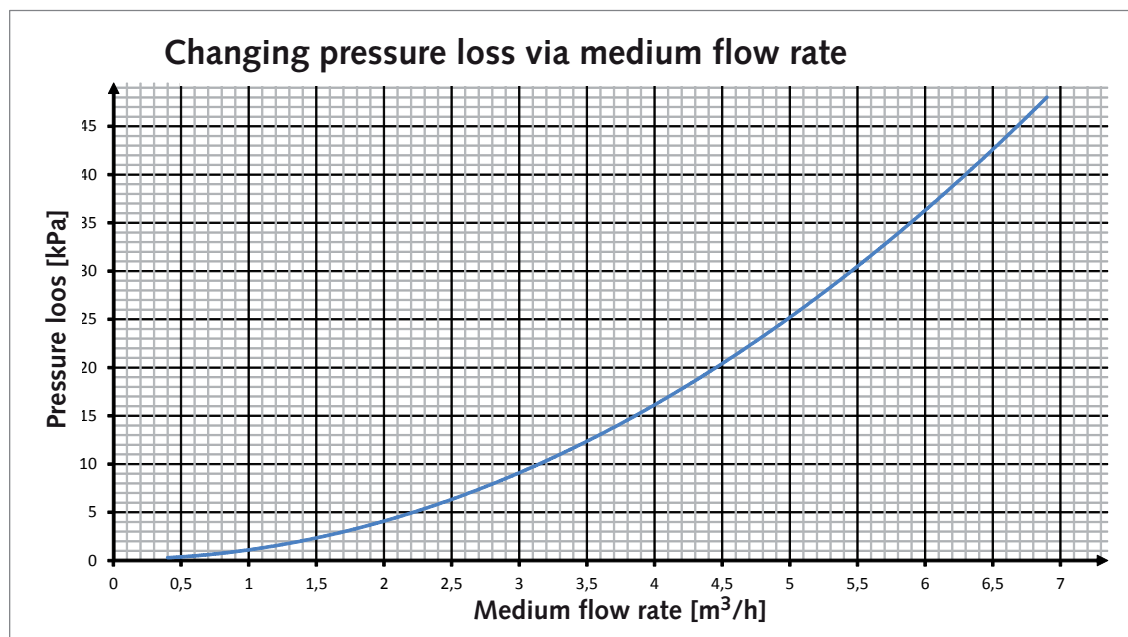
PWN 105-3 H / HK output tables • Technical data

Utilised heating capacity (voltage)		20 % (2 V)	40 % (4 V)	50 % (5 V)	60 % (6 V)	80 % (8 V)	100 % (10 V)
Air flow volume	m ³ /h	715	2000	2925	3960	6020	7950
Sound pressure level	db(A)	35	51	55	59	65	70
Current consumption	A	0,17	0,42	0,74	1,04	2,24	4,16
Power consumption	W	15	52	91	145	333	635
Max. casting distance (wall)	m	5,2	9,5	11,6	13,8	18	22,3

Heating medium		t _{L1} [°C]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]	Q _H [kW]	t _{L2} [°C]	V [m ³ /h]
70 / 50 °C		+ 5	13,0	59,2	0,57	30,5	50,5	1,34	40,9	46,8	1,80	51,4	43,8	2,26	69,9	39,7	3,07	85,3	37,1	3,75
		+ 10	11,8	59,3	0,52	27,7	51,4	1,22	37,2	48,0	1,63	46,7	45,2	2,05	63,5	41,5	2,79	77,4	39,1	3,40
		+ 15	10,6	59,2	0,47	24,9	52,2	1,09	34,0	49,0	1,49	42,0	46,7	1,84	57,0	43,3	2,50	69,4	41,1	3,05
		+ 20	9,33	59	0,41	22,1	53,0	0,97	29,6	50,2	1,30	37,2	48,0	1,63	50,4	45,0	2,21	61,3	43,0	2,69
55 / 45 °C		+ 5	10,5	48,9	0,92	25,0	42,3	2,19	33,7	39,4	2,95	42,5	37,1	3,72	58,2	33,8	5,09	71,2	31,7	6,23
		+ 10	9,38	49,2	0,82	22,3	43,3	1,95	30,0	40,7	2,63	37,9	38,6	3,32	51,7	35,7	4,52	63,3	33,8	5,54
		+ 15	8,24	49,4	0,72	19,5	44,2	1,71	26,7	41,7	2,34	33,2	40,0	2,91	45,2	37,4	3,96	55,3	35,8	4,84
		+ 20	7,07	49,5	0,62	16,7	45,0	1,46	22,5	43,0	1,97	28,4	41,4	2,49	38,7	39,2	3,39	47,2	37,7	4,13
50 / 40 °C		+ 5	9,32	43,9	0,81	22,1	38,0	1,93	30,3	35,3	2,65	37,6	33,3	3,28	51,3	30,5	4,48	62,8	28,6	5,48
		+ 10	8,17	44,1	0,71	19,4	38,9	1,69	26,1	36,7	2,28	32,9	34,8	2,87	44,8	32,2	3,91	54,8	30,6	4,79
		+ 15	6,99	44,2	0,61	16,6	39,8	1,45	22,3	37,8	1,95	28,1	36,2	2,45	38,3	34,0	3,35	46,8	32,6	4,09
		+ 20	5,76	44,0	0,50	13,8	40,6	1,21	18,5	38,9	1,62	23,3	37,5	2,03	31,6	35,7	2,76	38,6	34,5	3,37
45 / 35 °C		+ 5	8,1	38,8	0,71	19,2	33,7	1,67	25,9	31,4	2,26	32,6	29,6	2,84	44,4	27,0	3,87	54,3	25,4	4,73
		+ 10	6,9	38,8	0,60	16,4	34,5	1,43	22,1	32,6	1,93	27,8	31,0	2,42	37,9	28,8	3,30	46,3	27,4	4,04
		+ 15	5,6	38,5	0,49	13,6	35,3	1,19	18,3	37,3	1,59	23,0	32,3	2,00	31,3	30,5	2,73	38,1	29,3	3,32
		+ 20				10,7	35,9	0,93	14,4	34,7	1,25	18,0	33,6	1,57	24,5	32,1	2,14	29,8	31,2	2,60

Utilised cooling capacity (voltage)		10 % (1 V)	20 % (2 V)	30 % (3 V)	40 % (4 V)	50 % (5 V)
Air flow volume	m ³ /h	795	1590	2385	3180	3975
Sound pressure level	db(A)	24	35	44	51	55
Current consumption	A	0,1	0,17	0,26	0,42	0,74
Power consumption	W	9	15	31	52	91
Max. casting distance (wall)	m	2,8	5,2	7,4	9,5	11,6

Cooling medium		t _{L1} [°C]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]	Q _K [kW]	Q _S [kW]	t _{L2} [°C]	V [m ³ /h]
7 / 12 °C		+ 25	2,38	1,67	9,50	0,41	4,04	3,18	11,7	0,69	6,49	5,36	12,3	1,11	9,96	7,94	13,1	1,71
		+ 27	2,86	1,85	9,80	0,49	4,96	3,53	12,3	0,85	8,51	6,11	12,6	1,46	12,8	8,80	13,8	2,20
		+ 30	3,66	2,12	10,2	0,63	7,30	4,37	11,8	1,25	11,8	7,10	13,2	2,03	17,2	10,2	14,8	2,95
		+ 32	4,26	2,30	10,5	0,73	8,75	4,83	11,8	1,50	14,1	7,80	13,7	2,42	20,3	11,1	15,4	3,48



Technical data

Series		PWN 35-1 H / HK	PWN 45-2 H / HK	PWN 75-3 H / HK	PWN 95-2 H / HK	PWN 105-3 H / HK
Heating capacity ^{1) / 2)}	kW	9,7 / 8,1	19,0 / 15,2	33,9 / 27,0	54,9 / 44,1	69,4 / 55,3
Cooling capacity ³⁾	kW	2,5	4,4	7,9	14,8	16,2
Air flow volume	m ³ /h	300 - 2850	250 - 2550	350 - 3900	1270 - 8560	715 - 7950
Nominal flow rate, heating ¹⁾	m ³ /h	0,43	0,83	1,49	2,41	3,05
Nominal flow rate, cooling ³⁾	m ³ /h	0,51	1,03	1,84	3,07	3,78
Sound pressure level ⁴⁾	db(A)	29 - 64	29 - 64	32 - 67	37 - 71	35 - 70
Power supply	V/Hz/~	230/50/1				
Power consumption ¹⁾	W	108	111	315	635	635
Current consumption ¹⁾	A	0,77	0,83	2,10	4,24	4,16
Impedance	kOhm	100	100	100	100	100
Operating limit temperature	°C	105				
Maximum operating pressure	bar	16				
Pressure loss, heating ¹⁾	kPa	2,4	5,7	11,8	12,3	9,4
Pressure loss, cooling ³⁾	kPa	2,8	5,5	14,5	19,2	11,5
Minimum casting distance (wall installation)	m	15,4	13,9	21,2	23,6	22,3
Heat exchanger water content	l	1,8	2,5	3,2	5,3	6,5
Medium connectors	"	3/4	3/4	3/4	1	1
Dimensions - height	mm	730	730	730	730	730
Dimensions - width	mm	765	765	765	1390	1390
Dimensions for depth with mounting bracket	mm	595	595	595	595	595
Weight	kg	20	21	26	38	40

¹⁾ Water inlet temp. 70°C, water outlet temp. 50°C, air inlet temp. 15°C, maximum air volume flow

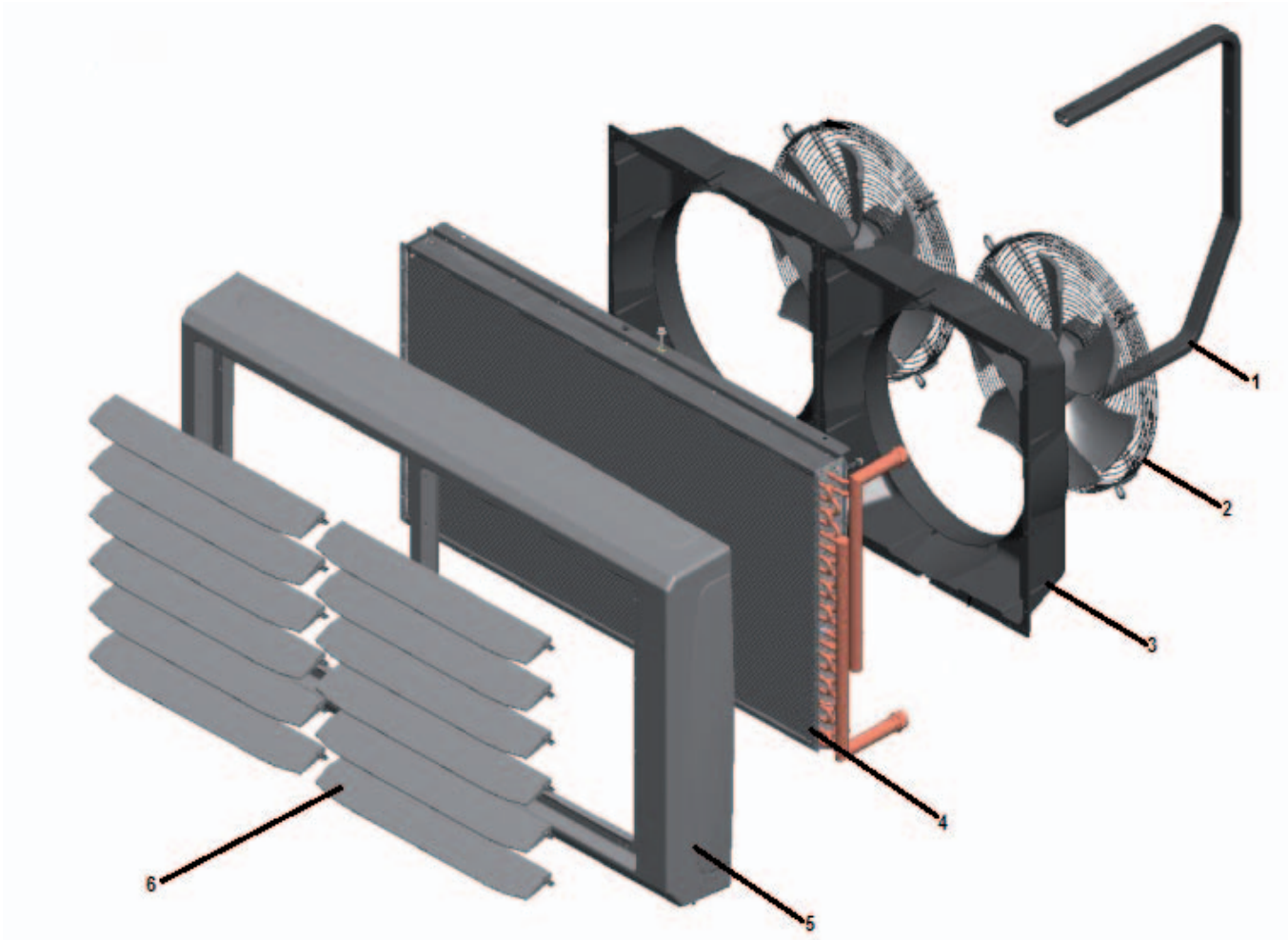
²⁾ Water inlet temp. 55°C, water outlet temp. 45°C, air inlet temp. 15°C, maximum air volume flow

³⁾ Water inlet temp. 7°C, water outlet temp. 12°C, air inlet temp. 27°C TK, air volume flow at 5V

⁴⁾ Measured in a 100m³ room with a reverberation time of 0.3 seconds, distance 1.5m

REMKO PWN H / HK

Exploded view of the unit



We reserve the right to modify the dimensions and design as part of the ongoing technical development process.

Spare parts list

No.	Designation	PWN 35-1 H / HK	PWN 45-2 H / HK	PWN 75-3 H / HK	PWN 95-2 H / HK	PWN 105-3 H / HK
1	Mounting bracket	1102067	1102067	1102067	1102067	1102067
2	Fan, complete	1102068	1102068	1102069	1102069	1102069
3	Fan housing	1102070	1102070	1102070	1102071	1102071
4	Heat exchanger	1102092	1102093	1102094	1102096	1102097
5	Unit housing	1102077	1102077	1102077	1102078	1102078
6	Air discharge fins, set	1102091	1102091	1102091	2x1102091	2x1102091
	Part not illustrated					
	Fastening set	1102080	1102080	1102080	1102080	1102080

When ordering replacement parts, please always state the EDP no. and unit number (see name plate)!

REMKO PWN H / HK

REMKO QUALITY WITH SYSTEMS

Air-Conditioning | Heating | New Energies

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