AMK CF

AIRMASTER

DEHUMIDIFIERS

cdh industries nv

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LUCHTONTVOCHTIGERS AIRMASTER

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INSTALLATION MANUAL

AMK CF

The dehumidifier
has been designed and produced
to give many years of faultless operation,
but like every mechanical system
a correct installation and
regular maintenance are vital.

Inhoud

SAMENSTELLING

HOUSING

FRAMEWORK

Anodised chamfered aluminium profile and blunted corners.

PANELS

Zinc panels painted in epoxy RAL 7011, internal plates in varnished zinc.
The maintenance panels – behind which the air filters are installed – are fitted with swivel handles, which should be rotated 90° to gain access to the unit. These panels can be fully removed.
All other panels are secured with Parker screws and sanitary washers.
Sound-absorbing and flame extinguishing, 20 mm thick insulation (DIN EN 13 501-1).

IDENTIFICATION LABEL

Each unit bears a self-adhesive identification label on the side panel.
This label mentions besides the type of unit, its serial number and technical data.

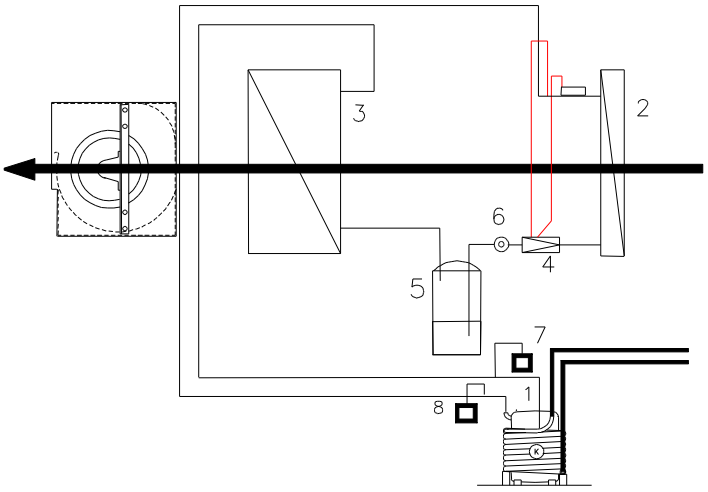
**NEVER REMOVE THE IDENTIFICATION LABEL:
THE GUARANTEE WILL EXPIRE.**

COOLING CIRCUIT

- Hermetically sealed compressor with R454C, vibration-free fitted and cooled with suction gas
- Evaporator and condenser with copper pipes (3/8") with pressed-on aluminium fins, coated with epoxy varnish
- ABS condensation tray
- Expansion valve with distribution head for several injections.
- Combi-dryer: combination of filter, dryer, liquid reservoir and sight-glass
- High and low pressure thermostat
- Electronic control with shut-off at LP, HP, TC and TF *

* LP = low pressure HP = high pressure TC = thermal contact compressor TF = thermal contact fan

The diagram below shows the composition of the cooling circuit and OPTIONAL swimming pool condenser (K), indicating the different components.



(1) Compressor
(2) Evaporator
(3) Condenser
(4) Expansion valve
(5) Combi dryer
(6) Sight-glass
(7) HP pressure gauge
(8) LP pressure gauge
(K) Swimming pool condenser

SAFETY PRECAUTIONS R454C – A2L

WARNING: LOW FLAMMABLE. THE REFRIGERANT IN THIS UNIT IS LOW FLAMMABLE
WARNING: DO NOT DRILL OR BURN ANY REFRIGERANT CYCLE PARTS.
WARNING: REMEMBER THAT THE REFRIGERANT IN THESE UNITS ARE ODORLESS.

PRACTICAL LIMIT

Any gas in a room will displace oxygen, this also applies to refrigerants. The degree to which the oxygen is expelled varies per gas. The practical limit indicates how many kg of refrigerant there are per m^3 departure contents may be present. The practical limit of a refrigerant represents less than half of the concentration of a refrigerant in a room which can lead to asphyxiation due to the displacement of oxygen.

Below is an overview of the practical limit of R454C:

Refrigerant	GWP	Safety Class	Practical Limit
R454C	148	A2L	0,059 kg/m^3

When determining the practical limit, it must be assumed that the entire refrigerant content of the system will enter the room in question if, for example, a leak occurs in that room.

If the practical limit cannot be met, additional measures must be taken, such as refrigerant detection, to comply with the standard.

To clarify this, the maximum system filling is determined in the overview below, for example a smaller pool area of 36 m^2 with a height of 2.7 m. Refrigerant Maximum refrigerant charge for a room of 36m^2 (97.2m^3)
R454C = 5.73kg

Coolant content of appliances (without swimming pool condenser option):

Unit	AMK65	AMK102M/100	AMK142M/140	AMK200	AMK280	AMK400	AMK480
Coolant Content(kg)	1,5	2,0	2,3	3,9	5,5	8,6	11

IF THE MAXIMUM REFRIGERANT CONTENT IS EXCEEDED, THE CONTRACTOR MUST ADD ADDITIONAL COUNTERMEASURES AS DESCRIBED IN THE APPLICABLE LEGISLATION

FILTERS

COMPOSITION

Synthetic fibres reinforced with support mesh in a galvanised metal frame.
Class M5

FILTERAFMETINGEN PER TYPE

	Suction-Side		Fresh Air Side	
Type of Unit	Filter dimensions mm	Number	Filter Dimensions mm	Number
…/10-14	624 x 298 x 48	1	499 x 298 x 48	1
…/20-25	495 x 395 x 97	2	495 x 395 x 47	1
…/36	624 x 395 x 97	2	495 x 395 x 97	1
…/50	624 x 395 x 97 (2x) 495 x 395 x 97 (1x)	3	624 x 495 x 97	1

FANS

Our units use EC radial fans with plastic impellers and housings, single-sided connections, and backward-curved blades, manufactured by leading manufacturers. This technology offers high performance and low noise levels in extremely compact dimensions. These units are low-maintenance, as the motor is directly attached to the impeller.

Type of Unit	Fan	Air Flow Rate *(*)*	Supply Height	Current
…/10-14	K3G280RR03H2	Max. 1400 m³/h	650 Pa	2,31 A
…/20-25	K3G400RT0212	2500 m³/h	624 Pa	3,43 A
…/36		3600 m³/h	500 Pa	3,42 A
…/50	K3G560RB3171	5000 m³/h	960 Pa	4.01 A

(*) Airflow can be reduced either at the factory

FAN FRESH AIR

Our units use EC radial fans with plastic impellers and housings, single-sided connections, and backward-curved blades, manufactured by leading manufacturers. This technology offers high performance and low noise levels in extremely compact dimensions. These units are low-maintenance, as the motor is directly attached to the impeller.

Type of unit	Fan	Air flow Rate	Supply Height	Current
…/10-14	K3G250RE0707	Max. 700 m³/h	355 Pa	1,46 A
../20-25	K3G280RR03H2	1250 m³/h	800 Pa	2,31 A
…/36	K3G280RR03H2	1800 m³/h	670 Pa	2,31 A
…/50	K3G400RT0212	2500 m³/h	624 Pa	3,43 A

ELECTRIC PART

We provide a separate Rittal enclosure with a pre-programmed, modulating electronic control system with a microprocessor. Fully pre-wired in accordance with CE standards, this enclosure can be attached to the device or placed remotely.

WEIGHTS

The following weights are indicative only and vary depending on the dehumidification capacity and combinable options of the device..

Type of Unit	Weight in kg
…/10-14	350
…/20-25	500
…/36	650
…/50	850

OPTIONS & ACCESSORIES

REPLACEMENT FILTER

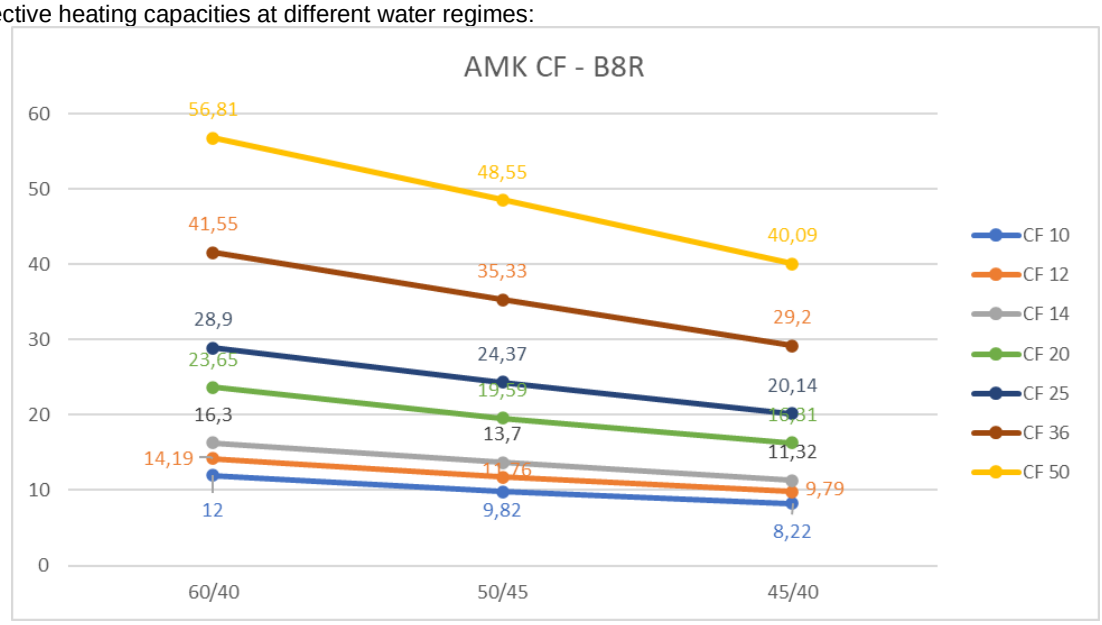
Air filter to replace soiled or worn filter

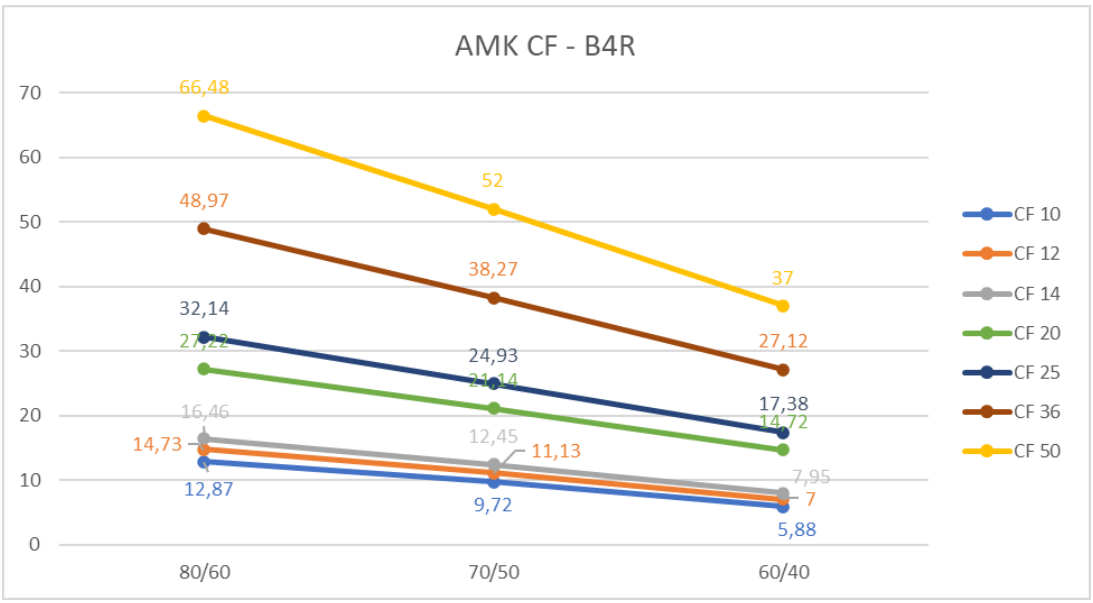
HOT WATER BATTERY

GENERAL

Used to keep the ambient area to temperature or bring this to temperature when a low boiler regime is applied (e.g..B8R regime condensation boiler 60/40 or heatpumps 50/45).

Effective heating capacities at different water regimes:





The 4-rows(B4R) or 8-rows (B8R) built-in hot water battery (LPHW) is fitted on the outlet side of the unit.
The connection of the LPHW is on the top of the unit.

The LPHW must be connected to the CH boiler by a registered installer. The unit is not fitted with a circulating pump. This must be fitted by the CH fitter and adapted to the capacity of the LPHW. The incorporated control can be used to control the circulating pump and/or the CH boiler.

The unit can also OPTIONALLY be equipped with a:

BUILT-IN THREE WAY VALVE
In order to prevent hot water flowing through when the swimming pool area is on temperature.
On heat demand, the three-way valve opens and water flows directly through the LPHW, immediately providing heat.

HYDRAULIC CONNECTIONS

With ♂ screw thread on pressed fitting on Cu-tube towards the LPHW.

The connections are marked as **LPHW IN** and **LPHW OUT**

DO NEVER WELD IN THE PROXIMITY OF PRESSED FITTINGS.
THE EPDM SEAM IS NOT SUSCEPTIBLE AGAINST WELDING TEMPERATURES.

CONTROL

ELECTRICAL CONNECTIONS/ SEE DIAGRAM

The LPHW is controlled independently of the CH via the built-in 24V = control. When the dehumidifier functions, the fan also moves air over the LPHW.

The hygrothermostat (HYTH) or remote display commands the unit control to provide heat. The fan and circulation pump are controlled by the PCB. A non-return valve should be fitted in the hydraulic circuit.

ELECTRICAL HEATING

ONLY AVAILABE FOR 3 X 380 V UNITS

	Type of unit	…/10-14	…/20-25	…/36	…/50
capacity	kW	6	9 / 13,5	13,5 / 18 / 21	13,5 / 18 / 21

GENERAL

Used to keep the ambient area to temperature or bring this to temperature, depending on capacity of the heating resistors.
Composed of reinforced resistors of 1, 1,5 or 2 kW RUS321 with ribs of galvanised steel.
Including one-stage control, with run-on delay on the fan and excess temperature protection.

SUPPLY

	Type	6 Kw	9 kW	13,5 kW	18 kW	21 kW
Control		Thyristor				
Voltage	V	3 x 400 + N				
Nominal	A	8,8	13,2	19,8	26,5	30,8
		To be provided				
Automatic fuse		4P 20A	3P 20A	3P 25A	3P 32A	3P 40A

CONTROL

ELEKTRISCHE AANSLUITING : ZIE SCHEMA

PROTECTION THERMOSTAT

The resistors are always fitted with a safety thermostat which disconnects the resistors when the air temperature exceeds 110°C. The resistors can only be reconnected when the temperature has dropped and the unit has been reset.

SWIMMING POOL CONDENSOR

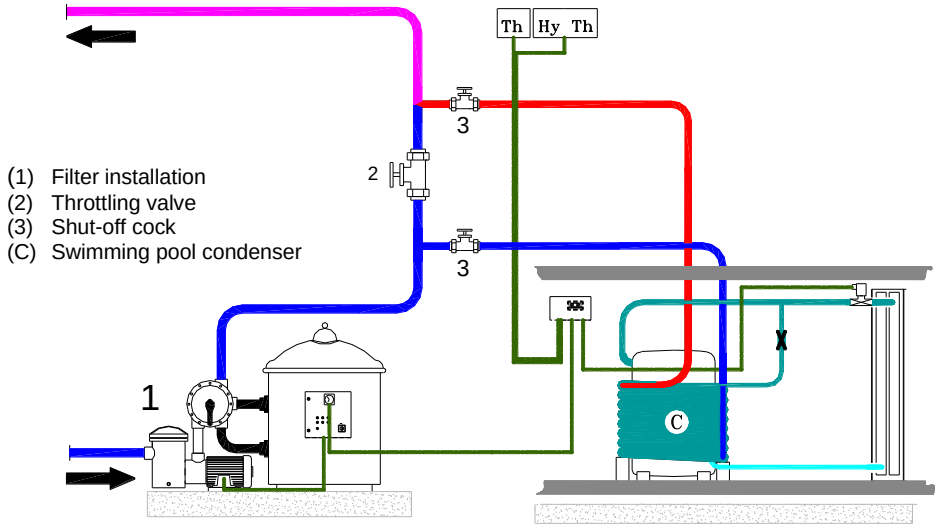
GENERAL

Ensures that the unit will keep working at a higher ambient temperature than the standard value – see technical specifications.
At excess temperature (> 32°C) the unit control (PCB) orders to give off the excess heat to the pool water. The temperature of the blown out air is equal to that of the sucked in air.

HYDRAULIC CONNECTIONS

Via a bypass or a separate pump to the return circuit line from the filter installation.

CONNECTION OF THE POOL CONDENSER HAS TO BE EXECUTED B E F O R E CONNECTION TO THE WATER TREATMENT INSTALLATION



The **IN** and **OUT** are marked **COAX IN** and **COAX OUT**.
The throttling valve must be turned such that the temperature difference between **IN** and **OUT** is ± 8°C.

WE RECOMMEND USING A HEAT- AND PRESSURE-RESISTANT LINE FOR THE FIRST 3 M (E.G.: PEX) NEVER COPPER.

Type of unit		65	100-102M	140-142M	200-202M	280	400	480
Capacity	kW	3,62	4,66	6,63	7,8	12	16	20
Flow	L/h	400	550	660	900	1100	1800	1900
Pressure Loss	kPa	5	15	21	16	12	13	16
Diameter	Ø	20	20	20	26	26	26	26
Connections **IN/OUT**		½ " M	½ " M	½ " M	¾ " M	1 " M	1 " M	1 " M

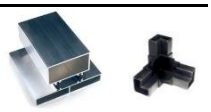
CONTROL

ELECTRICAL CONNECTIONS/ SEE DIAGRAM

At excess temperature (> 32°C) the unit control (PCB) orders to give off the excess heat to the pool water..

OUTDOOR EXECUTION

FRAMEWORK



Rectangular thermal profiles for preventing condensation by cold bridges.

PANELS

The outer panels are double insulated: flame extinguishing and sound absorbent 40mm thick insulation.
Fastening with inox parker screws, covered with a plastic cap.
The roof panels are extra heightened and chamfered and insulated with flame extinguishing and sound absorbent 60 mm thick insulation (DIN EN 13 501-1).

POSITION OF SUCTION AND OUTLET

SUCTION
ALWAYS ON THE HEAD. - CAN N E V E R BE DISPLACED

POSITION OUTLET TO BE COMMUNICATED UPON ORDERING

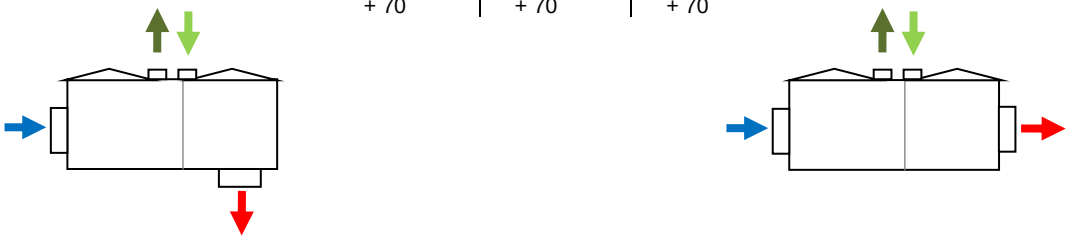
OUTLET ON TOP IS NOT POSSIBLE (WATER INFILTRATION).

POSSIBLE POSITIONS IN FRONT VIEW

DIMENSIONS

70 mm (= extra thickness thermal profile) to be added to the standard dimensions.

L (mm)	D (mm)	H (mm)
+ 70	+ 70	+ 70



EXCEPT THE MAINTENANCE PANEL, ALL JOINTS HAVE TO BE SEALED WITH SUPPLIED WITH SILICONES BY THE INSTALLER AFTER INSTALLATION IN ORDER TO AVOID ANY WATER INFILTRATION INSIDE THE UNIT

EXCEPT THE MAINTENANCE PANEL, ALL JOINTS HAVE TO BE SEALED WITH SILICONES - PROVIDED TOGETHER WITH THE UNIT – BY THE INSTALLER AFTER INSTALLATION, IN ORDER TO AVOID ANY WATER INFILTRATION

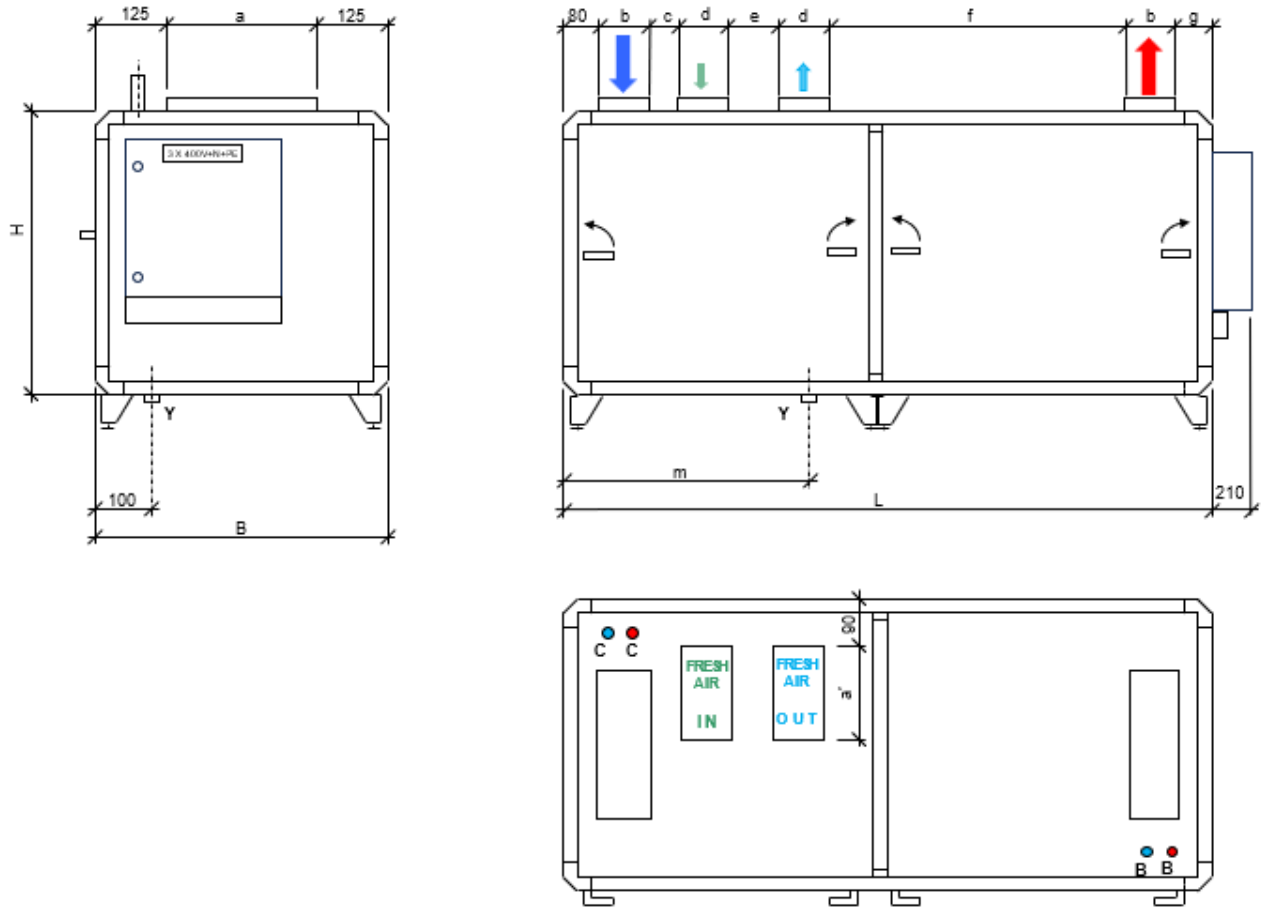
DIMENSIONS

DIMENSIONS

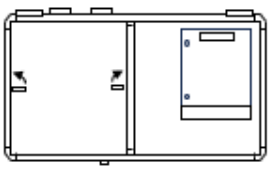
HORIZONTAL EXECUTION AMK …./10-14 CF

												B				C	Y	
TYPE	L	B	H	a	b	c	d	a'	e	f	g	B4R	*B8R*	k	i	j	m	∅
.../10-14	1900	750	965	500	200	57	200	300	144	739	80	¾ " M	1"M					25

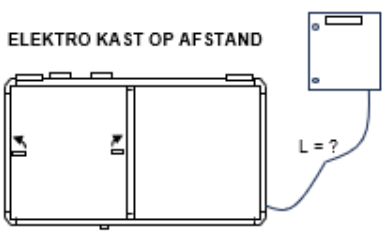
STANDAARD UITVOERING



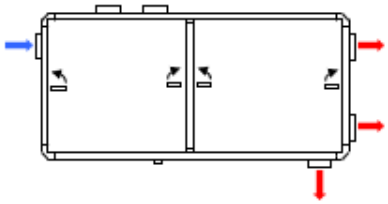
ELEKTRO KAST VOORZIJDE



ELEKTRO KAST OP AFSTAND



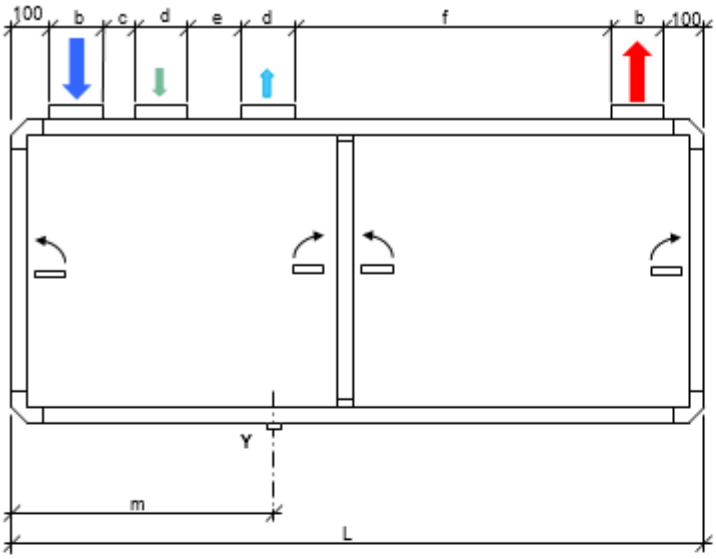
ANDERE MOGELIJKE UITVOERINGEN

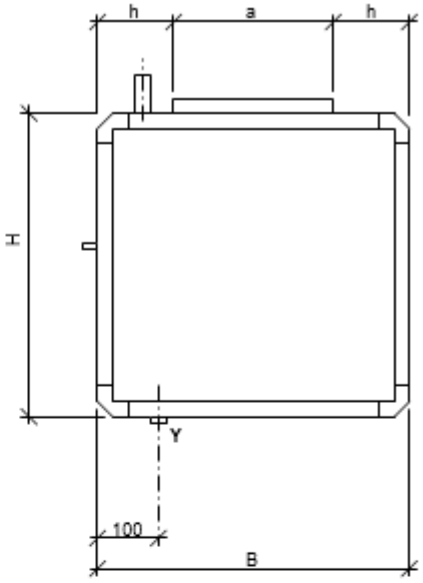


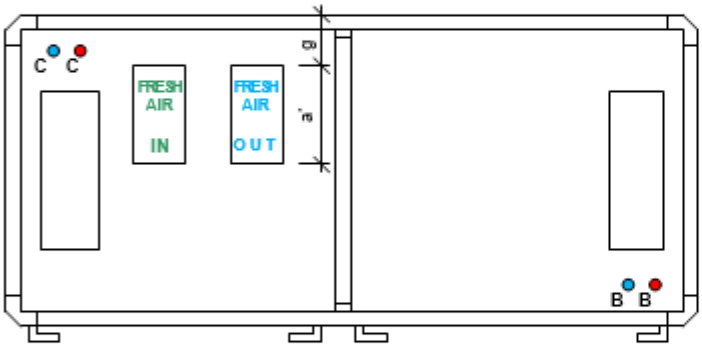
B = warmwaterbatterij
C = zwembadcondensor
Y = condensafvoer

HORIZONTAL EXECUTION AMK …./ 20-25 / 36 /50_CF

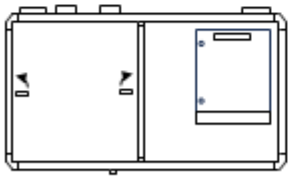
														B			C	Y	
TYPE	L	B	H	a	b	c	d	a'	e	f	g	H	B4R	*B8R*					∅
…/20-25	2400	1000	1200	500	300	230	200	400	110	860	110	250	¾ " M	*1 ¼ "M*					25
.../36	2670	1330	1330	700	300	300	200	500	135	1185	115	315	1 " M	1 ½ "M					32
.../50	2900	1330	1330	800	400	225	300	600	225	820	110	265	1 " M	1 ½ "M					32



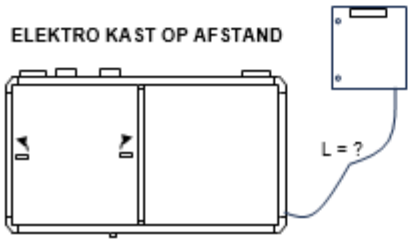




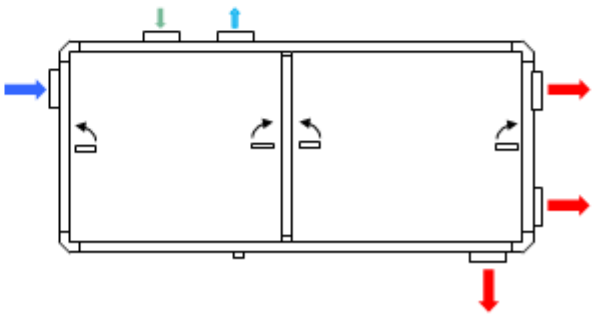
ELEKTRO KAST VOORZIJDE



ELEKTRO KAST OP AFSTAND



ANDERE UITVOERINGEN

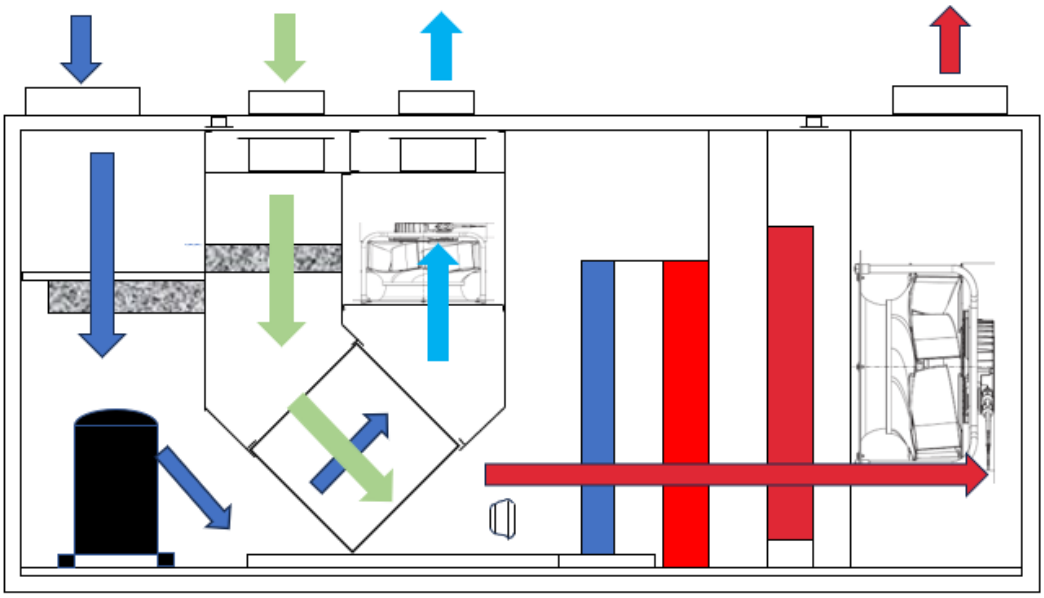


WORKING PRINCIPLE

Mode 1: Operation with max 50% fresh outside air. The fresh air valve is modulating depending on Enthalpy and absolute moisture. The air of the indoor swimming pool merges with max 50% fresh outside air over the crossflow. The fresh air will dry the moist pool air.
When there is a heating demand, the heating battery will heat up the dry air and blow it into the indoor swimming pool area.

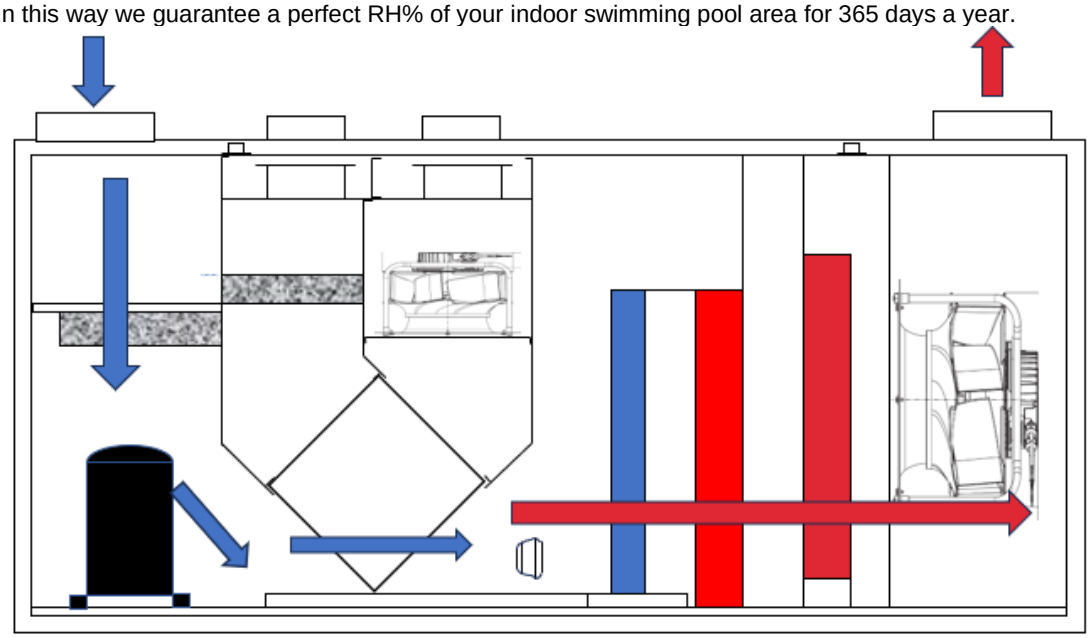
In summer operation mode the heating battery will be no longer necessary, given the dry air will be preheated by the cross-flow exchanger.

If the desired RH% has not been achieved in the indoor swimming pool area, the compressor will not start and the dehumidification will only happen with fresh outside air.



Mode 2: If the RH% is not achieved with the max of 50% fresh outside air, then the compressor will start to ensure that the desired RH% is achieved.

Mode 3: If the RH% of the outside air is too high to dehumidify the indoor swimming pool area, the fresh air valves will go to minus 10% and the room will be dehumidified with the compressor.
In this way we guarantee a perfect RH% of your indoor swimming pool area for 365 days a year.



TRANSPORT AND UNPACKING

GENERAL

The units are separately packed in a cardboard box, on one pallet tied with tape.
To prevent damage to the unit, it is recommended that the unit is transported to its final destination **IN** its packing.
When the unit is stored temporarily, it must be stored in a dry place until transport to its final destination

TRANSPORT

Using a forklift is highly recommended.

The units are always supplied on a pallet: please leave this in place until the final destination.

The units should always be transported the right way up. Although under some circumstances they have to be transported flat, e.g. to clear a narrow passage, they should never be placed flat for transport in trucks or for long term storage (> 12 hours).

If the units must be moved in another way, other precautions must be taken to prevent damage to the housing.

IGNORING THESE GUIDELINES CAN CAUSE DAMAGE

UPON RECEIPT OF THE UNIT,
ENSURE THAT NO TRANSPORT DAMAGE HAS OCCURRED.
THE CARRIER MUST BE INFORMED OF ANY DAMAGE IMMEDIATELY IN WRITING

UNPACKING

ALWAYS DETERMINE WHERE THE UNIT IS TO BE INSTALLED.
ENSURE THAT THE UNIT WILL LATER BE EASILY ACCESSIBLE FOR MAINTENANCE
(SEE WORKING SPACE).

When the equipment has reached its final destination, it can be removed from the pallet.
No specific instructions can be given here, as this action depends on the size of the unit and the room.

INSTALLATION DIRECTIONS

GENERAL

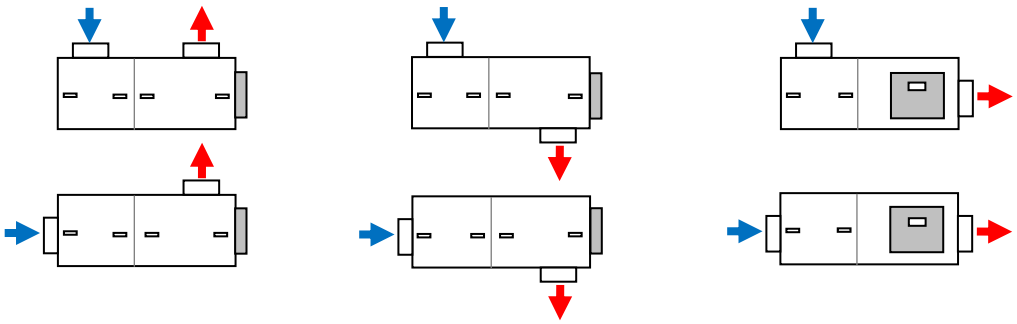
- To prevent resonance, it is best to use sound-dampening material (if not already provided) between the appliance and its base.
- It is not recommended to place or mount the appliances on wooden floors or against wooden walls. This requires special precautions (anti-vibration materials).
- The appliances must always be installed level. If using feet, this can be done with the adjusting screws.
- Installation, assembly, connection to the power supply, and extraordinary maintenance must be carried out only by qualified personnel authorized by the manufacturer, in accordance with the standards applicable in the country of use and in compliance with all standards relating to installations and workplace safety.

IGNORING THESE GUIDELINES CAN CAUSE DAMAGE

POSITION OF SUCTION AND OUTLET

HORIZONTAL EXECUTION

FRESH AIR ALWAYS ON TOP



WORKING AREA

On installation of the unit, ensure there is sufficient space to allow practical and safe maintenance to the unit.
The marked front side must be easily accessible: most components can be accessed from here..

TAKE MINIMUM 100 CM FREE WORKING SPACE INTO ACCOUNT

All (maintenance) work must be carried out on the service side of the appliance.
This is determined by:

- Maintenance panel (with swivel handles)
- Position of the switch box.

CONDENSATION DRAIN

THE CONDENSATION DRAIN MUST BE POSITIONED FROST-FREE.

The condensation drain is connected via the bottom of the unit.

The condensation outlet is a ∅ 25 mm PVC-tube - *vertical execution: ∅15 mm Cu-tube connected to a supple outlet pipe of 19 mm - which* must be connected to a PVC outlet pipe ∅ 32 mm, ideally fitted with an odour trap (siphon).

To prevent water splashing into the unit and any undesirable odours, the connection must be made airtight to prevent the intake of air via the outlet.

THE OUTLET SHOULD BE LAID RUNNING DOWNWARD TO THE DRAIN

If the unit is placed below the drain level, the condensation pump may be used with a receiving bin and float to evacuate the water: flow 2 l/min and 3 m conveying height.

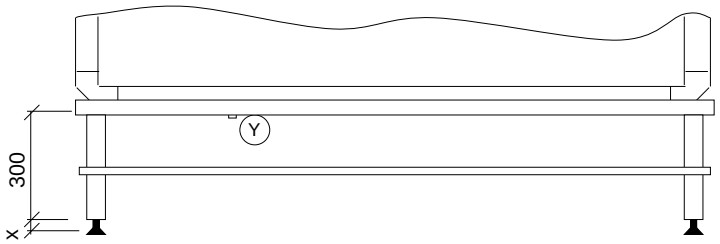
INSTALLATION ON THE VLOER

The unit can be put directly on the floor.
Standard equipped with adjusting screws, adjustable between 25 and 50 mm.

In order to ensure the required free clearance between the unit and the floor, which will make it also easier to connect the condensation outlet, following options are available:

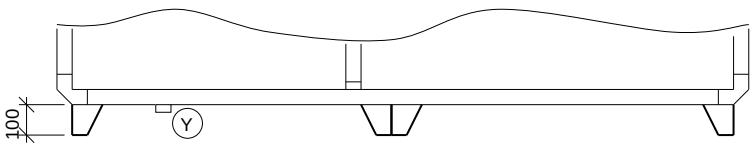
SOCLE

Anti-corrosion treated and painted steel framework (H = 300 mm), equipped with adjusting screws (adjustable from 25 to 50 mm = x) and vibration isolating materiel.
The adjusting screws under the framework of the unit must be removed before placing the unit on the socle.

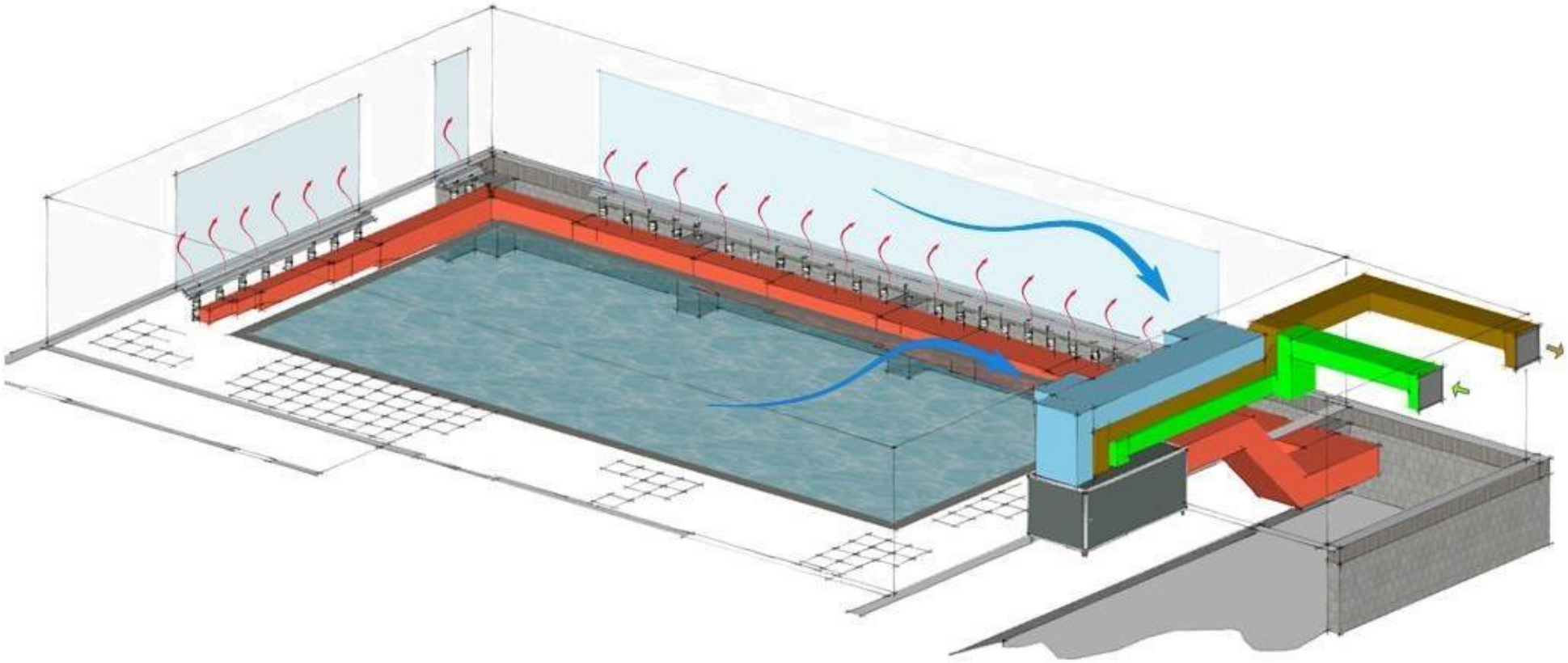


ALU-FEET

Seeled **REINFORCED** RVS feet (H = max 100 mm)
1 set = 4 pieces



INSTALLATION EXAMPLE



ELECTRICAL DATA AND SUPPLIES

GENERAL

All units are equipped with an electric switchboard cabinet with control circuit board, compressor relay and connection terminals. The units are fully pre-wired and constructed to CE standard.

AUTOMATIC FUSE

A multipolar automatic fuse with at least 3 mm contact opening is to be placed on the supply.
This must be adapted to the maximum amperage of the unit which varies according to the composition of the unit – see table below.

COMPRESSORS		**Type of Unit**						
Vac/ph/Hz = 230/1/50		**65**	**102M**	**142M**				
Nominal 1 x 230V	A	-	10,4	8,5				
Vac/ph/Hz = 400/3/50		*-*	***100***	***140***	***200***	***280***	***400***	***480***
Nominal 3 x 400V	*A/ph*	*-*	*4,2*	*4,1*	*-*	*-*	*-*	*-*

FANS	Phase		**Type of unit**			
			…/10-14	**…/20-25**	**…/36**	**…/50**
Pulsion	L1	A	2.31	3,43	3,42	4,01
	L2			-	-	4,01
	L3			-	-	4,01
Fresh Air	L1	A		-	-	-
	L2		1,46	2,31	2,31	-
	L3			-	-	3.43

1. In case of three phase units, the single phase fans are distributed among the three phases. Therefore only the amperage of the heaviest loaded phase has to be taken into account in order to calculate the necessary power supply.

   EXAMPLE: AMK100/36 CF 3 x 400 V

			L1	L2	L3
Compressor	3-phase	=	4,2 A	4,2 A	4,2 A
Base Fan	mono	=	3,42 A	-	-
Fresh Air Fan	mono	=	-	2,31 A	-
Total	3-phase	=	7,62 A	6,51 A	4,2 A

   Maximum current= total off 7,62 A x factor 1.3 (*) = 9,9 A

2. In case of monophase units you will have to count the total Amperages together.

   EXAMPLE: AMK102M/36 CF 1 x 230 V

Compressor	mono	=	10,40 A
Base fan	mono	=	3,42 A
Fresh Air fan	mono	=	2,31 A
Total	mono	=	16,13 A

   Maximum current = total off 16,13 A x factor 1.3 (*) = 20,97 A

(*) Always use slow fuses which are minimum 30% heavier than the calculated amperage.

Recommended fuse:

	Compressor	Vent.Uitblaas	Vent. VL	Factor 1,3	El.voeding	Zekering
AMK 65 /10CF		2,3A	1,46A	11,4A	230VAC	
AMK 65 /12CF		2,3A	1,46A	11,4A	230VAC	
AMK 65 /14CF		2,3A	1,46A	11,4A	230VAC	
AMK 65 /25CF		3,43A	2,31A	14A	230VAC	
AMK 65 /36CF		3,42A	2,31A	14A	230VAC	
AMK 100 /12CF	4,2A	2,3A	1,46A	10,4A	3x400V+N+PE	20A
AMK 100 /14CF	4,2A	2,3A	1,46A	10,4A	3x400V+N+PE	20A
AMK 100 /25CF	4,2A	3,43A	2,31A	12,93A	3x400V+N+PE	20A
AMK 100 /36CF	4,2A	3,42A	2,31A	12,93A	3x400V+N+PE	20A
AMK 100 /50CF	4,2A	4,01A	3,43A	15,15A	3x400V+N+PE	20A
AMK 102M /12CF	10,4A	2,3A	1,46A	18,4A	230VAC	20A
AMK 102M /14CF	10,4A	2,3A	1,46A	18,4A	230VAC	20A
AMK 102M /25CF	10,4A	3,43A	2,31A	21A	230VAC	25A
AMK 102M /36CF	10,4A	3,42A	2,31A	21A	230VAC	25A
AMK 102M /50CF	10,4A	4,01A	3,43A	23,2A	3x400V+N+PE	25A
AMK 140 /14CF	4,1A	2,3A	1,46A	10,22A	3x400V+N+PE	20A
AMK 140 / 25CF	4,1A	3,43A	2,31A	12,8A	3x400V+N+PE	20A
AMK 140 / 36CF	4,1A	3,42A	2,31A	12,8A	3x400V+N+PE	20A
AMK 140 / 50CF	4,1A	4,01A	3,43A	15A	3x400V+N+PE	20A
AMK 142M /14CF	8,5A	2,3A	1,46A	16A	230VAC	20A
AMK 142M /25CF	8,5A	3,43A	2,31A	18,5A	230VAC	20A
AMK 142M /36CF	8,5A	3,42A	2,31A	18,5A	230VAC	20A
AMK 142M /50CF	8,5A	4,01A	3,43A	20,7A	3x400V+N+PE	25A
AMK 200 / 25CF		3,43A	2,31A		3x400V+N+PE	
AMK 200 / 36CF		3,42A	2,31A		3x400V+N+PE	
AMK 200 / 50CF		4,01A	3,43A		3x400V+N+PE	
AMK 280 /36CF		3,42A	2,31A		3x400V+N+PE	
AMK 280 /50CF		4,01A	3,43A		3x400V+N+PE	
AMK 400 /36CF		3,42A	2,31A		3x400V+N+PE	
AMK 400 /50CF		4,01A	3,43A		3x400V+N+PE	
				Max.Waardes		

SWITCHBOARD CABINET

GENERAL

This position can be modified to suit customer needs, where possible.
All controls are 24VAC microprocessor-controlled and therefore of the ultra-low safety voltage type.
The control panel is equipped with all electrical components for protection and control.
The units are fully wired.
Cables should always be fed through the cable entries at the bottom of the control panel.
Ensure that the cables form a loop before entering the control panel, ensuring that the lower points of the cables are positioned below the cable entries in the control panel..

CONNECTION DIAGRAM

Each installation manual and each switchboard cabinet contains a specific connection diagram for the supply and a connection diagram for options and controls

- Diagrams are drawn in quiescent condition
- All PCB are equipped with a fast glass fuse of 6,3 A for transformer supply and 230V exits

CONNECTION TERMINALS

The supply must be connected to the connection terminals as given on the diagram supplied.

ATTENTION
NEVER CONNECT 230VAC TO THE LOW VOLTAGE BOARD TERMINALS.
THIS WILL INEVITABLY LEAD TO A FAULT IN THE ELECTRONIC CONTROL

CONNECTIONS MUST BE MADE ACCORDING TO THE RULES OF THE ART,
IN ACCORDANCE WITH THE CE STANDARDS AND EXECUTED BY A REGISTERED INSTALLER
THEY ARE THEREFORE NEVER OUR RESPONSIBILITY.

CONTROLLER SCREEN

Settings and readouts are handled via the Controller screen – display – which is built into and connected to the control cabinet by default (never with the outdoor installation option).
When the device is started, it automatically displays the home screen with the factory settings..

DISPLAY

A display is always included. This allows the end user to easily enter the temperature and humidity. Error codes are also displayed if the device malfunctions.

DUCTS

AIR FLOW

THE AIR DUCTS PROVIDED SHOULD BE ADAPTED TO THE AIR FLOW RATE OF THE UNIT

The selection of the air ducts (dimensions) and the grids (dimensions and number) must be made as a function of the necessary air flow in relation to the pursued air speed in the ducts of 3 to 4 m/s and at the grids of 2 m/s. The air flow is the quantity of air that is being displaced within a certain time unit, at CDH expressed in m³/h.

The following formula represents the relation between air flow and the surface of the air duct::

$$Q\ (m^3/h) = (V * 3600) * S$$

V *= Air speed (m/s)*
S *= Surface air duct (m²)*

The indicated free discharge head – pressure loss in ducts and at grids – may not be exceeded.
When the air speed **V** – frictions of the air – increases, the pressure losses will exceed exponentially.
Increasing the air speed with factor 2 implies that the pressure losses increase with factor 4.
Simultaneously the output of the fan decreases.

Type of Unit	Fan	Air flow	Max discharge height
…/10-14	KRG280RR03H2	Max. 1400 m³/h	450 Pa
…/20-25	K3G400RT0212	2500 m³/h	625 Pa
…/36		3600 m³/h	500 Pa
…/50	K3G560RB3171	5000 m³/h	960 Pa

FRESH AIR CONNEXION

Each basic unit is foreseen with a fresh air connexion, which is closed with isolation material.
This isolation must be removed when the fresh air connexion is being used/applied.

ATTENTION
THE POOL AREA WILL THUS BE PUT IN OVERPRESSURE
APPLICATION OF A TUBE FAN IS MOST CERTAINLY ADVISED
IN ORDER TO PUT THE POOL AREA IN UNDERPRESSURE AGAIN.

Type of unit	Fan	Air flow	Max discharge height
…/10-14	K3G250RE0707	Max. 700 m³/h	328 Pa
…/20-25	KRG280RR03H2	1250 m³/h	800 Pa
…/36	KRG280RR03H2	1800 m³/h	670 Pa
…/50	K3G400RT0212	2500 m³/h	624 Pa

SELECTION TABLE

THE FOLLOWING TABLE IN ONLY AN INDICATION TO DETERMINE AIR DUCTS AND GRIDS.

AIR DUCTS

The indicated rectangular air ducts are XAL-PIR air ducts with a sheet thickness of 2 cm and the indicated dimensions are those that approach the most an air speed of 3 m/s.

GRIDS

The grids have a free passage of 70 % - gap grids 100 % - and the indicated dimensions are those that approach the most an air speed of 2 m/s

TYPE AMK CF	…/10	…/12	…./14
Air flow m³/h	1000	1200	1400

Ducts			
		Minimum departure dimension	
Suction / **Pulsion**	34 x 34 cm	34 x 44 cm	34 x 44 cm
m³/h	*500*	*600*	*700*
Fresh Air	*24 x 34 cm*	*24 x 34 cm*	*24 x 34 cm*

Grids			
SUCTION			
		Number of grids	
DIMENSIONS			
20 x 60 cm			2
30 x 40 cm	2	2	2
30 x 60 cm			2
40 x 60 cm	1	1	2
PULSION			
		Number of grids **(*)**	
DIMENSIONS			
10 x 20 cm	10	12	14
10 x 30 cm	7	8	10
10 x 40 cm	5	6	7
20 x 30 cm			5
20 x 40 cm			4
		(*) ~Number of current meter gap grid	
GAP WIDTH			
1 x 10 mm	13,5	16,5	19,5
1 x 16 mm	9	10,5	12,5
1 x 20 mm	7	8,5	10
2 x 16 mm	4,5	5,5	6,5

TYPE AMK CF	…/20	…/25	…./36	…/50
Air flow m³/h	2000	2500	3600	5000

Ducts				
		Minimum departure dimension		
SUCTION / PULSION	34 x 64 cm	34 x 84 cm O R 44 x 64 cm	44 x 84 cm O R 54 x 64 cm	54 x 74 cm
m³/h	*1000*	*1250*	*1800*	*2500*
Fresh Air	*34 x 34 cm*	*34 x 44 cm*	*34 x 54 cm*	*44 x 64 cm*

Grids				
SUCTION				
		Number of grids		
DIMENSIONS				
20 x 60 cm	3	4	6	-
30 x 60 cm	2	3	4	5
40 x 60 cm		2	3	4
PULSION				
		Number of grids **(*)**		
DIMENSIONS				
10 x 30 cm	14	17	24	-
10 x 40 cm	10	12	18	25
20 x 30 cm	7	8	12	17
20 x 40 cm	5	6	9	12
		(*) ~number of current meter gap grid		
GAP WIDTH				
1 x 16 mm	17,5	22,0	-	-
1 x 20 mm	14	17,5	25,0	35,0
2 x 16 mm	9	11,0	16,0	22,0

COMMISSIONING

The controller is factory-installed for basic commissioning. For example, a swimming pool condenser can be configured on-site by a CDH service technician.

In addition to the controller on the unit, a separate remote display is also included as standard. This allows you to set the temperature and humidity, as well as read error codes. This makes it user-friendly for the end user.

START-UP

As soon as the unit has been installed according to the guidelines the power can be switched on.

The desirable ambient temperature AT° and relative humidity RH% can be set on the LCD-screen – see settings of temperature and relative humidity.

- The unit will automatically start to dehumidify as soon as the set “normal value” of 60%. is exceeded. On the LCD screen the letter **C** will lighten up as soon as the compressor(s) start. To protect the compressors against too rapid switching on and off, a delay is foreseen which makes it impossible for them to be switched on for 10-15 minutes. During start up, this time should be elapsed before the compressors switch on. Units that – according their capacities – are equipped with different compressors: the compressors are connected in cascade, which means that the compressors will connect on different humidity percentages.

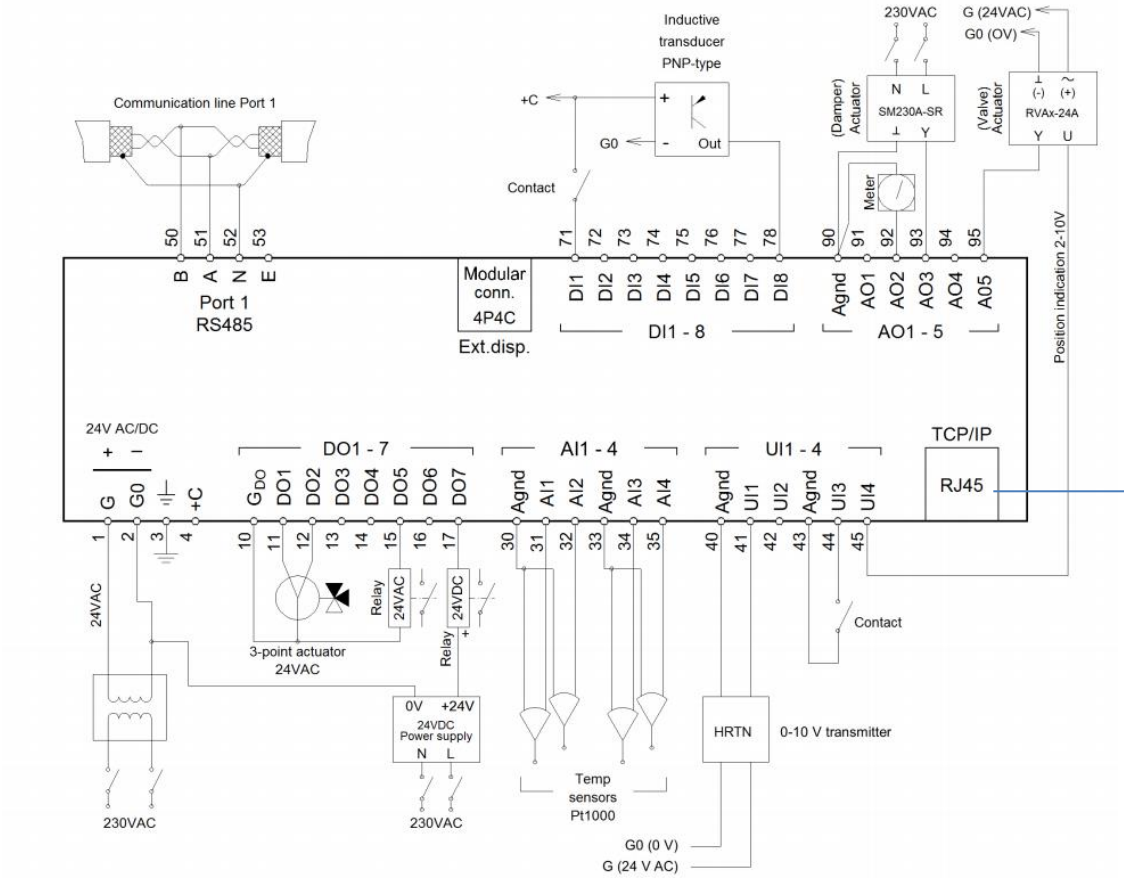
- Before starting up the dehumidifier, the desirable ambient temperature must be checked: AT° should be at least equal to or – preferably – 2 degrees higher than the water temperature.
  Night reduction can only be applied when the pool is covered.

MODBUS & BACNET CONNECTION

Our AMK CF devices offer the option of using a MODBUS or BACNET connection.
This allows you to::

Description	Read	Adapt
Set Temperature Day	Yes	Yes
Set Temperature Night	Yes	Yes
Set Humidity	Yes	Yes
Error codes	Yes	No
Reset error codes	Yes	Yes

MODBUS and BACNET connections are provided on the MASTER (Local Network)



CLOUD CONNECTON

MAINTENANCE AND SAFETY REGULATIONS

MAINTENANCE

FILTERS

All types are equipped with air filters. On start up a lot of building dust can be drawn in, so it is recommended that after a few weeks from starting up a new installation, the filters be checked and cleaned if necessary.
After a time, the period between two checks can be extended but it is still recommended to check the filters at least twice a year.

SWITCH OFF THE UNIT BEFORE REPLACING THE FILTERS

HOUSING

The housing can be cleaned regularly with a detergent without aggressive agents.

HEAT EXCHANGER

Clean the heat exchanger as soon as it shows the slightest sign of contamination. We recommend cleaning and washing the heat exchanger carefully to avoid damaging the fins. Use a neutral detergent suitable for this purpose; alkaline or acidic cleaning agents are prohibited.

You can also remove the heat exchanger from the machine for cleaning.

SAFETY REGULATIONS

FROST

The units should be protected against frost. When currentless, the LPHW can freeze.

SUCTION AND OULET

Suction and outlet grids should always be unobstructed. Obstructed grids may be the cause of a lower airflow, causing the unit to fall out in safety modus. Unit can only be reset manually

FAILURES

ERROR CODES

0 0 1 **"L P"** Low Pressure regulator 001 = Compressor 1 101 = Compressor 2 201 = Compressor 3 301 = Compressor 4 401 = Compressor 5 501 = Compressor 6	▪ Check that the grids are clear and the fan is not blocked. ▪ Possible leak in a cooling circuit(s). Press **RESET** after removal of the failure.
0 0 0 **"H P"** High Pressure Regulator 000 = Compressor 1 100 = Compressor 2 200 = Compressor 3 300 = Compressor 4 400 = Compressor 5 500 = Compressor 6	▪ Lower the ambient temperature in case maximum working range is exceeded. ▪ Units with pool condenser: check if the filter pump starts up wenn the pool condenser engages. If necessary, lowel the switch-on temperature. ▪ Check that the grids are clear and the fan is not blocked. Press **RESET** after removal of the failure.
0 0 2 **"T C"** TC compressor 002 = Compressor 1 102 = Compressor 2 202 = Compressor 3 302 = Compressor 4 402 = Compressor 5 502 = Compressor 6	▪ Check thermal protection of the relevant compressor. Press **RESET** after removal of the failure
0 06 phase monitoring	▪ When starting up a three-phase appliance: a phase change must be performed. ▪ Check that the grilles are clear and the fan is not blocked. After resolving the fault, press the button under RESET.If the appliance does not restart: contact technical service.
0 13 **"T C"** TC Fan Pulsion 1 113 = Fan Pulsion 2	▪
0 1 4 Exceeded **"MAX Pa"** Pulsion Fan 114 = Fan Pulsion2	▪ Check that the grids are clear and the outlet fan is not blocked. Press **RESET** after removal of the failure.
0 2 3 TC Fresh Air Fan 123 = Fresh Air Fan 2	▪ Check that the grids are clear and the outlet fan is not blocked. Press **RESET** after removal of the failure..
0 2 4 Exceeded **"MAX Pa"** Fresh Air Fan 124 = Fresh Air Fan 2	▪ Check that the grids are clear and the outlet fan is not blocked. ▪ Press **RESET** after removal of the failure.
0 3 2 **"T C"** TC Electrical heating:	▪ Check that the grids are clear and the outlet fan is not blocked. Press **RESET** after removal of the failure.
0 3 2 Failure **DX**	▪

052 fresh air valve defective	▪

CODES FROM 8 0 0 ON ARE ONLY MESSAGES OF AN ACTIVE ACTION AND STOPS BY ITSELF OR THAT AN ACTION SHOULD BE TAKEN IN ORDER TO SOLVE A PROBLEM.

8 0 0 Soft stop		▪ Automatically shut down of all functions (compressor, fan …) whilst measurements – in the unit – continue
8 88 Max Temp Exceeded		▪
8 8 9 Frost protection on		**STANDARD ADJUSTED AT 5°C** ▪ Check if the fresh air valve closes and if heating is still on. When the fresh air valve closes and the heating is on, the unit will restart automatically as soon as the temperature behind the condenser has increased Press **QUIT** to return to the initial screen. When **E E E** appears and after pressing **SERV** code **8 8 9** re-appears: inform technical service.
8 9 0	Fouled filter	▪ Replace the filter(s) Press **QUIT** to return to the initial screen.
	Fresh air fan	▪ Check the power supply – automatic fuse F11 – and the control ▪ Check that the grids are clear and the outlet fan is not blocked. Press **QUIT** to return to the initial screen

NOTA