

PRODUCT CATALOGUE



R410A



n° 1370
according to
97/23/EC (P.E.D.)



BUREAU
VERITAS



**AIRCOOLED CONDENSING
UNITS AND REVERSIBLE
CONDENSING UNITS WITH RADIAL
FANS AND SCROLL COMPRESSORS**
FROM 50 kW TO 188 kW

GENERAL DESCRIPTION

Condensing units and reversible aircooled condensing units, with centrifugal fans for indoor installation. The range consists of 10 models covering a cooling capacity from 51 to 188 kW.

VERSIONS:

IKM MRA/K - cooling only

IKM MRA/K/AP - cooling only with high ESP fans

IKM MRA/K/WP - reversible heat pump

IKM MRA/K/WP/AP - reversible heat pump with high ESP fans

TECHNICAL FEATURES:

Frame. Self-supporting galvanized steel frame further protected with polyester powder painting. Easy to remove panels allow access to the inside of the unit for maintenance and other necessary operations.

Compressors. Scroll with oil sight glass. They are furnished with an internal overheat protection and crankcase, installed on rubber shock absorbers.

Fans. Centrifugal type coupled to 3-phase motors by V belt and various pulley.

Condenser Made up of a finned battery with copper pipes and aluminum fins. Circuits on the refrigerant side are made to create one circuit in models 50-135 and two independent circuits in models 155-190.

Electrical board. Includes: main switch with door safety interlock, fuses, overload protection for compressors and thermocontacts for fans, interface relays, electrical terminals for external connections.

Microprocessor. For automatic control of the unit allowing continuous display of the operational status of the unit, control set and real water temperature and, in case of partial or total block of the unit, indication of security device that intervened.

Refrigerant circuit versions IKM MRA/K and IKM MRA/K/A Produced in copper tubing, all models have the following components: high and low pressure switches (with fixed setting).

Refrigerant circuit versions IKM MRA/K/WP and IKM MRA/K/WP/AP. The unit in heat pump version, in addition to the components of the cooling only unit, includes for each circuit: 4-ways reverse valve; liquid separator on the suction line; liquid receiver; check valves; thermostatic expansion valve with external equalisation; dehydrator filter; level and humidity indicator.

FACTORY FITTED ACCESSORIES:

IM - Magnetothermic switches. Alternative to fuses and thermal relays.

SL - Unit silencing. The compressors are equipped with sound-absorbing covering.

CC - Condensation control. . Obtained by means of continuous adjustment of the fan rotation speed up to outside air temperatures of -20°C .

RL - Liquid receiver to guarantee the liquid phase of the cooling fluid (included WP)

VS - Solenoid valve on the liquid side to avoid liquid reflux (excluded WP).

BP - By-pass with hot injection to prevent frosting on internal unit (excluded WP).

FF - Filter drier and flow sight glass as a further warranty of the perfect working of the machine (included WP).

CP - Potential free contacts for remote alarm and control.

LOOSE ACCESSORIES:

- MN - High and low pressure gauges.** One for each refrigerant circuit.
- CR - Remote control panel. To be included** in the room for remote control of the unit, with the same functions as that inserted in the machine.
- IS - RS 485 serial interface.** For connection to centralized control and supervision systems.
- RP - Coil protection guards.** In steel with cathodolysis treatment and painting.
- AG - Rubber vibration dampers.** For connection to centralized control and supervision systems.

REFERENCE CONDITIONS:

All technical data, indicated on pages 8 and 9, refer to the following unit operating conditions:

Cooling:

- Evaporating temperature 5 °C.
- Ambient air temperature 35 °C.

Heating:

- Condensing temperature 40 °C.
- Ambient air temperature 7 °C d.b.; 6 °C w.b.

Sound Pressure Level (DIN 45635):

Measured in free field conditions at 1 m from the unit and at 1,5 m from the ground. According to DIN 45635.

Sound Pressure Level (ISO 3744):

Measured in free field conditions at 1 m. As defined by ISO 3744. The power supply is 400V/3Ph/50Hz; auxiliary supply is 230V/1Ph/50Hz.

OPERATING RANGE	COOLING		HEATING	
	min	max	min	max
Evaporator temperature	- 2 °C	10 °C	---	---
Average condensing temperature	---	---	35 °C	60 °C
Ambient air temperature	10 °C*	46 °C**	-10 °C	20 °C

* All technical data, indicated on pages 4 and 5, refer to the following unit operating conditions:

TECHNICAL DATA

MODEL		50	60	65	75	90
Cooling:						
Cooling Capacity (1)	kW	50,6	58,6	66,9	77,2	88,4
Absorbed power (1)	kW	18,3	21,4	24,9	28,2	31,9
Heating:						
Heating capacity (1)	kW	55,5	63,5	73,6	83,9	94,5
Absorbed power (1)	kW	14,7	16,0	19,1	21,7	24,4
Compressor:						
Refrigerant Circuits	n°	2	2	2	2	2
Refrigerant Circuits	n°	1	1	1	1	1
Cooling Capacity split	%	100	100	100	100	100
Capacity steps	n°	2	2	2	2	2
Compressors:						
Unitary absorbed power (1)	kW	8,1	9,2	10,3	11,9	13,8
Unitary absorbed current (1)	A	15	16	18	20	26
Oil charge	kg	3,3	3,3	3,3	3,3	3,6
Standard version and with SL accessory:						
Airflow	m ³ /s	3,3	4,2	7,1	7,1	7,3
External static pressure	Pa	165	147	120	120	105
Fans/motors	n°	1/1	1/1	2/2	2/2	2/2
Motors fans nominal power	kW	2,2	3,0	4,0	4,0	4,0
Motors fans nominal current	A	4,8	6,6	9,6	9,6	9,6
Sound pressure level - DIN (1)	dB(A)	75	75	76	76	76
Sound pressure level with SL accessory - DIN (1)	dB(A)	72	72	73	73	73
Sound pressure level - ISO (1)	dB(A)	65	65	66	66	66
Sound pressure level with SL accessory - ISO (1)	dB(A)	62	62	63	63	63
Lenght	mm	2350	2350	2350	2350	2350
Width	mm	1100	1100	1100	1100	1100
Height	mm	1705	1705	1705	1705	2005
Transport weight *	Kg	595	600	670	680	725
Transport weight with SL accessory *	kg	605	610	680	690	735
Version with High ESP fans and with SL accessory:						
Airflow	m ³ /s	3,3	4,2	7,1	7,1	7,3
External static pressure	Pa	289	288	263	263	245
Fans/motors	n°	1/1	1/1	2/2	2/2	2/2
Motors fans nominal power	kW	3,0	4,0	6,0	6,0	6,0
Motors fans nominal current	A	6,6	8,7	13	13	13
Sound pressure level - DIN (1)	dB(A)	76	76	77	77	77
Sound pressure level with SL accessory - DIN (1)	dB(A)	73	73	74	74	74
Sound pressure level - ISO (1)	dB(A)	66	66	67	67	67
Sound pressure level with SL accessory - ISO (1)	dB(A)	63	63	64	64	64
Lenght	mm	2350	2350	2350	2350	2350
Width	mm	1100	1100	1100	1100	1100
Height	mm	1705	1705	1705	1705	2005
Transport weight *	Kg	600	605	680	690	735
Transport weight with SL accessory*	Kg	610	615	690	700	745
Connections:						
Suction line	∅ mm	<----- 1 x 35 ----->				
Liquid line	∅ mm	<----- 1 x 22 ----->				
Total electrical consumption:						
Power supply	V/Ph/Hz	<----- 400/3/50 ----->				
Max. current	A	43	48	57	61	70
Max. starting current	A	166	169	180	193	237

(1) Referential conditions at page 3.

* For heat pump unit increase the weight 10%

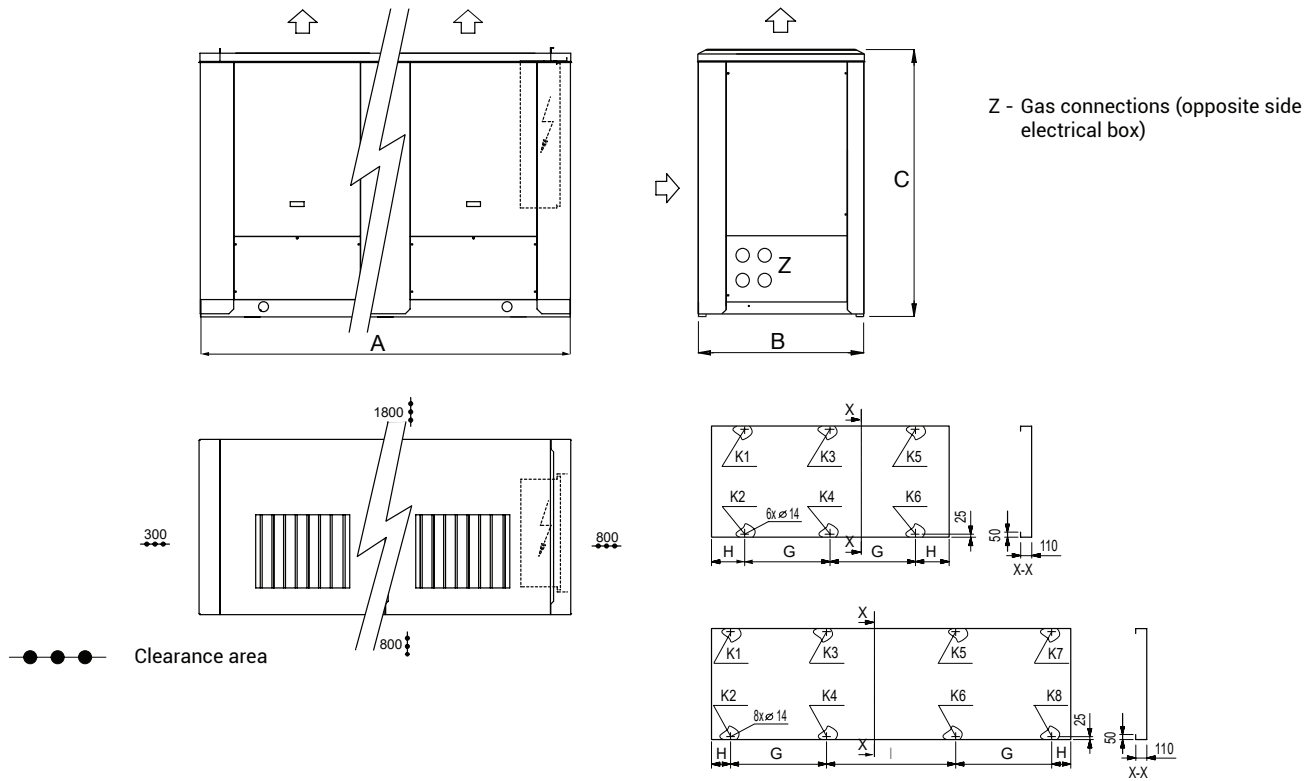
TECHNICAL DATA

MODEL		100	115	135	155	190
Cooling:						
Cooling Capacity (1)	kW	102	117	134	156	188
Absorbed power (1)	kW	36,6	43,2	49,6	58,2	69,2
Heating:						
Heating capacity (1)	kW	109	125	142	162	193
Absorbed power (1)	kW	30,3	36,7	40,6	46,7	55,5
Compressor:						
Refrigerant Circuits	n°	3	3	3	4	4
Refrigerant Circuits	n°	1	1	1	2	2
Cooling Capacity split	%	100	100	100	50/50	50/50
Capacity steps	n°	3	3	3	4	4
Compressors:						
Unitary absorbed power (1)	kW	10,7	11,7	13,9	12,3	14,3
Unitary absorbed current (1)	A	19	20	26	21	27
Oil charge	kg	3,3	3,3	3,6	3,3	3,6
Standard version and with SL accessory:						
Airflow	m ³ /s	7,1	8,9	8,9	11,4	13,9
External static pressure	Pa	115	135	135	190	105
Fans/motors	n°	2/2	2/2	2/2	3/3	3/3
Motors fans nominal power	kW	4,4	8,0	8,0	9,0	12,0
Motors fans nominal current	A	9,6	17	17	20	26
Sound pressure level - DIN (1)	dB(A)	77	77	77	78	78
Sound pressure level with SL accessory - DIN (1)	dB(A)	74	74	74	75	75
Sound pressure level - ISO (1)	dB(A)	67	67	67	67	67
Sound pressure level with SL accessory - ISO (1)	dB(A)	64	64	64	64	64
Lenght	mm	2350	2350	2350	3350	3350
Width	mm	1100	1100	1100	1100	1100
Height	mm	2005	2005	2005	2005	2005
Transport weight *	Kg	825	865	895	1080	1080
Transport weight with SL accessory *	kg	840	880	910	1100	1205
Version with High ESP fans and with SL accessory:						
Airflow	m ³ /s	7,1	--	--	11,4	--
External static pressure	Pa	256	--	--	400	--
Fans/motors	n°	2/2	--	--	3/3	--
Motors fans nominal power	kW	6,0	--	--	12	--
Motors fans nominal current	A	13	--	--	26	--
Sound pressure level - DIN (1)	dB(A)	78	--	--	79	--
Sound pressure level with SL accessory - DIN (1)	dB(A)	75	--	--	76	--
Sound pressure level - ISO (1)	dB(A)	68	--	--	68	--
Sound pressure level with SL accessory - ISO (1)	dB(A)	65	--	--	65	--
Lenght	mm	2350	--	--	3350	--
Width	mm	1100	--	--	1100	--
Height	mm	2005	--	--	2005	--
Transport weight *	Kg	836	--	--	1095	--
Transport weight with SL accessory*	Kg	850	--	--	1115	--
Connections:						
Suction line	Ø mm	<----- 1 x 42 ----->		<----- 2 x 35 ----->		
Liquid line	Ø mm	<----- 1 x 28 ----->		<----- 2 x 22 ----->		
Total electrical consumption:						
Power supply	V/Ph/Hz	<----- 400/3/50----->				
Max. current	A	80	94	107	122	146
Max. starting current	A	204	227	275	255	313

(1) Referential conditions at page 3.

* For heat pump unit increase the weight 10%

DIMENSIONS, CLEARANCES AND WEIGHTS DISTRIBUTION



DIMENSIONS		50		60		65		75		90		100		115		135		155		190	
A	mm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	3550	3550	3550
B	mm	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
C	mm	1705	1705	1705	1705	1705	1705	1705	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005
G	mm	844	844	844	844	844	844	844	844	844	844	844	844	844	844	844	844	844	950	950	950
H	mm	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	191	191	191
I	mm	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1268	1268	1268

DIMENSIONS		50				60				65				75				90			
		STD	STD/SL	AP	AP/SL	STD	STD/SL	AP	AP/SL	STD	STD/SL	AP	AP/SL	STD	STD/SL	AP	AP/SL	STD	STD/SL	AP	AP/SL
K1	90	90	90	90	90	90	90	90	90	100	100	100	100	105	105	105	105	115	115	115	115
K2	70	70	75	75	75	75	80	80	80	85	85	90	90	90	90	95	95	95	95	100	100
K3	120	125	120	125	120	125	120	125	125	130	135	130	135	130	135	130	135	140	145	140	145
K4	95	95	95	95	95	95	95	95	95	110	110	115	115	110	110	115	115	115	115	120	120
K5	130	135	130	135	130	135	130	135	135	140	145	135	140	140	145	135	140	150	155	145	150
K6	100	100	100	100	100	100	100	100	100	115	115	120	120	115	115	120	120	120	120	125	125
K7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tot.	605	615	610	620	610	620	615	625	625	680	690	690	700	690	700	700	710	735	745	745	755

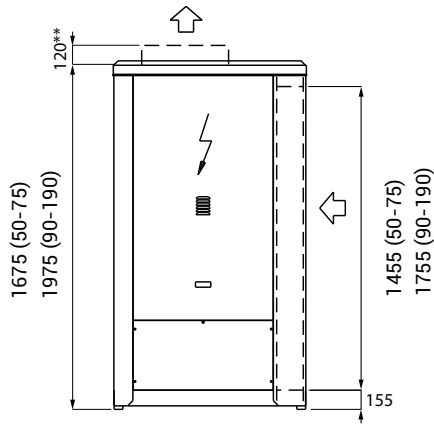
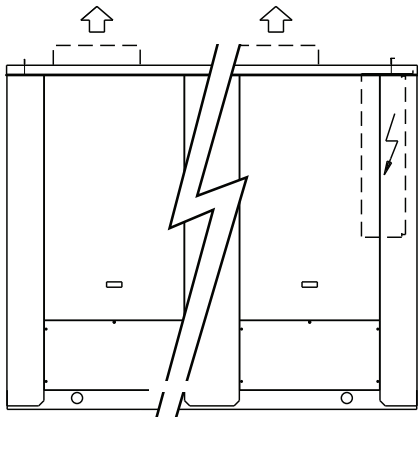
FANS		50				60				65				75				90			
N°		1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
N°		1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2

DIMENSIONS		100				115				135				155				190			
		STD	STD/SL	AP	AP/SL	STD	STD/SL	AP	AP/SL	STD	STD/SL	AP	AP/SL	STD	STD/SL	AP	AP/SL	STD	STD/SL	AP	AP/SL
K1	140	145	140	140	145	150	-	-	-	150	155	-	-	135	140	135	140	145	150	-	-
K2	115	115	115	120	120	120	-	-	-	125	125	-	-	105	105	110	110	115	115	-	-
K3	155	160	160	160	160	165	-	-	-	165	170	-	-	145	150	145	150	165	170	-	-
K4	130	130	130	130	140	140	-	-	-	145	145	-	-	120	120	130	130	130	130	-	-
K5	165	170	175	175	170	175	-	-	-	175	180	-	-	160	165	160	165	180	185	-	-
K6	135	135	140	140	145	145	-	-	-	150	150	-	-	135	135	135	135	145	145	-	-
K7	-	-	-	-	-	-	-	-	-	-	-	-	-	165	170	165	170	185	190	-	-
K8	-	-	-	-	-	-	-	-	-	-	-	-	-	140	140	140	140	150	150	-	-
Tot.	840	855	860	865	880	895	-	-	-	910	925	-	-	1105	1125	1120	1140	1215	1235	-	-

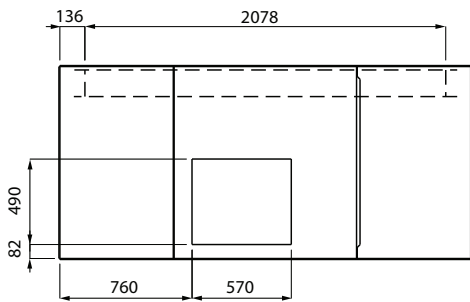
FANS		100				115				135				155				190			
N°		2	2	2	2	2	2	2	2	2	2	---	---	3	3	3	3	3	3	---	---
N°		2	2	2	2	2	2	2	2	2	2	---	---	3	3	3	3	3	3	---	---

AIR DUCT CONNECTIONS

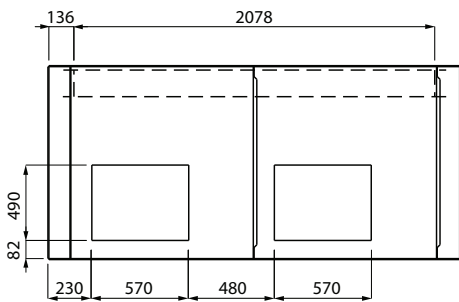
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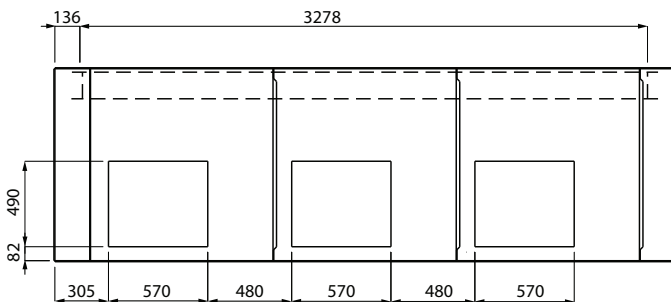
** Damper (accessory - CC)*



Mod. 50-60



Mod. 65-135



Mod. 155-190