AIR-COOLED
CHILLERS

APPLIED SYSTEMS R-134a

www.daikin.eu

COOLING ONLY

EWAD650-C18BJYNN
EWAD650-C21BJYNN/A
EWAD550-C12BJYNN/Q
EWAD600-C10BJYNN/Z

ABOUT DAIKIN

Daikin has a worldwide reputation based on over 80 years' experience in the successful manufacture of high quality air conditioning equipment for industrial, commercial and residential use

Daikin Europe N.V.

LARGER OPERATION RANGE

The EWAD-BJYNN is available in 4 different versions with cooling capacities ranging from 538 to 1920kW. The units are ideal for use in severe weather conditions and over a wide operation range. This major benefit results from the incorporation of an auto adaptive control system with the following functionality:

- Optional: Head pressure control (OPFS and OPLA): fan control for low ambient down to -15°C
- Head pressure setback for high ambient operation: on hot days, when cooling is most needed, Daikin chillers will stay on line by modulating the capacity control in function of the high pressure.

Following integrated options are available on request:

Hydronic:

- OPSP – Single water circulation pump
- OPTP – Twin water circulation pump
- OPHP – High single pump
- OPHT – High twin pump

Hydronic:

- OPPR – Partial recovery
- OPTR – Total recovery

	Application	Sizes	Capacity range	EERavg	Sound level
Std	Standard efficiency	14	640-1772kW	2.8	100-103dBA
/A	High efficiency	18	667-1920kW	3.1	100-103dBA
/Q	Extra low noise	12	538-1197kW	2.6	86-89dBA
/H	High ambient	7	569-1013kW	2.6	86-88dBA

LARGE FLEXIBILITY

In many applications there often exists a simultaneous cooling and heating demand requirement alongside one another. To benefit from this Daikin offers the full range of R-134a EWAD650-C180BJYNN chillers with the option of heat recovery. This option further increases the application flexibility and extends possibilities in the hotel and leisure industry as well as the industrial and process sectors.

By energetically recovering useful heat from the cooling cycle that would otherwise be rejected to the outside, extremely high COPs can be realised in heat recovery mode. The heat recovery unit aims to achieve an optimum balance between cooling and heat recovery to maximize the unit efficiency and offer savings in hot water production.

Sound level

Standard units and High efficiency units can be fitted with Option Reduced Noise (OPRN). OPRN includes lower speed condenser fans and flexible discharge pipes to reduce vibration and further minimise structural sound. Sound reduction towards standard sound units is ±4dBA.

Both standard units and high efficiency units can be fitted with Option Low Noise (OPLN). OPLN includes lower speed condenser fans, suction and discharge muffler and highly absorbent sound proof cabinets around the compressors. Sound reduction towards standard sound units is ±7.5dBA.

For those particularly sound sensitive applications where full technology OPRN and OPLN do not offer the desired sound level an Extra Low Noise standard (/Q) or High efficiency (/Z) version is available. In addition to the features of OPLN the fan speed is further reduced to 500rpm and fitted with modulating fan speed control for a better "colour of sound' at lower ambient operation. The condenser section is enhanced or oversized. Sound reduction towards standard sound units is ±14dBA.

Efficiency

A

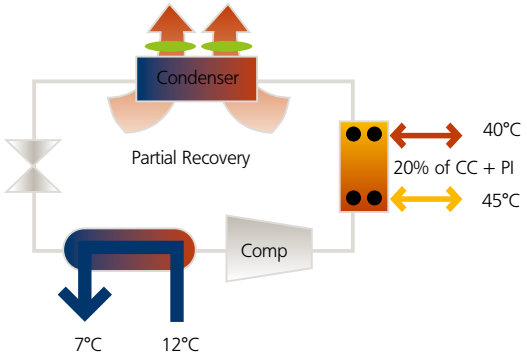
The High efficiency units (/A) are equipped with oversized condenser coils and evaporators. These units achieve an EERavg >3 compared to an EERavg of 2.56 for the standard units. This implies that 6 high efficiency models are Eurovent "Class A"

Heat recovery

Depending on the heating requirement either partial heat recovery (OPPR) or as a condenser full heat recovery (OPTR) may be selected.

OPPR – Partial recovery

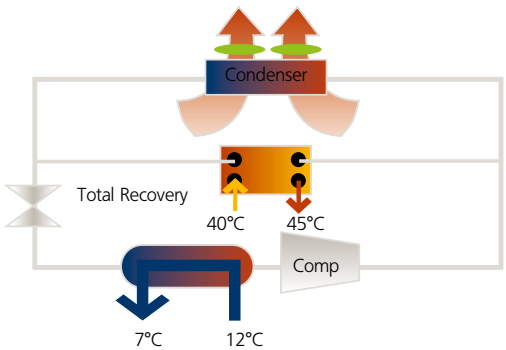
A stainless steel brazed plate heat exchanger is mounted in series between the compressor and air-cooled condenser as a desuperheater. The sensible heat from the hot discharge gas will be recovered, while the latent heat exchange will occur in the air-cooled condenser. The unit's efficiency is maintained as condensing pressure can be reduced due to air-cooled condenser becoming oversized.



Partial heat recovery ±35% of CC + PI

OPTR – Total recovery

A shell & tube heat exchanger is mounted in parallel with the air-cooled condenser for full heat recovery of both sensible and latent heat. Hot water temperatures up to 55°C can be achieved.



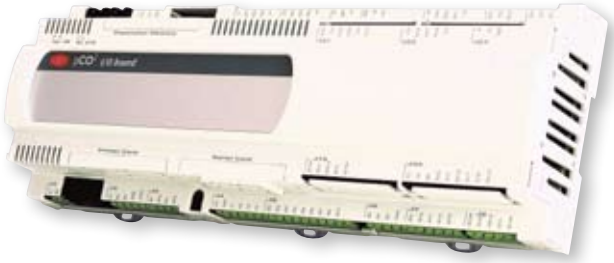
SINGLE SCREW COMPRESSOR

The EWAD-BJYNN(A-Q-Z) chillers are fitted with a single screw compressor with stepless capacity control. The stepless capacity control enables the requirements to be closely matched by modulating the sliding valve position according to the chilled water control condition. Capacity control is infinitely variable between 12.5 and 100% on dual circuit units, between 8.3 and 100% on 3 circuits and between 6.25 and 100% on 4 circuit units.

Main advantages:

- Better part load efficiency (ESEER)
- More stable chilled water temperatures
- Closer control tolerance

ELECTRONIC CONTROL



- Advanced pCO^2 control
- Detailed information on and accurate control of all functional parameters by easy menu scrolling
- Chilled water and brine temperatures down to -8°C on standard unit (to be set up by a certified engineer)
- Changeable digital input/output such as remote on/off, dual setpoint and capacity limit
- Lead lag function is standard
- Standard equipped with night setback and peak load limitation
- Remote DDC (EKRUPCJ) can be installed up to 1.000m from the unit

HEAT EXCHANGER

Condenser

- Constructed from specially designed header distribution pipes, combined with internally grooved Hi-X tubing and Epoxy coated fins
- Standard anti-corrosion treated to better withstand the effects of the external environment
- Optional: Condenser protection grilles (OPCG) are available throughout the whole range

Shell & tube evaporator

- Special high efficiency tubes with grooves on the inside
- Special header distribution system and design of water system results in high efficiency and reduced heat transfer surface
- Compact dimensions and lower weight result in a smaller refrigerant volume
- Fitted standard with evaporator heater tape

Open Network Integration

Daikin has released a gateway for connection to BACnet, LonWorks and Modbus networks equipment and building control systems. BACnet, LonWorks and Modbus networks are recognised worldwide as the de facto standard within the building controls industry. BACnet, LonWorks and Modbus data communication protocols make it possible to control access, energy management, fire/life/safety, HVAC and lighting etc.

Simultaneous operation of up to 5 chillers is optional through EKCSCII sequencing panel (this function enables a Daikin 9MW chiller plant to be operated via a single controller).

STANDARD EFFICIENCY UNIT				650	700	750	850	900
Capacity (Eurovent)	cooling		kW	640	700	761	817	886
Nominal input (Eurovent)	cooling		kW	233	250	271	290	302
Capacity Steps			%	Stepless 12.5 - 100				
EER				2.75	2.8	2.81	2.82	2.93
ESEER				3.42	3.47	3.48	3.49	3.46
Dimensions	height x width x depth		mm	2,520x2,230x5,310		2,520x2,230x6,210		
Weight	machine weight		kg	4,910	4,990	5,256	5,480	5,580
	operating weight		kg	5,130	5,200	5,520	5,734	5,834
Water Heat Exchanger Evaporator	type			Shell and tube				
	water volume		l	254		246		
	water flow rate	min	l/min	960	962	840	844	1,136
		nominal	l/min	1,834	2,007	2,182	2,343	2,540
		max	l/min	3,035	3,043	2,655	2,670	3,593
	nominal water pressure drop	cooling	kPa	36,5	43,5	67,5	77,0	50,0
Air heat exchanger	type			Grooved tubes and ALU coated louvred fins				
Fan	nominal air flow		m /min	2,850	3,168	3,486	3,798	3,870
	speed		rpm	860				
Compressor	type			Semi-hermetic single screw compressor				
	model	quantity		2				
Sound Power		cooling	dBA	100				101
Operation Range	water side	min ~ max	°C	-8 ~ 9				
	air side	min ~ max	°CDB	-18(OPLA) ~ 44				
Refrigerant circuit	refrigerant type			R-134a				
	refrigerant charge		kg	99	108	118	128	
	no of circuits			2				
	refrigerant control			Electronic expansion valve				
Power Supply				3 ~ /400V/50Hz				
Piping connections	evaporator water inlet/outlet			Victaulic, diameter 168.3mm				
	evaporator water drain			1/2" gas				

STANDARD EFFICIENCY UNIT, EXTRA LOW NOISE (/Q)				550	600	650	700	750
Capacity (Eurovent)	cooling		kW	538	604	667	725	780
Nominal input (Eurovent)	cooling		kW	223	235	249	267	286
Capacity Steps			%	Stepless 12.5 - 100				
EER				2.41	2.57	2.68	2.72	2.73
ESEER				3.19	3.39	3.53	3.57	3.60
Dimensions	height x width x depth		mm	2,520x2,230x5,310	2,520x2,230x6,210		2,520x2,230x7,110	
Weight	machine weight		kg	5,230	5,445	5,659	5,900	6,030
	operating weight		kg	5,440	5,650	5,864	6,150	6,280
Water Heat Exchanger Evaporator	type			Shell and tube				
	water volume		l	261	254		246	
	water flow rate	min	l/min	716	953	956	841	839
		nominal	l/min	1,543	1,731	1,912	2,078	2,235
		max	l/min	2,263	3,013	3,023	2,661	2,652
	nominal water pressure drop	cooling	kPa	46.5	33.0	40.0	61.0	71.0
Air heat exchanger	type			Grooved tubes and ALU coated louvred fins				
Fan	nominal air flow		m /min	1,536	1,692	1,848	1,998	2,154
	speed		rpm	500				
Compressor	type			Semi-hermetic single screw compressor				
	model	quantity		2				
Sound Power		cooling	dBA	86			87	
Operation Range	water side	min ~ max	°C	-8 ~ 9				
	air side	min ~ max	°CDB	-10 ~ 40				
Refrigerant circuit	refrigerant type			R-134a				
	refrigerant charge		kg	98	107	116	126	136
	no of circuits			2				
	refrigerant control			Electronic expansion valve				
Power Supply				3 ~ /400V/50Hz				
Piping connections	evaporator water inlet/outlet			Victaulic, diameter 168.3mm				
	evaporator water drain			1/2" gas				

950	C10	C11	C12	C13	C14	C15	C16	C18
988	1,057	1,109	1,166	1,226	1,322	1,520	1,641	1,772
358	372	396	417	435	452	540	580	604
Stepless 8.3 - 100						Stepless 6,25 - 100		
2.76	2.84	2.8		2.82	2.92	2.81	2.83	2.93
3.52	3.60	3.57	3.54	3.58	3.54	3.60	3.62	3.57
2,520x2,230x7,400	2,520x2,230x8,270		2,520x2,230x9,200			2,520x2,230x11,000	2,520x2,230x11,900	
7,550	7,830		8,420		8,570	9,552	10,632	10,832
7,970	8,250		8,830		8,980	10,024	11,140	11,340
Shell and tube								
415		402				254 + 246	246 + 246	
1,011	1,015	1,408	1,406	1,412	1,413	1,867	1,684	2,295
2,832	3,029	3,180	3,341	3,515	3,791	4,359	4,704	5,081
3,197	3,210	4,453	4,445	4,464	4,467	5,904	5,327	7,258
78,5	89,0	51	56,5	62	72	54,5	78	49
Grooved tubes and ALU coated louvred fins								
4,434	5,160	5,070	5,382	5,700	5,802	6,966	7,602	7,740
860								
Semi-hermetic single screw compressor								
3						4		
100	101					102		103
-8 ~ 9								
-18(OPLA) ~ 44								
R-134a								
153	162	172	182	192		236	256	
3						4		
Electronic expansion valve								
3~/400V/50Hz								
Victaulic, diameter 219.1mm						Victaulic, diameter 168.3mm		
1/2" gas								

800	850	900	950	C10	C11	C12
805	893	944	1,015	1,056	1,102	1,197
335	347	361	371	390	407	434
Stepless 8.3 - 100						
2.4	2.57	2.61	2.74	2.71		2.76
3.23	3.47	3.52	3.68	3.64		3.71
2,520x2,230x8,300		2,520x2,230x9,200		2,520x2,230x10,100		2,520x2,230x11,000
8,190		8,725		9,310		9,750
8,610		9,150		9,720		10,160
Shell and tube						
424	415			402		
1,053	1,008	1,012	1,013	1,397	1,406	1,413
2,307	2,559	2,705	2,909	3,028	3,160	3,431
3,330	3,187	3,199	3,203	4,417	4,447	4,467
48.0	64.5	71.5	82.5	47	50.5	59
2,526	2,460	2,616	2,766	3,078		3,384
500						
Semi-hermetic single screw compressor						
3						
87				88		89
-8 ~ 9						
-10 ~ 40						
R-134a						
147	156	165	174	184	194	204
3						
Electronic expansion valve						
3~/400V/50Hz						
Victaulic, diameter 219.1mm						
1/2" gas						

SPECIFICATIONS

HIGH EFFICIENCY UNIT, EXTRA LOW NOISE (/Z)				600	650	700	850	900	950	C10
Capacity (Eurovent)	cooling		kW	569	631	668	840	914	953	1,013
Nominal input (Eurovent)	cooling		kW	220	241	268	328	342	367	368
Capacity Steps			%	Stepless 12.5 - 100			Stepless 8.3 - 100			
EER				2.59	2.62	2.49	2.56	2.67	2.6	2.75
ESEER				3.41	3.45	3.28	3.44	3.59	3.49	3.69
Dimensions	height x width x depth		mm	2,520x2,230x6,210	2,520x2,230x7,110		2,520x2,230x9,200	2,520x2,230x10,100		2,520x2,230x11,000
Weight	machine weight		kg	5,659	5,900	6,030	8,725	9,310		9,750
	operating weight		kg	5,864	6,150	6,280	9,150	9,720		10,160
Water Heat Exchanger Evaporator	type			Shell and tube						
	water volume		l	254	246		415	402		
	water flow rate	min	l/min	958	843		1,032	1,318	1,317	1,325
		nominal	l/min	1,631	1,808	1,914	2,409	2,620	2,731	2,903
		max	l/min	3,028	2,665	2,666	3,263	4,169	4,164	4,189
	nominal water pressure drop	cooling	kPa	29.0	46.0	51.5	54.5	39.5	43.0	48.0
Air heat exchanger	type			Grooved tubes and ALU coated louvred fins						
Fan	nominal air flow		m /min	1,848	1,498	2,154	2,766	3,078		3,384
	speed		rpm	500						
Compressor	type			Semi-hermetic single screw compressor						
	model	quantity		2			3			
Sound Power		cooling	dBA	86			87	88		
	water side	min ~ max	°C	-8 ~ 9						
	air side	min ~ max	°CDB	-10 ~ 40						
Refrigerant circuit	refrigerant type			R-134a						
	refrigerant charge		kg	106	115	124	159	168	177	186
	no of circuits			2			3			
Power Supply				3 ~ /400V/50Hz						
Piping connections	evaporator water inlet/outlet			Victaulic, diameter 168.3mm			Victaulic, diameter 219.1mm			
	evaporator water drain			1/2" gas						

HIGH EFFICIENCY UNIT (/A)				650	700	800	850	900
Capacity (Eurovent)	cooling		kW	667	723	800	855	903
Nominal input (Eurovent)	cooling		kW	223	237	259	278	292
Capacity Steps			%	Stepless 12.5 - 100				
EER				2.99	3.05	3.09	3.08	3.09
ESEER				3.65	3.70	3.77	3.74	3.61
Dimensions	height x width x depth		mm	2,520x2,230x6,210		2,520x2,230x7,110		
Weight	machine weight		kg	5,205	5,419	5,660	5,790	5,890
	operating weight		kg	5,410	5,624	5,910	6,040	6,140
Water Heat Exchanger Evaporator	type			Shell and tube				
	water volume		l	254		246		
	water flow rate	min	l/min	956	966	843	845	1,141
		nominal	l/min	1,911	2,072	2,293	2,450	2,589
		max	l/min	3,022	3,055	2,666	2,673	3,608
	nominal water pressure drop	cooling	kPa	40.0	46.0	74.0	84.0	51.5
Air heat exchanger	type			Grooved tubes and ALU coated louvred fins				
Fan	nominal air flow		m /min	3,486	3,798	4,116	4,434	4,512
	speed		rpm	860				
Compressor	type			Semi-hermetic single screw compressor				
	model	quantity		2				
Sound Power		cooling	dBA	101	100		101	
Operation Range	water side	min ~ max	°C	-8 ~ 9				
	air side	min ~ max	°CDB	-18(OPLA) ~ 48				
Refrigerant circuit	refrigerant type			R-134a				
	refrigerant charge		kg	107	116	126	136	
	no of circuits			2				
Power Supply				3 ~ /400V/50Hz				
Piping connections	evaporator water inlet/outlet			Victaulic, diameter 168.3mm				
	evaporator water drain			1/2" gas				

950	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21
926	974	1,038	1,094	1,177	1,222	1,282	1,354	1,430	1,557	1,710	1,806	1,920
287	294	343	355	377	399	415	433	430	520	558	584	603
Stepless 12.5 - 100	Stepless 12.5- 100	Stepless 8.3 - 100							Stepless 6.25 - 100			
3.23	3.31	3.03	3.08	3.12	3.06	3.09	3.13	3.33	2.99	3.06	3.09	3.18
3.71	3.82	3.78	3.85	3.89	3.83	3.85	3.73	3.90	3.76	3.85	3.72	3.84
2,520x2,230x8,300		2,520x2,230x9,200		2,520x2,230x10,100		2,520x2,230x11,000		2,520x2,230x12,800		2,520x2,230x13,670		
6,333	6,563	8,420		8,950		9,390	9,540	10,355	10,960	11,168	11,368	12,144
6,589	6,967	8,830		9,360		9,800	9,950	10,931	11,420	11,678	11,878	13,036
Shell and tube												
244	392	415		402				533	254+246	246+246		392+392
1,266	1,861	1,015	1,017	1,407		1,410	1,418	1,988	1,861	1,697	2,293	3,711
2,656	2,792	2,976	3,136	3,375	3,504	3,676	3,882	4,099	4,463	4,903	5,178	5,504
4,004	5,885	3,209	3,217	4,450		4,458	4,483	6,287	5,886	5,366	7,250	11,734
44.0	22.5	86.0	95.0	57.5	62	68	75	42,5	57,5	83,5	51	22
Grooved tubes and ALU coated louvred fins												
5,160		6,036	5,700	6,336		6,966	7,098	8,400	8,232	8,868	9,030	
860												
Semi-hermetic single screw compressor												
2		3							4			
101				102			103		102	103		
-8~9												
-18(OPLA)~48												
R-134a												
146	156	165	174	184	194	204	214	224	252	272		282
2		3							4			
3~/400V/50Hz												
Victaulic, Ø 168.3mm	Victaulic, diameter 219.1mm								Victaulic, diameter 168.3mm			Victaulic, Ø 219.1mm
1/2" gas												

OPTIONS & ACCESSORIES

OPTIONS

Reference	Products	Integrated Hydronics		Noise & Head Pressure Control				
		Single pump	Twin pump	Reduced Noise	Low noise	Fan Silent	Low Ambient	High ESP fans
		OPSP	OPTP	OPRN	OPLN	OPFS	OPLA	OPHF
EWAD-BJYNN	650-700-750-850-900-950-C10-C11-C12-C13	•	•	•(3)	•	•	•	•(5)
	C14-C15-C16-C18			•(3)	•	•	•	•(5)
EWAD-BJYNN / A	650-700-800-850-900-950-C10-C11-C12-C13-C14-C15	•	•	•(3)	•	•	•	•(5)
	C16-C17-C18-C19-C20-C21			•(3)	•	•	•	•(5)
EWAD-BJYNN / Q	550-600-650-700-750 800-850-900-950-C10-C11-C12	•	•			STD		
EWAD-BJYNN / Z	600-650-700-850-900-950-C10	•	•			STD		

(3) Not available with Option OPLN
(4) High pressure side gauge
(5) Not available with Option OPLN - OPRN
(s) OP12 & OP03 needs to be added to meet Swedish national law 1992: 16

ACCESSORIES

Reference	Communication cards		Interface for use in Modbus & BACnet	Remote user interface
	EKAC200J	EKACLON	EKBMSBNJ	EKRUPCK
EWAD-BJYNN	•	•	•	•
EWAD-BJYNN / A	•	•	•	•
EWAD-BJYNN / Q	•	•	•	•
EWAD-BJYNN / Z	•	•	•	•

Heat Recovery		LWE		Electrical					Refrigerant				Condenser				Misc
Total Heat Recovery	Partial Heat Recovery	High Glycol	Low Glycol	Evaporator heater tape	Main switch	Soft starter	Power factor 0,9	A/V meter	Electronic Expansion Valve	Pressure relief valve	Suction stop valve	Gauges	Coil guards	Blank Cu/Al coils	Cu/ Sn coils	Cu/ Cu coils	Spring Anti Vibration Mounts
OPTR	OPPR	OPZH	OPZL	OP10	OP52	OPSS	OPPF	OP57	OPEX	OP03	OP12	OPGA	OPCG	OPAL	OPSN	OPCU	OPSVM
•	•	STD	STD	STD	STD	•	•	•	STD	•(5)	•(5)	•(4)	•	•	•	•	•
•	•	STD	STD	STD	STD	•	•	•	STD	•(5)	•(5)	•(4)	•	•	•	•	•
•	•	STD	STD	STD	STD	•	•	•	STD	•(5)	•(5)	•(4)	•	•	•	•	•
•	•	STD	STD	STD	STD	•	•	•	STD	•(5)	•(5)	•(4)	•	•	•	•	•
•	•	STD	STD	STD	STD	•	•	•	STD	•(5)	•(5)	•(4)	•	•	•	•	•
•	•	STD	STD	STD	STD	•	•	•	STD	•(5)	•(5)	•(4)	•	•	•	•	•

Buffer tanks				Sequencing Panel	Plant Visor	Modem		Converter RS485 to RS232	Converter RS485 to USB
EKBT500N	EKBTC10N	EKBT500C	EKBTC10C	EKCSCII	EKPV2J	EKMODEM	EKGSMOD	EKCON	EKCONUSB
•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•

ENVIRONMENTAL AWARENESS

Daikin and the Environment

In recent years, motivated by a global awareness of the need to reduce the burdens on the environment, some manufacturers including Daikin have invested enormous efforts in limiting the negative effects associated with the production and the operation of chillers.
Hence, models with energy saving features and improved eco-production techniques have seen the light of day, making a significant contribution to limiting the impact on the environment.

In all of us, a green heart

Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues.
For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment.
This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.

Daikin Europe N.V. is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard. ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.

ISO14001 assures an effective environmental management system in order to help protect human health and the environment from the potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.

Daikin units comply with the European regulations that guarantee the safety of the product.

Daikin Europe N.V. participates in the Eurovent Certification Programme for Air Conditioners (AC). Liquid Chilling Packages (LCP) and Fan Coil Units (FC); the certified data of certified models are listed in the Eurovent Directory. Certification is valid for air cooled models <600kW and water cooled models <1500kW.

Daikin products are distributed by:

DAIKIN EUROPE N.V.

Naamloze Vennootschap
Zandvoordestraat 300
B-8400 Oostende, Belgium
www.daikin.eu
BTW: BE 0412 120 336
RPR Oostende

FSC

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