



HEAT PUMP INVERTER



APPLIED SYSTEMS

R-134a



www.daikin.eu

EWYD-AJYNN HEAT PUMP



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

7 models are available with heating capacities ranging from 274 to 412kW and cooling capacities ranging from 255 to 385kW. The inverter benefits in heat pump operation make the unit ideal for use in extreme low ambient conditions and over a wide operation range. This major benefit results from the incorporation of an auto adaptive control system with built-in functions that include:

- > Optional head pressure control: fan control for low ambient down to -12°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.

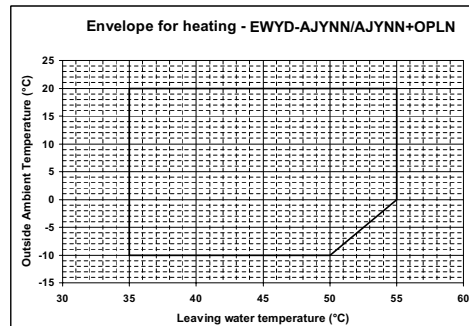
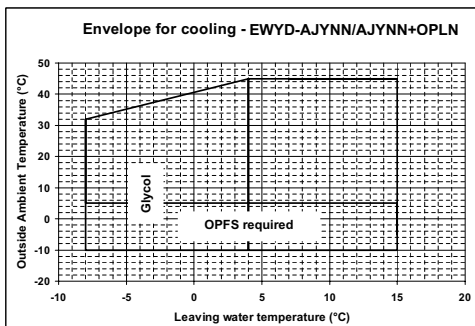
	Application	Sizes	Capacity range	EERavg	ESEERavg
Std	Standard efficiency	7	255-385kW	2.56	4.00

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

- Heat Recovery: > OPPR – Partial recovery

EWYD-AJYNN





HEAT PUMP INVERTER

The innovative design of the EWYD-AJYNN incorporates an inverter-driven single screw compressor, which lowers the need for a conventional gas boiler and makes considerable savings in annual energy costs possible.

During the heating season, as the outside temperature decreases, the thermal load requirement of the building increases, and the conventional heat pump's heating capacity will actually decrease. Therefore, a conventional boiler (fossil-fuel fired or electrical) might need to be integrated with the heat pump if the temperature is going to fall below -1°C .

The EWYD-AJYNN heat pump can fully match the building's thermal load, even if the ambient temperature falls as low as -12°C . The inverter boosts the screw compressor with a frequency increase that exactly follows the required thermal load, resulting in considerable energy and cost savings possible during the heating mode.

The unit is also beneficial during the cooling phase. As the outside ambient temperature increases in summer, so too does a building's cooling load, creating circumstances a traditional chiller actually loses capacity in. The screw compressors are boosted by a frequency increase to match the required cooling load.

The EWYD-AJYNN Heat Pump Inverter Unit can vary its compressor speed in response to load conditions thanks to the in-house programmed PID microprocessor controller. The unit is extremely energy efficient, both in cooling and heating, with good EER_{avg} and Avg COP values. It is designed and optimised for an easy and fast network connection with Building Automation Systems and Management Systems.

Other benefits of the EWYD-AJYNN Heat Pump Inverter Unit include:

- > Optimum unit power factor
- > No more current inrush when the unit starts
- > Lower noise levels during most of the year
- > Optimized defrosting cycles
- > 25% benefit in part load efficiency over stepless capacity control



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 EWYD-AJYNN chillers with 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 COP's 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.

Noise

EWYD-AJYNN units can be fitted with Option Low Noise. OPLN includes lower speed condenser fans, suction and discharge muffler and highly absorbent sound proof cabinets around the compressors. Sound reduction towards standard noise units is ± 5 dB.

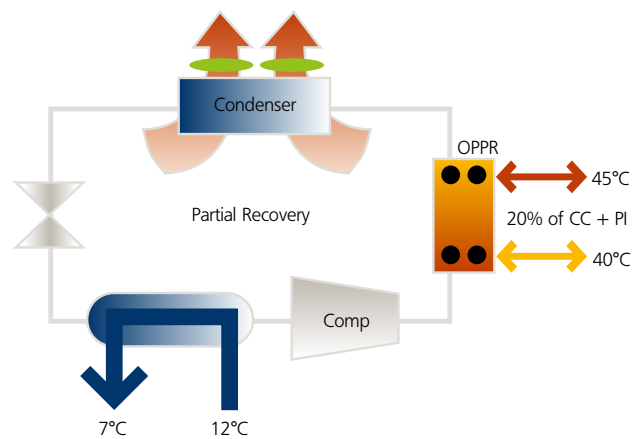


Heat recovery

Depending on the temperature requirement for the hot water production this exchanger will act as a desuperheater for partial heat recovery.

OPPR – Option Partial Recovery

An additional 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 units efficiency is maintained, as condensing pressure can be reduced due to air-cooled condenser becoming oversized. Hot water temperatures up to 55°C can be achieved.





SINGLE SCREW COMPRESSOR

The Daikin chillers are fitted with a screw compressor with stepless capacity control. The stepless single screw compressor enables capacity requirements to be closely matched by modulating the sliding valve position according to the chilled water control condition. Main advantages of continuous modulation are better part load efficiency and more stable chilled water temperatures with closer control tolerance. Capacity control is infinitely variable between 15.5 and 100% on dual circuit units.

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
- › Condenser protection grilles 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



Frame 3100 single screw compressor



ELECTRONIC CONTROL

- › Advanced pCO² 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 limit capacity
- › 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

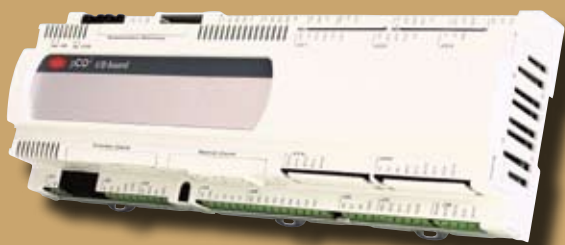
Open Network Integration

Daikin has released a gateway for connection to BACnet, LonWorks and Modbus networks equipment and building control systems (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 EKCSII sequencing panel (this function enables a Daikin 1.9MW chiller plant to be operated via a single controller).



Electronic control:



SPECIFICATIONS

			EWYD260AJYNN	EWYD280AJYNN	EWYD300AJYNN	EWYD320AJYNN	EWYD340AJYNN	EWYD360AJYNN	EWYD380AJYNN
Nominal capacity *	cooling	kW	255	275	298	321	343	368	385
	heating	kW	274	306	330	341	361	397	412
Capacity control *	type		Stepless						
	minimum capacity	%	15.5	15.5	15.5	15.5	15.5	15.5	15.5
Nominal input	cooling	kW	89.8	99.3	108	116	123	132	142
	heating	kW	89.5	99.1	108	117	123	131	139
Eer			2.84	2.77	2.76	2.77	2.79	2.79	2.71
Cop			3.06	3.09	3.06	2.91	2.93	3.03	2.96
Eseer			4.12	4.08	3.99	3.98	4.00	4.08	3.81
Casing	colour		RAL7032						
	material		Galvanized and painted steel sheet						
Dimensions (HxWxD)	mm		2,335x2,254x3,547	2,335x2,254x3,547	2,335x2,254x3,547	2,335x2,254x4,783	2,335x2,254x4,783	2,335x2,254x4,783	2,335x2,254x4,783
Machine weight	kg		3,370	3,370	3,370	4,020	4,020	4,020	4,020
Water heat exchanger	type		Shell and tube						
Nominal water flow	cooling	l/min	731	788	854	920	983	1,055	1,104
	heating	l/min	785	877	946	978	1,035	1,138	1,181
Nominal water pressure drop	heat exchanger cooling	kPa	60	65	74	50	53	60	65
	heat exchanger heating	kPa	69	79	90	56	58	69	74
Fan	type		Axial						
	diameter	mm	800	800	800	800	800	800	800
	nominal air flow	m ³ /min	1,932	1,914	1,908	2,580	2,580	2,568	2,544
	model	quantity	6	6	6	8	8	8	8
	speed	rpm	890	890	890	890	890	890	890
	motor output	W	1,730	1,730	1,730	1,730	1,730	1,730	1,730
Compressor	type		Semi-hermetic single screw compressor						
	model	quantity	2	2	2	2	2	2	2
Sound power	cooling	dB(A)	99.5	99.5	99.5	100.4	100.4	100.4	100.4
	heating	dB(A)	99.5	99.5	99.5	100.4	100.4	100.4	100.4
Refrigerant circuit	refrigerant type		R-134a						
	refrigerant charge	kg	76	76	84	96	104	104	104
	no of circuits		2	2	2	2	2	2	2
Power supply			400V/50Hz/3~						

* Nominal cooling capacity and power input are based on 12/7°C entering/leaving water temperature and 35°C ambient temperature. Power input is for the whole unit.

OPTIONS & ACCESSORIES

OPTIONS							
Reference	Products	Integrated hydraulics				Noise & HP control	
		Single pump	Twin pump	High ESP pump	High ESP twin pump	Low noise	Fan Silent
		OPSP	OPTP	OPHP	OPHT	OPLN	OPFS
EWYD-AJYNN	260-280-300-320-340-360-380	•	•	•	•	•	•

ACCESSORIES					
Reference	Communication cards			Remote user interface	Buffer tanks
	EKAC200	EKACBAC	EKACCON	EKGRUPC	EKBT500N
EWYD260-380AJYNN	•	•	•	•	•



Heat recovery	LWE		Electrical		Refrigerant				Condenser				Misc
Partial Heat recovery	High glycol	Low glycol	Evaporator heater	Main switch	Electronic Expansion Valve	Pressure relieve valve	Suction stop valve	Gauges	Coil guards	Blank Cu/Al coils	Cu/Sn coils	Cu/Cu coils	Spring Anti Vibration Mounts
OPPR	OPZH	OPZL	OP10	OP52	OPEX	OP03	OP12	OPGA	OPCG	OPAL	OPSN	OPCU	OPSYM
•	STD	STD	STD	STD	STD	•	STD	•(*)	•	•	•	•	•

Buffer tanks			Sequencing Panel	Plant Visor	Modem		Converter RS485 to RS232	Converter RS485 to USB
EKBT10M	EKBT50C	EKBT10C	EKSC01	EKPVZ1	EKNM05M	EKGM00D	EKCON	EKCONUSB
•	•	•	•	•	•	•	•	•

(*) High pressure side gauge



ENVIRONMENTAL AWARENESS

Air Conditioning and the Environment

Air conditioning systems provide a significant level of indoor comfort, making possible optimum working and living conditions in the most extreme climates.

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 air conditioners.

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.



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.



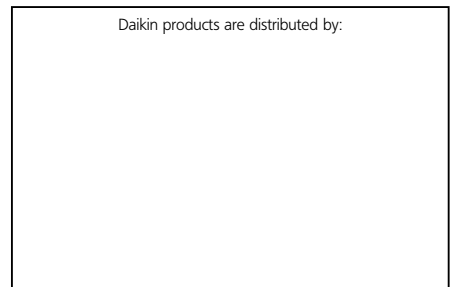
Daikin units comply with the European regulations that guarantee the safety of the product.



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.

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