KEYTER



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Multiscroll air-to-water chillers

❄ **331-784 kW**

Multi-Scroll | heat recovery

Plate heat exchanger	KWP
Shell and tube exchanger	KWB

Partial and total heat recovery system from hot gases for domestic hot water (DHW).

Water Free Cooling System for Free Cooling

Adaptation and Environment

- Reduced charge of low GWP refrigerant R-454B, minimizing the CO_2 footprint (-77% less GWP than R-410A and -31% less than R-32).
- Series condensing pressure control for year-round operation.
- Adaptability to the installation with a wide range of models.
- Maximum accessibility and easy maintenance through removable panels.
- Versions with a hydraulic group and integrated buffer tank to reduce the frequency of compressor start-ups and shutdowns.

Energy Efficiency

- High energy efficiency at partial and full loads, reducing operating costs.
- Tandem multiscroll for improved seasonal energy efficiency.
- Electronic fans with AxiTop and electronic expansion valve as standard for minimal energy consumption.
- Units with a hydraulic group can incorporate high-performance electronic pumps.

***Greater power** in a smaller footprint, optimized dimensions.*

Codification:

KWP / KWB (Serie) | (Size, Power) | **R N S3C**

Operating mode
R - Cooling only

Version - Compressor Type
N - Standard scroll compressor

Hydraulic version
S - Standard equipment / **P** - Version with hydraulic group / **H** - Version with hydraulic group and buffer tank

Power supply
3 - 400V/III/50Hz without neutral (standard)

Refrigerant
C - R454B / **W** - R410A

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range specification

General characteristics

		KWB	KWP
Refrigerant	R454B	✓	✓
	Equipment with refrigerant charge	✓	✓
	R452B or R410A refrigerants (Check availability according to model)	●	●
	Leak detection	●	●
Bodywork	Self-supporting bodywork/cabinet made of galvanised steel with oven cured polyester paint treatment	✓	✓
	Customized color to suit the needs of the installation	●	●
	Equipment without paneling	✓	✓
	Enclosed compartment for compressors (1)	●	●
	Perimeter enclosure of the unit + Enclosed compartment for compressors (1)	●	●
	Insulation panels for the compressor compartment	●	●
	Lower hydraulic enclosure (H version)	●	●
	Upper hydraulic enclosure (H version)	●	●
	Insulation panels for perimeter enclosure and hydraulic section panels (H version)	●	●
	Anti-vibration supplements	●	●
Compressors	Multiscroll technology in tandem	●	●
	Compressor anti-vibration mounts	✓	✓
	Soft starter	●	●
	Acoustic insulation jacket	●	●
	Original high-performance acoustic insulation jacket from the manufacturer	●	●
	Electronic expansion valves	✓	✓

Fans

Outdoor fans	Axial fans enhanced with EC technology	✓	✓
	Curved external nozzle	✓	✓

Heat exchangers

Coils	Cu tube and Al fin coils	✓	✓
	Al / Al microchannel batteries	●	●
	Cu tube bundle / polyurethane pre-lacquered Al fins	●	●
	ALUCOAST: high-strength Cu tubes / Al fins	●	●
	BLYGOLD: Cu tubes / Al fins with Blygold coating	●	●
	COPPERFIN: Cu tubes / Cu fins	●	●
Heat exchangers	Refrigerant-water heat exchanger, AISI 316L stainless steel plates, copper-welded, and thermally insulated	-	✓
	Shell-and-tube heat exchanger	✓	-
	Stainless steel heat exchanger SS AISI 304 / SS AISI 316 / Sealix	-	●

Energy (2)

Energy recovery	Partial recovery of condensation energy for domestic hot water (DHW)	●	●
	Total recovery of condensation energy for domestic hot water (DHW) (* In KWP, only possible in series 2) (** Heat exchanger in total recovery circuit: plate in KWP and multitube in KWB)	●	●
	Pump in the condensation heat recovery circuit	●	●
	Electric anti-icing heater in the plate heat exchanger for domestic hot water (DHW) recovery	●	●
Free-cooling	Integrated free-cooling, via additional V-shaped coils, external sensor, and three-way valve	●	●

✓ Included as standard
● Optional
- Not applicable

(1) This option can only be supplied factory-installed.
(2) Some options may require changes to dimensions (please consult us)

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range specification

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		KWB	KWP
Hydraulic (2)			
Pumps (version P/H)	Single pump, normal available pressure (7-12 mH_2O)	✓	✓
	Single pump with high pressure available (15-20 mH_2O)	●	●
	Single pump, very high available pressure (25-30 mH_2O)	●	●
	Pump with variable speed drive	●	●
	Backup pump (standard pressure, high pressure, and very high pressure available)	●	●
	Electronic pump	●	●
	Electronic backup pump	●	●
Hydraulic components	Low temperature kit for operation with water outlet temperature < 0 ºC	●	●
	Low outdoor temperature kit	●	●
	Flexible water inlet and outlet connections	●	●
	Water filter	●	●
	Installation of pressure gauges at the inlet and outlet of the equipment for S version	●	●
	Independent module with 200 liters / 375 liters / 725 liters + buffer tank available Electrical resistances	●	●
Installation			
Protection grilles	Coil protection grille	●	●
	Bird-proof protection grille at the base of the equipment	●	●
Insulation	Thermal insulation in all cold metal lines (refrigerant or water)	●	●
Power supply	400 V / III ph / 50 Hz without neutral	✓	✓
	400 V / III ph / 60 Hz	●	●
	Other electrical voltages (see different options available)	●	●
Packaging	Packaging for maritime transport	●	●
Control			
Electronic control and communication	Programmable electronic control AQUAMATIX	✓	✓
	Climatix HMI user terminal for AQUAMATIX control	✓	✓
	RS485 communication interface for ModBus communication	✓	✓
	Modbus TCP/IP and BACnet IP communication	✓	✓
Defrosting	Defrosting by cycle reversal using a 4-way valve	✓	✓
Additional control and safety components	Main switch in electrical panel	✓	✓
	Magneto-thermal protections for compressors, fans and pumps	✓	✓
	Differential switches	●	●
	Low pressure switch for pump protection	●	●
	PREMIUM phase control relay, with phase failure detection and direction of rotation protection	✓	✓
	EXCELLENT phase monitoring relay, adds phase unbalance, overvoltage and undervoltage detection	●	●
	Triple protection for the plate heat exchanger with a water flow switch and anti-freeze protections for both water and refrigerant	✓	✓
	Energy meter	●	●
Electrical panel	Fully wired electrical panel, with IP54 protection	✓	✓
	Forced ventilation of the electrical panel	✓	✓
	Design of electrical switchgear for high temperatures	✓	✓
	Tropicalised electrical panel	●	●
	Socket for common use	●	●
	Antifreeze electrical resistor in electrical panel for low outdoor temperatures	●	●

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R454B technical data

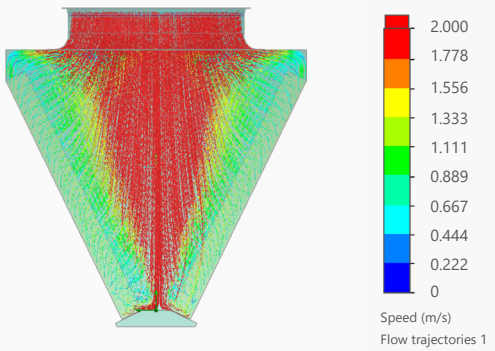
KWP model			2400	2420	2480	3620	3670	3720	4810	4860	4910	4960
KWB model			**2400**	**2420**	**2480**	**3620**	**3670**	**3720**	**4810**	**4860**	**4910**	**4960**
HEAT PUMP VERSION (I)												
Cooling mode	Nominal cooling capacity (1)	kW	331,6	352,9	391,6	510,0	548,7	587,4	667,1	705,8	744,5	783,3
		TR	94,5	100,5	111,5	145,5	156,5	167,5	190,0	201,0	212,0	223,0
		kBTU/h	1134	1206	1338	1746	1878	2010	2280	2412	2544	2676
	Absorbed power (2)	kW	108,2	124,5	141,2	178,5	195,2	211,9	232,4	249,1	265,8	282,5
	EER (3)	kW/kW	3,06	2,83	2,77	2,86	2,81	2,77	2,87	2,83	2,80	2,77
		BTU/W*h	10,46	9,67	9,46	9,75	9,59	9,46	9,79	9,67	9,56	9,46
	SEER (4)	kWh/kWh	5,1	5,1	5,0	5,2	5,0	4,8	5,2	5,1	5,0	4,9
	ηs,c (5)	%	201,0%	203,0%	197,6%	203,0%	197,0%	187,8%	204,0%	199,7%	197,4%	193,3%
	SEPR (7ºC) (6)	kWh/kWh	5,79	5,42	5,45	5,46	5,44	5,45	5,49	5,41	5,45	5,44
	SEPR (-8ºC) (6)	kWh/kWh	3,55	3,32	3,32	3,32	3,32	3,31	3,32	3,32	3,32	3,32
	IPLV (7)	kW/TR	0,56	0,58	0,60	0,58	0,60	0,62	0,57	0,59	0,60	0,61
		BTU/W*h	20,75	20,10	19,46	20,24	19,65	18,92	20,36	19,92	19,61	19,23
TECHNICAL SPECIFICATIONS												
Power supply			400V/ III /50HZ without neutral									
Refrigeration circuit	Refrigerant fluid / GWP	kg CO_2	R454B / 466									
	No. of refrig. circuits / compressors		2/4	2/4	2/4	3/6	3/6	3/6	4/8	4/8	4/8	4/8
	No. power stages		4	4	4	6	6	6	8	8	8	8
Hydraulic circuit	Indoor water flow rate	m^3/h	57,1	60,8	67,5	87,8	94,5	101,2	114,9	121,6	128,2	134,9
	Type of heat exchanger KWP		brazed stainless steel plate heat exchanger									
	Type of heat exchanger KWB		Shell and tube heat exchanger									
	Hydraulic connections Ø		DN 100	DN 100	DN 125	DN 150	DN 150	DN 150	DN 150	DN 150	DN 200	DN 200
	Buffer tank capacity (H)	liters	725	725	725	725	725	725	725	725	725	725
Outdoor fan	Outdoor air flow rate	m^3/h	98000	98000	98000	147000	147000	147000	196000	196000	196000	196000
	Number of fans		4	4	4	6	6	6	8	8	8	8
	Ø and Type of fan	mm	Axial EC HP									
Sound pressure level of the equipment (Lp10) (8)		dB(A)	51	52	51	55	54	54	54	57	56	57
Weights (S version)	Empty weight (serie KWP)	kg	2343	2427	2478	3565	3645	3703	4837	4922	5006	5058
	Empty weight (serie KWB)	kg	2584	2635	2687	3691	3744	3964	5093	5145	5196	5248

(1) Nominal cooling capacity for a water inlet/outlet temperature of 12/7ºC and an outdoor air temperature of 35ºC. Capacities calculated with a plate heat exchanger fouling factor of $0.43 \cdot 10^{-4}$ (m^2·K/W).
(2) Nominal power absorbed by compressors and outdoor fans.
(3) EER calculated according to the EN 14511:2022 standard.
(4) Seasonal efficiencies calculated according to EN 14825:2022.
(5) Seasonal energy efficiencies (ηs,c) in compliance with EU Ecodesign Regulation 2016/2281 for comfort applications.
(6) Seasonal Energy Performance Ratio (SEPR) values for high-temperature process chillers (12/7ºC) in compliance with EU Ecodesign Regulation 2016/2281. Seasonal Energy Performance Ratio (SEPR) values for medium-temperature process chillers (-2/-8ºC) in compliance with EU Ecodesign Regulation 2015/1095.
(7) Seasonal Energy Efficiency Factor according to AHRI Standards 550/590.
(8) Sound pressure level in dB(A) in free field, at 10 m distance from the source, and directivity 1.

Innovation and cutting-edge technology

KEYTER develops its products by researching and incorporating trends and new developments to improve the product and its energy efficiency.

To achieve this, and as part of the ongoing R&D efforts carried out in collaboration with technological centers and universities, studies have been implemented using dynamic simulation tools. These tools allow for detailed and in-depth analysis during the equipment design phase, resulting in an optimized design in terms of performance and energy efficiency.



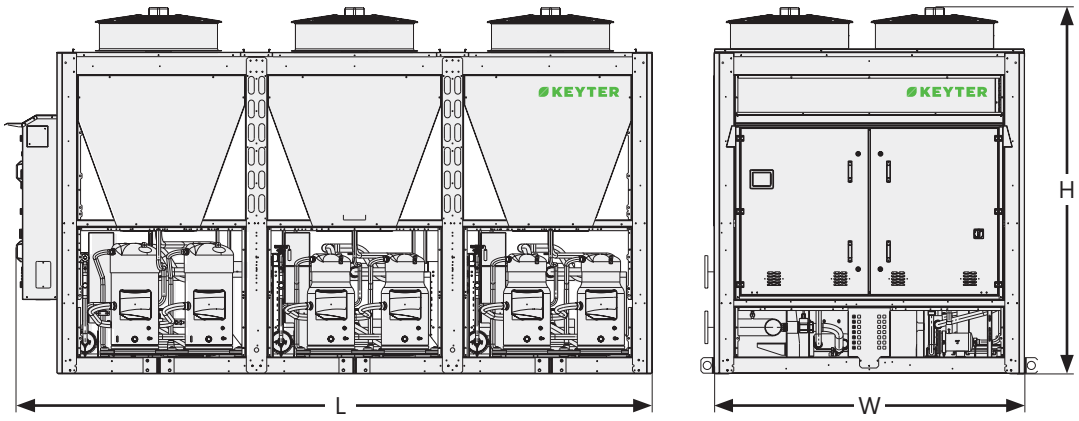
Analysis of air velocity across the equipment's coil

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dimensions

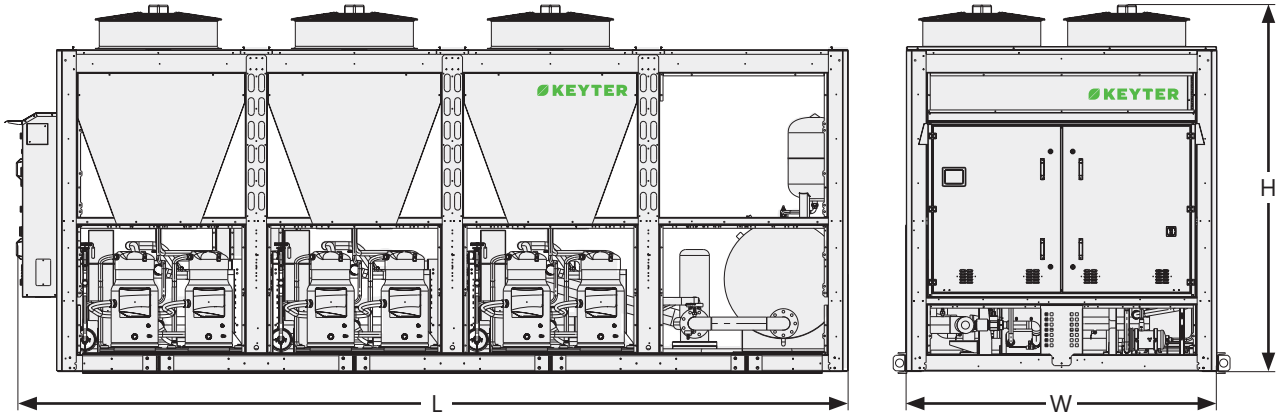
Series 2-4:

KWP S version / KWB versions S and P



The number of views for the equipment depends on the series; the views in this image correspond to series 3.

KWP versions P y H / KWB H version



Dimensions KWB / KWP (mm)			
Series KWP - S version	**KWP-2**	**KWP-3**	**KWP-4**
Series KWB - versions S and P	**KWB-2**	**KWB-3**	**KWB-4**
L	2980	4305	5800
W	2100	2100	2100
H	2530	2530	2530

Dimensions KWB / KWP (mm)			
Series KWP - versions P y H	**KWP-2**	**KWP-3**	**KWP-4**
Series KWB - H version	**KWB-2**	**KWB-3**	**KWB-4**
		Versions P/H	
L	4305	5630	7125
W	2100	2100	2100
H	2530	2530	2530

• Some options require a chassis change for the equipment. To know the dimensions of each series with the different available options, please contact us.