KEYTER



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Multiscroll air-to-water chillers

❄ **185-648 kW**

Multi-Scroll | heat recovery

Plate heat exchanger	KWA	*Shell and tube exchanger*	KWM

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 refrigerant charge with low GWP R-454B, minimizing the CO_2 footprint (77% lower GWP than R-410A and 31% lower 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 hydraulic group and integrated buffer tank to reduce compressor start-stop frequency.

Energy Efficiency

- High energy efficiency at partial and full loads, reducing operating costs.
- Tandem multiscroll for improved seasonal energy efficiency.
- Fans electrónicos y Electronic expansion valve for minimum energy consumption.
- Units with a hydraulic group can incorporate high-performance electronic pumps.

nemesis modular

Modular assembly option with NEMESIS
Version designed for modular assembly with Victaulic tubular connections for easy and quick interconnection.
Up to 8 modules ->101-1664 kW

Codification:

KWA / KWM (Series) | (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

		KWA	KWM
General characteristics			
Refrigerant	R454B	✓	✓
	Equipment with refrigerant charge	✓	✓
	Refrigerants R452B o R410A	●	●
	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	●	●
Expansion valves	Electronic expansion valves	✓	✓
	Thermostatic expansion valves (available only with R410A)	●	●
Fans			
Outdoor fans	AC axial fans with variable speed drive	✓	✓
	AC technology axial fans	●	-
	Condensing pressure control	✓	✓
	EC technology axial fans	●	●
	Curved external nozzles	✓	✓
	Internal nozzles (available only with EC fans)	●	●
	AxiTop diffusers for axial fans (available only with EC fans)	●	●
	High-performance EC axial fans	●	●
	EC plug-fan radial fans	●	●
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 or total condensation energy recovery for domestic hot water (DHW) (* total recovery in KWA is only possible in series 2) (** Total recovery circuit heat exchanger: plate type in KWA and multitube type in KWM)	●	●
	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 by means of additional V-shaped coil(s), external probe 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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Hydraulic (2)

		KWA	KWM
Pumps (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	●	●

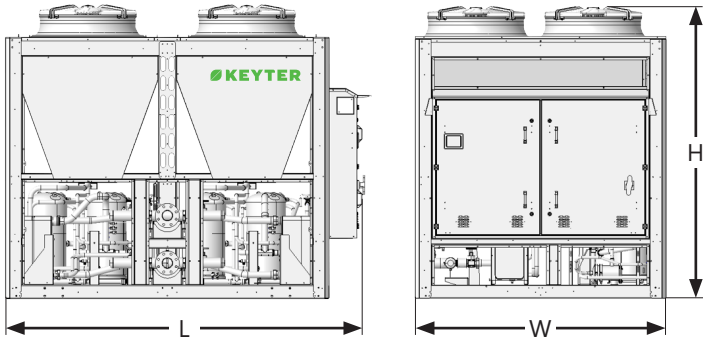
Control

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	✓	✓
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 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	●	●

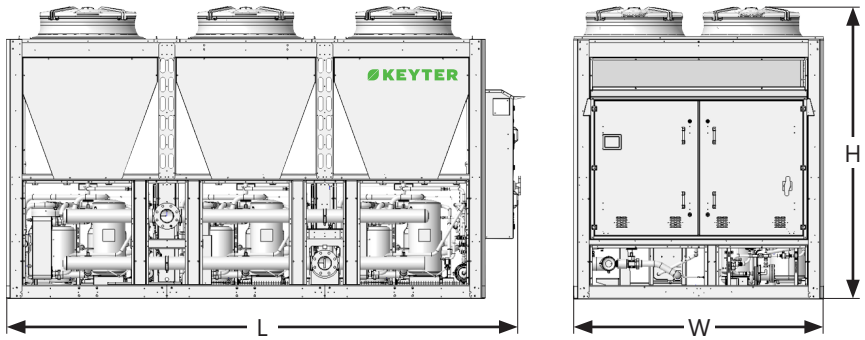
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dimensions

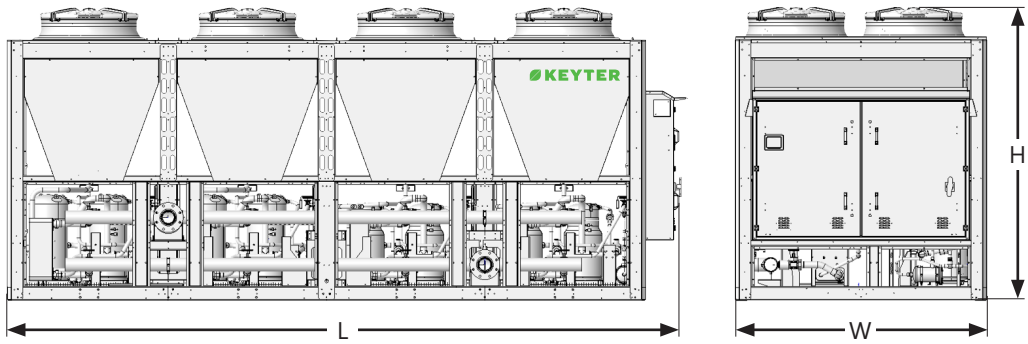
Series 2 S/P



Series 3 S/P



Series 4 S/P

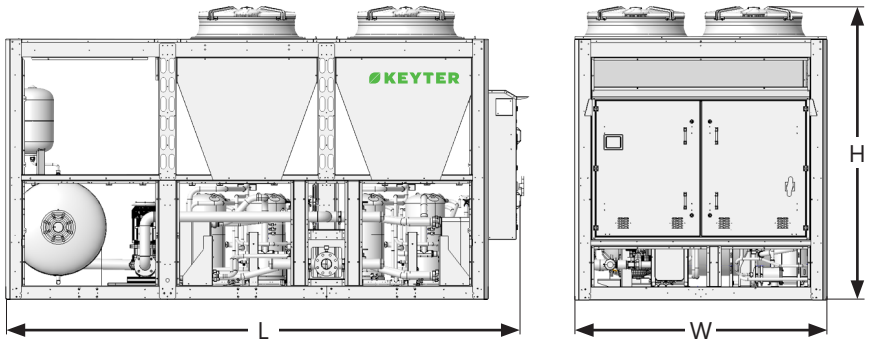


Dimensions (mm)						
	Series 2		Series 3		Series 4	
Bodywork	S/P	H	S/P	H	S/P	H
L	2980	4305	4305	5630	5630	6955
W	2100	2100	2100	2100	2100	2100
H	2480	2480	2480	2480	2480	2480

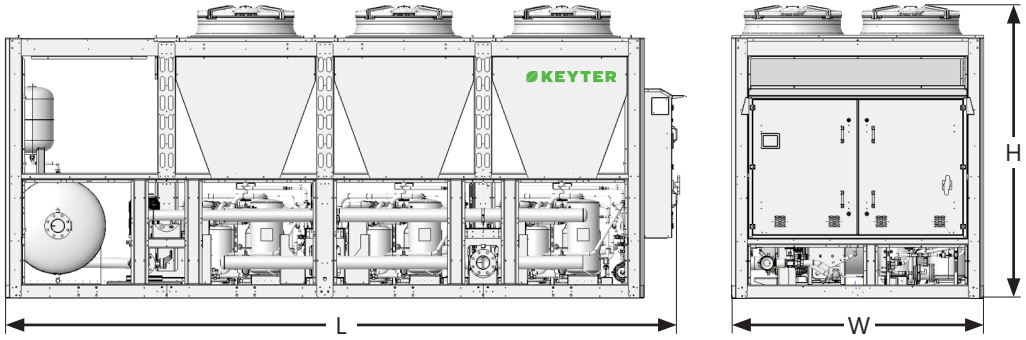
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dimensions

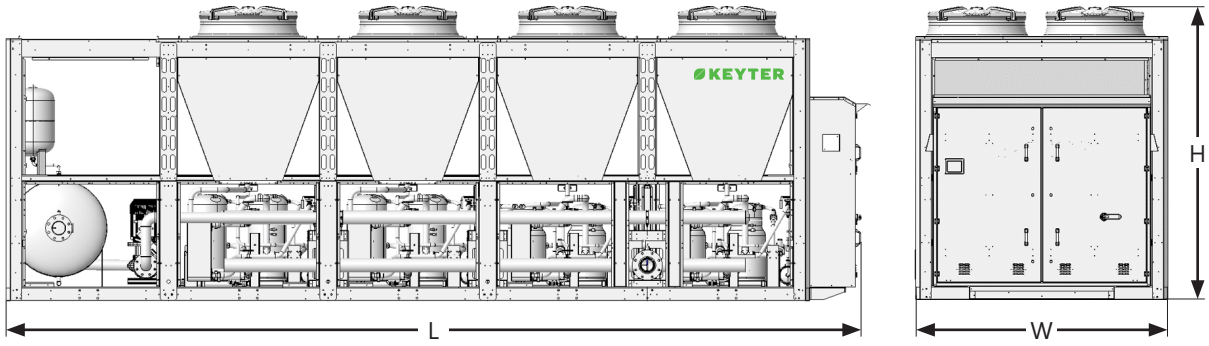
Series 2 H



Series 3 H



Series 4 H



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R454B technical data

Model KWA			**2225**	**2240**	**2270**	**2300**	**2340**	**2380**	**3420**	**3490**	**3570**	**4600**	**4680**	**4760**
Model KWM			**2225**	**2240**	**2270**	**2300**	**2340**	**2380**	**3420**	**3490**	**3570**	**4600**	**4680**	**4760**
COOLING-ONLY VERSION (R)														
Cooling	Nominal cooling capacity (1)	kW	185,3	212,7	236,1	259,4	291,7	324,1	365,7	421,4	486,1	518,7	583,4	648,1
		TR	53,0	60,5	67,5	74,0	83,0	92,5	104,0	120,0	138,5	147,5	166,0	184,5
		kBTU/h	636	726	810	888	996	1110	1248	1440	1662	1770	1992	2214
	Absorbed power (2)	kW	58,8	68,2	78,8	89,4	97,1	108,8	123,4	141,7	164,8	178,7	195,7	217,5
	EER (3)	kW/kW	3,15	3,12	3,00	2,90	3,01	2,98	2,96	2,97	2,95	2,90	2,98	2,98
		BTU/(h*W)	10,81	10,65	10,28	9,94	10,26	10,21	10,11	10,16	10,09	9,90	10,18	10,18
	SEER (4)	kWh/kWh	5,0	5,0	4,9	4,7	4,7	4,7	4,9	4,8	4,7	4,8	4,7	4,7
	ηs,c (5)	%	197,4%	195,9%	192,3%	186,0%	185,4%	184,0%	191,2%	189,5%	185,0%	187,1%	184,2%	183,8%
	SEPR (7ºC) (6)	kWh/kWh	5,91	5,85	5,61	5,42	5,63	5,66	5,54	5,58	5,62	5,52	5,61	5,67
	SEPR (-8ºC) (6)	kWh/kWh	3,50	3,45	3,35	3,26	3,39	3,40	3,32	3,36	3,37	3,26	3,38	3,40
	IPLV (7)	kW/TR	0,53	0,53	0,54	0,55	0,56	0,56	0,54	0,54	0,55	0,55	0,56	0,56
		BTU/(h*W)	22,28	22,06	21,76	21,10	20,99	20,96	21,69	21,51	21,18	21,27	20,97	20,98
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	2/4	2/4	2/4	3/6	3/6	3/6	4/8	4/8	4/8
	No. power stages		4	4	4	4	4	4	6	6	6	8	8	8
Hydraulic circuit	Indoor water flow rate	m^3/h	31,9	36,6	40,7	44,7	50,2	55,8	63,0	72,6	83,7	89,4	100,5	111,6
	Type of heat exchanger KWA		Stainless steel plate heat exchanger											
	Type of heat exchanger KWM		Shell and tube heat exchanger											
	Hydraulic connections Ø		DN 80				DN 100				DN 125			DN 150
	Buffer tank capacity (H)	liters	725	725	725	725	725	725	725	725	725	725	725	725
Outdoor fan	Outdoor air flow rate	m^3/h	81000	81000	81000	81000	81000	81000	121500	121500	121500	162000	162000	162000
	Number of fans		4	4	4	4	4	4	6	6	6	8	8	8
	Ø and Type of fan	mm	800-6 AC VFD											
Sound pressure level of the equipment (Lp10) (8)		dB(A)	62	62	61	62	62	63	64	64	65	65	67	67
Weights (S version)	Empty weight	kg	1875	2023	2100	2141	2257	2374	3079	3240	3490	4337	4570	4803
	In-service weight	kg	1905	2053	2142	2187	2306	2423	3135	3317	3568	4436	4673	4910

(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.