KEYTER

ZIRAN *Pro*



33-194 kW 33-253 kW

semi-hermetic inverter · EC · heat recovery · HT

Bitzer

Air-to-water reversible heat pumps

Reversible or cooling-only units with a thermal power ranging from 41 kW to 253 kW, designed for commercial applications.

Optimized for the use of R290 refrigerant and **Full-Inverter technology**, these units are part of the new PRO Series developed by KEYTER.

NATURAL R-290 PROPANE

Pro series

Adaptation and Environment

- Reduced charge of natural R290 refrigerant (A3 class), environmentally friendly with low global warming potential (GWP=3) and high thermodynamic performance.
- High-temperature water production.
- The robust and reliable design integrates leak detection and an ATEX extraction fan for maximum safety.
- With careful insulation, they ensure proper equipment protection and noise reduction, achieving ultra-quiet operation.
- The units are equipped with intelligent control that ensures an optimal defrosting process.

Codification:

KWR | | | I V S4D

Series · Size · Power

Operating mode
I - Heat pump
R - Cooling only

Version - Compressor Type
V - Inverter piston type compressors

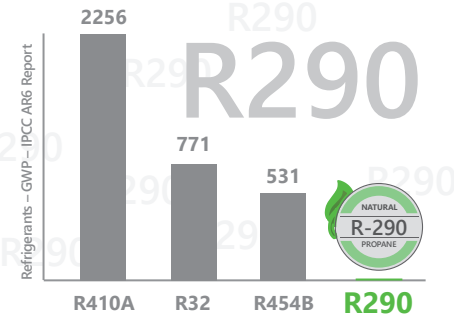
Hydraulic version
S - Standard equipment
P - Version with hydraulic group
H - Version with hydraulic group and buffer tank

Power supply
4 - 400V/III/50Hz with neutral (standard)

Refrigerant
D - R290

Energy Efficiency

- Compact Full-Inverter units equipped with BITZER semi-hermetic inverter piston compressors, high-quality EC fans ensuring the best seasonal performance (SEER/SCOP).
- High-efficiency heat exchangers.
- These units have a wide operating range with high efficiency and extended operating limits, functioning **at full load down to -25°C** outdoor temperature.



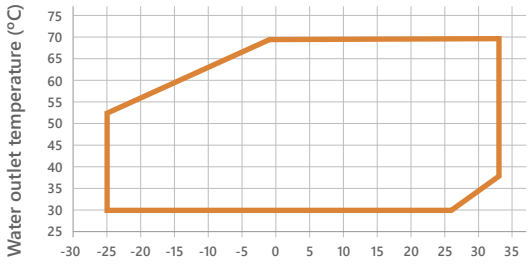
ziran pro

decarbonization and the environment

Decarbonization

Wide operating range with high efficiency and extended operating limits, functioning down to -25ºC ambient temperature at full load.

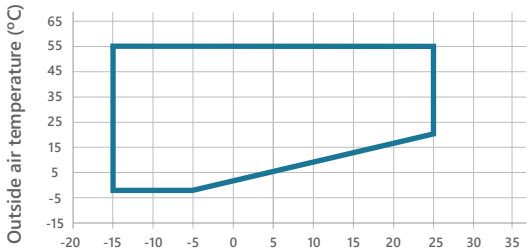
Heating mode:



Outside air temperature (ºC WB)

Orange zone: full load operation map of the unit.

Cooling mode:

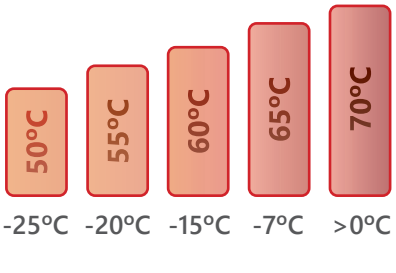


Water outlet temperature (ºC)

Blue zone: full load operation map of the unit.

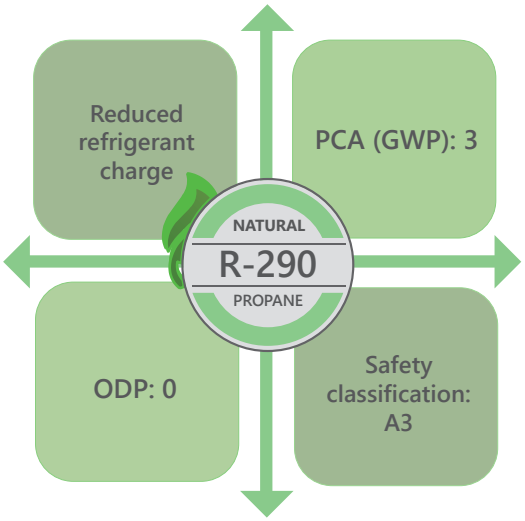
Year-round high-temperature water production for boiler replacement and carbon footprint reduction.

ZIRAN *Pro*

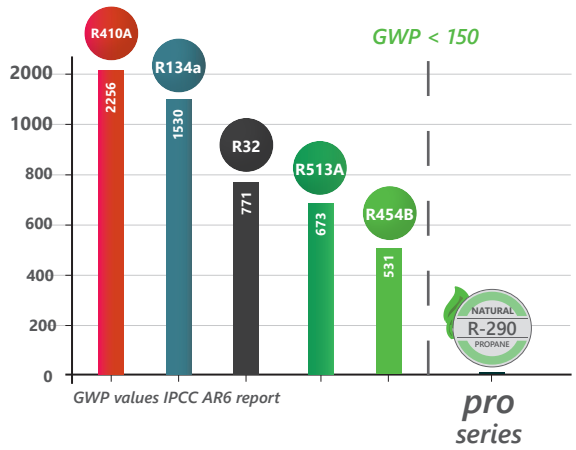


Adaptation and Environment

Reduced charge of natural R290 refrigerant, class A3, eco-friendly with low environmental impact (GWP=3) and high thermodynamic performance.



Refrigerants - GWP



ziran pro

energy efficiency and design

Energy Efficiency

Equipment with Inverter technology

Compact **Full-Inverter** units equipped with BITZER semi-hermetic inverter piston compressors, high-quality EC fans, and high-efficiency heat exchangers, ensuring very high seasonal performance (SEER/SCOP).

Inverter

High-efficiency and low-noise outdoor EC fans, with integrated curved nozzle.

Cu-Al coils with polyurethane, Blygold, and Cu-Cu coatings

Stainless steel AISI 316L brazed plate heat exchanger



SIEMENS electronic control, programmable AQUAMATIX, and CLIMATIX HMI terminal



Electronic expansion valve

BITZER semi-hermetic piston compressors with frequency INVERTER

Robust and safe design

- Robust and reliable outdoor design integrates leak detection and ATEX extraction fan for maximum safety.
- Compatible with optional sandwich panel with 20 mm thick rock wool insulation (M0).
- With careful insulation, it guarantees adequate equipment protection and noise level reduction, achieving ultra-silent operation.

Hydraulic components in open enclosure, unpanelled.

Optional paneling and insulation available.





Electrical panel in a sealed compartment with standard forced ventilation.

Units equipped with intelligent regulation that ensures an optimal defrosting process.

Refrigeration components separated in a closed compartment with easy accessibility via removable panels.

ziran pro

range specification

General characteristics

		KWR
Refrigerant	R290	✓
	Equipment with refrigerant charge	✓
	Leak detector	✓
	ATEX axial fan for refrigerant extraction	✓
	ATEX centrifugal fan for refrigerant extraction	●
	Indicator light in case of leakage	✓
Bodywork	Self-supporting chassis/cabinet in galvanized steel with a polyester powder coating cured in an oven	✓
	Customized color to suit the needs of the installation	●
	Enclosed compartment with panels for refrigeration components	✓
	Polypropylene insulation of the panels in the refrigeration compartment	●
	Enclosed compartment with 20 mm rock wool sandwich panels for refrigeration components	●
	Enclosed compartment with panels for hydraulic components	●
	Polypropylene insulation of the panels in the hydraulic compartment	●
	Enclosed compartment with 20 mm rock wool sandwich panels for hydraulic components	●
	Anti-vibration supplements	●
Compressors	BITZER piston technology with frequency inverter	✓
	Compressor anti-vibration mounts	✓
Expansion valves	Electronic expansion valves	✓

Fans

Outdoor fans	EC axial fans with integrated curved nozzle	✓
	Condensing pressure control	✓
	High-performance EC axial fans	●
	EC plug-fan radial fans	●
	Curved external nozzles (Silent ring) (available only with high-performance EC fans)	●
	AxiTop diffusers for axial fans (available only with high-performance EC fans)	●

Heat exchangers

Coils	Cu tube and Al fin coils	✓
	Cu tube bundle / polyurethane pre-lacquered Al fins	●
	BLYGOLD: Cu tubes / Al fins with Blygold coating	●
	COPPERFIN: Cu tubes / Cu fins	●
Heat exchangers	Propane-water heat exchanger, AISI 316L stainless steel plates, copper-welded and thermally insulated	✓

Energy

Energy recovery	Partial recovery of condensation energy for domestic hot water (DHW)	●
	Pump in the condensation heat recovery circuit	●
	Electric anti-icing heater in the plate heat exchanger for domestic hot water (DHW) recovery	●

✓ Included as standard
● Optional
- Not applicable

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range specification

KEYTER

		KWR
Hydraulic		
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 available buffer tank of 200 liters / 375 liters / 725 liters + electric heaters	●
Installation		
Protection grilles	Coil protection grille	●
Insulation	Thermal insulation in all cold metal lines (refrigerant or water)	●
Power supply	400 V / III ph / 50 Hz with 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 a water flow switch and anti-ice protections for both water and refrigerant	✓
	Energy meter	●
Electrical panel	Electrical panel insulated against refrigerant leaks	✓
	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	●

Hydraulic versions

Available in three versions depending on the hydraulic components included:

- **S Version** - Standard unit, without hydraulic group.
- **P Version** - Unit with hydraulic group, including hydraulic pump and without buffer tank.
- **H Version** - Unit with hydraulic group, including hydraulic pump and buffer tank.

NATURAL R-290 PROPANE

ziran pro

R290 technical data

KWR model			1030	1060	2070	2080	2100
COOLING-ONLY VERSION (R) | HEAT PUMP VERSION (I)							
Cooling mode	Nominal cooling capacity (1)	kW	33,4	55,2	72,5	81,0	92,0
		TR	9,5	15,5	20,5	23,0	26,0
		kBTU/h	114	186	246	276	312
	Absorbed power (2)	kW	11,1	20,5	27,5	31,9	38,9
	EER (3)	kW/kW	3,00	2,70	2,64	2,54	2,36
		BTU/(h*W)	10,24	9,20	8,99	8,66	8,06
	SEER (4)	kWh/kWh	4,3	4,1	4,3	4,1	4,1
	ηs,c (5)	%	168,0%	162,0%	167,9%	162,6%	162,1%
	SEPR (-8°C) (4) (6)	kWh/kWh	3,70	3,60	3,70	3,50	3,30
HEAT PUMP VERSION (I)							
Heating mode 30/35	Nominal heating power (7)	kW	41,5	68,1	91,4	107,7	124,9
	Absorbed power (2)	kW	9,5	16,3	23,4	27,8	33,1
	COP (3)	kW/kW	4,38	4,18	3,90	3,88	3,78
		BTU/(h*W)	14,95	14,27	13,30	13,23	12,88
	SCOP average (10) | SCOP warmer (13)	kWh/kWh	4.2 | 5.2	4.1 | 5.0	4.1 | 4.9	4.1 | 4.8	4.1 | 4.7
	ηs,h average (10)(5) | ηs,h warmer (13)(5)	%	163.2% | 206.1%	161.2% | 198.4%	161.3% | 191.8%	161.2% | 187.5%	160.8% | 183.8%
Heating mode 47/55	Nominal heating power (8)	kW	36,6	60,9	80,2	94,4	109,3
	Absorbed power (2)	kW	12,0	20,7	29,6	34,9	41,3
	COP (3)	kW/kW	3,05	2,94	2,71	2,70	2,64
		BTU/(h*W)	10,41	10,02	9,25	9,22	9,02
	SCOP average (11) | SCOP warmer (14)	kWh/kWh	3.7 | 4.1	3.6 | 4.1	3.6 | 4.0	3.6 | 4.0	3.6 | 3.9
	ηs,h average (11)(5) | ηs,h warmer (14)(5)	%	143.2% | 162.3%	141.2% | 160.8%	141.3% | 158.1%	141.2% | 158.4%	140.8% | 154.4%
Heating mode 55/65	Nominal heating power (9)	kW	33,5	56,4	73,5	86,5	100,2
	Absorbed power (2)	kW	13,1	22,9	32,6	38,4	45,4
	COP (3)	kW/kW	2,56	2,47	2,26	2,25	2,21
		BTU/(h*W)	8,73	8,42	7,70	7,68	7,53
	SCOP average (12) | SCOP warmer (15)	kWh/kWh	3.3 | 3.7	3.3 | 3.7	3.2 | 3.6	3.2 | 3.6	3.2 | 3.5
	ηs,h average (12)(5) | ηs,h warmer (15)(5)	%	130.8% | 143.4%	128.7% | 143.6%	125.8% | 140.8%	124.5% | 141.3%	123.1% | 138.1%
TECHNICAL SPECIFICATIONS							
Power supply			400 V / III / 50 Hz with neutral				
Refrigeration circuit	Refrigerant fluid / GWP	kg CO_2	R290/3				
	No. of refrig. circuits / compressors		1/1	1/1	1/1	1/1	1/1
	No. power stages		50-100%	50-100%	50-100%	50-100%	50-100%
Hydraulic circuit	Indoor water flow rate (16)	m^3/h	7,1	11,7	15,7	18,6	21,5
	Type of heat exchanger		brazed stainless steel plate heat exchanger				
	Ø hydraulic connections	(inch)	1 1/2''	2''	2''	2''	2''
Outdoor fan	Outside air flow for cooling	m^3/h	19000	19000	38000	38000	38000
	Outside air flow for heating	m^3/h	21000	21000	35000	39000	39000
	Number of fans		1	1	2	2	2
	Ø and Type of fan	mm	800 EC-Z	800 EC-Z	800 EC-Z	800 EC-Z	800 EC-Z
Sound pressure level of the equipment (Lp10) (17)		dB(A)	55	60	60	62	62
Weights (S version)	Empty weight	kg	997	1059	1271	1285	1290
	In-service weight	kg	1003	1067	1280	1294	1300

(1) Nominal cooling capacity for entering/leaving water temperature of 12/7°C (53.6/44.6°F) and outdoor air temperature of 35°C (95°F). Capacities calculated with a fouling factor in the plate heat exchanger of 0.4310E-4 (m2K/W).
(2) Nominal power input absorbed by compressors and outdoor fans.
(3) EER and COP calculated according to standard EN 14511-2022.
(4) Seasonal efficiencies calculated in accordance with EN 14825:2022.
(5) ηs,c values in compliance with Ecodesign Regulation (EU) 2016/2281 for comfort applications. ηs,h values in accordance with the ecodesign requirements under Regulation (EU) 813/2013 for heat pump applications.
(6) Values of Seasonal Energy Performance Ratio of medium-temperature process chillers SEPR (-2/-8 °C) in compliance with Ecodesign Regulation (EU) 2015/1095.
(7) Nominal heating capacity for entering/leaving water temperature of 30/35°C (86/95°F) and outdoor air temperature of 7°C (44.6°F). Capacities calculated with a fouling factor in the plate heat exchanger of 0.4310E-4 (m2K/W).
(8) Nominal heating capacity for entering/leaving water temperature of 47/55°C (116.6/131°F) and outdoor air temperature of 7°C (44.6°F). Capacities calculated with a fouling factor in the plate heat exchanger of 0.4310E-4 (m2K/W).

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R290 technical data

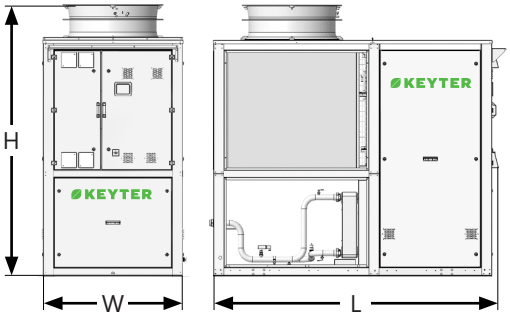
KWR model			3120	4140	4160	4200
COOLING-ONLY VERSION (R) | HEAT PUMP VERSION (I)						
Cooling mode	Nominal cooling capacity (1)	kW	113,5	148,1	167,6	193,9
		TR	32,5	42,0	47,5	55,0
		kBTU/h	390	504	570	660
	Absorbed power (2)	kW	40,5	54,5	63,2	77,5
	EER (3)	kW/kW	2,80	2,72	2,65	2,50
		BTU/(h*W)	9,55	9,27	9,04	8,54
	SEER (4)	kWh/kWh	4,2	4,3	4,2	4,1
	ηs,c (5)	%	164,1%	169,7%	165,6%	162,7%
	SEPR (-8°C) (4) (6)	kWh/kWh	3,70	3,70	3,70	3,50
HEAT PUMP VERSION (I)						
Heating mode 30/35	Nominal heating power (7)	kW	137,9	177,1	209,2	252,8
	Absorbed power (2)	kW	30,9	46,0	54,2	65,5
	COP (3)	kW/kW	4,47	3,85	3,86	3,86
		BTU/(h*W)	15,25	13,12	13,16	13,16
	SCOP average (10) | SCOP warmer (13)	kWh/kWh	4.1 | 5.1	4.1 | 5.1	4.1 | 5.0	4.1 | 4.9
	ηs,h average (10)(5) | ηs,h warmer (13)(5)	%	161.7% | 202.2%	161.8% | 201.5%	161.3% | 197.2%	160.9% | 194.9%
Heating mode 47/55	Nominal heating power (8)	kW	124,3	155,6	184,0	222,0
	Absorbed power (2)	kW	39,9	57,8	68,0	82,3
	COP (3)	kW/kW	3,11	2,69	2,71	2,70
		BTU/(h*W)	10,63	9,19	9,23	9,21
	SCOP average (11) | SCOP warmer (14)	kWh/kWh	3.6 | 4.1	3.6 | 4.1	3.6 | 4.0	3.6 | 4.0
	ηs,h average (11)(5) | ηs,h warmer (14)(5)	%	141.7% | 160.1%	141.8% | 163.0%	141.3% | 158.9%	140.9% | 157.1%
Heating mode 55/65	Nominal heating power (9)	kW	115,8	142,8	169,0	203,8
	Absorbed power (2)	kW	44,2	63,5	74,7	90,5
	COP (3)	kW/kW	2,62	2,25	2,26	2,25
		BTU/(h*W)	8,93	7,67	7,72	7,68
	SCOP average (12) | SCOP warmer (15)	kWh/kWh	3.4 | 3.6	3.4 | 3.7	3.4 | 3.6	3.3 | 3.6
	ηs,h average (12)(5) | ηs,h warmer (15)(5)	%	133.2% | 142.2%	132.7% | 145.8%	131.5% | 141.8%	130.4% | 140.1%
TECHNICAL SPECIFICATIONS						
Power supply			400 V / III / 50 Hz with neutral			
Refrigeration circuit	Refrigerant fluid / GWP	kg CO_2	R290/3			
	No. of refrig. circuits / compressors		2/2	2/2	2/2	2/2
	No. power stages		25-100%	25-100%	25-100%	25-100%
Hydraulic circuit	Indoor water flow rate (16)	m^3/h	23,7	30,5	36,0	43,5
	Type of heat exchanger		brazed stainless steel plate heat exchanger			
	Ø hydraulic connections	(inch)	DN80	DN80	DN80	DN80
Outdoor fan	Outside air flow for cooling	m^3/h	38000	76000	76000	76000
	Outside air flow for heating	m^3/h	39000	70000	78000	78000
	Number of fans		1	1	2	2
	Ø and Type of fan	mm	800 EC-Z	800 EC-Z	800 EC-Z	800 EC-Z
Sound pressure level of the equipment (Lp10) (17)		dB(A)	63	63	65	65
Weights (S version)	Empty weight	kg	2023	2387	2400	2411
	In-service weight	kg	2039	2408	2423	2434

(9) Nominal heating capacity for entering/leaving water temperature of 55/65°C (131/149°F) and outdoor air temperature of 7°C (44.6°F). Capacities calculated with a fouling factor in the plate heat exchanger of 0.4310E-4 (m2K/W).
(10) Seasonal coefficient of performance (SCOP) and seasonal space heating energy efficiency (ηs,h) calculated for low-temperature applications and average climate.
(11) Seasonal coefficient of performance (SCOP) and seasonal space heating energy efficiency (ηs,h) calculated for medium-temperature applications and average climate.
(12) Seasonal coefficient of performance (SCOP) and seasonal space heating energy efficiency (ηs,h) calculated for high-temperature applications and average climate.
(13) Seasonal coefficient of performance (SCOP) and seasonal space heating energy efficiency (ηs,h) calculated for low-temperature applications and warm climate.
(14) Seasonal coefficient of performance (SCOP) and seasonal space heating energy efficiency (ηs,h) calculated for medium-temperature applications and warm climate.
(15) Seasonal coefficient of performance (SCOP) and seasonal space heating energy efficiency (ηs,h) calculated for high-temperature applications and warm climate.
(16) Nominal water flow rate for entering/leaving water temperature of 30/35°C (86/95°F) and outdoor air temperature of 7°C (44.6°F).
(17) Sound pressure level in dB(A) in free field, at 10 m distance from the source and directivity 1.

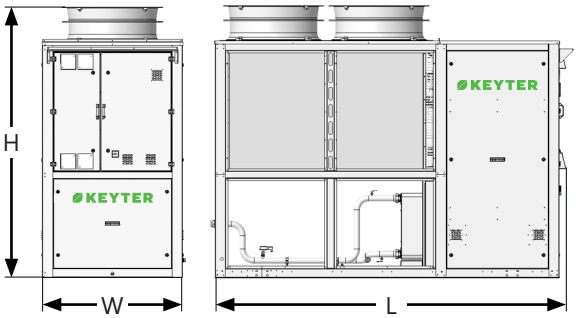
ziran pro

dimensions

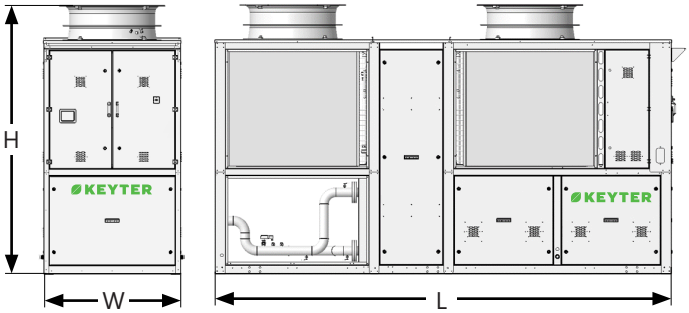
Series 1 S/P/H



Series 2 S/P/H

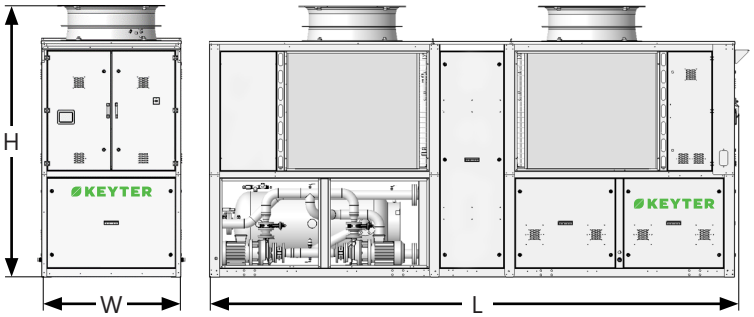


Series 3 S/P

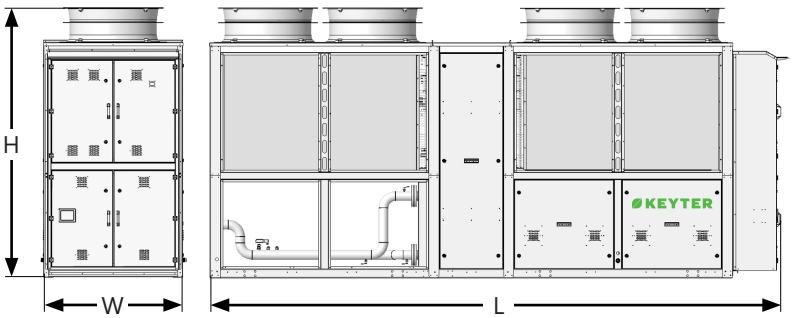


Dimensions (mm)					
	Series 1	Series 2	Series 3		Series 4
Bodywork	S/P/H	S/P/H	S/P	H	S/P/H
L	2640	3240	4340	4940	5350
W	1300	1300	1300	1300	1300
H	2550	2550	2550	2550	2550

Series 3 H



Series 4 S/P/H



NATURAL
R-290
PROPANE