TECHNICAL DATA SHEETS

Heat pumps

NetZero+

GEOSMART
NETZERO

NetZero heat pumps

Technology for a sustainable world

GeoSmart is committed to innovation in order to achieve a sustainable future based on the use of renewable energy. This commitment has led GeoSmart to become a technological leader in the field of Inverter heat pumps, being the only manufacturer whose product range presents such modulating technology in all its models.

NetZero⁺ heat pumps allow to cover in an integrated way all the thermal needs of current buildings, as well domestic as industrial. GeoSmart offers three types of solutions depending on the energy source used by the equipment: NetZero⁺ water-to-water ground source heat pumps, NetZero⁺ & AU water-to-water air source heat pumps. All the models in these two ranges make use of Inverter technology to obtain the best performances and thus guarantee comfort and efficiency together with a commitment to make the best use of renewable resources.

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NetZero+

Heat pumps Range

GEOSMART
NETZERO

GEOSMART
NETZERO

NetZero+

Inverter heat pumps, the most efficient technology

The NetZero+ range is the GeoSmart range of ground source heat pumps. These heat pumps, both basic and compact, are compatible with any of the type of ground source collection system, even with hybrid air source-ground source collection systems and fully air source collection systems. Likewise, they are also capable of offering all the services required in a HVAC system in an integrated way: DHW, Heating, Pool, Passive Cooling (or Free Cooling) and Active Cooling.

All NetZero+ heat pumps make use of Inverter technology, which allows them to modulate their power in order to adapt to the thermal demands of the installation with the highest efficiency. This translates into a very considerable reduction in electrical consumption and great savings. Thanks to the technology and control strategies developed by GeoSmart, the installation of NetZero+ heat pumps also becomes much simpler, more compact and cheaper than those of other heat pumps on the market, since it allows to dispense with certain components that would be necessary in traditional heat pump installations.

NetZero+ Basic / Compact

Residential range

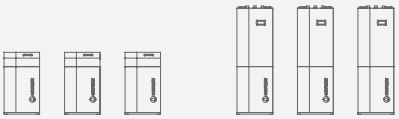
Power ranges

NetZero+ 1-9 kW
3,412.1 - 30,709.3 Btu

NetZero+ 3-12 kW
10,236.4 - 40,945.7 Btu

NetZero+ 5-22 kW
17,060.7 - 75,067.1 Btu

Cascade



Services

DHW

Heating

Cooling

Pool

Models

NetZero+ BW/CW HB	NetZero+ BW/CW PB	NetZero+ BW/CW RB	NetZero+ BW/CW BB
DHW Heating Pool	DHW Heating Pool Free / Passive Cooling	DHW Heating Pool Active Cooling	DHW Heating Pool Free / Passive Cooling Active Cooling

Inverter technology

3 Different power ranges:

[kW] 1-9 / 3-12 / 5-22

[Btu] 3,412.1-30,709.3 / 10,236.4-40,945.7 / 17,060.7-75,067.1

Domestic Hot Water production

Heating and pool production

Integrated active cooling production

Integrated free / passive cooling production

Integrated internet connection

Integrated photovoltaic hybridization

HTR technology for DHW production up to 70°C / 158°F and simultaneous production of several services

Integrated cascade management up to 3 units

Collection system

Ground

Open loop

Air

Hybrid

NetZero+ BW/CW 1-9

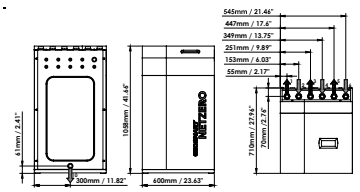
- **Modulating thermal power control** within a wide range (12.5 - 100%) and modulating flow rate control of both brine and production circuits (20.0 - 100%).
- **Inverter technology** and scroll compressor.
- **Compact design** including brine and production circulation pumps, brine and production expansion vessels, safety valves and DHW three-way valve.
- **High Temperature Recovery system (HTR)** for DHW production up to 158 ºF without electrical support and simultaneous production of DHW and heating/cooling.
- **Integrated management of up to 4 different emission temperatures, 2 buffer tanks** (heating and cooling), **1 DHW tank, 1 pool and hourly control of DHW recirculation.**
- **Integrated management of air source collection modulating units**, in case of air source or hybrid configurations.
- **Integrated management of external On/Off or modulating auxiliary systems**, such as electrical heaters, On/Off boilers or modulating boilers.
- **Integrated management of cascade systems** up to 3 units.
- **Integrated management of simultaneous cooling/heating systems** according to scheme.
- **Integrated photovoltaic hybridization.**
- **Integrated energy meters** to measure the electrical consumption, the heating/cooling thermal power, the COP and the monthly and annual SPF.
- **Integrated internet connection.**

NetZero+ BW/CW 1-9					
APPLICATION	Place of installation		Indoors		
	Type of brine system[1]		Ground source / Air source / Open loop / Hybrid source		
CERTIFICATIONS	Underwriter Laboratories (UL)		✓		
	Air-Conditioning, Heating and Refrigeration Institute (AHRI)		✓		
	Energy Star		✓		
NetZero+ BW/CW 1-9 SYSTEM [2]	**TYPE OF PRODUCTION**	**SPECIFICATION**	**UNITS**	**FULL LOAD**	**PART LOAD**
WATER-LOOP (WLHP)	COOLING	Cooling capacity	Btuh	22,274	14,919
		EER Rating	Btuh / W	13.09	14.83
		Fluid flow rate	gpm	6.10	4.00
	HEATING	Heating capacity	Btuh	53,473	22,184
		COP	W / W	4.32	5.46
		Fluid flow rate	gpm	11.70	7.60
GROUND-WATER (GWHP)	COOLING	Cooling capacity	Btuh	23,901	15,879
		EER Rating	Btuh / W	18.60	22.43
		Fluid flow rate	gpm	6.10	4.00
	HEATING	Heating capacity	Btuh	46,261	19,431
		COP	W / W	3.35	4.14
		Fluid flow rate	gpm	9.50	6.30
GROUND-LOOP (GLHP)	COOLING	Cooling capacity	Btuh	21,781	15,221
		EER Rating	Btuh / W	13.65	18.81
		Fluid flow rate	gpm	5.90	3.90
	HEATING	Heating capacity	Btuh	36,024	16,947
		COP	W / W	2.83	3.87
		Fluid flow rate	gpm	6.80	5.40
NetZero+ BW/CW 1-9 GENERAL SPECIFICATIONS			**UNITS**		
PERFORMANCE	Modulation range of the compressor		%	12.5 to 100.0	
	Max. DHW temperature without / with support [5]		ºF	145.4 / 158.0	
	Noise power emission level [6]		dB	33 to 44	
OPERATION LIMITS	Distribution / Set heating outlet temperature range		ºF	50.0 to 140.0 / 68.0 to 140.0	
	Distribution / Set cooling outlet temperature range		ºF	41.0 to 95.0 / 44.6 to 77.0	
	Brine inlet temperature range in heating applications		ºF	-13.0 to 95.0	
	Brine inlet temperature range in cooling applications		ºF	50.0 to 140.0	
	Minimum / Maximum refrigerant circuit pressure		psi	35.53 / 652.28	
	Production / Pre-load circuit pressure		psi	7.25 to 43.51 / 21.756	
	Brine / Pre-load circuit pressure		psi	7.25 to 43.51 / 10.15	
	Volume / Max. DHW storage tank pressure (NetZero+ C)		galon / psi	43.59 / 116.03	
WORKING FLUIDS	R410A Refrigerant load		lb & oz	2 lb & 3.20 oz	
	Compressor oil type / load		- / lb & oz	POE / 1 lb & 10.08 oz	
CONTROL ELECTRICAL DATA	1/N/PE 230 V / 50-60 Hz [8]		-	✓	
	Maximum recommended external protection [9]		-	C16	
	Transformer primary circuit fuse		A	0.5	
	Transformer secondary circuit fuse		A	2.5	
ELECTRICAL DATA: SINGLE-PHASE	1/N/PE 230 V / 50-60 Hz [8]		-	✓	
	Maximum recommended external protection [9]		-	C25A	
	Maximum consumption[10], B32W95		kW / A	2.7 / 11.8	
	Maximum consumption[10], B32W131		kW / A	3.8 / 16.5	
	Minimum / Maximum starting current [7]		A	2.8 / 5.8	
	Correction of cosine Ø		-	0.96 / 1	
DIMENSIONS/WEIGHT	Height x width x depth BW | CW		inch	41.65 x 23.62 x 27.95	72.87 x 23.62 x 28.35
			mm	1,058 x 600 x 710	1,851 x 600 x 720
	Empty weight (without assembly) BW | CW		lb & oz	423 lb & 4.64 oz	557 lb & 12.32 oz

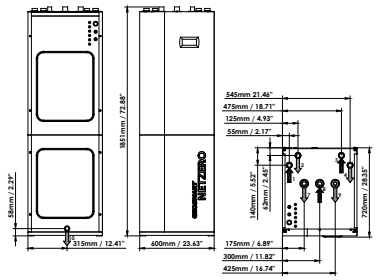
1. Air source/Hybrid source by replacing/combining the ground source circuit by/with one or more NetZero+ AU. Consult the NetZero+ AU manual for more detailed information.
2. Rated as follows in accordance with the latest edition of ANSI / AHRI / ASHRAE / ISO 13256-2 Water-source heat pumps. Testing and rating for performance. Rated accuracy by AHRI-sponsored, independent, third party testing.
3. Considering brine and production flow rates in compliance with EN 14511.
4. Considering a heat slope from 68°F to 122ºF in absence of consumption.
5. Considering support provided by the emergency electrical heater or the HTR system. Maximum DHW temperature with the HTR system can be limited by the compressor discharge temperature.
6. In compliance with EN 12102.
7. Starting current depends on the working conditions of the hydraulic circuits.
8. The admissible voltage range for proper operation of the heat pump is ±10%.
9. Maximum consumption can vary significantly according to working conditions, or if the compressor's operation range is restricted. Consult the technical service manual for more detailed information.
10. In compliance with EN 14511, this includes the consumption of the circulation pumps and the compressor driver.

Dimensions and hydraulic connections

NetZero+ BW

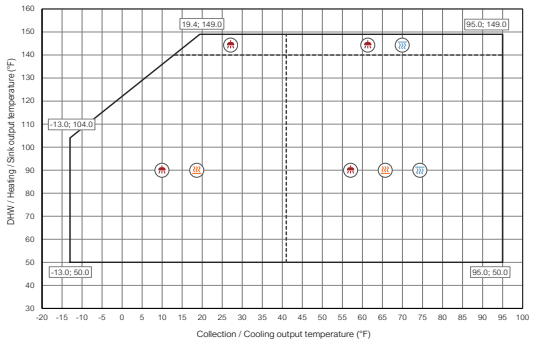


NetZero+ CW

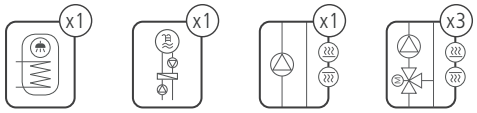


1. Heating/Cooling Outlet - 1 1/4" M
2. Heating/Cooling Inlet - 1 1/4" M
3. Brine Outlet - 1 1/4" M
4. Brine Inlet - 1 1/4" M
5. DHW system Outlet - 1 " M
6. DHW System Inlet - 1 1/4" M
7. CW Inlet - 1 " F
8. DHW Outlet - 1 " F
9. DHW Recirculation Inlet - 3/4 " F
10. Drain - 16 mm

Operational chart

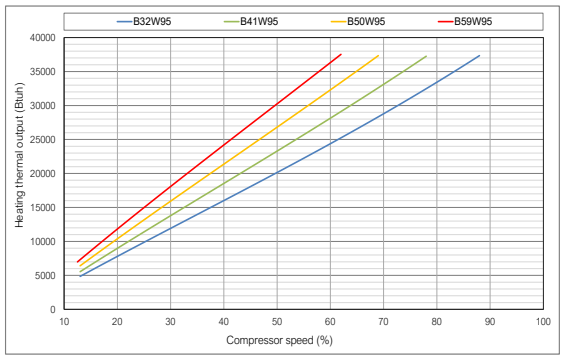


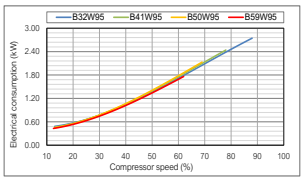
Installation management

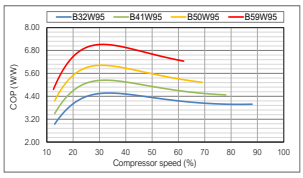


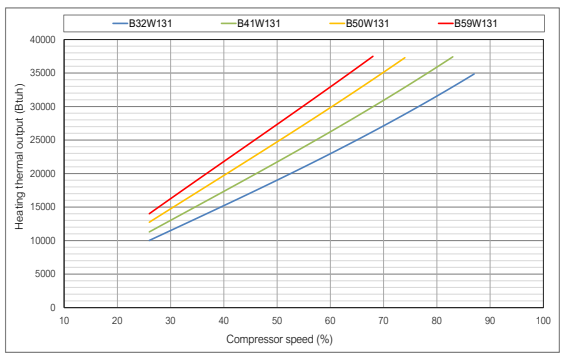
Performance curves

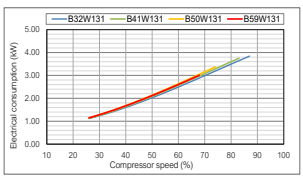
Thermal performance[1]

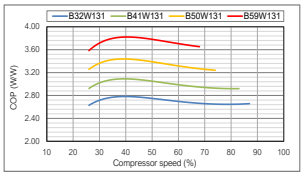


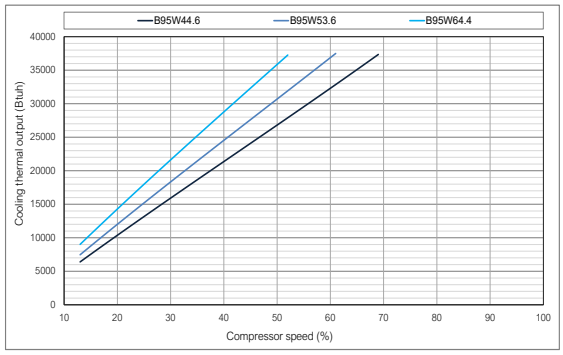


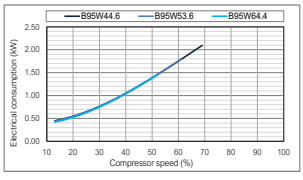


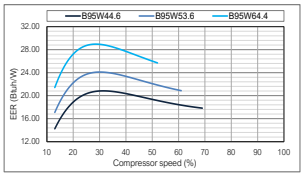




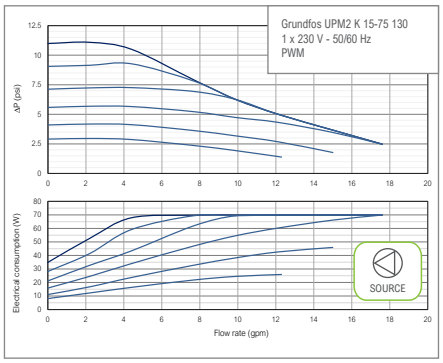


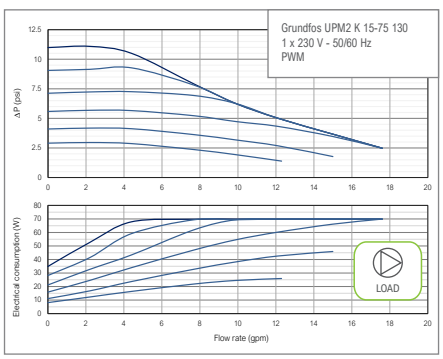


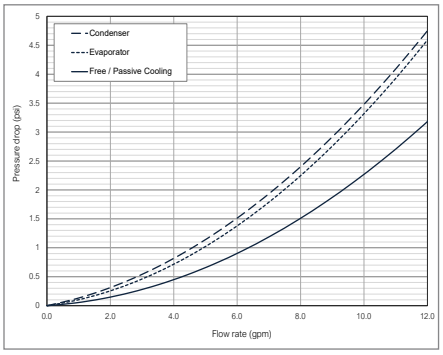




Hydraulic performance







1. The COP and EER parameters shown in these curves take into account the full electrical power consumptions. Compressor, circulator pumps, controller, inverter and valves consumption are included.

NetZero+ BW/CW 3-12

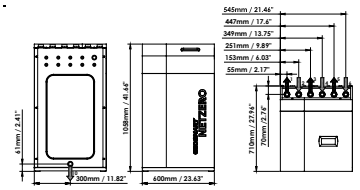
- **Modulating thermal power control** within a wide range (12.5 - 100%) and modulating flow rate control of both brine and production circuits (20.0 - 100%).
- **Inverter technology** and scroll compressor.
- **Compact design** including brine and production circulation pumps, brine and production expansion vessels, safety valves and DHW three-way valve.
- **High Temperature Recovery system (HTR)** for DHW production up to 158 ºF without electrical support and simultaneous production of DHW and heating/cooling.
- **Integrated management of up to 4 different emission temperatures, 2 buffer tanks** (heating and cooling), **1 DHW tank, 1 pool and hourly control of DHW recirculation.**
- **Integrated management of air source collection modulating units**, in case of air source or hybrid configurations.
- **Integrated management of external On/Off or modulating auxiliary systems**, such as electrical heaters, On/Off boilers or modulating boilers.
- **Integrated management of cascade systems** up to 3 units.
- **Integrated management of simultaneous cooling/heating systems** according to scheme.
- **Integrated photovoltaic hybridization.**
- **Integrated energy meters** to measure the electrical consumption, the heating/cooling thermal power, the COP and the monthly and annual SPF.
- **Integrated internet connection.**

NetZero+ BW/CW 3-12					
APPLICATION	Place of installation		Indoors		
	Type of brine system[1]		Ground source / Air source / Open loop / Hybrid source		
CERTIFICATIONS	Underwriter Laboratories (UL)		✓		
	Air-Conditioning, Heating and Refrigeration Institute (AHRI)		✓		
	Energy Star		✓		
NetZero+ BW/CW 3-12 SYSTEM [2]	**TYPE OF PRODUCTION**	**SPECIFICATION**	**UNITS**	**FULL LOAD**	**PART LOAD**
WATER-LOOP (WLHP)	COOLING	Cooling capacity	Btuh	30,787	20,836
		EER Rating	Btuh / W	13.60	15.19
		Fluid flow rate	gpm	8.30	5.50
	HEATING	Heating capacity	Btuh	68,212	30,597
		COP	W / W	4.64	6.01
		Fluid flow rate	gpm	15.40	10.80
GROUND-WATER (GWHP)	COOLING	Cooling capacity	Btuh	32,057	21,536
		EER Rating	Btuh / W	18.57	22.03
		Fluid flow rate	gpm	8.20	5.40
	HEATING	Heating capacity	Btuh	62,244	23,617
		COP	W / W	3.47	4.54
		Fluid flow rate	gpm	13.00	7.90
GROUND-LOOP (GLHP)	COOLING	Cooling capacity	Btuh	29,297	20,681
		EER Rating	Btuh / W	13.72	18.64
		Fluid flow rate	gpm	7.90	5.30
	HEATING	Heating capacity	Btuh	48,688	23,532
		COP	W / W	2.87	3.98
		Fluid flow rate	gpm	9.60	7.70
NetZero+ BW/CW 3-12 GENERAL SPECIFICATIONS			**UNITS**		
PERFORMANCE	Modulation range of the compressor		%	12.5 to 100.0	
	Max. DHW temperature without / with support [5]		ºF	145.4 / 158.0	
	Noise power emission level [6]		dB	34 to 45	
OPERATION LIMITS	Distribution / Set heating outlet temperature range		ºF	50.0 to 140.0 / 68.0 to 140.0	
	Distribution / Set cooling outlet temperature range		ºF	41.0 to 95.0 / 44.6 to 77.0	
	Brine inlet temperature range in heating applications		ºF	-13.0 to 95.0	
	Brine inlet temperature range in cooling applications		ºF	50.0 to 140.0	
	Minimum / Maximum refrigerant circuit pressure		psi	35.53 / 652.28	
	Production / Pre-load circuit pressure		psi	7.25 to 43.51 / 21.756	
	Brine / Pre-load circuit pressure		psi	7.25 to 43.51 / 10.15	
	Volume / Max. DHW storage tank pressure (NetZero+ C)		galon / psi	43.59 / 116.03	
WORKING FLUIDS	R410A Refrigerant load		lb & oz	2.20	
	Compressor oil type / load		- / lb & oz	POE / 1.63	
CONTROL ELECTRICAL DATA	1/N/PE 230 V / 50-60 Hz [8]		-	✓	
	Maximum recommended external protection [9]		-	C16	
	Transformer primary circuit fuse		A	0.5	
	Transformer secondary circuit fuse		A	2.5	
ELECTRICAL DATA: SINGLE-PHASE	1/N/PE 230 V / 50-60 Hz [8]		-	✓	
	Maximum recommended external protection [9]		-	C32A	
	Maximum consumption[10], B32W95		kW / A	4.2 / 18.6	
	Maximum consumption[10], B32W131		kW / A	5.0 / 21.7	
	Minimum / Maximum starting current [7]		A	2.0 / 8.0	
	Correction of cosine Ø		-	0.96 / 1	
DIMENSIONS/WEIGHT	Height x width x depth BW | CW		inch	41.65 x 23.62 x 27.95	72.87 x 23.62 x 28.35
			mm	1,058 x 600 x 710	1,851 x 600 x 720
	Empty weight (without assembly) BW | CW		lb & oz	425.49	559.97

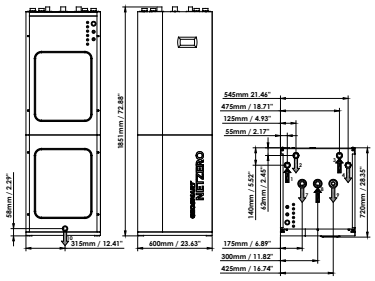
1. Air source/Hybrid source by replacing/combining the ground source circuit by/with one or more NetZero+ AU. Consult the NetZero+ AU manual for more detailed information.
2. Rated as follows in accordance with the latest edition of ANSI / AHRI / ASHRAE / ISO 13256-2 Water-source heat pumps. Testing and rating for performance. Rated accuracy by AHRI-sponsored, independent, third party testing.
3. Considering brine and production flow rates in compliance with EN 14511.
4. Considering a heat slope from 68°F to 122ºF in absence of consumption.
5. Considering support provided by the emergency electrical heater or the HTR system. Maximum DHW temperature with the HTR system can be limited by the compressor discharge temperature.
6. In compliance with EN 12102.
7. Starting current depends on the working conditions of the hydraulic circuits.
8. The admissible voltage range for proper operation of the heat pump is ±10%.
9. Maximum consumption can vary significantly according to working conditions, or if the compressor's operation range is restricted. Consult the technical service manual for more detailed information.
10. In compliance with EN 14511, this includes the consumption of the circulation pumps and the compressor driver.

Dimensions and hydraulic connections

NetZero+ BW

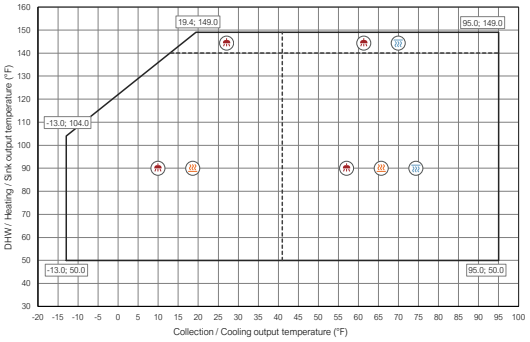


NetZero+ CW

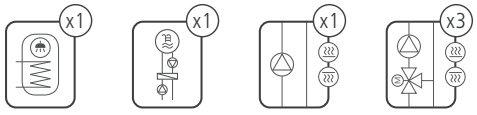


1. Heating/Cooling Outlet - 1 1/4" M
2. Heating/Cooling Inlet - 1 1/4" M
3. Brine Outlet - 1 1/4" M
4. Brine Inlet - 1 1/4" M
5. DHW system Outlet - 1 " M
6. DHW System Inlet - 1 1/4" M
7. CW Inlet - 1 " F
8. DHW Outlet - 1 " F
9. DHW Recirculation Inlet - 3/4 " F
10. Drain - 16 mm

Operational chart

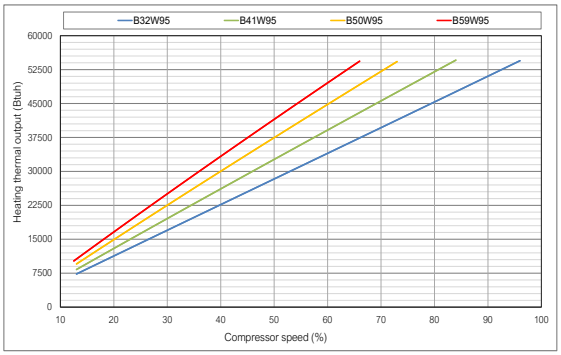


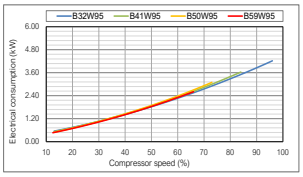
Installation management

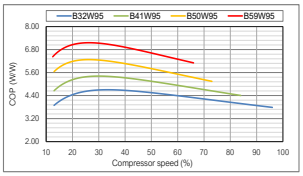


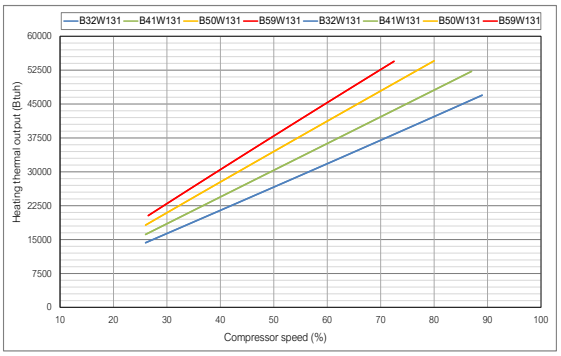
Performance curves

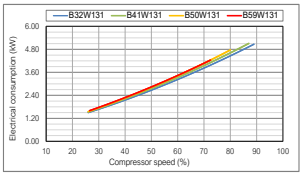
Thermal performance[1]

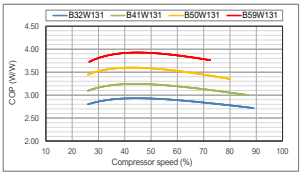


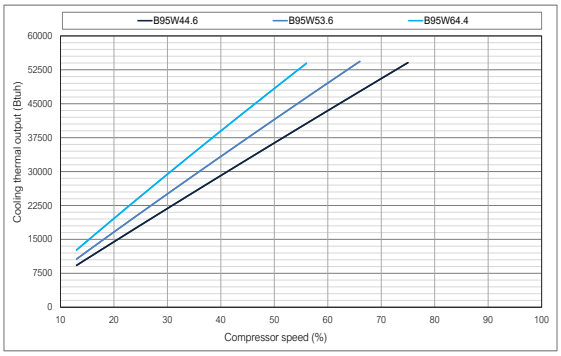


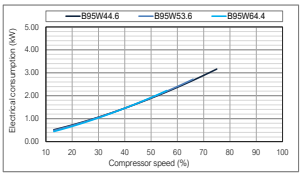


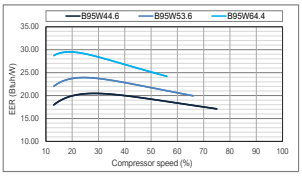




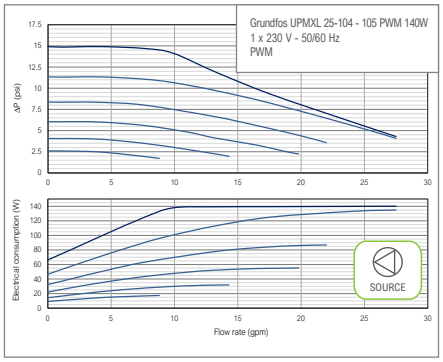


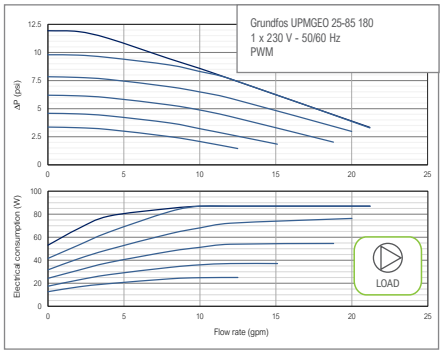


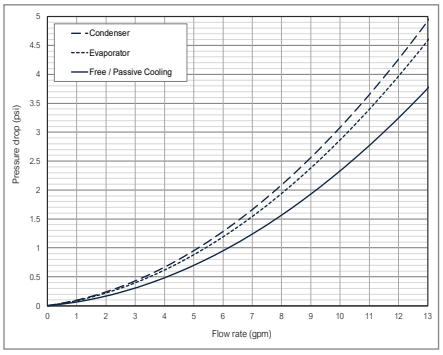




Hydraulic performance







1. The COP and EER parameters shown in these curves take into account the full electrical power consumptions. Compressor, circulator pumps, controller, inverter and valves consumption are included.

NetZero+ BW/CW 5-22

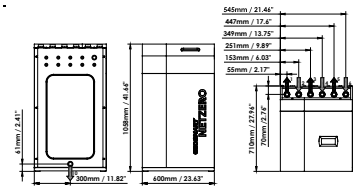
- **Modulating thermal power control** within a wide range (12.5 - 100%) and modulating flow rate control of both brine and production circuits (20.0 - 100%).
- **Inverter technology** and scroll compressor.
- **Compact design** including brine and production circulation pumps, brine and production expansion vessels, safety valves and DHW three-way valve.
- **High Temperature Recovery system (HTR)** for DHW production up to 158 ºF without electrical support and simultaneous production of DHW and heating/cooling.
- **Integrated management of up to 4 different emission temperatures, 2 buffer tanks** (heating and cooling), **1 DHW tank, 1 pool and hourly control of DHW recirculation.**
- **Integrated management of air source collection modulating units**, in case of air source or hybrid configurations.
- **Integrated management of external On/Off or modulating auxiliary systems**, such as electrical heaters, On/Off boilers or modulating boilers.
- **Integrated management of cascade systems** up to 3 units.
- **Integrated management of simultaneous cooling/heating systems** according to scheme.
- **Integrated photovoltaic hybridization.**
- **Integrated energy meters** to measure the electrical consumption, the heating/cooling thermal power, the COP and the monthly and annual SPF.
- **Integrated internet connection.**

NetZero+ BW/CW 5-22					
APPLICATION	Place of installation		Indoors		
	Type of brine system[1]		Ground source / Air source / Open loop / Hybrid source		
CERTIFICATIONS	Underwriter Laboratories (UL)		✓		
	Air-Conditioning, Heating and Refrigeration Institute (AHRI)		✓		
	Energy Star		✓		
NetZero+ BW/CW 5-22 SYSTEM[2]	**TYPE OF PRODUCTION**	**SPECIFICATION**	**UNITS**	**FULL LOAD**	**PART LOAD**
WATER-LOOP (WLHP)	COOLING	Cooling capacity	Btuh	44,782	30,182
		EER Rating	Btuh / W	13.28	14.68
		Fluid flow rate	gpm	12.10	8.00
	HEATING	Heating capacity	Btuh	96,053	73,713
		COP	W / W	3.99	5.53
		Fluid flow rate	gpm	20.90	15.30
GROUND-WATER (GWHP)	COOLING	Cooling capacity	Btuh	48,967	32,706
		EER Rating	Btuh / W	18.75	22.05
		Fluid flow rate	gpm	12.10	9.30
	HEATING	Heating capacity	Btuh	86,016	34,387
		COP	W / W	3.22	4.36
		Fluid flow rate	gpm	17.60	11.50
GROUND-LOOP (GLHP)	COOLING	Cooling capacity	Btuh	44,726	31,403
		EER Rating	Btuh / W	13.95	18.72
		Fluid flow rate	gpm	12.00	8.10
	HEATING	Heating capacity	Btuh	70,898	30,384
		COP	W / W	2.81	3.87
		Fluid flow rate	gpm	20.70	9.80
NetZero+ BW/CW 5-22 GENERAL SPECIFICATIONS			**UNITS**		
PERFORMANCE	Modulation range of the compressor		%	15.0 to 100.0	
	Max. DHW temperature without / with support [5]		ºF	145.4 / 158.0	
	Noise power emission level [6]		dB	35 to 46	
OPERATION LIMITS	Distribution / Set heating outlet temperature range		ºF	50.0 to 140.0 / 68.0 to 140.0	
	Distribution / Set cooling outlet temperature range		ºF	41.0 to 95.0 / 44.6 to 77.0	
	Brine inlet temperature range in heating applications		ºF	-13.0 to 95.0	
	Brine inlet temperature range in cooling applications		ºF	50.0 to 140.0	
	Minimum / Maximum refrigerant circuit pressure		psi	35.53 / 652.28	
	Production / Pre-load circuit pressure		psi	7.25 to 43.51 / 21.75	
	Brine / Pre-load circuit pressure		psi	7.25 to 43.51 / 10.15	
	Volume / Max. DHW storage tank pressure (NetZero+ C)		galon / psi	43.59 / 116.03	
WORKING FLUIDS	R410A Refrigerant load		lb & oz	3.31	
	Compressor oil type / load		- / lb & oz	POE / 2.60	
CONTROL ELECTRICAL DATA	1/N/PE 230 V / 50-60 Hz [8]		-	✓	
	Maximum recommended external protection [9]		-	C16	
	Transformer primary circuit fuse		A	0.5	
	Transformer secondary circuit fuse		A	2.5	
ELECTRICAL DATA: SINGLE-PHASE	1/N/PE 230 V / 50-60 Hz [8]		-	✓	
	Maximum recommended external protection [9]		-	C32A	
	Maximum consumption[10], B32W95		kW / A	4.2 / 18.6	
	Maximum consumption[10], B32W131		kW / A	5.0 / 21.7	
	Minimum / Maximum starting current [7]		A	2.0 / 8.0	
	Correction of cosine Ø		-	0.96 / 1	
DIMENSIONS/WEIGHT	Height x width x depth BW | CW		inch	41.65 x 23.62 x 27.95	72.87 x 23.62 x 28.35
			mm	1,058 x 600 x 710	1,851 x 600 x 720
	Empty weight (without assembly) BW | CW		lb & oz	425.49	562.18

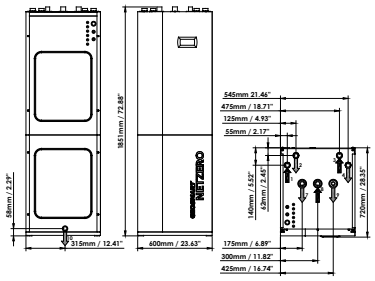
1. Air source/Hybrid source by replacing/combining the ground source circuit by/with one or more NetZero+ AU. Consult the NetZero+ AU manual for more detailed information.
2. Rated as follows in accordance with the latest edition of ANSI / AHRI / ASHRAE / ISO 13256-2 Water-source heat pumps. Testing and rating for performance. Rated accuracy by AHRI-sponsored, independent, third party testing.
3. Considering brine and production flow rates in compliance with EN 14511.
4. Considering a heat slope from 68°F to 122ºF in absence of consumption.
5. Considering support provided by the emergency electrical heater or the HTR system. Maximum DHW temperature with the HTR system can be limited by the compressor discharge temperature.
6. In compliance with EN 12102.
7. Starting current depends on the working conditions of the hydraulic circuits.
8. The admissible voltage range for proper operation of the heat pump is ±10%.
9. Maximum consumption can vary significantly according to working conditions, or if the compressor's operation range is restricted. Consult the technical service manual for more detailed information.
10. In compliance with EN 14511, this includes the consumption of the circulation pumps and the compressor driver.

Dimensions and hydraulic connections

NetZero+ BW

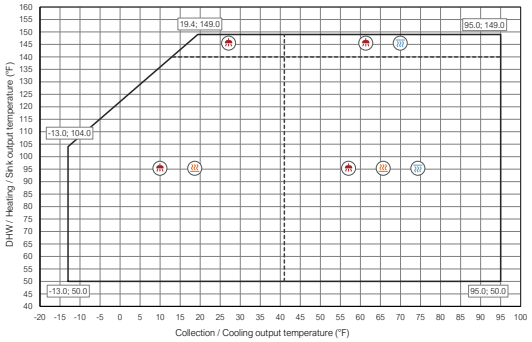


NetZero+ CW

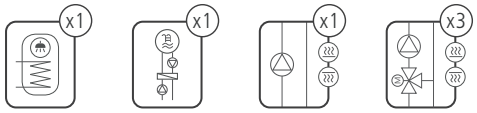


1. Heating/Cooling Outlet - 1 1/4" M
2. Heating/Cooling Inlet - 1 1/4" M
3. Brine Outlet - 1 1/4" M
4. Brine Inlet - 1 1/4" M
5. DHW system Outlet - 1 " M
6. DHW System Inlet - 1 1/4" M
7. CW Inlet - 1 " F
8. DHW Outlet - 1 " F
9. DHW Recirculation Inlet - 3/4 " F
10. Drain - 16 mm

Operational chart

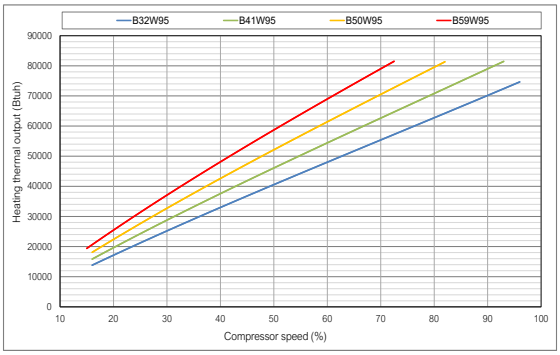


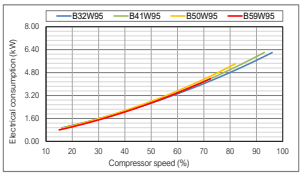
Installation management

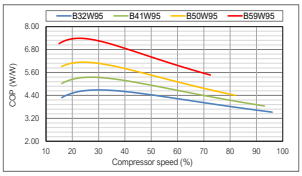


Performance curves

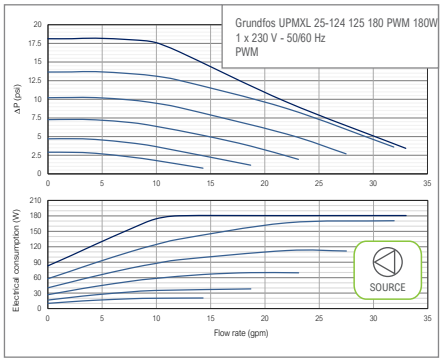
Thermal performance[1]

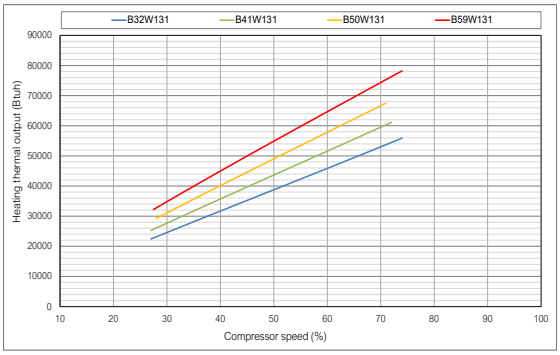


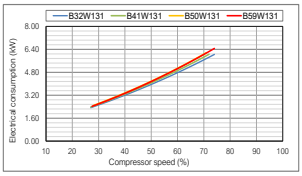


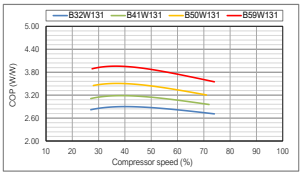


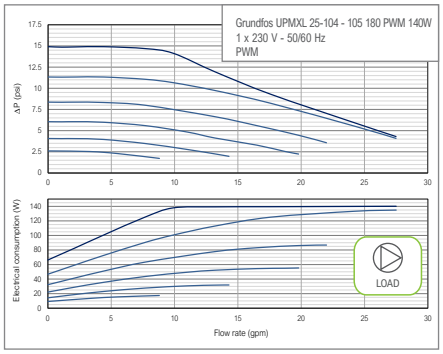
Hydraulic performance

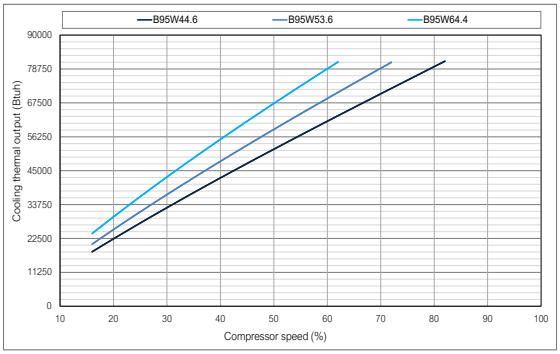


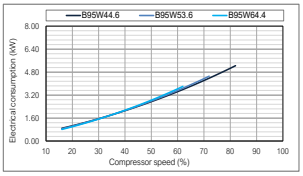


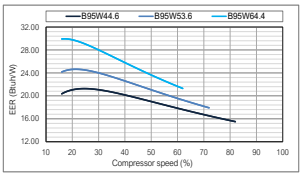


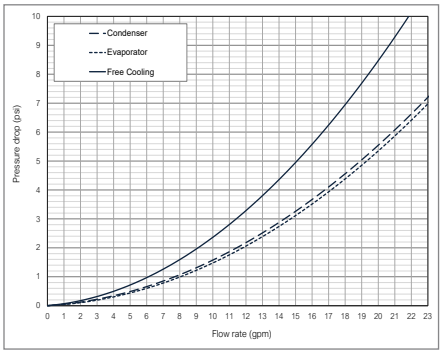












1. The COP and EER parameters shown in these curves take into account the full electrical power consumptions. Compressor, circulator pumps, controller, inverter and valves consumption are included.

Notes

Notes

NetZero+ BW/CW 1-9

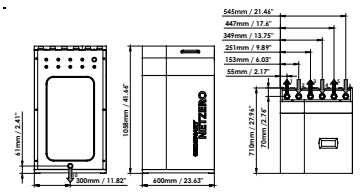
- **Modulating thermal power control** within a wide range (12.5 - 100%) and modulating flow rate control of both brine and production circuits (20.0 - 100%).
- **Inverter technology** and scroll compressor.
- **Compact design** including brine and production circulation pumps, brine and production expansion vessels, safety valves and DHW three-way valve.
- **High Temperature Recovery system (HTR)** for DHW production up to 70 ºC without electrical support and simultaneous production of DHW and heating/cooling.
- **Integrated management of up to 4 different emission temperatures, 2 buffer tanks** (heating and cooling), **1 DHW tank, 1 pool and hourly control of DHW recirculation.**
- **Integrated management of air source collection modulating units**, in case of air source or hybrid configurations.
- **Integrated management of external On/Off or modulating auxiliary systems**, such as electrical heaters, On/Off boilers or modulating boilers.
- **Integrated management of cascade systems** up to 3 units.
- **Integrated management of simultaneous cooling/heating systems** according to scheme.
- **Integrated photovoltaic hybridization.**
- **Integrated energy meters** to measure the electrical consumption, the heating/cooling thermal power, the COP and the monthly and annual SPF.
- **Integrated internet connection.**

NetZero+ BW/CW 1-9					
APPLICATION	Place of installation		Indoors		
	Type of brine system[1]		Ground source / Air source / Open loop / Hybrid source		
CERTIFICATIONS	Underwriter Laboratories (UL)		✓		
	Air-Conditioning, Heating and Refrigeration Institute (AHRI)		✓		
	Energy Star		✓		
NetZero+ BW/CW 1-9 SYSTEM [2]	**TYPE OF PRODUCTION**	**SPECIFICATION**	**UNITS**	**FULL LOAD**	**PART LOAD**
WATER-LOOP (WLHP)	COOLING	Cooling capacity	kWh	6.53	4.37
		EER Rating	Btuh / W	13.09	14.83
		Fluid flow rate	m^3 / h	1.66	1.09
	HEATING	Heating capacity	kWh	15.67	6.5
		COP	W / W	4.32	5.46
		Fluid flow rate	m^3 / h	3.19	2.07
GROUND-WATER (GWHP)	COOLING	Cooling capacity	kWh	7.01	4.65
		EER Rating	Btuh / W	18.6	22.43
		Fluid flow rate	m^3 / h	1.66	1.09
	HEATING	Heating capacity	kWh	13.56	5.7
		COP	W / W	3.35	4.14
		Fluid flow rate	m^3 / h	2.59	1.72
GROUND-LOOP (GLHP)	COOLING	Cooling capacity	kWh	6.38	4.46
		EER Rating	Btuh / W	13.65	18.81
		Fluid flow rate	m^3 / h	1.61	1.06
	HEATING	Heating capacity	kWh	10.56	4.97
		COP	W / W	2.83	3.87
		Fluid flow rate	m^3 / h	1.85	1.47
NetZero+ BW/CW 1-9 GENERAL SPECIFICATIONS			**UNITS**		
PERFORMANCE	Modulation range of the compressor		%	12.5 to 100.0	
	Max. DHW temperature without / with support [5]		ºC	63 / 70	
	Noise power emission level [6]		dB	33 to 44	
OPERATION LIMITS	Distribution / Set heating outlet temperature range		ºC	10 to 60 / 20 to 60	
	Distribution / Set cooling outlet temperature range		ºC	5 to 35 / 7 to 25	
	Brine inlet temperature range in heating applications		ºC	-25 to 35	
	Brine inlet temperature range in cooling applications		ºC	10 to 60	
	Minimum / Maximum refrigerant circuit pressure		bar	2 / 45	
	Production / Pre-load circuit pressure		bar	0.5 to 3.0 / 1.5	
	Brine / Pre-load circuit pressure		bar	0.5 to 3.0 / 0.7	
	Volume / Max. DHW storage tank pressure (NetZero+ C)		l / bar	165 / 8	
WORKING FLUIDS	R410A Refrigerant load		kg	1.00	
	Compressor oil type / load		- / kg	POE / 0.74	
CONTROL ELECTRICAL DATA	1/N/PE 230 V / 50-60 Hz [8]		-	✓	
	Maximum recommended external protection [9]		-	C16	
	Transformer primary circuit fuse		A	0.5	
	Transformer secondary circuit fuse		A	2.5	
ELECTRICAL DATA: SINGLE-PHASE	1/N/PE 230 V / 50-60 Hz [8]		-	✓	
	Maximum recommended external protection [9]		-	C10A	
	Maximum consumption[10], B32W95		kW / A	2.7 / 4.0	
	Maximum consumption[10], B32W131		kW / A	3.8 / 5.5	
	Minimum / Maximum starting current [7]		A	0.9 / 1.9	
	Correction of cosine Ø		-	0.96 / 1	
DIMENSIONS/WEIGHT	Height x width x depth BW | CW		inch	41.65 x 23.62 x 27.95	72.87 x 23.62 x 28.35
			mm	1,058 x 600 x 710	1,851 x 600 x 720
	Empty weight (without assembly) BW | CW		kg	192	253

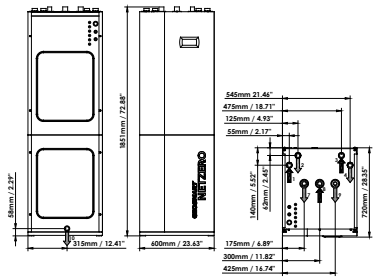
1. Air source/Hybrid source by replacing/combining the ground source circuit by/with one or more NetZero+ AU. Consult the NetZero+ AU manual for more detailed information.
2. Rated as follows in accordance with the latest edition of ANSI / AHRI / ASHRAE / ISO 13256-2 Water-source heat pumps. Testing and rating for performance. Rated accuracy by AHRI-sponsored, independent, third party testing.
3. Considering brine and production flow rates in compliance with EN 14511.
4. Considering a heat slope from 68°F to 122ºF in absence of consumption.
5. Considering support provided by the emergency electrical heater or the HTR system. Maximum DHW temperature with the HTR system can be limited by the compressor discharge temperature.
6. In compliance with EN 12102.
7. Starting current depends on the working conditions of the hydraulic circuits.
8. The admissible voltage range for proper operation of the heat pump is ±10%.
9. Maximum consumption can vary significantly according to working conditions, or if the compressor's operation range is restricted. Consult the technical service manual for more detailed information.
10. In compliance with EN 14511, this includes the consumption of the circulation pumps and the compressor driver.

Dimensions and hydraulic connections

NetZero+ BW

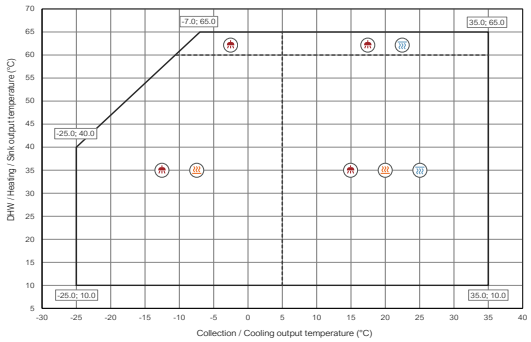


NetZero+ CW

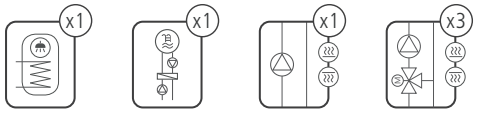


1. Heating/Cooling Outlet - 1 1/4" M
2. Heating/Cooling Inlet - 1 1/4" M
3. Brine Outlet - 1 1/4" M
4. Brine Inlet - 1 1/4" M
5. DHW system Outlet - 1 " M
6. DHW System Inlet - 1 1/4" M
7. CW Inlet - 1 " F
8. DHW Outlet - 1 " F
9. DHW Recirculation Inlet - 3/4 " F
10. Drain - 16 mm

Operational chart

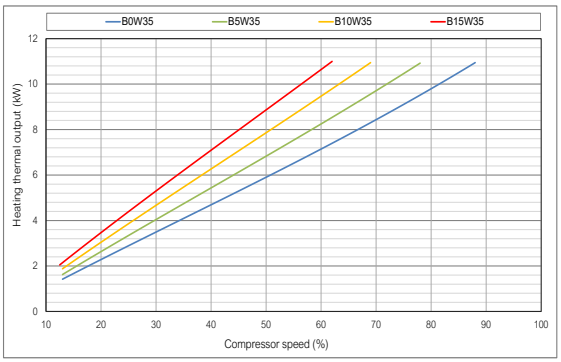


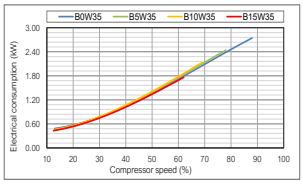
Installation management

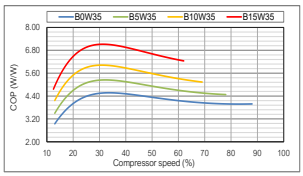


Performance curves

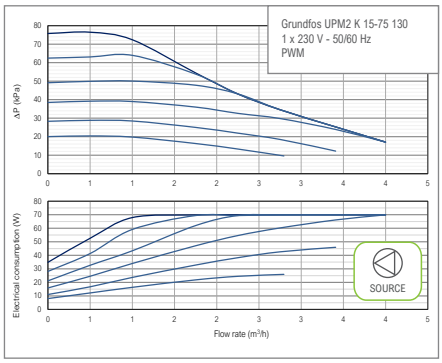
Thermal performance[1]

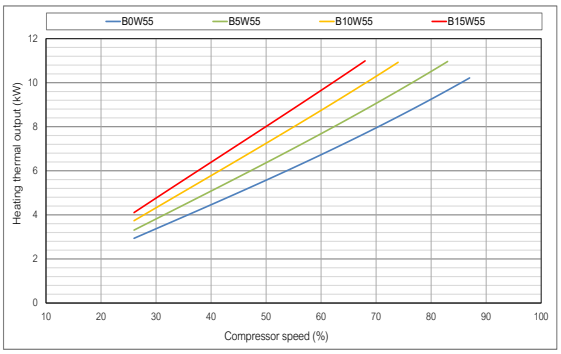


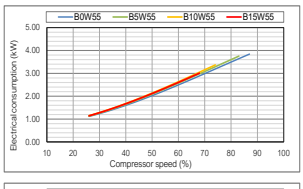


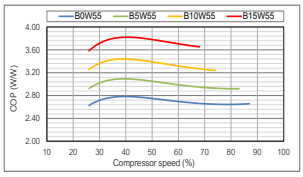


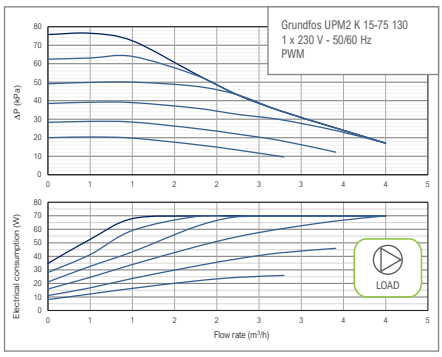
Hydraulic performance

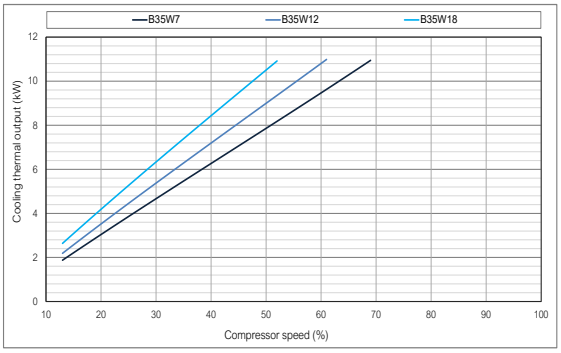


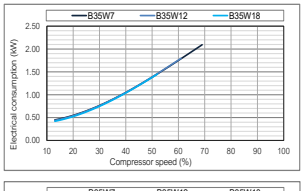


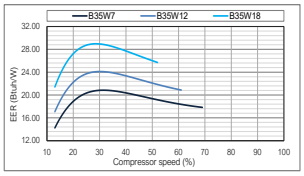


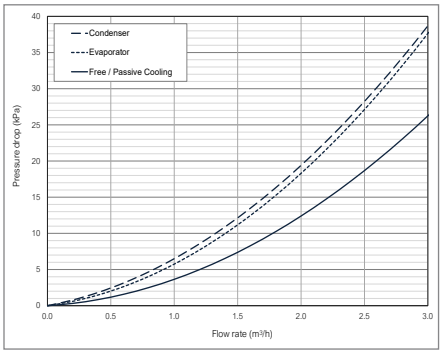












1. The COP and EER parameters shown in these curves take into account the full electrical power consumptions. Compressor, circulator pumps, controller, inverter and valves consumption are included.

NetZero+ BW/CW 3-12

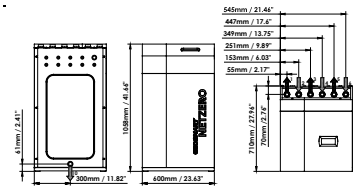
- **Modulating thermal power control** within a wide range (12.5 - 100%) and modulating flow rate control of both brine and production circuits (20.0 - 100%).
- **Inverter technology** and scroll compressor.
- **Compact design** including brine and production circulation pumps, brine and production expansion vessels, safety valves and DHW three-way valve.
- **High Temperature Recovery system (HTR)** for DHW production up to 70 ºC without electrical support and simultaneous production of DHW and heating/cooling.
- **Integrated management of up to 4 different emission temperatures, 2 buffer tanks** (heating and cooling), **1 DHW tank, 1 pool and hourly control of DHW recirculation.**
- **Integrated management of air source collection modulating units**, in case of air source or hybrid configurations.
- **Integrated management of external On/Off or modulating auxiliary systems**, such as electrical heaters, On/Off boilers or modulating boilers.
- **Integrated management of cascade systems** up to 3 units.
- **Integrated management of simultaneous cooling/heating systems** according to scheme.
- **Integrated photovoltaic hybridization.**
- **Integrated energy meters** to measure the electrical consumption, the heating/cooling thermal power, the COP and the monthly and annual SPF.
- **Integrated internet connection.**

NetZero+ BW/CW 3-12					
APPLICATION	Place of installation		Indoors		
	Type of brine system[1]		Ground source / Air source / Open loop / Hybrid source		
CERTIFICATIONS	Underwriter Laboratories (UL)		✓		
	Air-Conditioning, Heating and Refrigeration Institute (AHRI)		✓		
	Energy Star		✓		
NetZero+ BW/CW 3-12 SYSTEM[2]	**TYPE OF PRODUCTION**	**SPECIFICATION**	**UNITS**	**FULL LOAD**	**PART LOAD**
WATER-LOOP (WLHP)	COOLING	Cooling capacity	kWh	9.02	6.11
		EER Rating	Btuh / W	13.6	15.19
		Fluid flow rate	m^3 / h	2.26	1.5
	HEATING	Heating capacity	kWh	19.99	8.97
		COP	W / W	4.64	6.01
		Fluid flow rate	m^3 / h	4.2	2.95
GROUND-WATER (GWHP)	COOLING	Cooling capacity	kWh	9.4	6.31
		EER Rating	Btuh / W	18.57	22.03
		Fluid flow rate	m^3 / h	2.24	1.47
	HEATING	Heating capacity	kWh	18.24	6.92
		COP	W / W	3.47	4.54
		Fluid flow rate	m^3 / h	3.55	2.15
GROUND-LOOP (GLHP)	COOLING	Cooling capacity	kWh	8.59	6.06
		EER Rating	Btuh / W	13.72	18.64
		Fluid flow rate	m^3 / h	2.15	1.45
	HEATING	Heating capacity	kWh	14.27	6.9
		COP	W / W	2.87	3.98
		Fluid flow rate	m^3 / h	2.62	2.1
NetZero+ BW/CW 3-12 GENERAL SPECIFICATIONS			**UNITS**		
PERFORMANCE	Modulation range of the compressor		%	12.5 to 100.0	
	Max. DHW temperature without / with support [5]		ºC	63 / 70	
	Noise power emission level [6]		dB	34 to 45	
OPERATION LIMITS	Distribution / Set heating outlet temperature range		ºC	10 to 60 / 20 to 60	
	Distribution / Set cooling outlet temperature range		ºC	5 to 35 / 7 to 25	
	Brine inlet temperature range in heating applications		ºC	-25 to 35	
	Brine inlet temperature range in cooling applications		ºC	10 to 60	
	Minimum / Maximum refrigerant circuit pressure		bar	2 / 45	
	Production / Pre-load circuit pressure		bar	0.5 to 3.0 / 1.5	
	Brine / Pre-load circuit pressure		bar	0.5 to 3.0 / 0.7	
	Volume / Max. DHW storage tank pressure (NetZero+ C)		l / bar	165 / 8	
WORKING FLUIDS	R410A Refrigerant load		kg	1.00	
	Compressor oil type / load		- / kg	POE / 0.74	
CONTROL ELECTRICAL DATA	1/N/PE 230 V / 50-60 Hz [8]		-	✓	
	Maximum recommended external protection [9]		-	C16	
	Transformer primary circuit fuse		A	0.5	
	Transformer secondary circuit fuse		A	2.5	
ELECTRICAL DATA: SINGLE-PHASE	1/N/PE 230 V / 50-60 Hz [8]		-	✓	
	Maximum recommended external protection [9]		-	C32A	
	Maximum consumption[10], B32W95		kW / A	4.2 / 18.6	
	Maximum consumption[10], B32W131		kW / A	5.0 / 21.7	
	Minimum / Maximum starting current [7]		A	2.0 / 8.0	
	Correction of cosine Ø		-	0.96 / 1	
DIMENSIONS/WEIGHT	Height x width x depth BW | CW		inch	41.65 x 23.62 x 27.95	72.87 x 23.62 x 28.35
			mm	1,058 x 600 x 710	1,851 x 600 x 720
	Empty weight (without assembly) BW | CW		kg	193	254

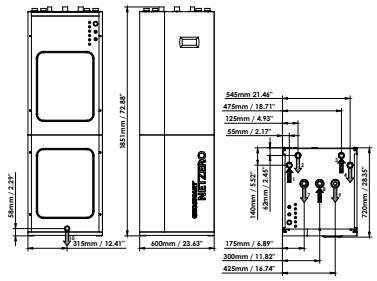
1. Air source/Hybrid source by replacing/combining the ground source circuit by/with one or more NetZero+ AU. Consult the NetZero+ AU manual for more detailed information.
2. Rated as follows in accordance with the latest edition of ANSI / AHRI / ASHRAE / ISO 13256-2 Water-source heat pumps. Testing and rating for performance. Rated accuracy by AHRI-sponsored, independent, third party testing.
3. Considering brine and production flow rates in compliance with EN 14511.
4. Considering a heat slope from 68°F to 122ºF in absence of consumption.
5. Considering support provided by the emergency electrical heater or the HTR system. Maximum DHW temperature with the HTR system can be limited by the compressor discharge temperature.
6. In compliance with EN 12102.
7. Starting current depends on the working conditions of the hydraulic circuits.
8. The admissible voltage range for proper operation of the heat pump is ±10%.
9. Maximum consumption can vary significantly according to working conditions, or if the compressor's operation range is restricted. Consult the technical service manual for more detailed information.
10. In compliance with EN 14511, this includes the consumption of the circulation pumps and the compressor driver.

Dimensions and hydraulic connections

NetZero+ BW

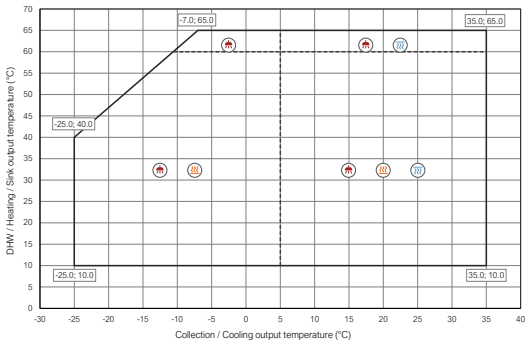


NetZero+ CW

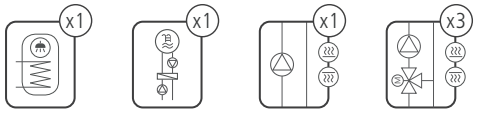


1. Heating/Cooling Outlet - 1 1/4" M
2. Heating/Cooling Inlet - 1 1/4" M
3. Brine Outlet - 1 1/4" M
4. Brine Inlet - 1 1/4" M
5. DHW system Outlet - 1 " M
6. DHW System Inlet - 1 1/4" M
7. CW Inlet - 1 " F
8. DHW Outlet - 1 " F
9. DHW Recirculation Inlet - 3/4 " F
10. Drain - 16 mm

Operational chart

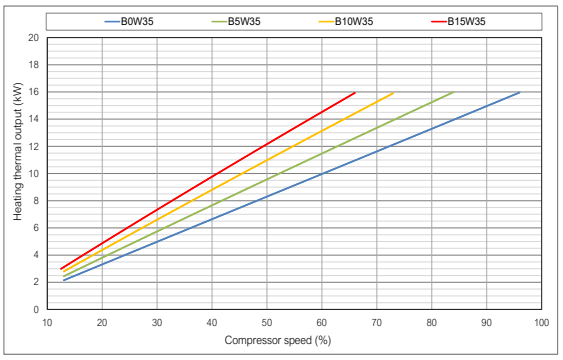


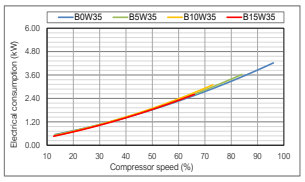
Installation management

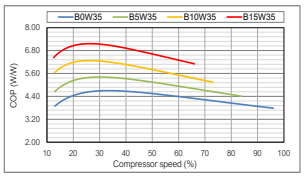


Performance curves

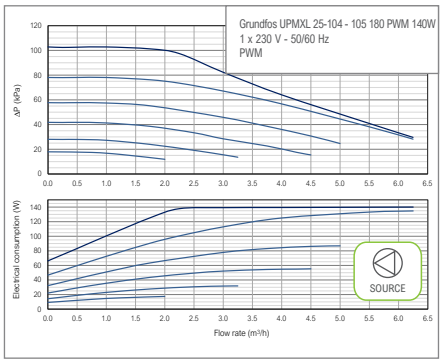
Thermal performance[1]

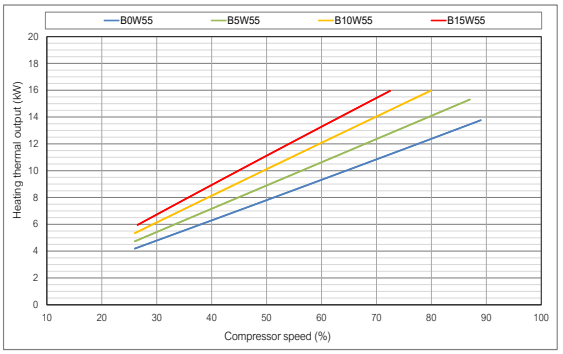


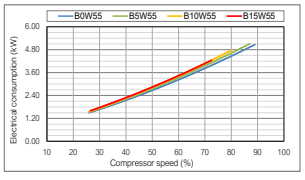


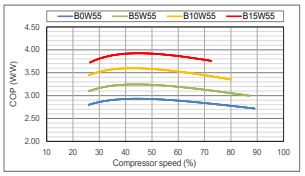


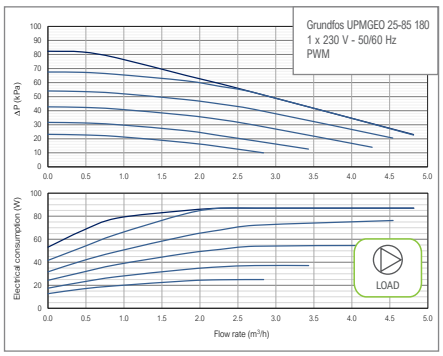
Hydraulic performance

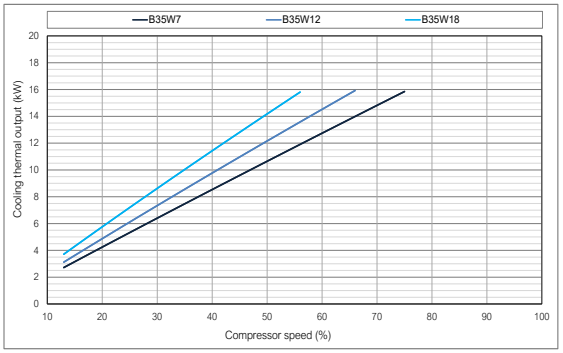


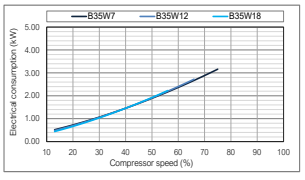


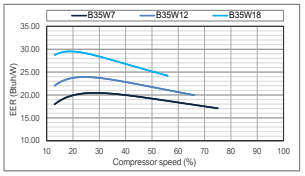


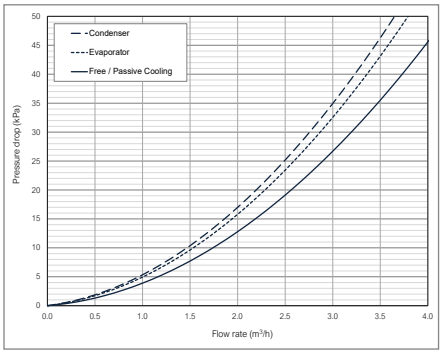












1. The COP and EER parameters shown in these curves take into account the full electrical power consumptions. Compressor, circulator pumps, controller, inverter and valves consumption are included.

NetZero+ BW/CW 5-22

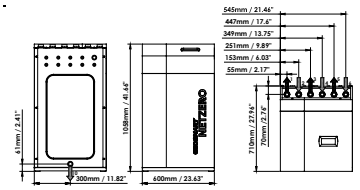
- **Modulating thermal power control** within a wide range (12.5 - 100%) and modulating flow rate control of both brine and production circuits (20.0 - 100%).
- **Inverter technology** and scroll compressor.
- **Compact design** including brine and production circulation pumps, brine and production expansion vessels, safety valves and DHW three-way valve.
- **High Temperature Recovery system (HTR)** for DHW production up to 70 ºC without electrical support and simultaneous production of DHW and heating/cooling.
- **Integrated management of up to 4 different emission temperatures, 2 buffer tanks** (heating and cooling), **1 DHW tank, 1 pool and hourly control of DHW recirculation.**
- **Integrated management of air source collection modulating units**, in case of air source or hybrid configurations.
- **Integrated management of external On/Off or modulating auxiliary systems**, such as electrical heaters, On/Off boilers or modulating boilers.
- **Integrated management of cascade systems** up to 3 units.
- **Integrated management of simultaneous cooling/heating systems** according to scheme.
- **Integrated photovoltaic hybridization.**
- **Integrated energy meters** to measure the electrical consumption, the heating/cooling thermal power, the COP and the monthly and annual SPF.
- **Integrated internet connection.**

NetZero+ BW/CW 5-22					
APPLICATION	Place of installation		Indoors		
	Type of brine system[1]		Ground source / Air source / Open loop / Hybrid source		
CERTIFICATIONS	Underwriter Laboratories (UL)		✓		
	Air-Conditioning, Heating and Refrigeration Institute (AHRI)		✓		
	Energy Star		✓		
NetZero+ BW/CW 5-22 SYSTEM [2]	**TYPE OF PRODUCTION**	**SPECIFICATION**	**UNITS**	**FULL LOAD**	**PART LOAD**
WATER-LOOP (WLHP)	COOLING	Cooling capacity	kWh	13.13	8.85
		EER Rating	Btuh / W	13.28	14.68
		Fluid flow rate	m^3 / h	3.3	2.18
	HEATING	Heating capacity	kWh	28.15	21.61
		COP	W / W	3.99	5.53
		Fluid flow rate	m^3 / h	5.7	4.17
GROUND-WATER (GWHP)	COOLING	Cooling capacity	kWh	14.35	9.59
		EER Rating	Btuh / W	18.75	22.05
		Fluid flow rate	m^3 / h	3.3	2.54
	HEATING	Heating capacity	kWh	25.21	10.08
		COP	W / W	3.22	4.36
		Fluid flow rate	m^3 / h	4.8	3.14
GROUND-LOOP (GLHP)	COOLING	Cooling capacity	kWh	13.11	9.2
		EER Rating	Btuh / W	13.95	18.72
		Fluid flow rate	m^3 / h	3.27	2.21
	HEATING	Heating capacity	kWh	20.78	8.91
		COP	W / W	2.81	3.87
		Fluid flow rate	m^3 / h	5.65	2.67
NetZero+ BW/CW 5-22 GENERAL SPECIFICATIONS			**UNITS**		
PERFORMANCE	Modulation range of the compressor		%	15.0 to 100.0	
	Max. DHW temperature without / with support [5]		ºC	63 / 70	
	Noise power emission level [6]		dB	35 to 46	
OPERATION LIMITS	Distribution / Set heating outlet temperature range		ºC	10 to 60 / 20 to 60	
	Distribution / Set cooling outlet temperature range		ºC	5 to 35 / 7 to 25	
	Brine inlet temperature range in heating applications		ºC	-25 to 35	
	Brine inlet temperature range in cooling applications		ºC	10 to 60	
	Minimum / Maximum refrigerant circuit pressure		bar	2 / 45	
	Production / Pre-load circuit pressure		bar	0.5 to 3.0 / 1.5	
	Brine / Pre-load circuit pressure		bar	0.5 to 3.0 / 0.7	
	Volume / Max. DHW storage tank pressure (NetZero+ C)		l / bar	165 / 8	
WORKING FLUIDS	R410A Refrigerant load		kg	1.50	
	Compressor oil type / load		- / kg	POE / 1.18	
CONTROL ELECTRICAL DATA	1/N/PE 230 V / 50-60 Hz [8]		-	✓	
	Maximum recommended external protection [9]		-	C16	
	Transformer primary circuit fuse		A	0.5	
	Transformer secondary circuit fuse		A	2.5	
ELECTRICAL DATA: SINGLE-PHASE	1/N/PE 230 V / 50-60 Hz [8]		-	✓	
	Maximum recommended external protection [9]		-	C32A	
	Maximum consumption[10], B32W95		kW / A	4.2 / 18.6	
	Maximum consumption[10], B32W131		kW / A	5.0 / 21.7	
	Minimum / Maximum starting current [7]		A	2.0 / 8.0	
	Correction of cosine Ø		-	0.96 / 1	
DIMENSIONS/WEIGHT	Height x width x depth BW | CW		inch	41.65 x 23.62 x 27.95	72.87 x 23.62 x 28.35
			mm	1,058 x 600 x 710	1,851 x 600 x 720
	Empty weight (without assembly) BW | CW		kg	193	255

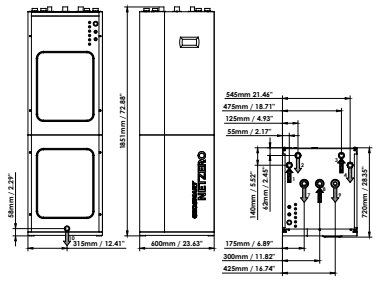
1. Air source/Hybrid source by replacing/combining the ground source circuit by/with one or more NetZero+ AU. Consult the NetZero+ AU manual for more detailed information.
2. Rated as follows in accordance with the latest edition of ANSI / AHRI / ASHRAE / ISO 13256-2 Water-source heat pumps. Testing and rating for performance. Rated accuracy by AHRI-sponsored, independent, third party testing.
3. Considering brine and production flow rates in compliance with EN 14511.
4. Considering a heat slope from 68°F to 122ºF in absence of consumption.
5. Considering support provided by the emergency electrical heater or the HTR system. Maximum DHW temperature with the HTR system can be limited by the compressor discharge temperature.
6. In compliance with EN 12102.
7. Starting current depends on the working conditions of the hydraulic circuits.
8. The admissible voltage range for proper operation of the heat pump is ±10%.
9. Maximum consumption can vary significantly according to working conditions, or if the compressor's operation range is restricted. Consult the technical service manual for more detailed information.
10. In compliance with EN 14511, this includes the consumption of the circulation pumps and the compressor driver.

Dimensions and hydraulic connections

NetZero+ BW

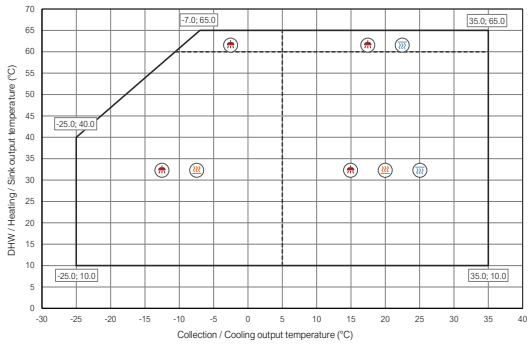


NetZero+ CW

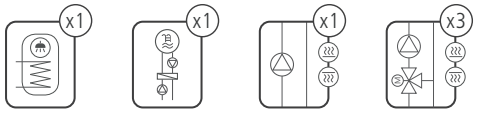


1. Heating/Cooling Outlet - 1 1/4" M
2. Heating/Cooling Inlet - 1 1/4" M
3. Brine Outlet - 1 1/4" M
4. Brine Inlet - 1 1/4" M
5. DHW system Outlet - 1 " M
6. DHW System Inlet - 1 1/4" M
7. CW Inlet - 1 " F
8. DHW Outlet - 1 " F
9. DHW Recirculation Inlet - 3/4 " F
10. Drain - 16 mm

Operational chart

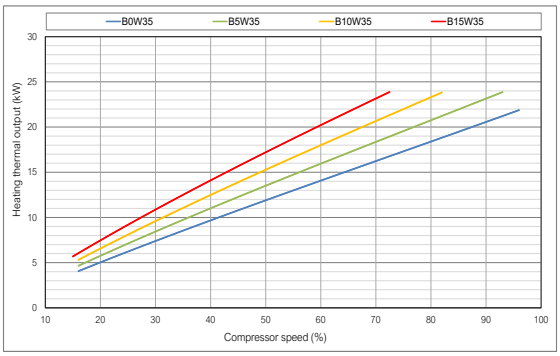


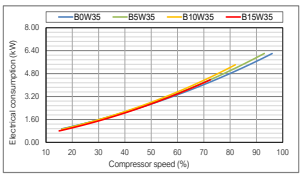
Installation management

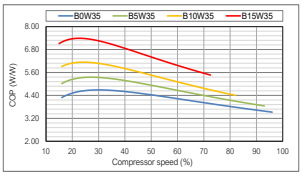


Performance curves

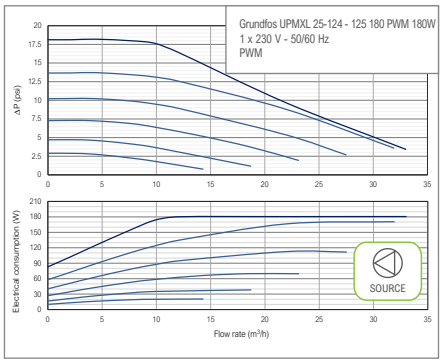
Thermal performance[1]

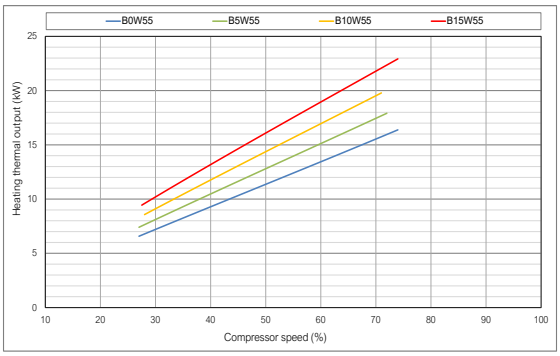


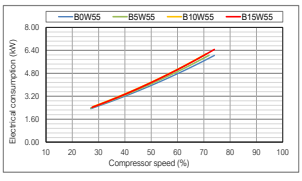


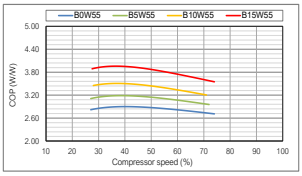


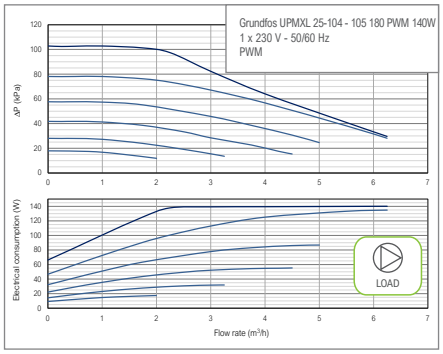
Hydraulic performance

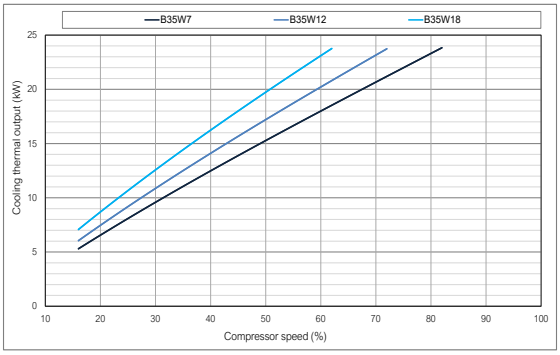


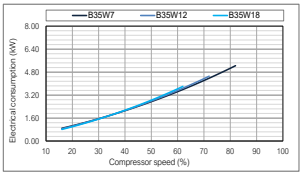


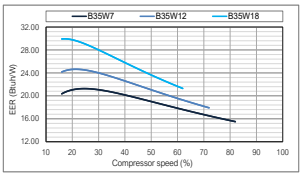


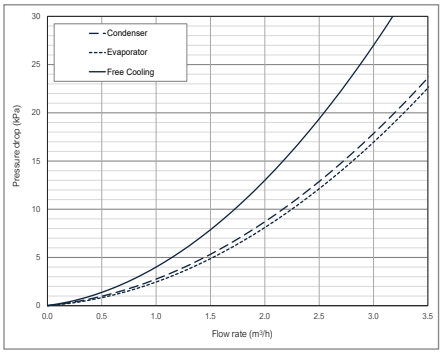












1. The COP and EER parameters shown in these curves take into account the full electrical power consumptions. Compressor, circulator pumps, controller, inverter and valves consumption are included.

Notes

Notes

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