

XNNOV
RENEWABLE SOLUTIONS



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Aqua GWPrime HP

Modular CO2 Heat Pump for Heating and Domestic Hot Water

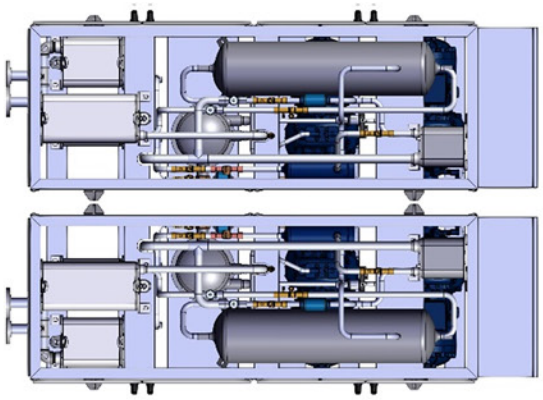
The XNNOV CO_2 Water Source Heat Pump

Aqua GWPrine HP is a state-of-the-art, sustainable solution for commercial and industrial applications requiring year-round heating, cooling, and domestic hot water.

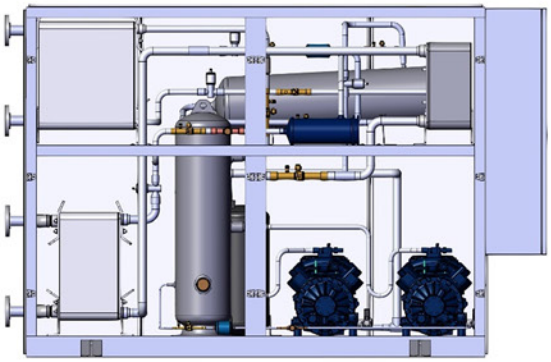
GWPrime utilizes natural CO2 refrigerant with a GWP of only 1, significantly reducing carbon emissions and environmental impact compared to traditional systems.



Built with versatile water connections, our unit can be installed in a mirror position even in smaller mechanical rooms; it can quickly hook up from the side, back, or top to fit your exact setup.



Aqua GWPrine HP delivers hot water up to 180°F and chilled water as low as 20°F, providing exceptional flexibility, sustainability, and efficiency.



Advanced AI-driven controls optimize performance by predicting future demand and adjusting output in real-time, while predictive maintenance ensures reliability and reduces downtime.

Key Features



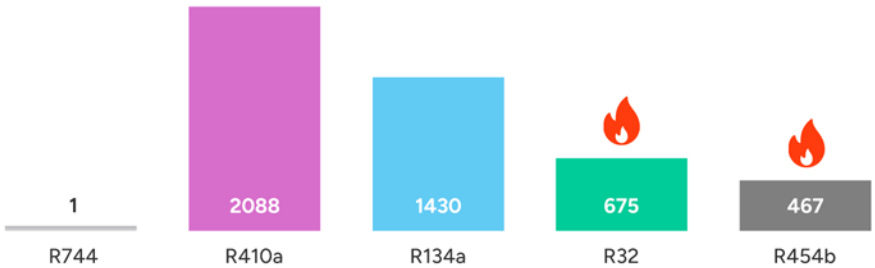
Performance:

The Aqua GWPrine HP is engineered for exceptional energy efficiency, delivering reliable and powerful heating and cooling performance suitable for large commercial applications. Its advanced design and high-performance components allow it to meet demanding heating and cooling needs while minimizing energy consumption compared to traditional systems.

Environmental Benefits:

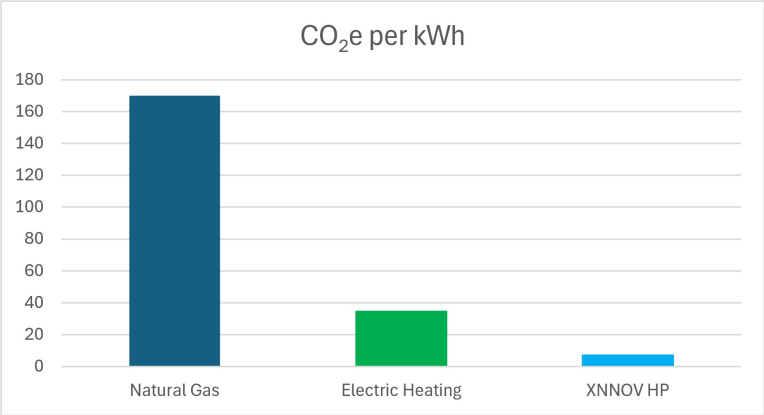
Using R744 (CO_2) as a natural refrigerant, the **Aqua GWPrine HP** has an incredibly low GWP of 1, making it a top choice for sustainability. Unlike R32 and R454b (both A2L or lightly flammable), R744 is classified as A1 (non-flammable) and A (non-toxic), so it's a safer, greener option. By using CO_2, this system aligns with global climate goals and green building standards—while offering an eco-friendly alternative to synthetic refrigerants like R134a and R410a, which have much higher GWPs.

Refrigerant Classification and GWP values.



Reduced CO_2 Emissions:

Aqua GWPrine HP dramatically cuts carbon emissions while helping facilities meet sustainability targets compared to gas furnaces and electric heating systems. It also delivers outstanding energy efficiency, achieving a COP between 3 and 5 for hot water applications. This leads to lower operational costs and makes it a smart choice for businesses that need reliable heating and cooling.



Simultaneous Heating and Cooling:

The Aqua GWPrine HP achieves a simultaneous COP of up to 8.6, meeting multiple facility demands by recovering and reusing waste heat, maximizing energy utilization, and reducing unnecessary power consumption.

Modular Design for Easy Installation:

The Aqua GWPrine HP is a modular unit, providing scalability and flexibility for various facility sizes. With an N+1 setup, the controls deliver full redundancy for critical loads, ensuring uninterrupted operation. Its compact modules fit through standard doors and elevators, making installation and retrofits hassle-free.

Tandem Compressor Design with VFD:

XNNOV Aqua GWPrine HP features tandem compressors per unit for built-in redundancy, ensuring continuous operation even if one compressor needs maintenance. The primary compressor's Variable Frequency Drive (VFD) modulates capacity from 50% to 100%, improving energy efficiency, balancing loads, and extending equipment life while minimizing downtime.



Advanced Controls:

The Aqua GWPrine HP has a 10-inch touchscreen HMI and supports BACnet IP and MSTP, making it easy to hook into building management systems. Users can monitor, adjust, and control the system through the intuitive interface, while BACnet lets you manage it remotely and seamlessly across various automation platforms.

Built-In Sequencer for Modular Control:

The Aqua GWPrine HP has a built-in sequencer that can manage units simultaneously. This advanced control keeps everything running smoothly, balancing loads, boosting efficiency, and even handling heating and cooling simultaneously so the system can quickly adapt to changing demands for hot water, space heating, and cooling.

AI-Powered Operation for Optimized Efficiency

XNNOV's Aqua GWPrine HP utilizes AI-driven controls to continuously monitor, predict, and optimize interconnected units. It automatically adjusts to real-time demand and changing conditions and delivers top efficiency while simultaneously providing heating, cooling, and hot water.



Key AI-driven capabilities include:

Predictive Maintenance:

The AI constantly analyzes system data to identify potential issues before they impact performance. This proactive approach minimizes downtime, reduces long-term costs, and extends the lifespan of your equipment.

Predictive Capacity Management:

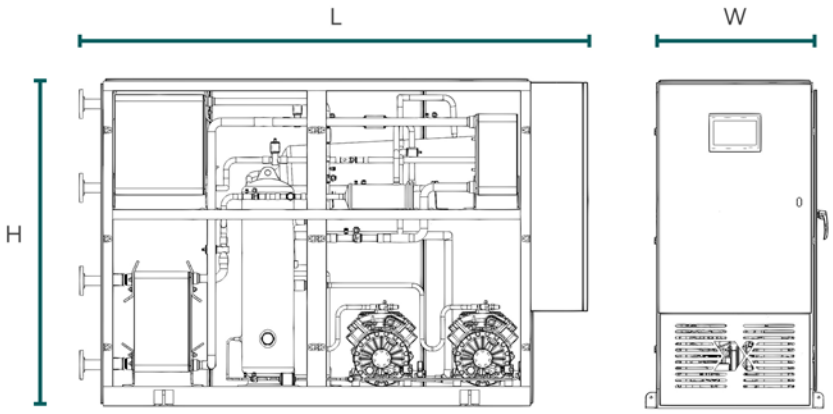
By analyzing forecasted outdoor temperatures and load conditions, the system can anticipate demand changes and seamlessly modulate connected units to maintain optimum efficiency. This capability conserves energy and keeps performance high, even when demand fluctuates.

Technical Data

Unit Model Number		W47-130	W47-185	W47-260	W47-300
Nominal Cooling Capacity (Ton)		30	40	60	66
Nominal Heating Capacity (kW)		130	185	260	300
Compressor Quantity		2	2	2	2
Rated Pressure (psi)		1885	1885	1885	1885
Cooling Performance @ AHRI 550/590 Conditions	Cooling Capacity (MBH)	352	464	708	795
	Heating Capacity (kW)	130	173	262	297
	Cooling EER (Btu/W.h)	13.2	12.7	13.0	12.3
	COP Cooling (W/W)	3.86	3.71	3.80	3.61
	COP Heating (W/W)	4.86	4.71	4.80	4.61
	Simultaneous COP_{SHC} (W/W)	8.72	8.42	8.60	8.23
	Chilled Water Flow (GPM)	88.0	92.5	141.1	158.5
	Hot Water Flow (GPM)	99.7	132.9	201.1	228.1
	Chilled Water Temperature (°F)	54°F - 44°F			
	Hot water Temperature (°F)	85°F - 94.3°F			
	Evaporator Water Pressure Drop (psid)	2.9	4.8	2.9	3.6
	Gas Cooler Pressure Drop (psid)	32.0	54.2	49.8	62.7
Heat Recovery Performance @ AHRI 550/590 low Conditions	Cooling Capacity (MBH)	324	425	645	732
	Heating Capacity (kW)	127	168	254	291
	Cooling EER (Btu/W.h)	10.2	9.8	10.0	9.6
	COP Cooling (W/W)	2.98	2.87	2.92	2.81
	COP Heating (W/W)	3.98	3.87	3.92	3.81
	Simultaneous COP_{SHC} (W/W)	7.0	6.7	6.8	6.6
	Chilled Water Flow (GPM)	64.7	84.8	128.6	145.4
	Hot Water Flow (GPM)	90.9	120.1	181.7	208.1
	Chilled Water Temperature (°F)	54°F - 44°F			
	Hot water Temperature (°F)	95°F - 105°F			
	Evaporator Water Pressure Drop (psid)	2.5	4.1	2.4	3.1
	Gas Cooler Pressure Drop (psid)	26.5	44.2	40.5	52.0
Heat Recovery Performance @ AHRI 550/590 Medium Conditions	Cooling Capacity (MBH)	295	387	585	647
	Heating Capacity (kW)	124	164	247	277
	Cooling EER (Btu/W.h)	7.9	7.7	7.7	7.4
	COP Cooling (W/W)	2.3	2.3	2.3	2.2
	COP Heating (W/W)	3.3	3.3	3.3	3.2
	Simultaneous COP_{SHC} (W/W)	5.6	5.5	5.5	5.3
	Chilled Water Flow (GPM)	59.0	77.3	116.7	128.9
	Hot Water Flow (GPM)	59.3	78.4	118.5	147.0
	Chilled Water Temperature (°F)	54°F - 44°F			
	Hot water Temperature (°F)	105°F - 120°F			
	Evaporator Water Pressure Drop (psid)	2.5	4.1	2.4	3.1
	Gas Cooler Pressure Drop (psid)	26.5	44.2	40.5	52.0

Technical Data

Unit Model Number			W47-135	W47-180	W47-275	W47-310
Heat Recovery Performance @ AHRI 550/590 Hot Water 1 Conditions	Cooling Capacity (MBH)		295	387	585	647
	Heating Capacity (kW)		124	164	247	277
	Cooling EER (Btu/W.h)		7.9	7.7	7.7	7.4
	COP Cooling (W/W)		2.3	2.3	2.3	2.2
	COP Heating (W/W)		3.3	3.3	3.3	3.2
	Simultaneous COP_{SHC} (W/W)		5.6	5.5	5.5	5.3
	Chilled Water Flow (GPM)		59.0	77.3	116.7	128.9
	Hot Water Flow (GPM)		59.3	78.4	118.5	147.0
	Chilled Water Temperature (°F)		54°F - 44°F			
	Hot water Temperature (°F)		90°F - 140°F			
	Evaporator Water Pressure Drop (psid)		2.3	2.8	2.3	2.8
	Gas Cooler Pressure Drop (psid)		1.3	3.7	2.0	2.6
Heat Recovery Performance @ AHRI 550/590 Hot Water 1 Conditions	Cooling Capacity (MBH)		248	327	494	564
	Heating Capacity (kW)		117	155	235	271
	Cooling EER (Btu/W.h)		5.6	5.6	5.5	5.3
	COP Cooling (W/W)		1.7	1.6	1.6	1.6
	COP Heating (W/W)		2.7	2.6	2.6	2.6
	Simultaneous COP_{SHC} (W/W)		4.3	4.3	4.2	4.1
	Chilled Water Flow (GPM)		44.0	44.0	98.6	112.5
	Hot Water Flow (GPM)		42.1	56.0	84.8	97.8
	Chilled Water Temperature (°F)		54°F - 44°F			
	Hot water Temperature (°F)		120°F - 140°F			
	Evaporator Water Pressure Drop (psid)		1.5	1.5	1.5	1.9
	Gas Cooler Pressure Drop (psid)		6.1	10.4	9.5	12.4
Electric 3ph / 60 Hz Total Input Power (kW)	Total Input Power (kW)		54.4	63.8	107.8	116.2
	Compressor Size (HP)		20	25	35	40
	208 V	FLA	158	186	312	332
		MCA	178	209	351	374
		MOP	250	300	500	600
	460 V	FLA	76	90	150	160
		MCA	86	101	169	180
		MOP	125	150	250	300
	575 V	FLA	61	72	120	128
		MCA	69	81	135	144
		MOP	100	125	200	200



Dimensions	W47-135	W47-180
Width (in)	32	32
Length (in)	90	90
Height (in)	68	68

Dimensions	W47-275	W47-310
Width (in)	32	32
Length (in)	102	102
Height (in)	68	68

Heat Pump Nomenclature

Compressor Skid											Heat Exchanger							CTRL	
W	4	7	H	M	260	D	5	R	B	-	B	1	0	0	B	2	2	-	2	M

Type
- A — Air Cooled / Source ***(Atmos)***
- W — Water Source ***(Aqua)***

Application
- 2 — 2 Pipes
- 4 — 4 Pipes

Refrigerant
- 4 — R454b ***(GWLess)***
- 5 — R515B ***(GWLess)***
- 7 — R744 ***(GWPrime)***

Compressor Type
- S — Scroll
- H — Semi Hermetic
- C — Centrifugal

Compressor Controls
- V — Variable Speed
- F — Fixed Speed
- M — Mixed

Nominal Heating Capacity
- 260 — 130 to 300 kW

Compressor Manufacturer
- C — Copeland
- D — Dorin

Power Options
- 2 — 230V/ 3/ 60
- 4 — 460V/ 3/ 60
- 5 — 575V/ 3/ 60

Access Options (from Control Panel side)
- L
- R

Water Connections
- B — Back Side
- S — Side (Opposite of Access door side)

Condenser Coil / Gas Cooler Type
- Microchannel — M
- Finned tube Copper — T
- Coated Microchannel — C
- Coated Finned tube Copper — F
- Brazed Plate Heat Exchanger — B

Condenser Qty
- 1 Condenser — 1
- 2 Condenser — 2
- 3 Condenser — 3

Condenser Fan Motor Type
- AC — A
- EC — E
- N/A — 0

Condenser Fan Qty
- 0 — 0
- 1 — 1
- 2 — 2
- 3 — 3

Evaporator Type
- Brazed Plate Heat Exchanger — B
- Shell and Tube — S

Evaporator Qty / Unit
- 1 — 1
- 2 — 2

Water Valve Type
- No Valve — 0
- 2 Ways Valve — 2
- 3 Ways Valve — 3

Electric Expansion Valve Qty
- EEV Qty — 2

Controls Options
- BACnet MSTP — M
- BACnet IP — I
- Modbus — B

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