Aegis A and Aegis W

Electric, CO_2-Powered Heat Pump Water Heaters

Air and Water Sources

Lyncbywatts.com

Lync® by WATTS

Heat Pump Water Heaters Powered by CO_2

Aegis is a highly efficient, commercial heat pump solution that uses electricity and natural refrigerant-grade CO_2 to produce domestic hot water up to 185°F all year round.

Using electricity and the superior qualities of R744, a natural refrigerant-grade CO_2, the Aegis heat pump water heaters are one of the cleanest, most efficient and environmentally friendly ways to heat domestic water.

Aegis comes in two versions: Aegis A and Aegis W. Aegis A absorbs and moves heat from the surrounding air at temperatures as low as -4°F to produce hot water. Aegis W produces hot water by absorbing and moving heat from a connected water source at temperatures as low as 14°F.

A Variety of Applications

- Air, water, or air with water source recovery
- 250, 350, or 500 MBH*
- Ideal for new and retrofit applications
- Markets: multifamily, university, hospitality, office buildings, industrial, healthcare, and more

Energy Efficient and Eco-Friendly

- Coefficient of Performance of 5.0 or higher
- Non-toxic and non-flammable refrigerant
- No negative impact on the ozone layer
- Global Warming Potential (GWP) of just 1.0

On-Site and Remote Control

- Remote control via building automation system
- Real-time status, fault checks, set point etc.

Year-Round Hot Water Production

- Hot water production up to 185°F (85°C)
- Wide ambient operation from -4°F (-20°C) to 113°F (45°C) (from 14°F for Aegis W)
- Reduce or eliminate reliance on backup heating
- Advanced defrost cycle with electric coil**

Optional Extras

- Electric storage tank increases system flexibility
- Corrosion-resistant outdoor tanks
- Cool recovery function**
- Fan coil coating for coastal areas**
- EC fan for additional energy savings**

*Varies with unit size and source temperature.
**Applicable to Aegis A only

A Cost-Effective, Reliable, and Greener Solution

Year-Round Hot Water Production

Aegis A and W provide a reliable source of hot water at air temperatures as low as -4°F and water or glycol mix temperatures down to 14°F, due to the unique qualities of CO_2 (R744) as a refrigerant. This can significantly **reduce or eliminate the reliance on a supplemental water heating solution**, reducing heating costs and square foot usage. Most heat pump water heaters have difficulties or simply can't operate at air temperatures below 35°F, and, consequently, buildings utilizing heat pumps frequently rely on a supplemental water heating solution to step in at times during the cold season. Aegis solves this issue with its significantly wider operating range.

Superior Energy Efficiency

The wide ambient operating conditions of Aegis provide a high COP throughout the year, which translates into lower energy bills. Whereas a gas-fired or electric resistance water heater is physically limited to a theoretical COP of 1.0, i.e. 100%, the Aegis heat pumps can **achieve a COP of 5.0 or higher.** By absorbing the "free" heat in the surrounding air or water rather than heat being generated by electricity or from a fuel source, less energy is needed to produce the same heat output.

High Performance and Durability

Aegis comes as a single-source system solution which provides buildings with a heat pump water heating system **optimized for maximum output and efficiency**. Duplex stainless-steel tanks allow for higher water temperatures and outdoor usage. This translates into smaller storage space and longer durability. The remote-control system enables easier maintenance, data logging, and more to save time and stay on top of any operational issues. A compact intermediate loop skid allows optimal heat exchange and ease and safety of maintenance.

Environmentally Friendly

The Aegis heat pump water heaters **operate entirely on electricity and utilize the natural refrigerant, CO_2** (R744), which is safe, non-flammable, and non-toxic. With a GWP (Global Warming Potential) of 1, CO_2 (R744) has **practically no negative impact on global warming**, unlike commonly used refrigerants R134a and R410a with GWP values that are 1,430 and 2,088 times higher, respectively. The Aegis heat pumps are a forward-looking solution as the regulatory landscape points towards an increasing focus on reducing the emission of greenhouse gases and other pollutants.

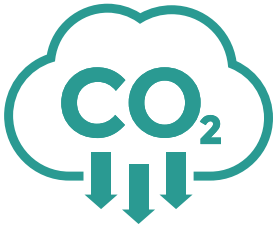
Six Reasons to Use Aegis Heat Pumps

1 Adapt to No-Gas Laws

An increasing number of cities and states are implementing laws that ban the use of natural gas in new buildings – or in other ways limit or disincentivize its use. In certain cases, laws even specify the use of heat pumps.

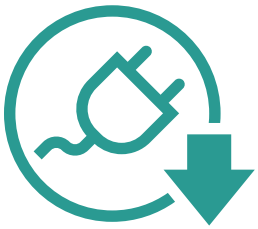
Aegis A and W provide an efficient, forward-looking alternative to gas-fired water heating solutions as they run entirely on electric power.

2 Reduce CO_2 Emissions



While some cities and states have focused on specific energy sources or technologies to reduce CO_2 emissions, others have set decarbonization targets while leaving the “how” up to building constructors who must choose the appropriate means in each case.

Running on electricity and with a very high COP, the Aegis heat pumps can be a highly effective way to reduce the CO_2 emissions of a building.



3 Cut Energy Costs

Depending on the rates of utilities, electric solutions can be more cost effective to operate. With a COP that is many times greater than electrical resistance, the Aegis heat pumps make the traditional comparison of gas to electricity, in the form of electrical resistance, somewhat obsolete.

With Aegis A or W installed, buildings have the potential to benefit from low-cost energy and a very high COP to cut energy costs.

Six Reasons to Use Aegis Heat Pumps

4 Improve the Benefits of ‘Load Shifting’ and ‘Load Shaving’

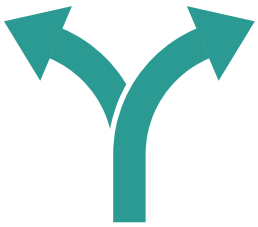
‘Load shifting’ is an effective way to reduce energy bills as electric heat pump operation is shifted to hours of the day with lower rates. Additionally, where rates are based on ‘peak demand’ pricing, a ‘load shaving’ strategy can be leveraged to lower building-wide rates.

Aegis, being an electric heat pump with a very high COP, enables buildings to not only apply these strategies but to greatly increase their benefits as well.

5 Offer a Greener Alternative

Most companies and organizations of today operate with specific goals to become more sustainable and reduce their environmental impact with the energy efficiency of their building spaces receiving greater attention.

Environmentally conscious customers may favor the energy-efficient Aegis heat pumps as an effective way to meet their sustainability goals.

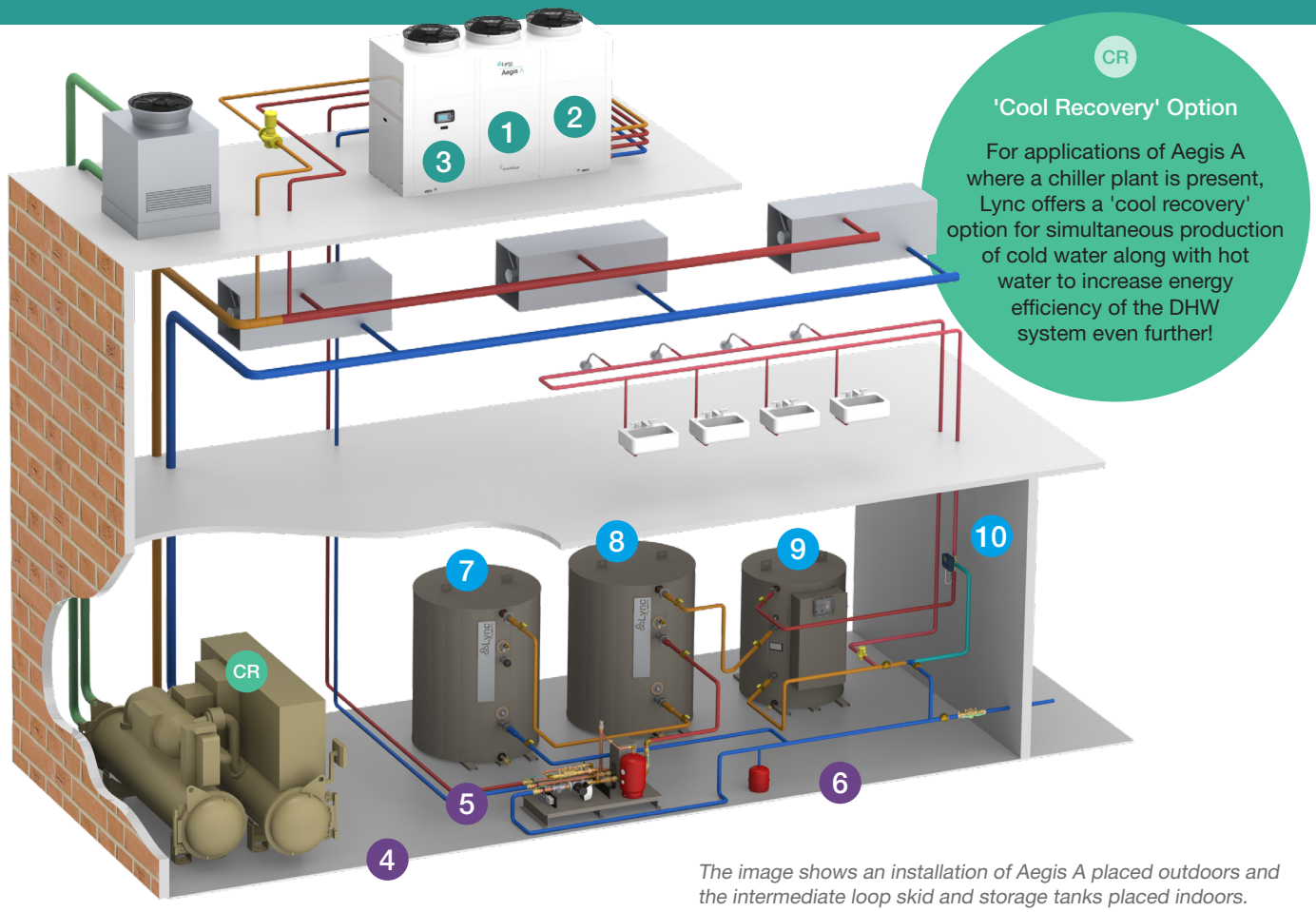


6 Provide a Hybrid Heating Solution

While gas-fired equipment provides great value in certain cases and remains the preferred water heating solution for some projects, some buildings can benefit from a hybrid solution, which leverages both gas and heat pump energy for greater flexibility and diversification.

In these cases, Aegis A and W can complement a current system that relies solely on gas-fired equipment.

A Complete System Solution Maximizes Performance



The image shows an installation of Aegis A placed outdoors and the intermediate loop skid and storage tanks placed indoors. The system can be installed in various ways appropriate to site conditions and selected Aegis heat pumps.

1. **High-efficiency CO_2 heat pump** absorbs and moves heat from an air (Aegis A) or water (Aegis W) source for a COP of of 5.0 or higher.
2. **Wide ambient operating range** allow for Aegis A and Aegis W to provide hot water all year round down to -4° and 14°F, respectively.
3. **Remote control through the BAS** lets users monitor status, record operational data, check for faults, change setpoints, and much more.
4. **Compact intermediate loop skid** keeps plumbing away from refrigerant and allows glycol use in cold weather applications.
5. **Loop skid components** make up a complete system solutions, including filling points, pump, heat exchanger, and strainer.
6. **Single-pass system** eliminates the need for water tanks to be fully recharged prior to usage and increases efficiency.
7. **Corrosion-resistant stainless-steel tanks** are durable, made for heat pump systems, and allow for germicidal water temperatures
8. **Outdoor tank placement** is an option in case of smaller mechanical room and greater flexibility. Available in a range of sizes (gallons).
9. **Electric storage tank** provides built-in supplemental heating and peak load savings via a swing tank system.
10. **Accurate Digital Mixing Valve** enables precise control of temperatures within ± 2°F control for optimal operation.

Optional Outdoor Tank Is Perfect for Smaller Spaces

Lync's outdoor storage tanks are fabricated from duplex stainless steel and with an ultra-durable Rhino Linings® outer coating to withstand the rigors of all types of harsh outdoor conditions. This makes the outdoor storage tanks the ideal companion to the Aegis heat pump water heaters in system installations in buildings with smaller mechanical rooms or to free up square footage for other value-adding purposes.

High Water Temperatures

Maximize the energy efficiency and pathogen mitigating capabilities of the Aegis heat pump water heaters through the ability to produce hot water up to 185 °F. The tanks are made from duplex stainless steel that is highly resistant to corrosion, making them ideal for high-temperature water storage.

Minimal Standby Losses

Take full advantage of the very high output water temperatures enabled by the use of the CO_2 refrigerant in the Aegis heat pumps without excessive standby losses due to the effective R-22 fiberglass insulation.

Made for the Harsh Outdoor Elements

Place the water storage tank on a building rooftop or another convenient outdoor location. The coating provides a durable, monolithic and protective barrier against harsh outdoor elements, and the base head ring and clip systems accommodate installation in seismic or high wind locations.

Designed Exclusively for the Aegis Heat Pump Water Heaters

- **Corrosion-resistant duplex stainless steel for higher water temperatures**
- **Rhino polymer outer coating and R-22 fiberglass insulation**
- **Coating resistant to impacts, abrasions and UV light**
- **Sizes: 250, 500, 750, and 1000 gallons**
- **25-year tank corrosion warranty**

Mitigates Scalding with Precise Temperature Control

The Lync DigiTemp digital mixing valve ensures safe, precise and consistent water temperatures which helps protect building occupants by mitigating risks of scalding.

Lync DigiTemp can play a valuable part in a powerful water heating installation with Aegis by leveraging the benefits of the high output water temperatures to the full extent.

The ASSE 1017-listed DigiTemp also features a thermal sanitization mode providing an additional pathogen barrier and mitigation for greater peace of mind.

Key Features

- ASSE 1071 compliance
- ±2°F control
- Thermal sanitization mode for pathogen mitigation
- Automatic fail cold during power outage
- Lowers temperature when the building is unoccupied
- Prevents overnight temperature creep
- Programmable high temperature alarm
- Connect to BAS for remote read/write

MITIGATES PATHOGEN GROWTH

MITIGATES SCALDING RISK

The Benefits of CO_2 (R744) Refrigerant

In the 1970s, the world became increasingly aware of the adverse impact of refrigerants on the environment, global warming, and the ozone layer. Subsequently, Freon and other refrigerants were phased out and banned in favor of less harmful alternatives.

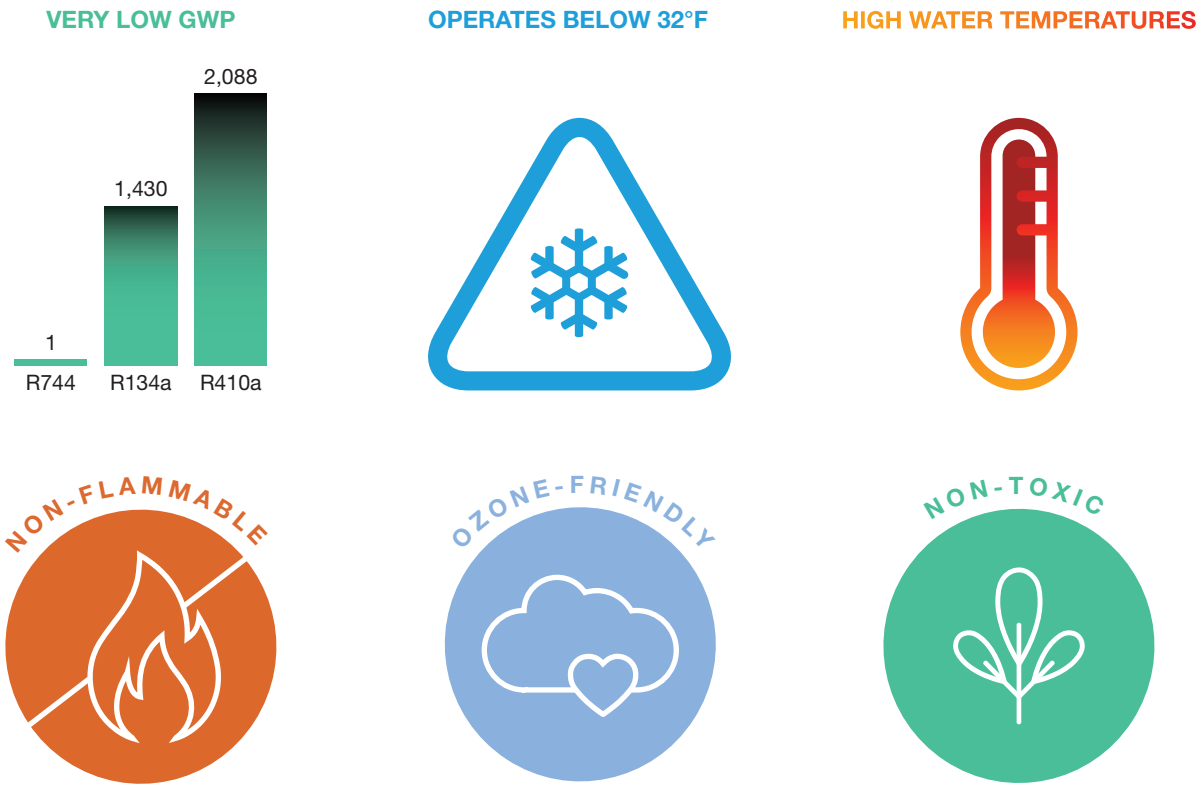
Current Refrigerants Have Limitations

Currently, R134a and R410a are the most commonly used refrigerants. Similar to R744, they are non-toxic, non-flammable and harmless to the ozone layer. Unfortunately, both refrigerants have a large negative impact on global warming with a Global Warming Potential of 1,430 and 2,088, respectively.

The Superior Qualities of R744

The R744 featured in the Aegis heat pumps not only has an extremely low Global Warming Potential of just 1, but it enables Aegis A and Aegis W to produce hot water up to 185°F, which decreases hot water storage needs and mitigates the risks of Legionella and many other water-borne pathogens.

Aegis A remains in full operation down to air-source temperatures as low as -4°F or water-source temperatures as low as 14°F for Aegis W, significantly reducing or eliminating non-operating time periods. This makes R744 a superior refrigerant leveraged in Aegis A and W to provide a highly energy-efficient and environmentally friendlier heat pump water heater solution.



Aegis A Specifications

			250	350	500
Performance and Specs	Nominal Heating Capacity* **@ 45°F air**	MBH	191	305	430
	Input Power	kW	17.4	29.4	42.8
	Nominal Recovery Capacity	GPH	212	339	479
	COP		3.2	3.0	3.0
	Nominal Heating Capacity** **@ 77°F air**	MBH	210	329	494
	Input Power**	kW	16.1	26.8	41.9
	Nominal Recovery Capacity	GPH	233	365	549
	COP		3.8	3.6	3.5
	Heating Capacity w/ Recovery*	MBH	199	319	477
	Cooling Capacity	MBH	145	229.0	340
	Input Power	kW	15.7	26.3	40.1
	TER (Total Efficiency Ratio)		6.4	6.1	6.0
	Cool Recovery Water Flow Rate	GPH	1938	3064	4556
	Cool Recovery HX Pressure Drop	PSI	3.5	7.7	7.1
	Cool Recovery Pump Power Available		230 V / 1 ph / 60 Hz / 2.1 A		
	Nominal Compressor Size	HP	14	25	35
	Number of Fans		3	2	2
	Refrigerant Charge	lbs	44	55	66
	Sound Pressure	dB(A)	68	73	76
Electric	Max Power	kW	19	31	46
	Full Load Current	A	39	53	83
	Max Starting Current	A	175	211	268
	Power Supply		480 V / 3 ph / 60 Hz		
Dimensions	Width	in	104	138	138
	Depth	in	41	50	50
	Height	in	72	75	75
	Shipping Weight	lbs	1658	2403	2800
	Operating Weight	lbs	1670	2418	2820

*Nominal performance based on: Air temperature 45°F (7°C), 87% RH, domestic water 68°F (20°C)-176°F (80°C). Cool recovery option at 54°F (12°C) - 45°F (7°C)

**Nominal performance based on: Air temperature 77°F (25°C), 60% RH, domestic water 68°F (20°C) -176°F (80°C)

Aegis W Specifications

			250	350	500
Performance and Specs	Nominal Heating Capacity* at 54°F water	MBH	199	319	477
	Nominal Cooling Capacity	MBH	145	229	340
	Input Power	kW	15.7	26.3	40.1
	Nominal Recovery Capacity	GPH	221	355	531
	COP		3.7	3.6	3.5
	Source Side Nominal Flow Rate	GPH	1938	3064	4556
	Source Side Nominal Pressure Drop	PSI	3.5	7.7	7.1
	Source Side Pump Power Available		230 V / 1 ph / 60 Hz / 2.1 A		
	Compressor Size	HP	14	25	35
	Refrigerant Charge	lbs	15.4	17.6	17.6
	Sound Pressure	dB(A)	57	62	65
Electric	Max Power	kW	16.4	27.0	41.6
	Full Load Current	A	34.7	45.7	75.7
	Max Starting Current	A	171	204	261
	Power Supply		480 V / 3 ph / 60 Hz		
Dimensions	Width	in	30	30	30
	Depth	in	46	46	46
	Height	in	69	69	69
	Shipping Weight	lbs	1188	1282	1336
	Operating Weight	lbs	1208	1307	1371

*Nominal performance based on: Source temperature 54°F (12°C) - 45°F (7°C). Domestic water 68°F (20°C)-176°F (80°C)

Complete Engineered System Solutions

Superior Safety. Maximum Efficiency. Improved Water Quality.

Lync combines advanced technologies and innovative design with industry-leading manufacturing expertise to deliver complete, cost-effective commercial water technology system solutions from a single source.

Our fully assembled, integrated solutions provide your building with maximum efficiency, superior safety and improved water quality while minimizing planning, design and installation time to reduce costs and increase your return on investment.

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