CLADE

YEW

R290 HIGH TEMPERATURE DIRECT BOILER REPLACEMENT HEAT PUMP //

October 2025 //

DESIGNED & MADE
IN THE UK

YEW //

CLADE

The **Yew R290 Heat Pump** is the ultimate, high temperature, future-proof heating solution, combining the low Global Warming Potential of **R290 refrigerant** with a **strong and robust build** engineered for UK conditions.

Designed for maximum flexibility, it features **no horizontal ATEX zone**, a **space-efficient** design, and a **low noise option** for quiet operation. Offering exceptional versatility, the Yew can be **a direct boiler replacement** for retrofit projects, and every unit is **fully supported by our expert UK engineers** with comprehensive pre- and post-sale technical guidance, ensuring a powerful, sustainable, and entirely reliable heating investment.

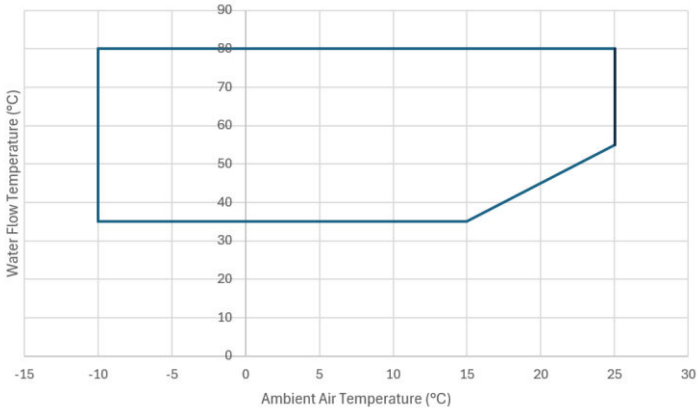
Model	-5°C capacity	+7°C capacity
Yew SN 210/140	140KW	210KW
Yew SN 315/210	210KW	315KW
Yew SN 420/280	280KW	420KW
Yew SN 525/350	350KW	525KW

- SCOP - Achieves a high Seasonal Coefficient of Performance of 3.8
- Full performance from -15°C to +40°C ambient temperature
- Future proof refrigerant which is non-toxic with a GWP of 3
- Low and standard noise models
- Up to 80°C water temperature with a 5/10 TD
- Modular design for resilience
- Can be multiplexed using Clade Multi Controller
- Built in BMS interface
- Leak detection and vent fan included
- Inverter controlled compressor and fans for maximum efficiency
- PIC Valve for LTHW flow rate control included
- Electronic expansion valve ensures accurate control of refrigerant
- Hydrophilic coil reduces ice build up

R290 – PROPANE PERFORMANCE //

Yew r290 operating envelope

Water flow temperature range



Water return temperature range

Max return temperature under all conditions is 70°C

Clade is a leading manufacturer of r290 propane heat pumps being one of the first to bring a large capacity heat pump to market. We continue to innovate with this exciting refrigerant.

R290 propane is an increasingly popular refrigerant for heat pumps due to its excellent thermodynamic properties, environmental benefits, and efficiency.

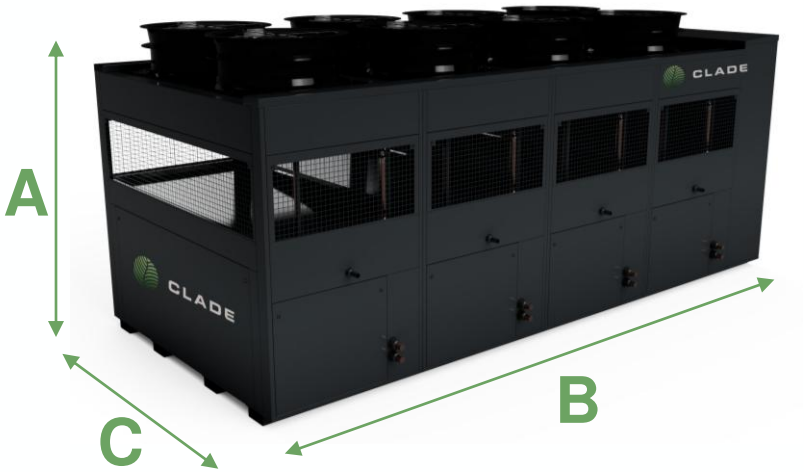
As a natural hydrocarbon, R290 has an ultra-low Global Warming Potential (GWP) of just 0.02*, making it a sustainable alternative to synthetic refrigerants with high GWP values.

Its high latent heat and superior thermal conductivity enable efficient heat transfer, enhancing the energy efficiency of heat pump systems. R290 operates effectively across a wide range of temperatures, making it suitable for both heating and cooling applications.

While its flammability require safety consideration, modern system designs and proper handling mitigate these risks. Overall, R290 propane represents a future-proof choice for heat pumps, balancing performance, cost-effectiveness, and sustainability in decarbonizing heating solutions.

* Propane's GWP, as defined by the IPCC, is approximately 3 and represents propane's inherent ability to absorb infrared radiation, assuming it behaves like long-lived greenhouse gases such as CO_2. However, in real-world applications, propane breaks down rapidly in the atmosphere. This short atmospheric lifetime means it does not accumulate and has a negligible long-term climate impact. As a result, its adjusted GWP over a 100-year timeframe is approximately 0.02.

DIMENSIONAL INFORMATION //



Standard noise models

Unit	Height 'A' (mm)	Length 'B' (mm)	Depth 'C' (mm)	Operating Weight (kg)	Shipping Weight (kg)
210/140 kW SN	2640	3315	2400	4018	3950
315/210 kW SN	2640	4715	2400	5742	5640
420/280 kW SN	2640	6115	2400	7475	7340
525/350 kW SN	2640	7515	2400	9200	9030

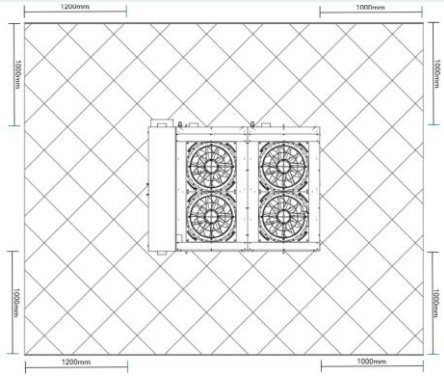
Low noise models

Unit	Height 'A' (mm)	Length 'B' (mm)	Depth 'C' (mm)	Operating Weight (kg)	Shipping Weight (kg)
210/140 kW LN	2840	3315	2400	4358	4290
315/240 kW LN	2840	4715	2400	6270	6172
420/280 kW LN	2840	6115	2400	8188	8053
525/350 kW LN	2840	7515	2400	10105	9935

TECHNICAL INFORMATION SUMMARY //

Yew Range		210/140kW	315/210kW	420/280kW	525/350kW
REFRIGERATION SIDE					
Compressor Type	-	Reciprocating			
Compressor Qty	Pcs.	2	3	4	5
Refrigerant	-	Propane (R290)			
Refrigerant Circuits	Pcs	2	3	4	5
Variable speed drive (VSD)	Pcs.	2	3	4	5
Refrigerant charge	kg	12	18	24	30
No. evaporators	Pcs.	2	3	4	5
Evaporators Type	-	Flat bed			
Fin Material	-	AL/MG			
Defrost Type	-	Hot Gas			
Defrost medium	-	R290			
Electrical supply	-	3~ 400V 50 HZ			
WATER SIDE					
Type of internal exchangers	-	Stainless steel plate heat exchanger			
Number of internal heat exchangers	l	2	3	4	5
Exchanger Water Content (per module)	l	8.4			
Connections waterside inlet/outlet	DN	67	67	67	67
Connections waterside pressure rating	PN	6			
Factory pressure test rating	PN	6			
Control Methodology	-	PICV			
Pressure Drop Across Each Module (A7/W80) 15K TD	kPa	79.2			

Yew Range`		210/140kW	315/210kW	420/280kW	525/350kW
WATER FLOW RATES					
PER MODULE					
Nominal dT 10 K	l/s	2.44			
Minimum Water Flow Rate	l/s	0.85			
PER UNIT					
Nominal dT 10 K	l/s	4.88	7.2	9.76	12.2
Minimum water volume in heating	l	2612			
Total internal water volume	l	58.2	87.3	116.4	145.5
ELECTRICAL DATA (W80 10K TD)					
Total Absorbed Power (at 7°C ambient)	kW	110.2	150.4	200.5	250.6
Total Current per phase	A	170.2	255.3	340.5	425.6
Starting Method	-	Soft Start			
Max Starting Current	A	88.1	132.2	176.2	220.3
Total kVA	kVA	117.9	176.9	235.9	294.8
Electrical supply	-	3~ 400V 50 HZ			
Communication protocol	-	BACNET over IP (optional extra)			
IP-Class	-	IP54			
CLEARANCES					



CONTROL OPTIONS //

Capped Capacity Control

There are two options for output capacity available from the Clade controls.

1. Efficiency mode: Capped at -5°C – the unit will only deliver heat up to the -5°C ambient rated output.
2. Power mode: Capped at +7°C – the unit will deliver heat up to the maximum rating at +7°C ambient temperature.

See capacity tables for details

Pressure Independent Control Valve

All Birch R290 heat pump systems are equipped with Pressure Independent Control Valves (PICVs) and do not include an internal circulating pump. The PICVs are provided to regulate the flow of water through the plate heat exchanger by varying the pressure drop across the valve independently of the inlet pressure. This design ensures that the system-side flow balance remains unaffected.

Acoustic information

Noise details are detailed below for the Yew heat pump Range. The A-weighted sound power levels LwA shown below are declared in accordance with BS EN ISO 4871:2009. Measurements were performed using the BS EN ISO 9614-1:2009 sound-intensity method (survey grade). The “Sound Pressure at 10 m” values actual site sound pressures will vary with distance, screening, reflections, and background noise. Conditions apply see product manual for full information.

Yew Range	210/140kW		315/210kW		420/280kW		525/350kW	
	SN	LN	SN	LN	SN	LN	SN	LN
Sound Power Level, $L_{W(A)}$ (dB)	86	72	88	74	90	77	92	78
Sound Pressure Level at 10m (dB)	54	39	56	42	58	44	59	46
Uncertainty (dB)	4		4		4		4	

YEW PERFORMANCE DATA 210/140 EFFICIENCY MODE //

EFFICIENCY MODE (-5°C CAPACITY CONTROL)																							
Model name	Water Temp (°C)	SCOP	-10°C External			-5°C External			0°C External			5°C External			7°C External			10°C External			15°C External		
			QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP
YEW SN + LN 210/140	80/70	1.9	145.3	84.7	1.7	162.8	90.5	1.8	162.8	87.1	1.9	162.8	83.0	2.0	162.8	80.6	2.0	162.8	79.0	2.1	162.8	75.7	2.1
	75/65	2.1	146.2	79.9	1.8	164.2	85.3	1.9	164.2	81.8	2.0	164.2	77.8	2.1	164.2	75.3	2.2	164.2	73.9	2.2	164.2	70.7	2.3
	70/60	2.2	147.3	75.5	2.0	165.6	80.5	2.1	165.6	76.9	2.2	165.6	73.0	2.3	165.6	70.5	2.3	165.6	69.2	2.4	165.6	66.0	2.5
	65/55	2.4	148.5	71.4	2.1	167.2	76.1	2.2	167.2	72.5	2.3	167.2	68.6	2.4	167.2	66.1	2.5	167.2	64.8	2.6	167.2	61.7	2.7
	60/50	2.6	149.7	67.8	2.2	168.9	72.1	2.3	168.9	68.4	2.5	168.9	64.5	2.6	168.9	62.0	2.7	168.9	60.7	2.8	168.9	57.6	2.9
	55/45	2.7	151.1	64.4	2.3	170.6	68.3	2.5	170.6	64.6	2.6	170.6	60.7	2.8	170.6	58.2	2.9	170.6	57.0	3.0	170.6	53.9	3.2
	50/40	2.9	152.5	61.3	2.5	172.3	64.9	2.7	172.3	61.0	2.8	172.3	57.2	3.0	172.3	54.7	3.2	172.3	53.5	3.2	172.3	50.4	3.4
	45/35	3.1	154.0	58.4	2.6	174.1	61.7	2.8	174.1	57.8	3.0	174.1	53.9	3.2	174.1	51.4	3.4	174.1	50.2	3.5	174.1	47.2	3.7
	35/30	3.6	157.5	53.8	2.9	178.3	56.6	3.2	178.3	52.5	3.4	178.3	48.6	3.7	178.3	46.1	3.9	178.3	44.9	4.0	178.3	41.9	4.3
	30/20	3.8	159.0	51.5	3.1	180.1	54.0	3.3	180.1	49.8	3.6	180.1	45.9	3.9	180.1	43.3	4.2	180.1	42.2	4.3	180.1	39.2	4.6
	25/20	4.0	160.5	49.3	3.3	181.8	51.5	3.5	181.8	47.2	3.8	181.8	43.3	4.2	181.8	40.7	4.5	181.8	39.6	4.6	181.8	36.6	5.0

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YEW PERFORMANCE DATA 315/210 EFFICIENCY MODE //

EFFICIENCY MODE (-5°C CAPACITY CONTROL)																							
Model name	Water Temp (°C)	SCOP	-10°C External			-5°C External			0°C External			5°C External			7°C External			10°C External			15°C External		
			QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP
YEW SN + LN 315/210	80/70	1.9	217.9	127.1	1.7	244.1	135.8	1.8	244.1	130.6	1.9	244.1	124.5	2.0	244.1	120.9	2.0	244.1	118.5	2.1	244.1	113.6	2.1
	75/65	2.1	219.3	119.8	1.8	246.2	127.9	1.9	246.2	122.7	2.0	246.2	116.7	2.1	246.2	113.0	2.2	246.2	110.8	2.2	246.2	106.0	2.3
	70/60	2.2	220.9	113.2	2.0	248.5	120.7	2.1	248.5	115.4	2.2	248.5	109.5	2.3	248.5	105.8	2.3	248.5	103.7	2.4	248.5	99.0	2.5
	65/55	2.4	222.7	107.2	2.1	250.8	114.2	2.2	250.8	108.7	2.3	250.8	102.9	2.4	250.8	99.2	2.5	250.8	97.2	2.6	250.8	92.5	2.7
	60/50	2.6	224.6	101.6	2.2	253.3	108.1	2.3	253.3	102.6	2.5	253.3	96.8	2.6	253.3	93.0	2.7	253.3	91.1	2.8	253.3	86.5	2.9
	55/45	2.7	226.6	96.6	2.3	255.9	102.5	2.5	255.9	96.9	2.6	255.9	91.1	2.8	255.9	87.3	2.9	255.9	85.5	3.0	255.9	80.9	3.2
	50/40	2.9	228.8	91.9	2.5	258.5	97.3	2.7	258.5	91.6	2.8	258.5	85.8	3.0	258.5	82.0	3.2	258.5	80.2	3.2	258.5	75.7	3.4
	45/35	3.1	231.0	87.6	2.6	261.2	92.6	2.8	261.2	86.7	3.0	261.2	80.9	3.2	261.2	77.1	3.4	261.2	75.3	3.5	261.2	70.8	3.7
	35/30	3.6	236.2	80.7	2.9	267.5	84.9	3.2	267.5	78.7	3.4	267.5	72.9	3.7	267.5	69.1	3.9	267.5	67.4	4.0	267.5	62.9	4.3
	30/20	3.8	238.5	77.2	3.1	270.1	81.0	3.3	270.1	74.7	3.6	270.1	68.9	3.9	270.1	65.0	4.2	270.1	63.3	4.3	270.1	58.8	4.6
	25/20	4.0	240.7	74.0	3.3	272.7	77.3	3.5	272.7	70.8	3.8	272.7	65.0	4.2	272.7	61.1	4.5	272.7	59.4	4.6	272.7	54.9	5.0

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YEW PERFORMANCE DATA 420/280 EFFICIENCY MODE //

EFFICIENCY MODE (-5°C CAPACITY CONTROL)																							
Model name	Water Temp (°C)	SCOP	-10°C External			-5°C External			0°C External			5°C External			7°C External			10°C External			15°C External		
			QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP
YEW SN + LN 420/280	80/70	1.9	290.6	169.5	1.7	325.5	181.1	1.8	325.5	174.1	1.9	325.5	166.0	2.0	325.5	161.1	2.0	325.5	158.1	2.1	325.5	151.5	2.1
	75/65	2.1	292.5	159.8	1.8	328.3	170.6	1.9	328.3	163.6	2.0	328.3	155.6	2.1	328.3	150.7	2.2	328.3	147.8	2.2	328.3	141.3	2.3
	70/60	2.2	294.6	150.9	2.0	331.3	161.0	2.1	331.3	153.9	2.2	331.3	146.0	2.3	331.3	141.1	2.3	331.3	138.3	2.4	331.3	132.0	2.5
	65/55	2.4	296.9	142.9	2.1	334.5	152.2	2.2	334.5	145.0	2.3	334.5	137.2	2.4	334.5	132.2	2.5	334.5	129.6	2.6	334.5	123.3	2.7
	60/50	2.6	299.5	135.5	2.2	337.8	144.1	2.3	337.8	136.7	2.5	337.8	129.0	2.6	337.8	124.0	2.7	337.8	121.5	2.8	337.8	115.3	2.9
	55/45	2.7	302.2	128.8	2.3	341.2	136.7	2.5	341.2	129.1	2.6	341.2	121.4	2.8	341.2	116.4	2.9	341.2	113.9	3.0	341.2	107.8	3.2
	50/40	2.9	305.0	122.6	2.5	344.7	129.8	2.7	344.7	122.1	2.8	344.7	114.4	3.0	344.7	109.4	3.2	344.7	106.9	3.2	344.7	100.9	3.4
	45/35	3.1	308.0	116.8	2.6	348.3	123.4	2.8	348.3	115.5	3.0	348.3	107.8	3.2	348.3	102.8	3.4	348.3	100.4	3.5	348.3	94.4	3.7
	35/30	3.6	315.0	107.6	2.9	356.6	113.2	3.2	356.6	105.0	3.4	356.6	97.2	3.7	356.6	92.1	3.9	356.6	89.8	4.0	356.6	83.9	4.3
	30/20	3.8	318.0	103.0	3.1	360.1	108.0	3.3	360.1	99.6	3.6	360.1	91.8	3.9	360.1	86.6	4.2	360.1	84.4	4.3	360.1	78.4	4.6
	25/20	4.0	320.9	98.6	3.3	363.6	103.1	3.5	363.6	94.5	3.8	363.6	86.6	4.2	363.6	81.4	4.5	363.6	79.2	4.6	363.6	73.3	5.0

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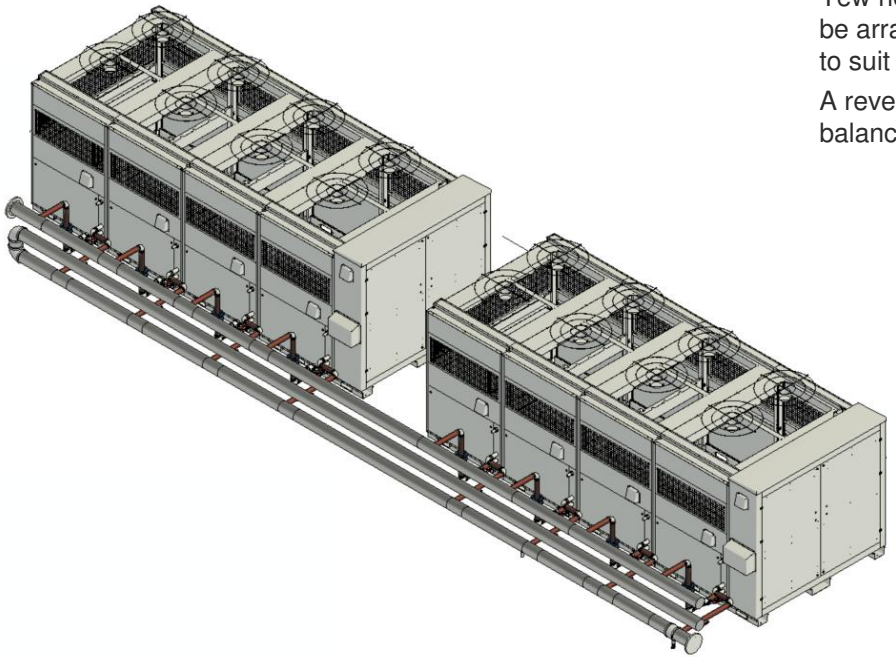
YEW PERFORMANCE DATA 525/350 EFFICIENCY MODE //

EFFICIENCY MODE (-5°C CAPACITY CONTROL)																							
Model name	Water Temp (°C)	SCOP	-10°C External			-5°C External			0°C External			5°C External			7°C External			10°C External			15°C External		
			QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP	QH (kW)	PI (kW)	COP
YEW SN + LN 525/350	80/70	**1.9**	**363.2**	**211.8**	**1.7**	**406.9**	**226.3**	**1.8**	**406.9**	**217.6**	**1.9**	**406.9**	**207.5**	**2.0**	**406.9**	**201.4**	**2.0**	**406.9**	**197.6**	**2.1**	**406.9**	**189.3**	**2.1**
	75/65	**2.1**	365.6	199.7	1.8	410.4	213.2	1.9	410.4	204.4	2.0	410.4	194.5	2.1	410.4	188.4	2.2	410.4	184.7	2.2	410.4	176.7	2.3
	70/60	**2.2**	368.2	188.7	2.0	414.1	201.2	2.1	414.1	192.3	2.2	414.1	182.5	2.3	414.1	176.4	2.3	414.1	172.9	2.4	414.1	165.0	2.5
	65/55	**2.4**	371.2	178.6	2.1	418.1	190.3	2.2	418.1	181.2	2.3	418.1	171.5	2.4	418.1	165.3	2.5	418.1	162.0	2.6	418.1	154.2	2.7
	60/50	**2.6**	374.4	169.4	2.2	422.2	180.1	2.3	422.2	170.9	2.5	422.2	161.3	2.6	422.2	155.0	2.7	422.2	151.8	2.8	422.2	144.1	2.9
	55/45	**2.7**	377.7	161.0	2.3	426.5	170.8	2.5	426.5	161.4	2.6	426.5	151.8	2.8	426.5	145.5	2.9	426.5	142.4	3.0	426.5	134.8	3.2
	50/40	**2.9**	381.3	153.2	2.5	430.9	162.2	2.7	430.9	152.6	2.8	430.9	143.0	3.0	430.9	136.7	3.2	430.9	133.7	3.2	430.9	126.1	3.4
	45/35	**3.1**	385.0	146.0	2.6	435.3	154.3	2.8	435.3	144.4	3.0	435.3	134.8	3.2	435.3	128.5	3.4	435.3	125.5	3.5	435.3	117.9	3.7
	35/30	**3.6**	393.7	134.5	2.9	445.8	141.5	3.2	445.8	131.2	3.4	445.8	121.5	3.7	445.8	115.2	3.9	445.8	112.3	4.0	445.8	104.9	4.3
	30/20	**3.8**	397.4	128.7	3.1	450.2	135.0	3.3	450.2	124.5	3.6	450.2	114.8	3.9	450.2	108.3	4.2	450.2	105.5	4.3	450.2	98.0	4.6
	25/20	**4.0**	401.1	123.3	3.3	454.5	128.9	3.5	454.5	118.1	3.8	454.5	108.3	4.2	454.5	101.8	4.5	454.5	99.0	4.6	454.5	91.6	5.0

HEADER ARRANGEMENT //



Yew heat pumps require external headers which can be arranged in either a right or left hand configuration to suit the application.

A reverse return arrangement provides good balancing across all modules.

ABOUT THIS INFORMATION //

Performance may vary based on climate conditions, installation quality, and specific usage patterns. Actual energy savings may differ from estimates.

Professional installation is required to ensure optimal performance and compliance with local building codes. Improper installation will void the warranty.

Regular maintenance is necessary to maintain efficiency and performance. Failure to perform recommended maintenance may reduce system lifespan and efficiency.

Efficiency ratings (COP) are based on standard testing conditions and control patterns. Actual efficiency may vary depending on operational conditions and geographic location. COP are instantaneous figures not averaged over any period of time which may include defrost and other system variables.

Heat pumps are designed for specific use. Using the product for unintended purposes may result in suboptimal performance or damage.

Noise levels produced by the heat pump may vary based on the installation environment and operating conditions. Sound pressure figures are for free field without the specifics of the site application.

Please refer to the user manual and installation guide for detailed information on operation, maintenance, and safety instructions.

Clade continually innovate to improve our products, the information in this document are valid (excepting typographic errors) at the time of publication. Availability, specification and performance are subject to change from time to time and without warning.

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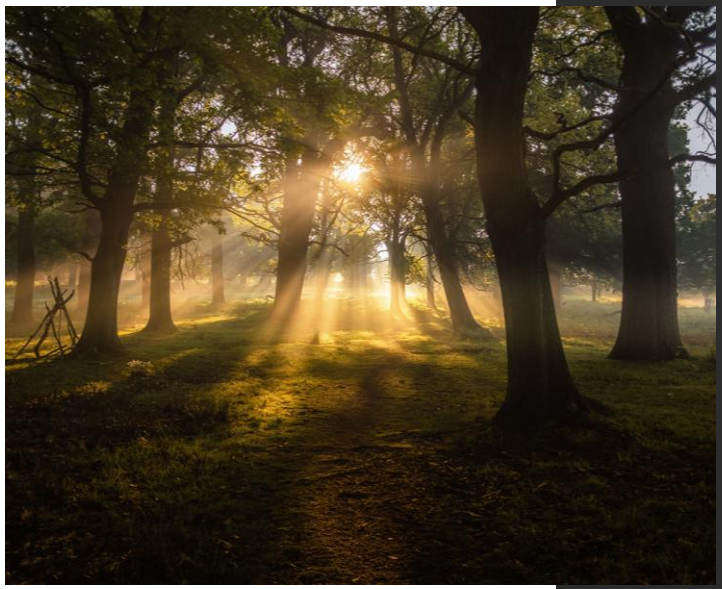

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