WHITEPAPER

RITTER HOT WATER DIRECT R290
VS ALL-IN-ONE R290

HPRPD5 RITTER

5kW R290 Hot Water Heat Pump

RITTER HOTWATER 5KW

Powered by WATERWARE

Introduction

The Ritter Hot Water Direct R290 Heat Pump outperforms traditional all-in-one R290 heat pumps, offering superior hot water recovery, efficiency, and safety.

Key Advantages

1. **Superior recovery power** = significantly faster hot water recovery in all conditions.
2. **Superior safety =** Double wall heat exchanger prevents refrigerant coming through your taps
3. **Superior flexibility** = locate your new HWC inside or connect to existing HWC.
4. **Superior efficiency** = Greater than 500% in summer conditions and 300% in winter conditions.

No electrical element backup or boosting required.

Performance Snapshot

The main reason to invest in a heat pump is saving money but savings are only possible when the heat pump is doing the work. All-In-One heat pump cylinders have become increasingly popular in recent years, but due to the space constraints on the top of the cylinder, the heat pumps are very small and subsequently have limited power output.

To get around this limitation an electric element is used to boost performance, especially in low ambient temperatures, and when that happens efficiency is dramatically reduced. The increase in electrical consumption when the element is engaged is never disclosed and is not included in the stated COP figures. Split heat pumps provide the opportunity for increased heat pump capacity and can eliminate the need for electrical boosting which translates to more hot water for less money.

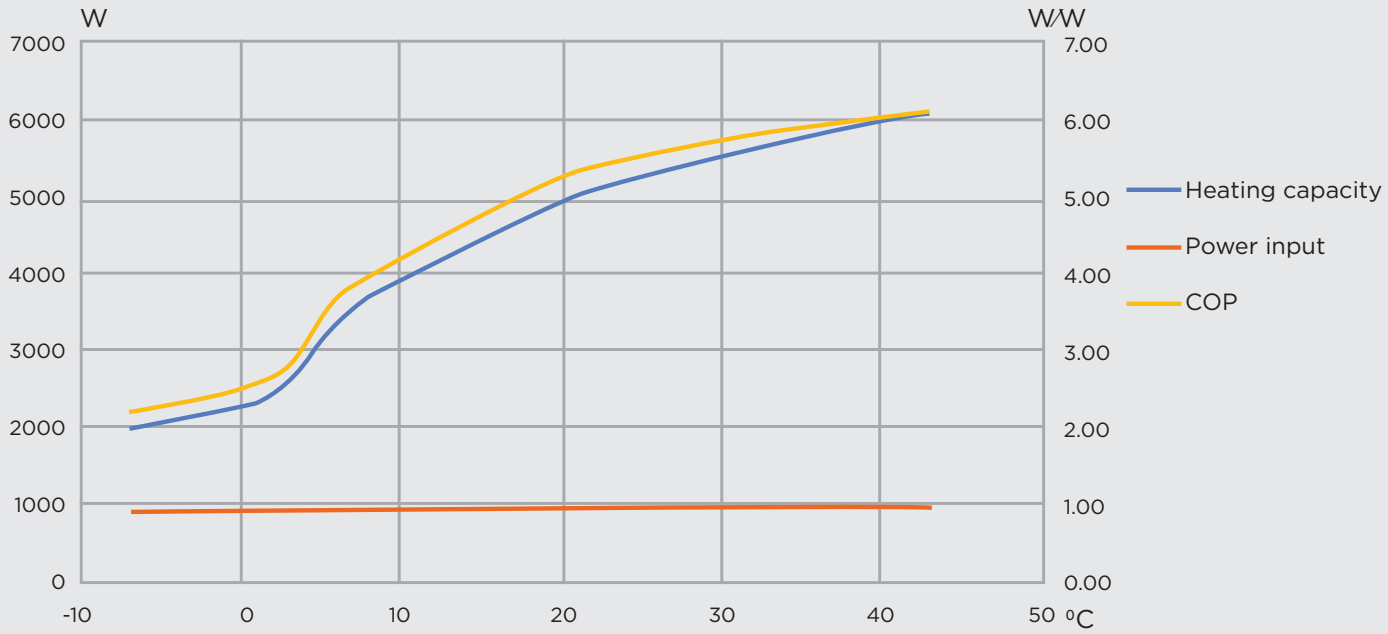
Performance at 55°C Water Outlet, 20°C Ambient

Metric	W55/A20	W55/A15	W55/A7	W55/A2
Heating Capacity (W)	4950	4500	3600	2450
Power Input (W)	940	940	930	915
COP (W/W)	5.27	4.81	3.87	2.68

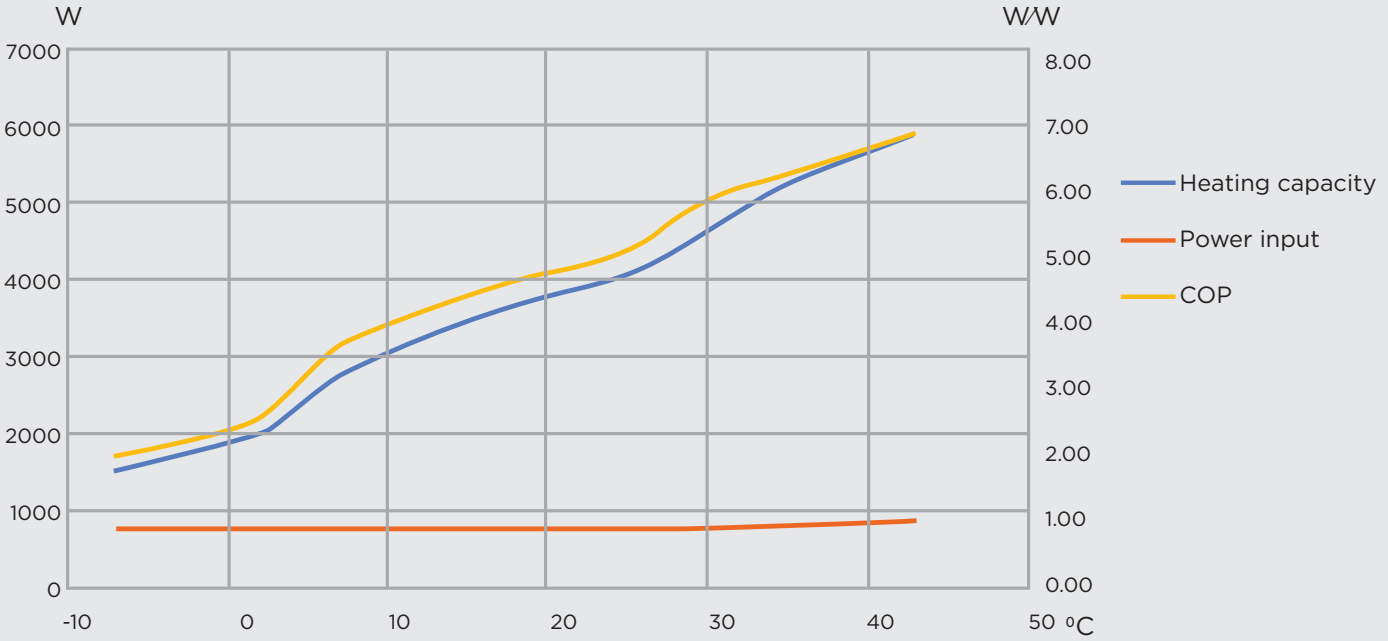
Head-to-Head Battle 1: Ritter Hot Water Direct vs All-In-One Cylinder

The graphs below show a direct comparison between the Ritter Direct R290 versus a popular all-in-one R290 heat pump cylinder. The superior output capacity and COP of the Ritter over the critical New Zealand climate range of -7C to 20C is clearly noticeable. This means that with appropriately size storage, electrical boosting is not required, and this maximises savings for the homeowner.

Graph 1: Ritter R290 Direct Output and COP



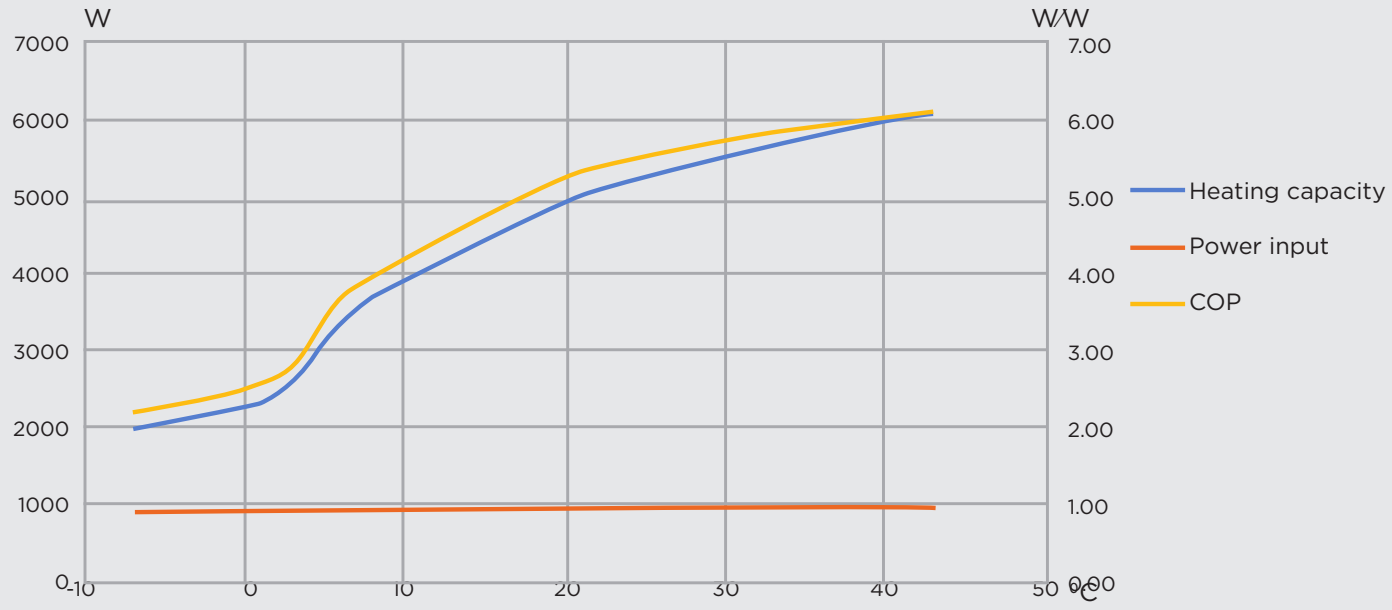
Graph 2: All-in-one Cylinder Output & COP



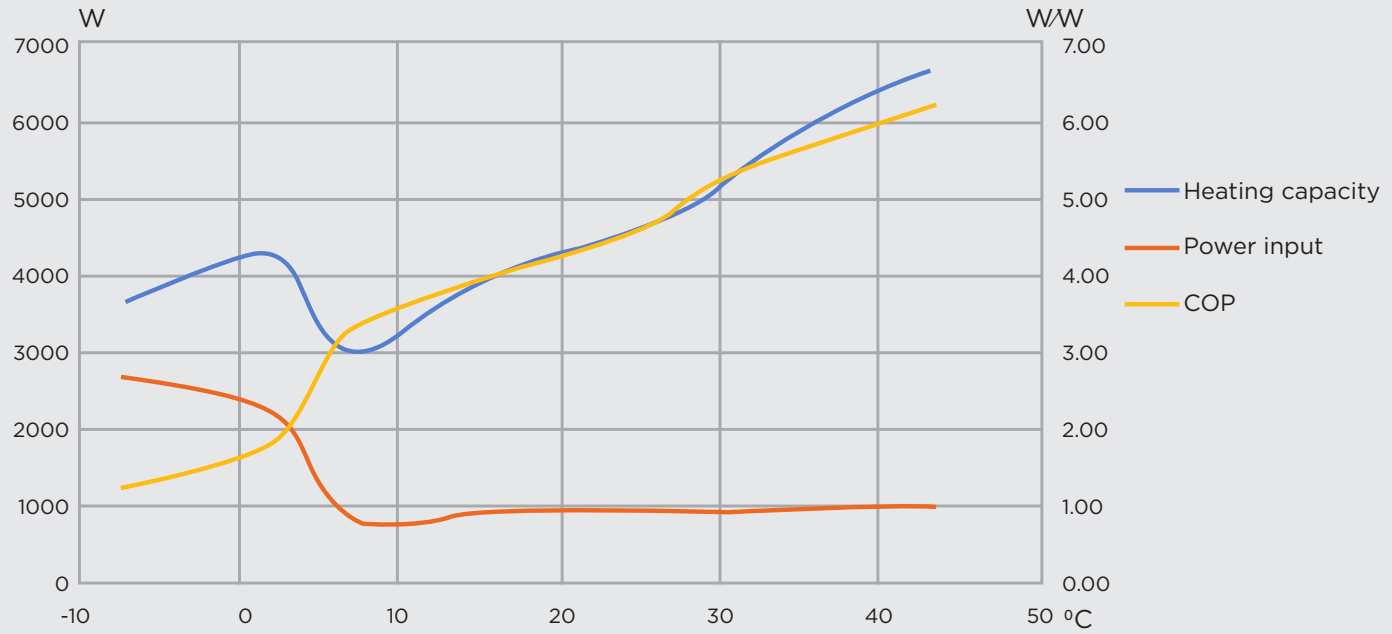
Head-to-Head Battle 2:
Ritter Hot Water Direct vs All-In-One Cylinder w/Element Boosting.

The graphs below show a direct comparison between the Ritter Direct R290 versus another popular all-in-one R290 heat pump cylinder. This heat pump has automatic electrical boosting to maintain a decent recovery rate as the ambient temperature falls and whenever the element is engaged the output capacity comes up but efficiency (COP) plummets. On some cold winter nights, this heat pump cylinder is consuming the same amount of power as a direct electric cylinder which increases running costs for the homeowner.

Graph 1: Ritter R290 Direct Output and COP

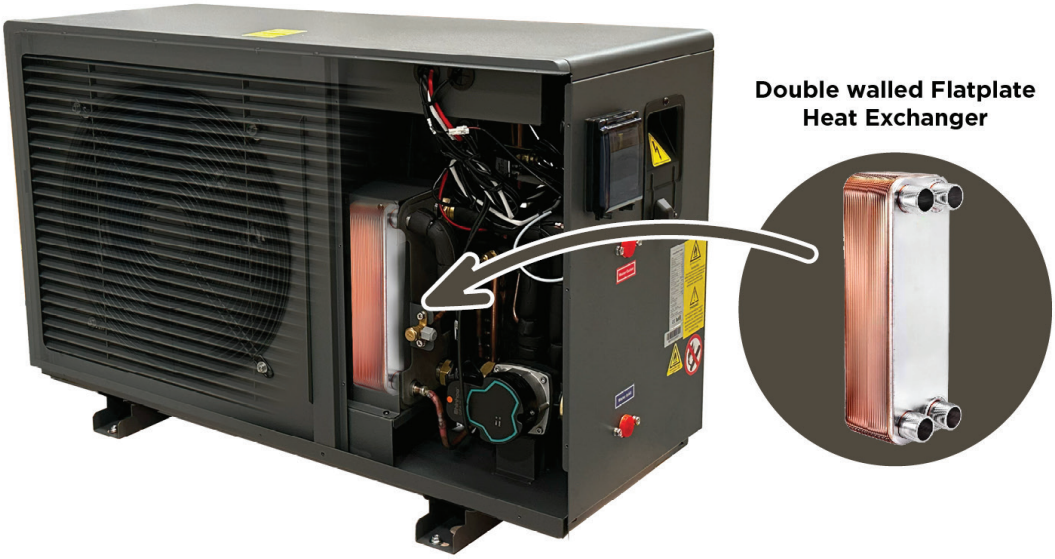


Graph 2: All-in-one Cylinder Output & COP (w/Element)



Advanced Safety for Homes and Apartments: The Power of Double Wall Separation

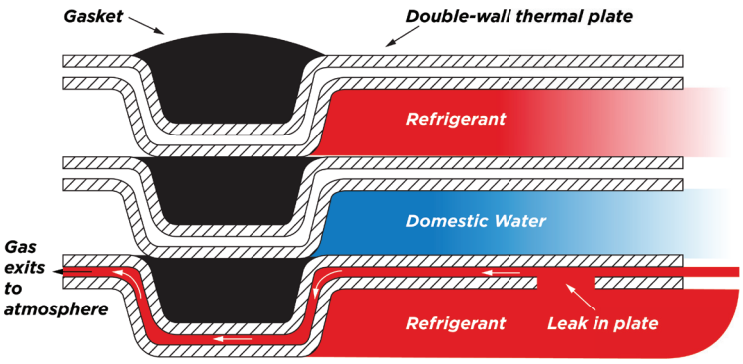
In modern homes and apartments, ensuring the purity of the water we use every day is paramount. Traditional single wall separation heat pumps, though effective, come with the risk of refrigerant contamination in your potable water. Ritter's Direct R290 system eliminates this concern with double wall separation, offering a level of safety that sets a new standard for home heating systems.

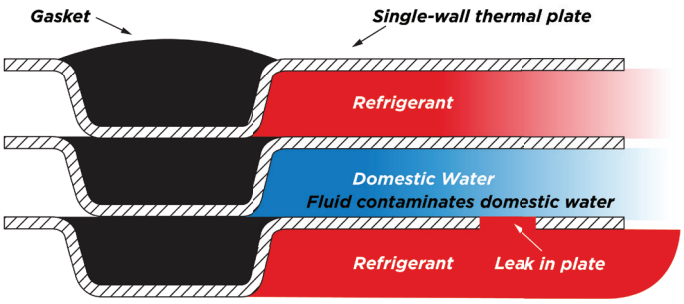


What Is Double Wall Separation?

Traditional single-wall heat exchangers use only one barrier to separate refrigerant from water. If that barrier fails, refrigerant could enter your household water, posing a significant risk. With Ritter's double wall separation, you're protected by two metal walls with a pressurised air gap between them, ensuring that if one layer fails, the second still prevents contamination.

The built-in pressure differential alerts you immediately if the system detects an issue, meaning you'll never have to worry about the safety of your water.





Perfect for Residential Homes and Apartments

In apartment buildings or standalone homes, water safety is even more critical. With Ritter's double wall heat exchanger, you gain:

- **Zero risk of contamination:** even if the refrigerant system experiences a failure.
- **Peace of mind:** knowing your family or tenants are protected at all times.
- **Future-proofing:** a safe, compliant design that doesn't just meet current standards but exceeds them

Whether you're in a single home or a multi-dwelling apartment complex, Ritter's R290 system provides best-in-class safety without sacrificing efficiency or performance.

Conclusion

In the face of rising energy costs, increasing expectations around sustainability, and growing awareness of water safety, the choice of hot water system in residential applications has never been more critical. This whitepaper has demonstrated that the Ritter Direct R290 system offers clear, measurable advantages over traditional all-in-one heat pump solutions.

Through superior thermal efficiency, particularly in colder climates, the elimination of electric element reliance, and significantly faster hot water recovery rates, Ritter sets a new benchmark for performance in both standalone homes and multi-dwelling residential buildings.

Equally important is the system's built-in safety through double wall heat exchanger technology, which provides unmatched protection for potable water, a feature increasingly relevant in high-density residential environments where water safety cannot be compromised.

In summary, Ritter Direct R290 is not simply a more powerful or efficient solution — it is a smarter, safer, and future-ready investment for homeowners, developers, and specifiers who demand the highest standards in residential hot water delivery.

For further details and technical specifications, please contact **Waterware Services**
0800 WATERWARE

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