IKA

designed for scientists

Powerful, Energy-Efficient and Sustainable

/// Temperature control featuring natural refrigerant R290

In laboratories worldwide, sustainability and efficiency are becoming increasingly important. This is not only a question of constantly stricter legal regulations, but also an issue of corporate image. However, those who work in an environmentally friendly manner and save resources in laboratory operations not only fulfill sustainability goals better, but also reduce costs in terms of total cost of ownership (TCO).

But how can this be done? Two design measures on temperature control devices make a major contribution to environmental protection and, at the same time, reduce operating costs and increase power density:

› Natural instead of fluorinated refrigerants
› Demand-controlled temperature control devices

Refrigerant in temperature control devices

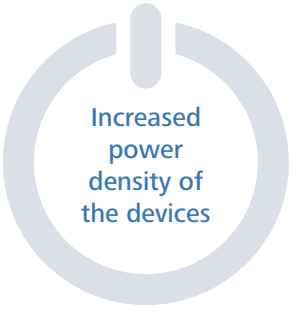
Even today, many common refrigerants are partially fluorinated. These contribute to the greenhouse effect and thus to climate change. A reduction of the **Global Warming Potential (GWP)** of refrigerants is therefore politically desired. Since 2020, certain refrigeration machines may no longer be supplied with R134a. By 2030, fluorinated refrigerants are to be reduced to one-fifth of the volume still placed on the market in 2015. In the USA, this will already be completely banned by 2024.

But how exactly does more sustainable cooling work?

The natural refrigerant R290 has a significantly lower GWP (Global Warming Potential) than conventional refrigerants.

In comparison:

This means a reduction of the global warming potential to only 0.21% on the base value of R134a. This does not yet take into account that the refrigerant charge quantities for R290 can also be reduced.



The positive effect: more efficiency and a more compact design of the devices.

A single RC 2 GREEN can even supply two rotary evaporators at the same time, whereas two chillers are required from a competitor's unit for this purpose. For the RC 2 lite, HRC 2 lite, RC 2 GREEN and RC 5 temperature control devices, IKA already relies on operation with R290.

Demand-controlled for even more sustainability

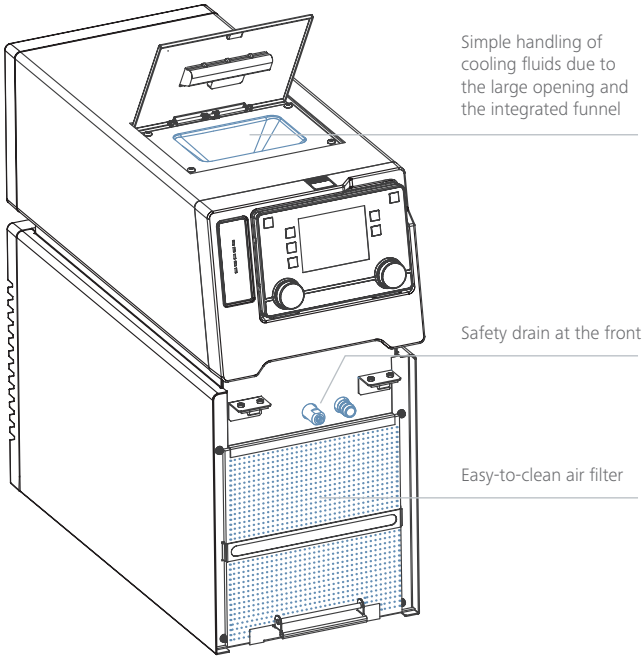
The units in IKA's RC lite/ basic/ control as well as HRC basic and control series differ significantly from other devices. Their core is a speed-controlled compressor, which is used to react to the current cooling power requirement. Depending on the load or the required cooling capacity, the unit can thus flexibly adjust its output. If little power is required, the compressor runs at low speed.

Further advantages

› very quiet operation
› enormous energy savings are possible
› permanent switching on and off of the unit is therefore not necessary which counteracts wear and tear and extends the product's service life.

Another sustainability factor of the IKA refrigerated and heating circulators is the high-quality insulation of the storage tank. It minimizes the energy input from the environment and keeps the thermal fluid cold. The air-cooled microchannel condenser also ensures optimum heat dissipation. The air flow required for this is generated by a speed-controlled fan. This reduces the noise level and again lowers energy consumption. To protect the heat exchanger from contamination and the associated loss of efficiency, all IKA recirculating chillers have a removable and easy-to-clean filter directly in front of the condenser. This guarantees consistent performance over the product life cycle - without any external maintenance.

This performance is utilized in another technical trick for particularly precise temperature control: the electronically controlled expansion valve achieves a temperature constancy of up to ±0.05 K.



Powerful, Energy-Efficient and Sustainable: Temperature control by IKA

IKA is ahead of the curve with the introduction of its modern, efficient and powerful refrigerated and heating circulator product line which uses natural refrigerant R290 and/ or is demand-controlled. By choosing the natural refrigerant R290, IKA and its customers make an active contribution to environmental protection.

ECO energy-efficient technology

NEW

TECHNICAL DATA	HRC 2 lite Ident No. 0020104311	RC 2 lite Ident No. 0025006624	RC 2 GREEN basic | control Ident No. 0025004186 0025006638	RC 5 basic | control Ident No. 0004181000 0004183000
Appliance type	Refrigerated and heating circulator	Recirculating chiller	Recirculating chiller	Recirculating chiller
Temperature range	-10 – 100 °C	-10 °C – RT	-30 °C – RT	-30 °C – RT
Temperature stability DIN 12876	± 0.1 K	± 0.5 K	± 0.15 K	± 0.2 K | ± 0.1 K
Cooling capacity (@20°C) (@10°C) (@0°C) (@-10°C) (@-20°C) (@-30°C)	 400 W 350 W 250 W 100 W	 400 W 350 W 250 W 140 W	 800 W 700 W 500 W 400 W 200 W 90 W	 1400 W 1100 W 950 W 600 W 350 W 200 W
Heat output	1000 W	-	-	-
Max. flow rate	18 l/min (@0 bar)	18 l/min (@0 bar)	21 l/min (@0 bar)	31 l/min (@0 bar)
Max. pump pressure	0.35 bar	0.35 bar	0.5 bar	0.61 bar
Filling volume	1 – 3.5 l	1 – 3.5 l	1.5 – 4 l	5.2 – 8 l
Interface	USB + RS 232	USB + RS 232	USB + RS 232	USB + RS 232 (Multi IO)
Sustainability Feature	› Refrigerant R290 › Easy to clean air filter to protect the condenser	› Refrigerant R290 › Easy to clean air filter to protect the condenser	› Refrigerant R290 › Speed-controlled compressor and fan motor › Easy to clean air filters to protect the condenser	› Refrigerant R290 › Speed-controlled compressor and fan motor › Easy to clean air filters to protect the condenser

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