

Cooling systems for industrial applications



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RIEDEL[®]
PRECISION IN COOLING

RIEDEL in any case

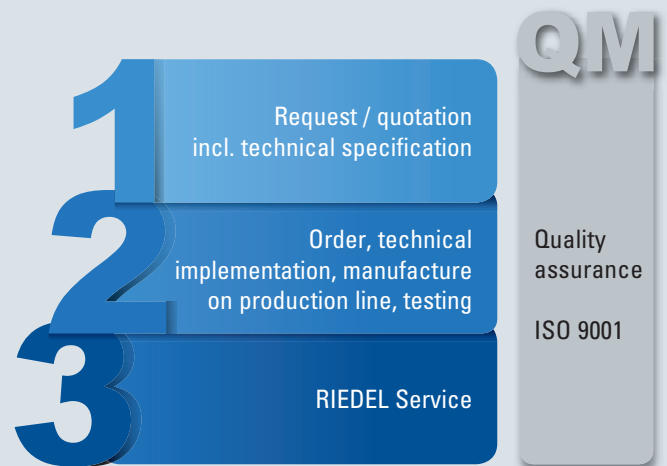
Whether you're looking for a series-production device for a standard application or you need someone to develop a customised unit for you: you'll find what you're looking for at RIEDEL.

Our two comprehensive series with refrigeration capacities of up to 226 kW cover most application requirements. If not, we use a structured working process to develop your own customised OEM cooling device.

Structured to obtain the optimum cooling solution for each customer

From the first contact to a product ready for series production, there are only a few steps. RIEDEL Quality Management will be there every stage to ensure that your customised product is commissioned as quickly as possible. Our After Sales Service then accompanies the life of your cooling solution.

Standard business and projects



OEM development process



Reliable cooling for top performance and efficiency in production. Let's talk about your objectives.

From mass production to small batches

Cooling is a crucial part of production. It is responsible for ensuring appropriate temperatures for the tool, workpiece and the machine itself. The timings and service lives for the entire production process depend on the degree to which the cooling system provides ideal operating temperatures. If everything is sufficiently cooled, the production process runs like clockwork.

Standard chiller or OEM solution

RIEDEL standard chillers are perfect for these tasks. They offer a wide performance range, offering reliable cooling for individual machines through to an entire production line. There are two series to choose from, with refrigeration capacities ranging from 1 to 226 kW. These standard models are easily modified to meet specific customer requirements to ensure your production system receives precisely the level of performance required.

RIEDEL also offers new developments for OEM units. Whether you need space-saving ideas or specific technical parameters – our engineers work together with customers to develop a customised cooling solution capable of cooling the machine at the relevant points and ensuring maximum performance.

RIEDEL applies its entire wealth of development expertise to tackling extreme and challenging operating conditions. All chillers adapted to specific customer requirements undergo thorough testing in our on-site laboratories and environmental chambers. Our test conditions can simulate extreme ambient temperatures and various levels of high air humidity – precisely tuned to reflect the exact environmental conditions the equipment will face in its subsequent operation. As life cycle costs (LCC) are a key consideration in modern production businesses, we seek to achieve optimum energy efficiency in all of our developments.

RIEDEL chillers – Made in Germany

RIEDEL has been producing its devices in Germany for over 40 years. Aspects essential to quality such as precision, dependability and reliable delivery are firmly embedded in our work philosophy. These values are what make RIEDEL a professional partner and preferred supplier all over the world. Our cooling devices are now used all over the globe; this has allowed us to build up an immense wealth of experience that we apply to each and every request.

As a company within the international GLEN DIMPLEX Group, we are able to care for our customers quickly and effectively no matter where they are in the world. We can draw on a network of contacts, experiences and references, a highly innovative research and development group and last, but not least, a cost-efficient production environment with the highest quality standards. Our on-site presence demonstrates time and again our ability to offer our customers high performance. We can also offer them much, much more.





Laser applications

RIEDEL chillers are ideal for all types of laser systems available. We can configure the optimum cooling system for the benefits of the laser application in question.

Precision cooling.

Gas and solid-state lasers

Lasers with a capacity up to 40 kW can be constantly cooled at the source of the laser beam within applications.

RIEDEL cooling systems can comprise many different cooling circuits for the following applications:

- **Gas lasers (CO₂-Lasers)**
- **Solid-state lasers (fibre lasers or disc lasers)**

There is a huge range of requirements in terms of material specifications, required refrigeration capacity and accuracy (temperature, volume flow, water pressure) of the water circuit depending on the laser and the application. That's why RIEDEL chillers for lasers are always specifically designed with the application in mind.

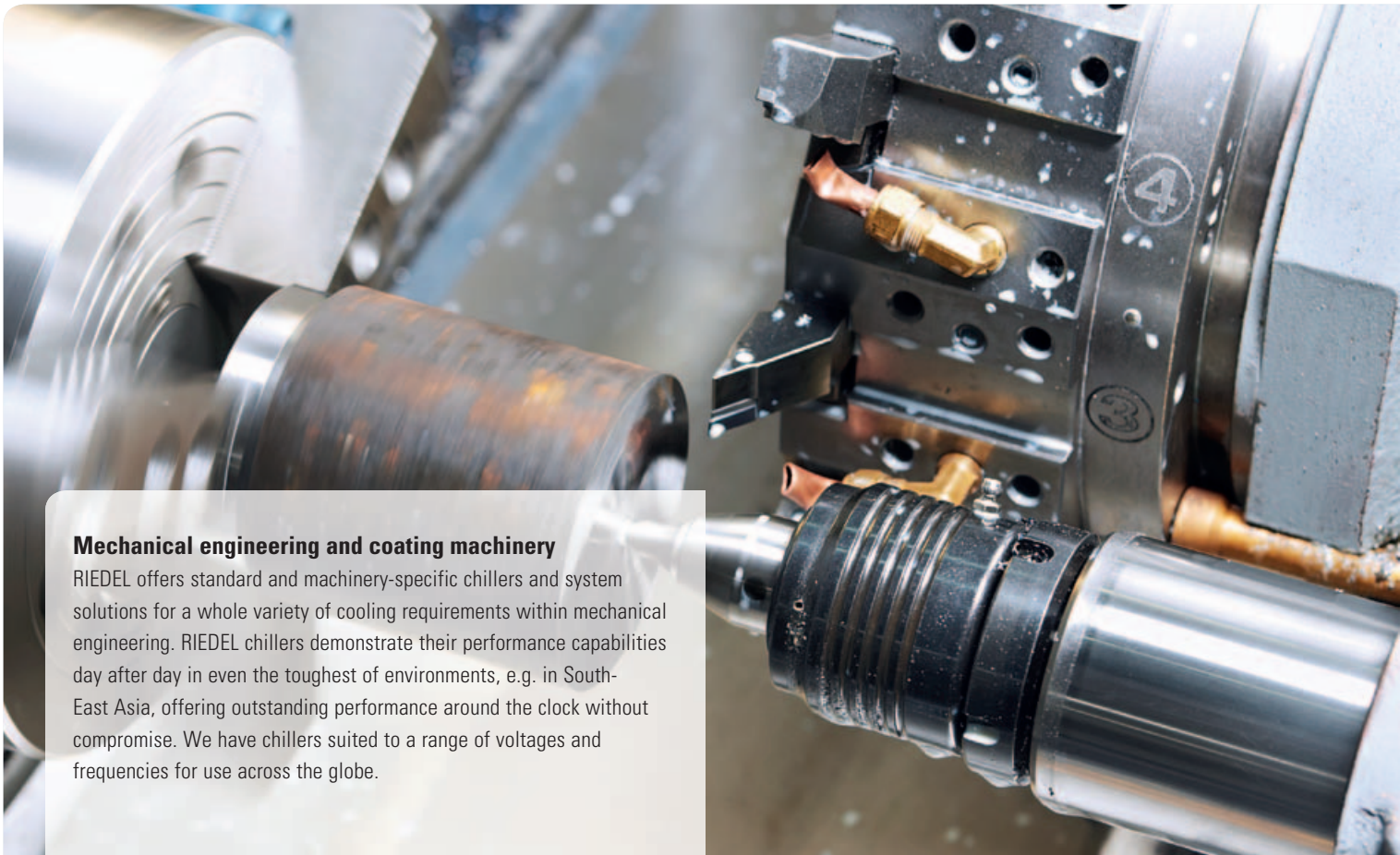
Energy-saving systems

RIEDEL offers special energy-saving systems for both new equipment and retrofits. This "free cooling" saves a significant amount of money over the course of the year by releasing the waste heat from the laser into the cooler outside air without the use of a compressor.

However, if the waste heat from the laser can be put to good use, you can use heat recovery systems to boost your heating. Whether a new build or relocation into new, larger production facilities: wherever the waste heat can feasibly be integrated into the heating system, RIEDEL offers customer-specific heat transfer systems providing fully automated heat management.

RIEDEL also offers both standard and bespoke solutions for low-performance applications.





Mechanical engineering and coating machinery

RIEDEL offers standard and machinery-specific chillers and system solutions for a whole variety of cooling requirements within mechanical engineering. RIEDEL chillers demonstrate their performance capabilities day after day in even the toughest of environments, e.g. in South-East Asia, offering outstanding performance around the clock without compromise. We have chillers suited to a range of voltages and frequencies for use across the globe.

Designed for high speed and precision.

Cutting machine tools:

Our cooling solutions focus on machining centres with high-speed spindles. Main spindle motors are cooled, as are bearings, coolant and also control cabinets.

One specific requirement of the cooling system is the tracking of the coolant temperature, which depends on the temperature of the machine bed and/or the hall.

Non-cutting machine tools:

RIEDEL chillers can be used for a whole host of processing procedures. The non-conductor can be effectively cooled during electrical erosion, and coolant can be used to prevent the workpiece from overheating during grinding. Cooling for lapping and polishing machines has specific technical requirements, as the lapping granules/polish residue must be separated by upstream filters prior to cooling.

Coating machines:

Electro-coating machinery requires cooling in order to maintain the temperature of the dip by means of a heat exchanger. Plasma coatings with extreme heating of the burner pose a greater challenge. Cooling is achieved by means of high water pressure and efficient cooling capacity.

Paint lines:

Dipping machines for surface cleaning indirectly maintain the temperature of the cleaning agent via a finned heat exchanger. Gaseous solvents and other impurities are disposed of in an environmentally friendly manner after condensation. We supply units with outstanding cooling capacity for wet-paint dipping machines. While the paint is merely kept at the right temperature in spray-paint machines, high-performance finned heat exchangers are used here too to ensure the condensation of gaseous solvents released into the air.





Plastics industry

Tools and hydraulic oils in particular need to be cooled as a result of the heat from the liquid plastic and the lubricant pump. Maximising tool life and reducing production waste and operating costs help ensure the production is economically efficient.

RIEDEL chillers set themselves apart by their high level of reliability and precision cooling for all relevant functions.

Well cooled – well formed.

Injection moulding procedures:

RIEDEL chillers ensure reliable cooling for tools and hydraulics during injection moulding. The powerful chillers enable short cycle times, a stable removal-from-mould process and high process reliability.

Within the hydraulic oil, the heat input from the pump must be reliably diverted away. This often requires a separate, passive cooling system. If it is not possible to separate moulding cooling and tool cooling, the entire system is operated via a process chiller.

Hot-forming machines:

Small containers, yoghurt pots and hard shells for suitcases are typical deep-draw products. As the moulds often simultaneously serve as cutting tools for the set material, they must be kept at a constant temperature. Any distortion of the tools considerably reduces their service life.

Blow-moulding machines:

The moulding process for items such as PET bottles, pipes and containers uses cooling from the material moulding through to setting. Cooling of a compressor used during the moulding process is also applied where required.

Extruder:

The water bath used in the extrusion of pipes, cables etc. for material cooling and setting is kept at a constant temperature through circuit cooling. As well as the water bath, the machine's tool/moulding nozzles also need to be cooled. The closed cooling circuit operates without fresh water. Calcification of the cooling lines is prevented and operating costs reduced.



Everything under control

RIEDEL trusts in its own controller series for the reliable and safe regulation of its chillers. The controllers register all the relevant parameters and regulate cooling devices within preset limit values. The electronics continuously record operating points, which can then be evaluated using the Studio-ST software included in the scope of supply. Error messages and operating statuses can be sent immediately to smartphones or PCs which are connected via either Ethernet or Internet.

You are therefore always up to date, and know what is going on with your cooling system. If there is a fault, you can react to it immediately.



Intelligent controls: intuitive user guidance.

Top-level communication

The intelligent RIEDEL controllers feature a microprocessor board and operating display. They control the efficient operation of the individual devices and significantly increase the operational safety of the system.

The controller can be combined in any way you like in accordance with the required functionality and level of operator comfort. The RIEDEL control board is affixed to the mounting plate of the control cabinet. The intuitive display is located on the control cabinet door. An RJ45 cable enables communication.

Just one control panel can control individual or networked chillers, which can be operated using R134a, R 407C, R 404A or R 410A refrigerants as required.

Secure communication between the system and peripheral devices is assured through 16 analogue channels, a digital/analogue converter and pulse inputs, which are designed for fast flowmeter signals. An ST BUS control is also provided. RIEDEL offers the following connections as options: Gateway Profibus, CAN Bus, GSM modem and Ethernet.

RIEDEL controllers: for extra safety and operator comfort

The new controller series sets itself apart with a whole host of innovative functions to enhance operational safety and ensure quick response times in the event of a fault. They offer operator comfort and boost the energy efficiency of the cooling systems.

- Individual control of up to four compressors
- Pump control in up to three water circuits
- Fan control
- Regulation for fixed-setpoints and differential values
- 100% monitoring of operating statuses, e.g. temperature, pressure, current, volume flow
- Error messages (clear text or icons)

RIEDEL controller boards:

RCB1: Controller for basic applications

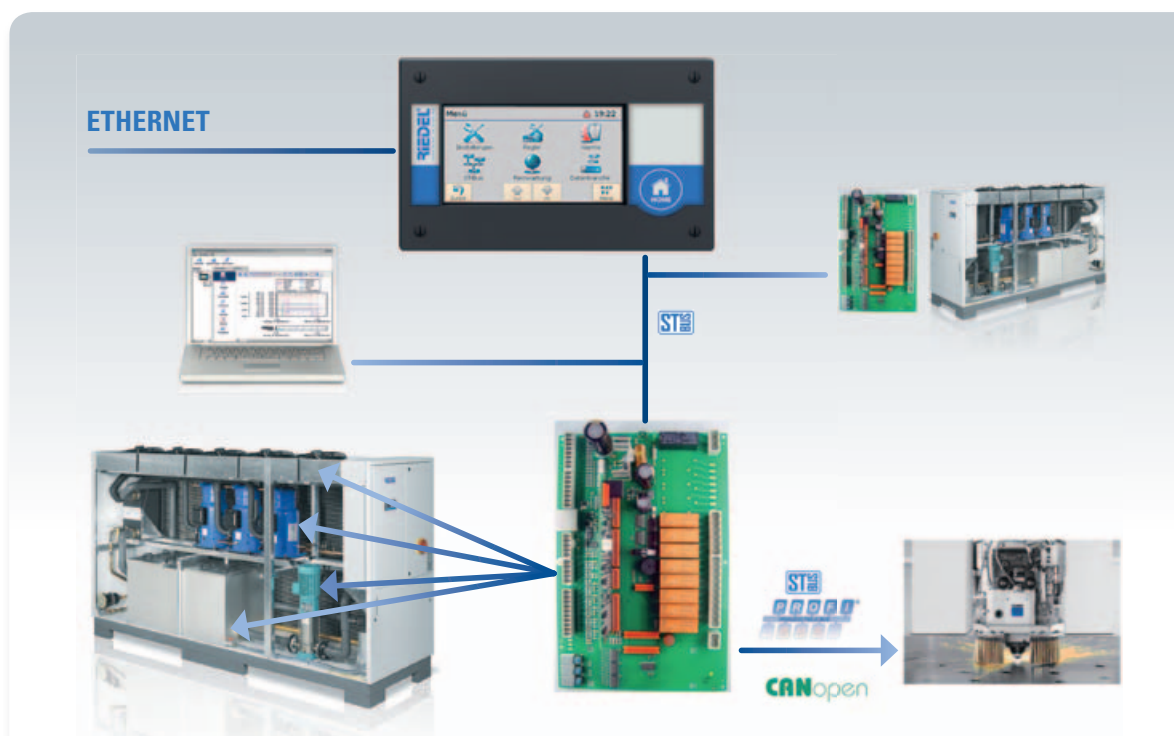
RCB2: Industrial applications

RCB3: Controller for complex system controls

RIEDEL display variants:

RD2: Display with four-digit LED display

RD3C: 4.3" TFT colour touchscreen





Your opportunity within international competition

Lower your company's overall energy costs through a flexible response to ensuring optimum energy usage by your applications.

ESS energy-saving system

Developed by RIEDEL, the energy-saving system (ESS) uses an additional heat exchanger for flexible adjustment to the ambient temperature. Multimode allows operation to switch between passive chilling (free cooling), active chilling and mixed operation. Depending on the ambient temperature and flow temperature, energy costs for cooling are reduced by more than 50%.

Heat recovery

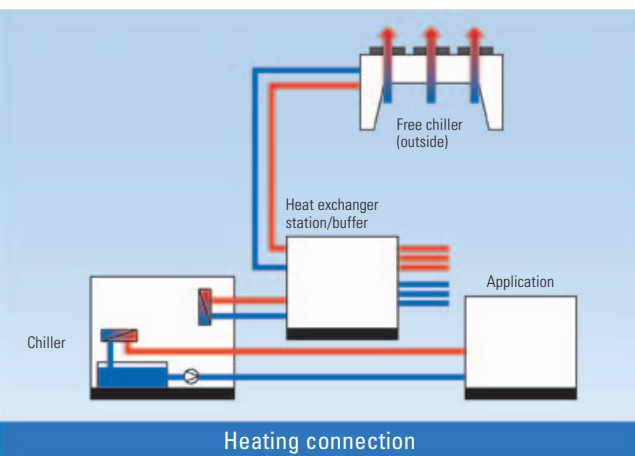
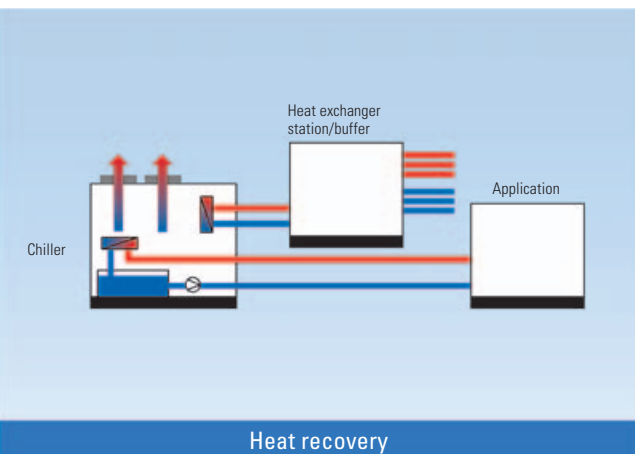
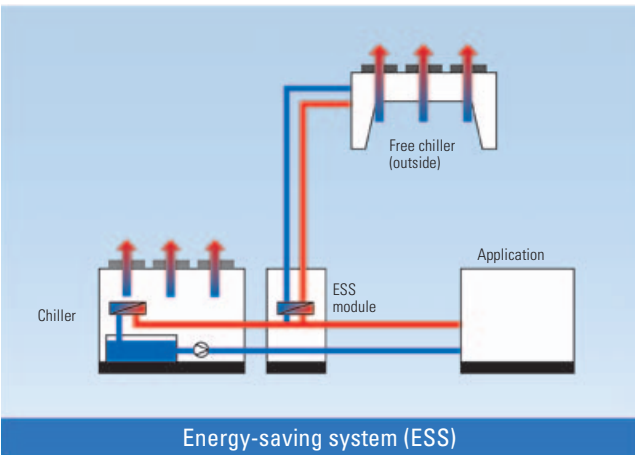
Heat recovery is the use of heat energy from the refrigeration circuit as a source of heat. This method reduces the heat energy requirements for your processes or building accordingly.

Please note that efficient use of these systems requires heat system planning that factors in noise protection, system location and additional space requirements. Increased assembly and commissioning costs are also involved. Depending on the application, the additional costs can however often be amortised in less than two years. The RIEDEL specialists will offer you comprehensive advice on optimising your chiller.

Heating integration

Heat energy from water-cooled units is transferred via a transfer station to your heating system. This means you need less or even no conventional heating energy during the cold months (oil, gas). Heat is also extracted from your building in summer by means of a heat exchanger. It's easy to convert existing chillers and integrate them into this system.

Increase energy efficiency – reduce operating costs and CO₂ emissions



The degree of efficiency is the crucial factor

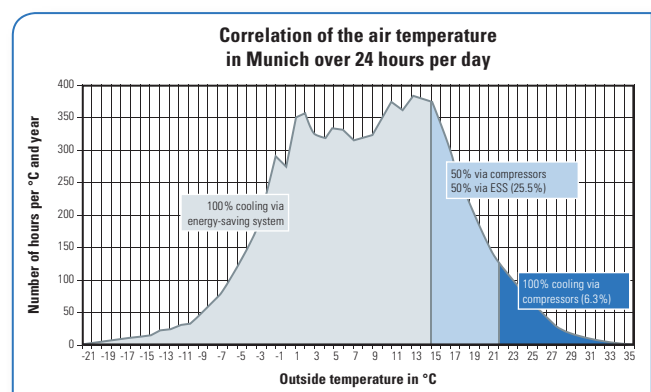
RIEDEL has worked to obtain maximum energy efficiency of its cold water equipment from day one. Every part of our R&D is based on the following guiding principle: Minimum operating costs with maximum performance, precision and reliability.

The chillers have been extensively equipped to ensure their optimisation:

- Refrigerant optimisation
- Optimisation of your application under the agreed operating conditions (temperature and air humidity) in the environmental chambers
- Energy-efficient components in both full-load and partial-load operation
- Suitable system configurations and optimisation through RIEDEL controllers to ensure your application runs in an economically efficient manner
- The best possible degree of efficiency by minimising pressure drop, process temperature selection and chiller insulation
- Maximum utilisation of the RIEDEL energy-saving system (free cooling) to minimise the proportion of active chilling.


Annual load graph using the city of Munich as an example

The utilisation of free cooling via the RIEDEL energy-saving system depends on the operating temperatures in the cooling circuit and the local outside temperatures. Employment of an ESS can reduce the runtime of the compressors by up to 75%.



The energy-saving systems can also be combined with other products, such as heat pumps from the GLEN DIMPLEX GROUP.

Please contact RIEDEL Service for consultation and installation.



There's a cooling device for all applications

With two full product series, you'll be able to find the right cooling device for you at RIEDEL. If you require a few modifications for your application, we can make cost-effective and reproducible adaptations to the standard equipment.

All cooling block systems are compact, factory-assembled condensing units suitable for an immense range of industrial applications. All devices comply with multiple regulations, including EC directives, standards and provisions:
ISO 9001, EN 378, VDE and BGV

SC series

The cost-effective basic range for standard applications or cooling systems with slightly raised requirements. In stock with refrigeration capacities from 1.7 to 13.3 kW.

PC series

The professional series for all applications, demonstrating distinctively high reliability. This series offers refrigeration capacities of up to 226 kW and an extensive range of additional functions and options.

RIEDEL SC series

Standard chiller

The SC chiller is a plug-in universal solution from RIEDEL which provides precise, economical cooling for a wide range of processes. The unit is extremely versatile and compact. The devices are equipped with a tank and a pump, and can be installed in the immediate vicinity of your machine. All models within the SC series are in stock ready for delivery.



Technical data								
SC		11	21	31	51	71	101	121
Net refrigeration capacity ¹⁾	kW	1.7	2.2	3.9	5.8	7.6	10.9	13.3
Pump power loss	kW	0.6	0.6	0.9	0.9	0.9	1.1	1.2
Refrigerant	Type	R134a						
Coolant fluid ²⁾	-	Water						
Ambient temperature	°C	+15 to +45	+15 to +40	+15 to +45				
Coolant outlet temperature	°C	+8 to +25						
Setpoint stability	K	±1						
Quantity of coolant in circulation	m ³ /h	0.2	0.3	0.4	0.8	1.3	1.6	2.1
Free pump pressure	bar	3		5 – 6				
Tank volume	l	25		40	80		150	
Sound pressure level ³⁾	dB(A)	44		54			63	61
Voltage supply	Ph/V/Hz	1/230/50			3/400/50			
Power consumption	kW	1.7	1.9	2.6	3.8	4.6	6.0	7.5
Maximum power consumption	A	8.0	9.8	5.2	8.0	9.0	11.5	14.5
Water connections	Rp	½"			¾"		1"	
Weight (net)	kg	56	64	105	156	159.5	189	193.5
Dimensions width x height x depth	mm	475 x 390 x 780		540 x 1,050 x 700	620 x 1,230 x 880		720 x 1,396 x 1,080	

1) At a coolant outlet temperature of 20°C and ambient temperature of 32°C

2) Ethylene glycol proportion can be up to 35 vol %

3) Half sound field without reflection at a 5 m distance from the operator side at operating point as per 1)

RIEDEL PC series

Refrigeration capacity of 1 to 7 kW



Options available: 1 to 7 kW refrigeration capacity

- Flow rate monitor
- Overflow valve to ensure minimum flow
- Plastic tubing
- Insulation for pump, water tubing and suction refrigeration line at a water outlet temperature of $< 12^{\circ}\text{C}$
- VA evaporator (Ni soldered) for deionised water
- Digital display (actual coolant temperature)
- Power regulation by hot gas bypass valve for high temperature accuracy of up to $\pm 1\text{ K}$ by microprocessor-controlled temperature controller with digital setpoint and actual value display
- Remote control, floating or switching voltage
- Floating group fault messaging
- Paintwork (RAL colour) as per customer request
- Castors
- Dust filter (accessory)
- Check valve / solenoid valve (accessory)

Specs in brief: standard 1 to 7 kW version

- Compact casing, powder-coated RAL 7035 / 5010; easy to service as all components can be accessed
- For indoor installation, degree of protection = IP 44
- Fully hermetic compressor with built-in motor protection
- CFC-free R134a refrigerant and also R407C (PC51/69)
- Evaporator as plate heat exchanger in VA, Cu soldered with cold insulation
- Prescribed monitoring and safety equipment in refrigerant circuit
- Thermostatic expansion valve with MOP to restrict evaporation pressure
- Air-cooled liquefier with axial fan (quiet and maintenance-free)
- Air circuit with front intake, blows upwards
- One-way air filter in air intake
- Copper piping in coolant circuit, stainless steel coolant circulation pump
- Insulated stainless steel tank with level switch for monitoring (plastic on PC12/19)
- Filling and draining port with level indicator
- Temperature accuracy in coolant outlet of up to $\pm 1\text{ K}$
- Brine limit protection control
- Operating switch with light/main switch
- Group fault display
- Ready-made 6 m connection cable with plug on PC12 and PC19 (230 V/50 Hz); without plug on PC19 (230 V/60 Hz) and PC31 / PC41 (230 V/50 Hz)
- Rubber buffers

Refrigeration capacity of 15 to 226 kW

Options available: 15 to 226 kW refrigeration capacity

- Outdoor installation
- Liquefier protection screen, air filter mat
- Air filter mat monitoring
- Radial fans
- Continuously variable speed control for fans
- Reduced noise
- Overflow valve
- Fixed bypass
- Cold pressure gauge
- Coolant outlet temperature $< +8^{\circ}\text{C}$
- flow monitors
- Dirt filter
- Isolation valves (check valves / solenoid valves)
- Pressure-free external tank filling
- Automatic water refill
- Tank heating for temperature control
- Pump switch-off
- Stainless steel water circuit, or PVC for deionised water
- Flow rate monitoring
- Guide value monitoring
- Two-circuit system
- Water-cooled design
- Heat recovery (systems)
- Remote control 24 V AC/DC
- Special voltages and frequencies
- Digital thermometer
- Limit value monitoring
- Differential temperature regulation
- Control cabinet heating, control cabinet fan
- Bus connection
- Individual fault display

Technical data

PC		12	19	31	41	51	69	51	69
Net refrigeration capacity ¹⁾	kW	1.2	1.9	3.1	4.1	5.1	6.9	4.6	6.4
Free pump pressure	bar	3.8	3.7	2.9/3.8 ⁶⁾	2.2/3.3 ⁶⁾	3.6	3.3	3.6	3.3
Refrigerant	Type	R134a						R407C	
Nominal volume flow	m ³ /h	0.30		0.69	0.96		1.44	0.96	1.44
Minimum volume flow	m ³ /h	0.15		0.35	0.48		0.72	0.48	0.72
Air volume flow ²⁾	m ³ /h	1,500		2,400	2,000	3,500		3,500	
Voltage supply	V/Hz	230 V	230 V/50 Hz or				–	–	
		50 – 60 Hz	230 V/60 Hz						
		–		400 V/50 Hz or 460 V/60 Hz				400 V/50 Hz or 460 V/60 Hz	
Power consumption ²⁾ , without pump	kW	0.7	1.3	1.3	1.5	1.8	2.5	1.3	1.5
Operating range, ambient temperatures	°C	+15 to +45						+15 to +40	
Operating range, coolant outlet temperature	°C	+10 to +25						+12 to +20	
Setpoint tolerance	K	±2 / ±1 ³⁾						±2 / ±1 ³⁾	
Coolant connections	Rp	1/2" internal				3/4" internal		3/4" internal	
Tank volume	l	20		25		50		50	
Sound pressure level ⁵⁾	dB(A)	60		62		61		61	
Weight (net)	kg	75		80	85	140	145	135	140
Dimensions	width x height ⁴⁾ x depth	445 x 717 x 708		640 x 835 x 708		770 x 1,045 x 810		770 x 1,045 x 810	

1) Refrigeration capacity without pump power loss, coolant outlet temperature +15°C, ambient temperature +32°C, coolant nominal volume flow, all data relates to 50 Hz operation 2) See 1.) for operating conditions 3) With power regulation 4) With adjustable feet
5) Half sound field without reflection, 5 m distance, operator side, see 1.) for operating conditions 6) At 400 V/3/PE

Specs in brief: standard 15 to 226 kW version

- Compact casing for indoor installation, zinc-plated and powder-coated
- Air-cooled liquefier for CFC-free R134a, R407C and R404A refrigerant
- Crescent-shape axial fan(s), extremely quiet and maintenance-free
- Pressure-controlled fans
- Fully hermetic compressor, 100% suction gas cooled
- Evaporator as plate heat exchanger
- Thermostatic expansion valve
- High and low pressure control
- Water circuit with tank and pump, in accordance with specific application requirements
- Corrosion-resistant fixed piping in water circuit made from copper or plastic, plus stainless steel pumps
- Switches and controls completely wired
- Remote control and group fault messaging
- Microprocessor-controlled temperature controller with digital setpoint/actual value display
- Automatic power regulation



Refrigeration capacity of 15 to 75 kW

Technical data										
PC (50 Hz)		161	201	251	321	401	501	631	801	
Net refrigeration capacity ¹⁾	kW	15.8	19.6	25.6	31.1	37.6	49.0	62.8	73.0	
Power consumption ²⁾ , with 3 bar pump	kW	6.9	8.4	10.3	12.3	14.8	17.9	24.1	27.3	
Refrigerant	Type	R407C								
Operating range, ambient temperatures	°C	+5 to +40							+5 to +38	
Operating range, coolant outlet temperature	°C	+12 to +20								
Setpoint tolerance	K	±2 / ±1 / ±0.5 ⁴⁾						±2 / ±1 / ±0.5		
Weight (net)	kg	300	320	390	460	600	650	750	800	
Net refrigeration capacity ¹⁾	kW	16.7	20.9	24.4	32.2	43.0	50.2	65.4	74.2	
Power consumption ²⁾ , with 3 bar pump	kW	7.6	9.1	11.1	13.5	18.4	20.6	26.5	29.9	
Refrigerant	Type	R134a								
Operating range, ambient temperatures	°C	+5 to +47			+5 to +50					
Operating range, coolant outlet temperature	°C	+8 to +25								
Setpoint tolerance	K	±2 / ±1 / ±0.5 ⁴⁾				±2 / ±1 / ±0.5				
Weight (net)	kg	300	330	440	480	670	710	780	850	
Tank volume	l	125		200		300		200/400		
Available pump pressure	bar	3/5								
Nominal volume flow	m ³ /h	2.2	2.9	3.6	4.5	5.6	7.0	9.0	11.0	
Minimum volume flow	m ³ /h	1.3	1.7	2.2	2.7	3.4	4.2	5.4	6.6	
Air volume flow ²⁾	m ³ /h	7,150	6,650	13,100	11,700	15,000	14,700	21,900	21,300	
Sound pressure level ³⁾	dB(A)	59		62	63			65		
Voltage supply	V/Hz	3 x 400 V/50 Hz								
Coolant connections	Rp	1" internal		1 1/4" internal		1 1/2" internal		2" internal		
Dimensions width x height x depth	mm	1,186 x 1,755 x 874		1,541 x 1,755 x 874		1,872 x 2,005 x 874		2,220 x 2,005 x 874		

PC (60 Hz)		161	201	251	321	401	501	631	801	
Net refrigeration capacity ¹⁾	kW	14.6	19.2	24.2	29.8	39.7	46.8	59.8	77.5	
Power consumption ²⁾ , with 3 bar pump	kW	7.9	8.4	11.8	13.1	16.0	18.2	23.0	29.0	
Refrigerant	Type	R407C								
Operating range, ambient temperatures	°C	+5 to +40							+5 to +38	
Operating range, coolant outlet temperature	°C	+12 to +20								
Setpoint tolerance	K	±2 / ±1 / ±0.5 ⁴⁾						±2 / ±1 / ±0.5		
Weight (net)	kg	300	320	390	460	600	650	750	800	
Net refrigeration capacity ¹⁾	kW	16.8	20.6	26.6	30.6	40.2	52.7	62.1	79.2	
Power consumption ²⁾ , with 3 bar pump	kW	8.2	9.2	12.5	13.8	17.6	22.3	26.2	32.2	
Refrigerant	Type	R134a								
Operating range, ambient temperatures	°C	+5 to +47			+5 to +50					
Operating range, coolant outlet temperature	°C	+8 to +25								
Setpoint tolerance	K	±2 / ±1 / ±0.5 ⁴⁾							±2 / ±1 / ±0.5	
Weight (net)	kg	300	330	440	480	670	710	780	850	
Tank volume	l	125		200		300		400	200/400	
Available pump pressure	bar	3/5								
Nominal volume flow	m ³ /h	2.2	2.9	3.6	4.5	5.6	7.0	9.0	11.0	
Minimum volume flow	m ³ /h	1.3	1.7	2.2	2.7	3.4	4.2	5.4	6.6	
Air volume flow ²⁾	m ³ /h	8,200	7,550	13,500		17,200	16,900	25,500	24,200	
Sound pressure level ³⁾	dB(A)	62		65	66			68		
Voltage supply	V/Hz	3x460 V/60 Hz								
Coolant connections	Rp	1" internal		1 1/4" internal		1 1/2" internal		2" internal		
Dimensions width x height x depth	mm	1,186 x 1,755 x 874		1,541 x 1,755 x 874		1,872 x 2,005 x 874		2,220 x 2,005 x 874		

1) Refrigeration capacity without pump power loss, ambient temperature +32°C, coolant outlet temperature +20°C, coolant nominal volume flow, all data relates to 400/3/50 Hz/PE operation or 460/3/60 Hz/PE operation

2) See 1) for operating conditions / 3) Half sound field without reflection, 5 m distance, operator side, see 1.) for operating conditions / 4) Special specifications required

Refrigeration capacity of 90 to 226 kW

Technical data								
PC (50 Hz)		1001	1121	1401	1601	1801	2001	2241
Net refrigeration capacity ¹⁾	kW	94.3	107.0	141.0	159.0	183.0	207.0	226.0
Power consumption ²⁾ , with 3 bar pump	kW	35.2	40.8	51.5	59.9	68.2	79.4	86.9
Refrigerant	Type	R407C						
Operating range, ambient temperatures	°C	+5 to +38			+5 to +36			
Operating range, coolant outlet temperature	°C	+12 to +20						
Setpoint tolerance	K	±2 / ±1 / ±0.5			±2 / ±1 / ±0.75			
Weight (net)	kg	1,060	1,160	1,420	1,550	1,780	1,910	2,400
Net refrigeration capacity ¹⁾	kW	96.9	110.0	132.0	148.0	-	-	-
Power consumption ²⁾ , with 3 bar pump	kW	39.2	44.3	52.0	58.8	-	-	-
Refrigerant	Type	R134a						
Operating range, ambient temperatures	°C	+5 to +50				-	-	-
Operating range, coolant outlet temperature	°C	+8 to +25				-	-	-
Setpoint tolerance	K	±2 / ±1 / ±0.5		±2 / ±1 / ±0.75		-	-	-
Weight (net)	kg	1,160	1,260	1,510	1,650	-	-	-
Tank volume	l	300/400/600		400/600/800		600/800		
Available pump pressure	bar	3/5						
Nominal volume flow	m³/h	14.0	16.0	20.0	23.0	28.0	32.0	35.0
Minimum volume flow	m³/h	8.4	9.6	12.0	13.8	16.8	19.2	21.0
Air volume flow ²⁾	m³/h	31,600	30,800	38,750	38,000	46,800	45,300	51,200
Sound pressure level ³⁾	dB(A)	65		66		67		68
Voltage supply	V/Hz	3 x 400 V/50 Hz						
Coolant connections	Rp/DN	2 1/2" internal		DN65/PN10 loose flange		DN80/PN10 loose flange		
Dimensions width x height x depth	mm	2,930 x 2,070 x 1,285		3,630 x 2,070 x 1,285		4,330 x 2,070 x 1,285		5,042 x 2,070 x 1,285
PC (60 Hz)		1001	1121	1401	1601	1801	2001	2241
Net refrigeration capacity ¹⁾	kW	93.3	115.0	134.0	170.0	192.0	222.0	243.0
Power consumption ²⁾ , with 3 bar pump	kW	37.3	44.3	52.6	63.0	78.8	85.7	93.8
Refrigerant	Type	R407C						
Operating range, ambient temperatures	°C	+5 to +38			+5 to +36			
Operating range, coolant outlet temperature	°C	+12 to +20						
Setpoint tolerance	K	±2 / ±1 / ±0.5			±2 / ±1 / ±0.75			
Weight (net)	kg	1,060	1,160	1,420	1,550	1,780	1,910	2,400
Net refrigeration capacity ¹⁾	kW	91.2	118.0	137.0	159.0	-	-	-
Power consumption ²⁾ , with 3 bar pump	kW	40.3	49.4	57.0	64.0	-	-	-
Refrigerant	Type	R134a						
Operating range, ambient temperatures	°C	+5 to +50				-	-	-
Operating range, coolant outlet temperature	°C	+8 to +25				-	-	-
Setpoint tolerance	K	±2 / ±1 / ±0.5		±2 / ±1 / ±0.75		±2 / ±1 / ±0.5		-
Weight (net)	kg	1,160	1,260	1,510	1,650	-	-	-
Tank volume	l	300/400/600		400/600/800		600/800		
Available pump pressure	bar	3/5						
Nominal volume flow	m³/h	14.0	16.0	20.0	23.0	28.0	32.0	35.0
Minimum volume flow	m³/h	8.4	9.6	12.0	13.8	16.8	19.2	21.0
Air volume flow ²⁾	m³/h	36,800	36,000	45,500	44,250	54,600	53,000	58,900
Sound pressure level ³⁾	dB(A)	68		69		70		71
Voltage supply	V/Hz	3x460 V/60 Hz						
Coolant connections	Rp/DN	2 1/2" internal		DN65/PN10 loose flange		DN80/PN10 loose flange		
Dimensions width x height x depth	mm	2,930 x 2,070 x 1,285		3,630 x 2,070 x 1,285		4,330 x 2,070 x 1,285		5,042 x 2,070 x 1,285

1) Refrigeration capacity without pump power loss, ambient temperature +32°C, coolant outlet temperature +20°C, coolant nominal volume flow, all data relates to 400/3/50 Hz/PE operation or 460/3/60 Hz/PE operation

2) See 1) for operating conditions / 3) Half sound field without reflection, 5 m distance, operator side, see 1.) for operating conditions

Certified quality Made in Germany

RIEDEL chillers are known for their long service life and reliability. In order to live up to this reputation, we have high quality standards making their mark across the entire production process.

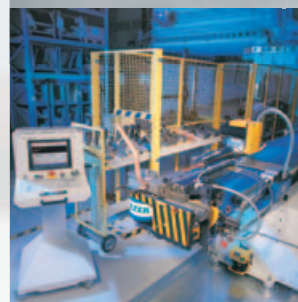
As one of the world's leader technical OEM manufacturers, we always use highly efficient technologies and the latest production procedures. We only use high-quality components from notable manufacturers.

Our optimized series production features 6,300 m² automated precision welding and bending facilities, in-house powder coating, ergonomic assembly stations and automated test facilities for simulating operation under authentic application conditions.

Our consistently high quality is assured through DIN EN 9001 and 14001 certification plus compliance with relevant standards and provisions, such as EN 378, EN 60204, UVV and VBG.



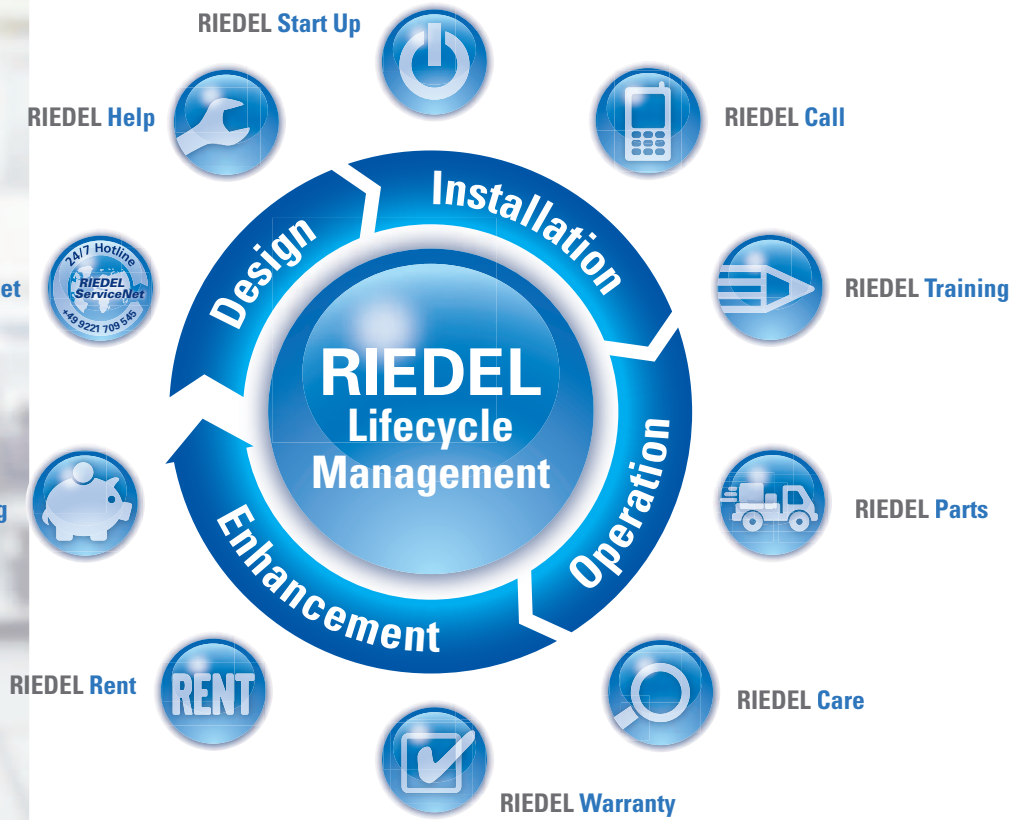
Tube-bending centre



Prototype construction



Lifelong reliability



You can come to us with any question relating to your cooling system. We offer a comprehensive range of services that leaves no question unanswered and ensures optimum cooling for you as an operator – at all times. All our services are also available for third-party products and OEM solutions. This means you have just a single contact and ensures all components within your facility are perfectly attuned to one another.

Certification:



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