

made

boy

robatherm



## made by robatherm

**People need air to breathe. The robatherm staff is here to ensure that people all over the world are provided with the room air quality they wish for.**

Customized products of the highest standards of quality, safety and sustainability express the consequent premium strategy robatherm puts into practice. As a technical-operative company, we thrive on our employees' ambitions to keep on developing better solutions and improved products. A versatile, highly-efficient production with sophisticated work processes and our staff's reputable knowledge and major dedication are the keys to meet your requirements and fulfill your requests.



## Individual and Standardized

**Individual product solutions and standardized work processes need not be contradicting – on the contrary.**

The combination of automated production processes and our employees' expertise enable the production of air handling units (AHUs) that suit the most diverse requirements at a consistent high level of quality. The successful composition of all processes creates efficiency – during production, installation and operation of our AHUs.



## Unbounded Design

**An unparalleled amount of unit possibilities stand for the unbounded realization of competent design. Covering a range from 1,000 up to 320,000 m<sup>3</sup>/h, the RM- and RL-Lines offer unrivaled flexibility.**

### Uniquely individual

Adapting to individual customer requirements is our core business. The RM-/RL-Line's flexibility is proven in both the diverse forms of casings, which are available in L, T or U shapes as well as our arbitrary cross-section casing for 1,000 up to 320,000 m<sup>3</sup>/h.

### An optimized solution for any application

The RM-/RL-Line stands for individuality that is combined with the precision of industrial production. Weather-proof or interior AHU models are available; optionally offered for ATEX (Atmosphere Explosives), hygiene or swimming pool applications.

### At a Glance

- ▶ Modular styles for simple installation of AHUs in existing structures.
- ▶ Unlimited flexibility, even with increased hygienic requirements or for explosive-risk areas.
- ▶ AHUs are also available in custom colors.



## The Air Handling Unit

**The quality of an AHU lies in the details. robatherm offers excellent casing material characteristics, and customized as well as standard solutions, without special design.**

### Excellent characteristics – as a standard

Casing material characteristics that lie far above the minimum requirements result in specific efficiency benefits.

- Thermal Bridge: TB1
- Thermal Transmittance: T2
- Air Density: L1 (M)
- Casing Deflection: D1 / D2 (M)
- Filter-Bypass-Leakage: F9

### Energy efficiency certified by the TÜV

With robatherm, your choices range between the international EUROVENT label and the label in accordance with the AHU-directive 01 of the German AHU Manufacturers Association; twofold verification for reliable energy efficiency.

### At a Glance

- ▶ Benchmarks even in the standard configuration.
- ▶ Arbitrary choice of energy efficiency labels.



## TB1 – Safe from Condensation

**The poorer the TB-values of an AHU are the more probable occurring condensation becomes. As a result, one is confronted with a reduction of the AHU's operating life, structural damages to the building right up to health risks for people breathing in polluted air.**

### The development of condensation

The greater the temperature difference is between the environmental conditions and the treated air temperature, the greater the risk of condensation becomes.

### Risks through condensation

The risks arising during condensation on the surface include:

- Hygienic deficiencies through the proliferation of microorganisms
- Corrosion and premature aging
- Structural damages through condensation intrusion

### TB1 is standard at robatherm

The RM-/RL-Line models by robatherm feature the best TB1 class available as a standard. Even the inspection window by robatherm is of best TB1 quality.

### TB1 is more than just luxury

The following exemplary calculation clearly proves that condensation occurs considerably later with TB1 quality AHUs. Placement in a utility room: Temperature 24°C/75.2°F., Outside temperature: -12° C/10.4° F., condensation occurs at:

- TB4 ( $k_b = 0.30$ ) 24°C, 18% r. H.
- TB3 ( $k_b = 0.45$ ) 24°C, 28% r. H.
- TB2 ( $k_b = 0.60$ ) 24°C, 40% r. H.
- TB1 ( $k_b = 0.75$ ) 24°C, 57% r. H.

### At a Glance

- ▶ AHUs are standard-equipped with TB1.
- ▶ Inspection window in TB1 quality.



## With a Concept for the Best Solution

**Unit concepts and checklists structure and accelerate the professionally competent design. The full-fledged concepts by robatherm guarantee optimal functional reliability and energy efficiency.**

### **Valuable support during the planning process**

The application significantly determines the requirements placed upon AHU equipment. These are concisely and comprehensibly summarized in the application concepts provided by robatherm.

- Important requirements
- Clearly outlined current standards
- Consolidated design information
- Normative design data
- Proven unit concepts

### **Application concepts for consultants**

robatherm bundles the experience and expertise, collected during countless AHU installations, in their application concepts; the following are available:

- All-in-One
- ATEX (explosive areas)
- Educational facilities
- Medical applications
- Roof tops
- Indoor pools
- Stores

### **At a Glance**

- ▶ Proven application concepts without limitations in flexibility.
- ▶ Specific and consolidated summary of planning information.
- ▶ Efficient planning support.
- ▶ Various optimization options.



## TrueBlue – Certificate of Efficiency

**Energy demand, profitability and environmental compatibility are of inseparable coherence. The TrueBlue Certificate of Efficiency creates transparency.**

### **Standard-compliant and integral**

With this service, robatherm takes into consideration costs concerning investments, operation, maintenance and disposal as well as primary energy demands and CO<sub>2</sub> emission. TrueBlue is the first tool which has been made to compare various models, plants and unit concepts as well as components. Everything is based on the German Energy Savings Ordinance's (EnEV) normative calculative approach and the DIN V 18599 directive. The simulation in an hourly progress process is based on the weather data of the specific project site and thus, includes all of the individual basic utilization conditions. The subsequent TrueBlue Certificate of Efficiency contains all significant specific values in compliance with current legislation. This enables us to provide you with substantiated information for your decision-making.

### **Transparent and assessable**

Besides the energy demand of various AHU plant concepts, TrueBlue also facilitates an objective assessment of third-party heat and cooling generator equipment in reference to energetics and investments. Only through this integral approach is a transparent and precise assessment of the overall system possible.

#### **At a Glance**

- ▶ Presentation of differentiated efficiency benefits.
- ▶ Comparison of various models, concepts and components.
- ▶ Taking into consideration the individual basic utilization conditions as well as the specific site's weather data.





## Factory-equipped Integrated Control Technology

**robatherm's service package includes the complete scope of device technology with the corresponding electric, control and automation systems.**

### Factory-equipped integration

A space-saving integration of all sub-assemblies as well as control system components into an AHU or in spatially separated control cabinets take place in our own control cabinet manufacturing division. Planning, integration, adjustments and inspections also take place in our factory.

### Smart Control

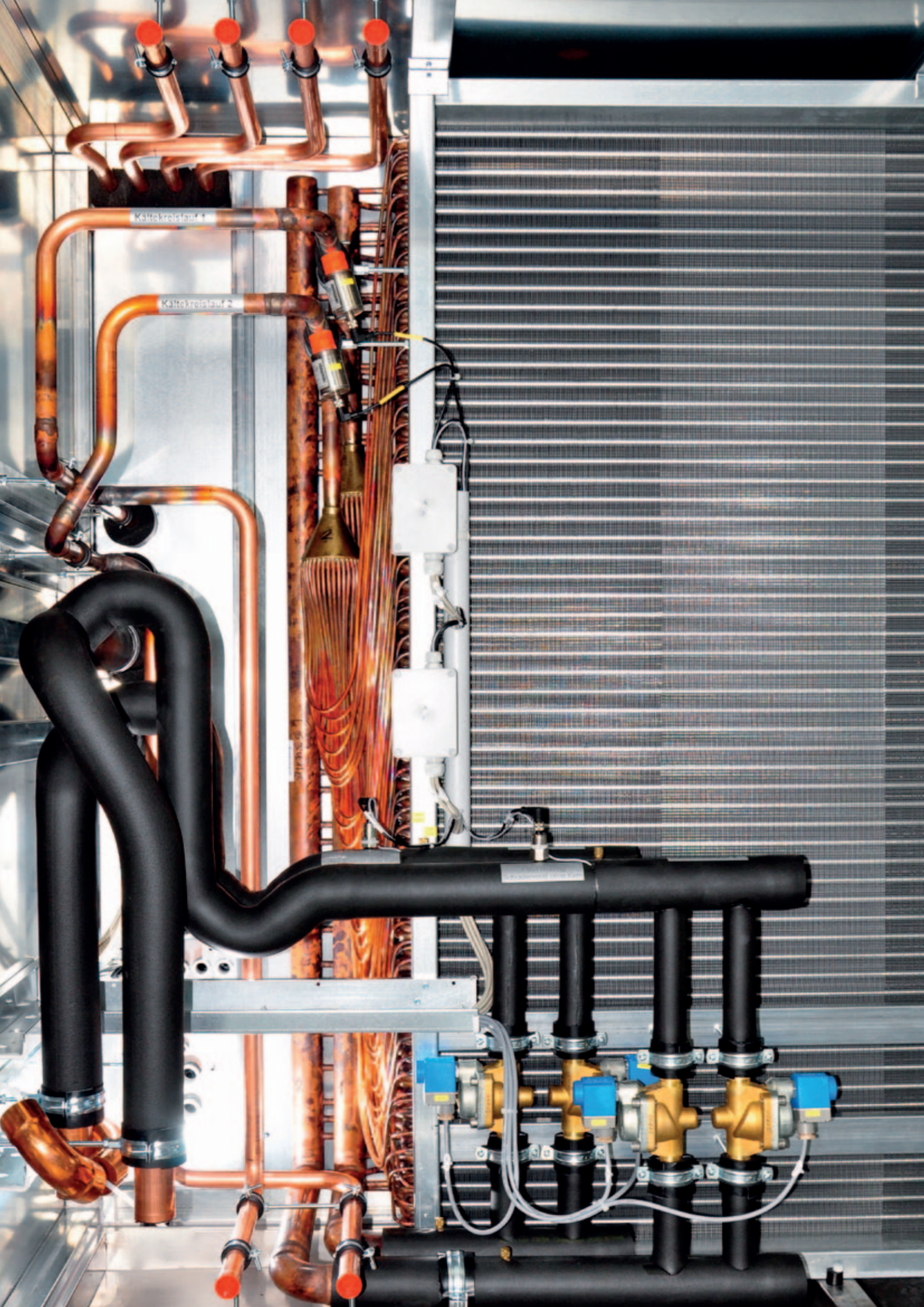
DDC Software "Smart Control" is optimally tailored to AHUs. Depending on the respective application, "Smart Control" is both quick and easy to configure. Various functional elements such as run-around coil systems, indoor pool, DEC and cold water controllers are available.

### Versatile communication potential

The integrated controlling system offers versatile communication potential, ranging from remote terminals over local networks (pLAN) right up to open communication. This enables individual robatherm devices to communicate amongst one another and with the building's superordinate automation system.

### At a Glance

- ▶ Integration of all services and control system components.
- ▶ Separate control cabinet or space-saving installation within an AHU.
- ▶ Design, integration, adjustments and inspections within the factory.



## Integrated Individual Cooling Technology

The space-saving integration of all cooling components within an AHU makes lowest investment and operating costs possible.

### Complete solutions from a single source

Simple installation and quick commissioning is imperative, particularly during structural alteration works. Intelligent, complete solutions are clearly an advantage. The factory-equipped integration of control and cooling technology creates an optimal entity.

### Efficient cooling and reduced space requirements

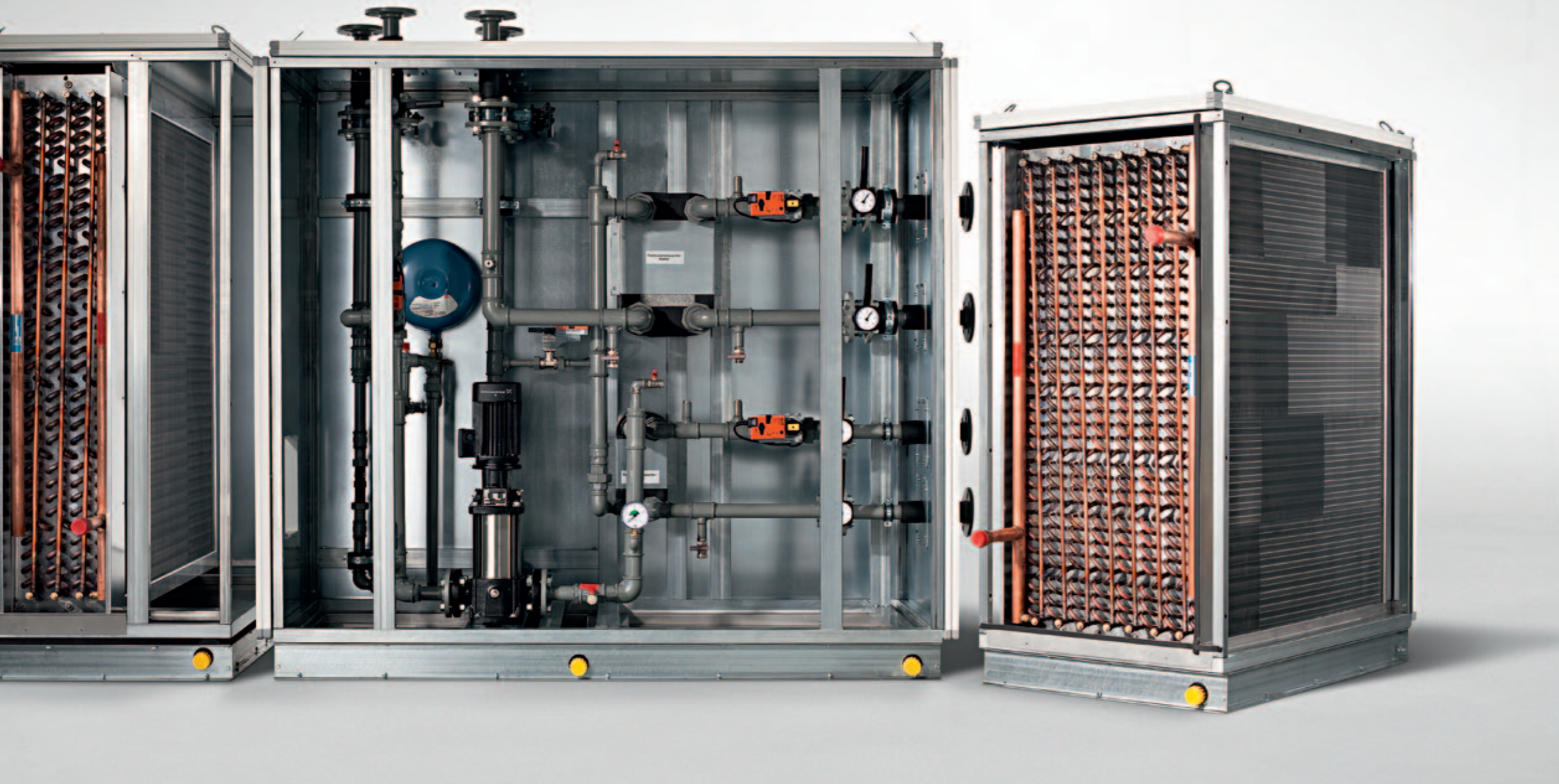
AHUs with integrated cooling technology have the advantage of requiring less space and thus, lower distribution losses. These cooling systems represent an optimized self-sufficient complete system with high output figures (COP).

### DEC-Technology

Desiccative and Evaporative Cooling (DEC) technology unites dehumidification and evaporative cooling. Where waste heat or solar energy is used in regeneration air flow, this technology enables the achievement of low operating costs and great ecological advantages. This environmentally-friendly process uses water and air to replace standard coolants.

### At a Glance

- ▶ Integration saves mounting space and makes installation simple.
- ▶ Factory-equipped integration.
- ▶ Inspected and certified safety.
- ▶ DEC-Technology as an environmentally-friendly cooling process.



## Heat Recovery – Customized Efficiency

**There is an optimal heat recovery system (HRS) available for any given ventilation and air conditioning application. A professional selection requires an adequate number of technical alternatives.**

### Highly efficient heat recovery systems by robatherm

For highly efficient heat recovery, robatherm offers various systems:

- Rotary heat exchangers
- Plate heat exchangers (cross flow or counterflow)
- Heat pumps
- Run-around coil systems

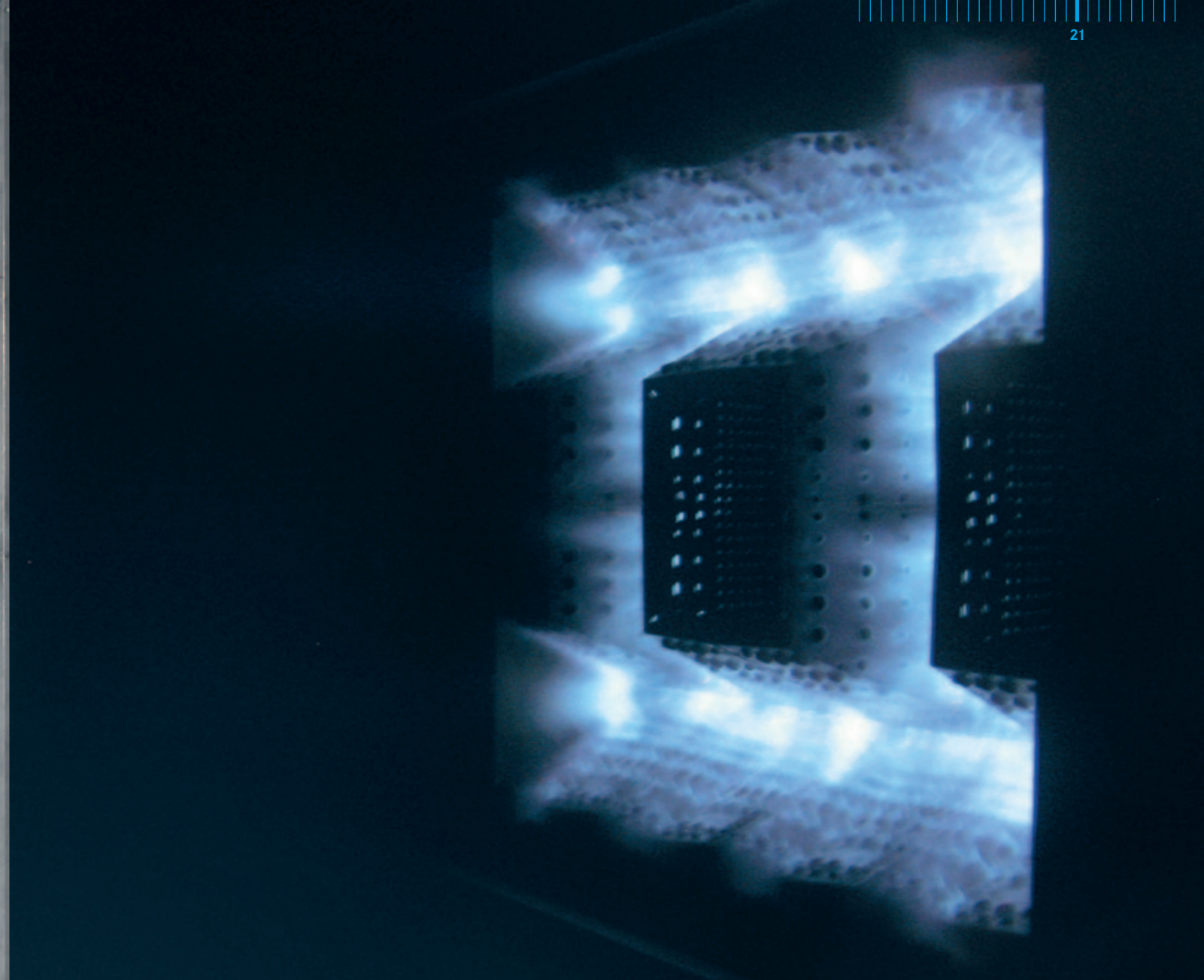
The versatile options available offer an ideal heat recovery system for any plant.

### High-performance run-around coil system

When a distinct separation of airflows is required, or when spatial separations of AHUs are required from a structural standpoint, a run-around coil system is the first selection in heat recovery systems. A run-around coil system also unites advantages, such as a brief construction period or the integration of multiple ventilation and air-conditioning units, into a common HRS.

### Integration of balanced hydraulic sets

robatherm fully integrates the hydraulic assemblies into the unit's casing. In this manner, individual designs for hydraulic sets enable the best possible selection of regulating devices.



## System Expertise

**Efficient and functional at the same time; the integration of complex systems, which is provided from one source and by a premium manufacturer, is capable of meeting the most sophisticated requirements.**

### Hygienically Humidified

The various humidification solutions made available prove the flexibility of the AHUs by robatherm:

- Recirculating spray humidifiers in stainless steel casing (incl. hygiene control for an automatic emptying, cleaning and drying of a humidifier)
- High-pressure atomizers for conditioned fresh water without recirculated water in the stainless steel casings
- Steam humidifiers featuring stainless steel steam lances, stainless steel base tubs and powder-coated casings
- Contact humidifiers

### Integrated heat generation

Oil or gas is directly converted to heat in the AHU. With that conversion, robatherm offers an energetic, economical and favorable alternative to indirect heating of the airflow. High cost effectiveness can be achieved when generating heat via a combustion chamber or gas surface burner; its efficiency factor can reach up to 100 %.

#### At a Glance

- ▶ Various humidification solutions can be integrated into an AHU.
- ▶ Combustion chamber or gas surface burner for heat generation in an AHU.
- ▶ Inspected and certified safety.



## Convincingly Proven

Over 6,000 custom AHUs per annum, with the highest standards of quality, safety and sustainability convincingly prove robatherm's premium strategy. The experience is reflected in the many details that make the RM- and RL-Lines unrivaled.

- 1 | Base frame fitted around each section's perimeter
- 2 | Laser-welded drain pan
- 3 | Built-in frequency converter



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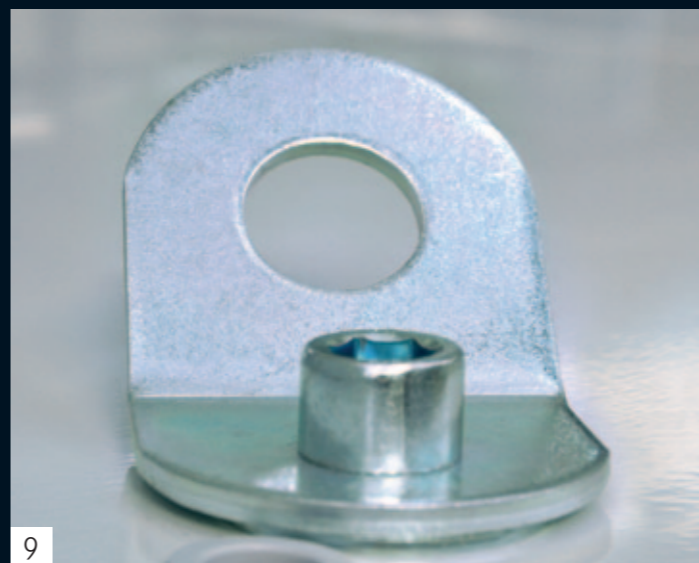


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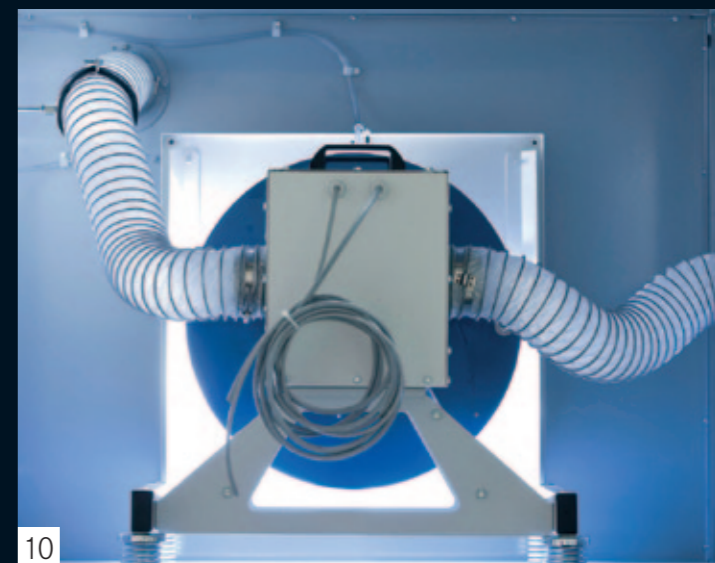


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- 4 | Hinged weatherproof grate
- 5 | EC-Ventilator
- 6 | Inspection panel with arrestor hook
- 7 | TB1 inspection window
- 8 | Height adjustable unit base
- 9 | Crane lug for easy transport and assembly
- 10 | Motor with external air connection



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## Antimicrobial Powder Coating

**robatherm's antimicrobial powder coating even impedes the growth of multi-resistant germs. A long-term study has examined and confirmed the high effectiveness and long-acting antimicrobial effect.**

### Long-acting, effective protection

Although standard antibacterial coating achieves initial, recognizable results, the effect usually dwindles in just weeks. In comparison, robatherm's powder coating exhibits its effectiveness even after several years. In addition and unlike antibacterial agents, it also counteracts algae, yeast fungi and mildews.

### Powder coating puts you one step ahead

Innovation coins robatherm's concept of quality. Besides the unique antimicrobial powder coating for increased hygienic requirements, robatherm offers dissipative powder coating for AHUs installed in explosive-risk areas. AHUs installed in pool facilities come with a special double powder coating and by applying an epoxy basecoat, the casing is perfectly protected.

### At a Glance

- ▶ Antimicrobial powder coating works continuously, even against multi-resistant germs (MRSA).
- ▶ Dissipative powder coating for installations in explosion-risk areas.
- ▶ Double powder-coated pool units for increased protection against chloride agents.



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