

SEW[®]

AIR IS OUR GASEOUS FOOD

Heinz Schilling,
company founder, 1994



www.sew-kempen.de

SEW® - the pioneer of multifunctional run-around coil systems

Highly efficient and operationally reliable energy-saving technology. Since 1983.

SEW® has been offering GSWT® technology for almost 40 years. With recovery values of over 77% for run-around coil systems, we have revolutionised the entire heat recovery industry to this day. With the high heat recovery coefficient and the unique redundancy, the GSWT® run-around coil systems can take on additional functions. This makes SEW® the founder of multifunctional heat and cold recovery technology.

Due to the high heat recovery figures combined with the high redundancy of the GSWT® technology, efficiency values of 1:20 to over 1:100 are possible, i.e. with one part of electricity up to 100 parts of heat, cooling and re-cooling are generated.

Emissions down - air quality up

The amortisation of such energy-saving systems is already possible immediately or in a very short time due to the possible substitution of heating, cooling and recooling capacities. Due to the high redundancy of GSWT® technology, multiple amortisation is also possible through cost savings in other trades or on the building structure.

In addition to the use of highly efficient energy-saving systems, we also promote the high-quality design of air and air-conditioning systems for maximum air quality and use GSWT® technology to reduce CO₂ emissions.

Flexible GSWT® technology is particularly recommended for retrofitting and refurbishment.

That is something to be proud of

Among the most important references are the Federal Chancellery, large hospital buildings such as the Charité Berlin, the University Hospital Hamburg-Eppendorf, the Hanover Medical School, the Stuttgart Hospital and the University Hospital Munich-Großhadern, as well as large-scale AHU systems in the Leopoldina Hospital Schweinfurt and in the Chemical Institutes of the University of Bonn (510,000 m³/h or 300,000 CFM).

GSWT® technology is the first choice for building projects that are certified according to DGNB (German Sustainable Building Council).

And the entire SEW® team ensures that we will continue to be innovative for the next 40 years.



Timeline

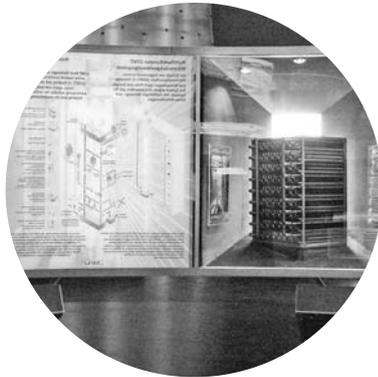
1983



Company foundation

In January 1983, the company SEW® GmbH was founded in Kempen by Heinz Schilling. He is supported by his sons Wolfgang and Michael.

2000



EXPO 2000

SEW® was selected to participate in the EXPO 2000 in Hanover, where it presented the technology of the future.

2010



New factory building

SEW® received silver certification from the German Sustainable Building Council (DGNB) for the extension to the factory building.

1988



United States Patent

The GSWT® is granted a patent in the United States of America.

2007



Innovation award

At the ISH 2007 in Frankfurt, the „Architecture and Technology“ innovation prize was awarded to SEW®. A special recognition for energy-efficient system technology.

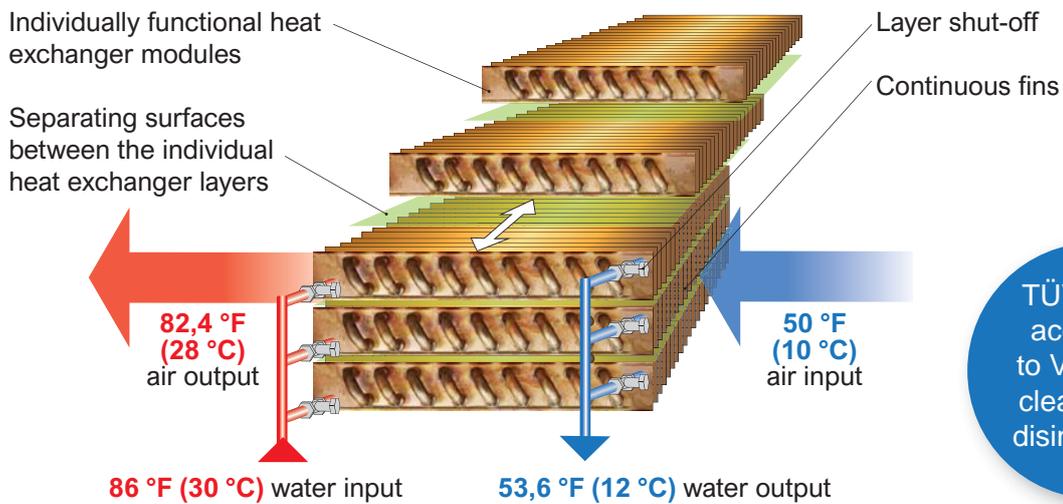
2021



Indoor air

In the midst of the corona pandemic, SEW® presents itself at the Indoor-Air in Frankfurt and introduces solutions for clean indoor air.

Basic component GSWT®



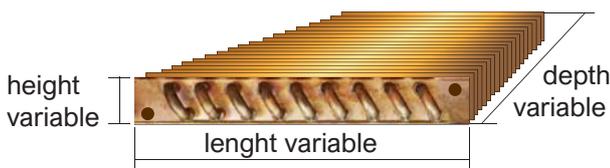
TÜV-tested according to VDI 6022 cleanable + disinfectable

Modular design through layer technology

The basis of the extensive GSWT® technology is the counterflow layer heat exchanger (GSWT). The name is derived from the design of the heat exchanger. The characteristic feature is the construction of individual self-sufficient modules, which are layered on top of each other.

Any air flow rate from 2,000 CFM can be realised

The heat exchanger modules are variable in length, width and height. The length in the direction of the air is the decisive factor in determining the degree of exchange. The width, height and number of modules are used to adapt the GSWT® to the boundary conditions such as air volume, dimensions or pressure losses on the air side. In this way, the desired exchange rates and efficiencies can be set for all air volumes. If further boundary conditions are known, such as the energy and performance prices and the operating mode of the planned system, an optimisation takes place.



Highest exchange rates due to maximum counterflow proportions

The GSWT® belongs to the group of finned tube heat exchangers with a large number of cross-flow tubes arranged one behind the other. Due to the respective connection against the air flow, coun-

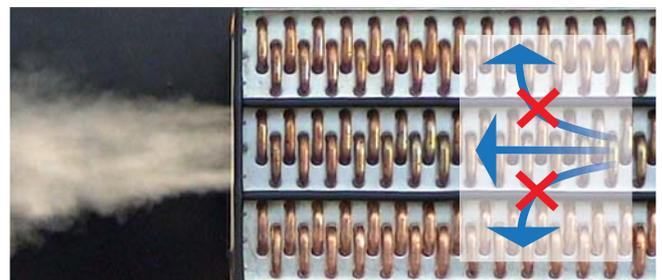
tercurrent proportions of over 99% are achieved. This enables the high exchange rates of up to 90% for both media simultaneously.

Continuous powder coating

The tubes are made of copper; aluminium or copper can be selected as the fin material. For the aluminium fins there is an epoxy resin coating as standard and additionally a dip or powder coating with subsequent stove enamelling. The powder coating is used for aggressive exhaust air and for the so-called filter preheater or filter icing protection.

Low contamination tendency - maximum cleanability

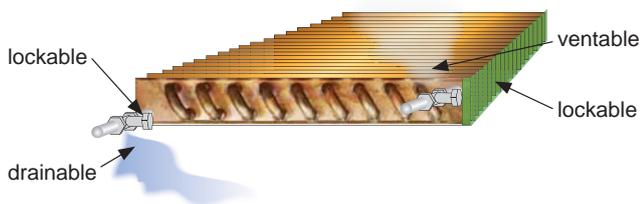
The GSWT® is characterised by an extremely low tendency to foul. This is achieved by the smooth and continuous lamellae in combination with the separating layers. These micro-channels that form create a self-cleaning effect. The air can no longer flow vertically or horizontally and thus deposit impurities in areas with less air flow. A clear louvre spacing of 3 mm also contributes to this.



It is also possible to rinse the GSWT® with cleaning liquid or foam. This is only possible because of the separating layers. In the case of serious and almost hopeless contamination, the GSWT® can be dismantled for cleaning purposes and with a penetration depth of only 150 mm, good results are guaranteed. With appropriate cleaning additives, the GSWT® can also be disinfected.

Heat exchanger can be dismantled into individual parts

Due to its modular design, the GSWT® can be dismantled into individual parts. The modules can be individually shut off, vented and drained and can also be individually sealed off. As a result, the GSWT® technology is characterised by particularly high redundancy and operational reliability. With the flow differential pressure effect, the modules are also vented during operation.



Can be combined with any ventilation unit make

The GSWT® technology can be combined with any ventilation unit make, regardless of the respective manufacturers' louver dimensions. The GSWT® can be adapted to all desired cross-sectional dimensions of the ventilation unit, exchange ratios and efficiency values are maintained. As a rule, the GSWT® module packs are installed at the SEW® plant in Kempen in empty AHU parts supplied by the customer. In the process, stainless steel condensate trays including condensate drainage and air-side bulkheads are also created by SEW®. The internal piping is routed to the outside and provided with shut-offs as a delivery limit. Required field devices such as temperature sensors and others are pre-fitted to the respective modules ex works! The technical clarification for all installations and mounting and coordination with the AHU manufacturers is carried out beforehand by the SEW® design department.

Can be retrofitted in any system.

Can be installed in stackable tubular frame racks

For free installation of heat exchangers, e.g. in concrete ducts, the GSWT® modules are installed in a prefabricated tubular frame including a stainless steel condensate drip tray. The stable design allows easy movement within the building. The tubular frame racks are also stackable! This means that GSWT® in modular design can also be transported and installed for high air performance. The installation effort for plant construction is relatively low, since the stable design of the SEW® tubular frame racks means that other auxiliary constructions for holding the heat exchangers and condensate trays can be omitted!



Installation even in confined spaces

Sometimes the transport routes for the installation of individual tubular frame racks are still too narrow and cramped. For these cases, SEW® offers on-site installation of the GSWT® modules. This means that individual heat exchanger layers are transported to the point of use and then finally assembled by SEW® assembly.

Since the individual layers have a low overall height, even heat exchangers for the highest air flow rates (> 60,000 CFM) can be inserted through small inspection openings etc.!



Scope of equipment of the GSWT[®] run-around coil systems

System technology and interface management

SEW[®] is a system supplier for run-around coil systems (RCS). This has the advantage for operators, specialist planners and plant engineers that all essential components are already included in the scope of supply. Thanks to decades of experience in highly efficient combined heat and power systems, ideally harmonised components are combined to form a reliable system technology. The GSWT[®] systems are planned and also built and commissioned in cooperation with the specialist planner. In this way, SEW[®] assumes responsibility for the planned energy savings and efficiency.

If three separate trades are to take care of the creation of a RCS, then there is often the question of interface clarification and who is responsible for what? With the GSWT[®] systems, SEW[®] also actively clarifies the associated interfaces. This interface management leads to economic energy savings and faster processing/production of the heat recovery system as well as the tangential building services engineering.

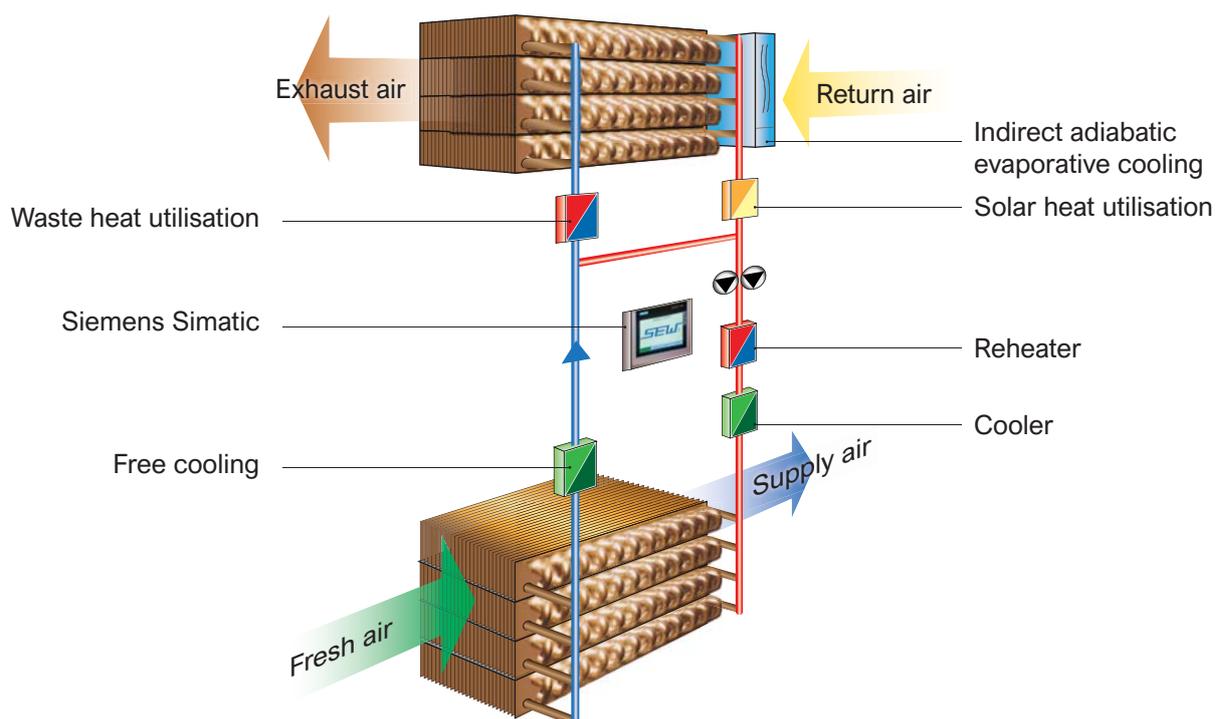
With the system technology, SEW[®] guarantees the success of an energy-saving measure.

With the basic system, the customer receives heat recovery in the basic configuration, but already with GSWT[®] technology and the advantages such as redundancy, pollution prevention/cleanability and efficiency.

For those who need more efficiency and also want to use the RCS multifunctionally, e.g. free cooling, the standard system is available.

Many extensions are optionally possible, but then require more powerful controls or double-pump technology as a delivery requirement.

Maximum utilisation and efficiency can be achieved with our M or comfort systems. All extensions for multifunctional use are available, including user-specific monitoring and a fully integrated chiller.



Multifunctional heat recovery system

Heat recovery retrofitting in existing buildings

The modernisation of ventilation systems, especially recirculation systems, has become more important than ever due to the current pandemic. The quality of the air we breathe is a priority. At the same time, the demands of the energy turnaround are to be met.

But what to do if the ventilation centres or areas are difficult to access, but the use of germ- and pollutant-transfer-free heat recovery is necessary? And incidentally, the ongoing ventilation operation should remain as trouble-free as possible - despite the possible expense of additional insertion openings or even conversions of entire central units.

This problem can be solved elegantly and sustainably with counterflow stratified heat exchangers (GSWT®) with the proven run-around coil system. Thanks to the modular design and the fact that the individual heat exchangers can be dismantled, SEW® can also install GSWT® technology in existing ventilation centres that are difficult to access. Almost any air flow rate is possible with GSWT® technology. The existing central unit doors are sufficient for installation. Changes on site, such as opening the walls, can thus be avoided. In most cases, installation can be carried out during operation.

As a system manufacturer, SEW® offers the heat exchangers, hydraulics, control system and installation on site in on-site units or freely installable in concrete chambers. The GSWT® technology from SEW® enables high heat savings so that the operation of recirculation air is not necessary for energy saving and enables the use of 100 % fresh air. Principle-related recirculation due to dehumidification via a refrigeration machine is no longer necessary.

Due to the two to three times higher fresh air rate, the breathing air, which is so important for humans, retains its quality.

Central heat recovery systems save system technology. If one system runs at partial load, electricity is saved for all systems.

SEW® plans and coordinates the measure of an heat recovery retrofit with and without additional functions. From the conceptual design with amortisation analysis, to the construction and installation of the system on site, to the handover of the finished GSWT® system with proof of performance during operation to the building owner. The necessary interfaces to ventilation, heating, cooling and MSR are coordinated by SEW® in the course of the project.

- System responsibility from a single source -



Germ and pollutant transfer-free heat recovery

- ✓ Maximum air quality thanks to a run-around coil system
- ✓ 100 % outside air - no return air
- ✓ Lowest contamination tendency due to GSWT® technology



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