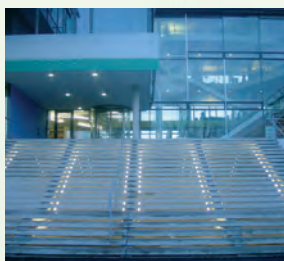


# PROCESS AND CLIMATE COOLING

## Cold and warm water system



# COLD & WARM – TO HEAT AND COOL DOWN AT THE SAME TIME!



If we are suffering from heat, our effectiveness and motivation decrease. Therefore, it is better to avoid this situation right from the beginning by means of modern technology.

### Cold water for all areas of application

Cooling with cold water is used in the most varied areas: Be it the removal of excess heat in thermally highly-stressed rooms, the cooling of industrial manufacturing processes or the comfortable air conditioning of buildings like office and business buildings.

The made-to-measure product range of Menerga offers the optimal designed cold water set for any kind of application.

### But what to do if there is also need for heating?

In modern buildings and industrial plants, next to cooling requirements there is also a more or less constant year-round heat requirement: warm water for radiators, for service water or air heating for air conditioning.

As a basic rule, additional, cost-intensive use of primary energy is required to satisfy this need for heat.

This incited our design engineers to develop a new system which is resource-saving and – according to the Menerga philosophy – is able to take on both jobs with the lowest technical possible energy use at all. This helps to reduce the use of primary energy without cutting back convenience.

### Chilled water unit with heat pump function

The Cowatemp Series with integrated heat pump function is used in addition to our Hybritemp device series at all places where not only cold is required but, at the same time, also heat. A separate heat supply according to the requirements, e. g. for warm water and heating purposes, is available as optional upgrade.

The efficiency of this chilled water unit is based on the primary use of excess heat from cold production for warm water supply (heat pump function). Particularly during the transitional periods of seasons (fresh air around 5 to 20°C) it is possible to achieve extremely low operating costs if cold and heat requirements are more or less identical.

Menerga areas of application: Cold and warm water system



### For a good partnership

Whether design engineer, architect, plumber, building operating company or owner – we place our complete knowledge at our customer's disposal for coping with your daily tasks. Also after installation, our proven service will help you with words and deeds.

### Quality forms the basis

Quality is as important to us as to our customers. It is self-evident to us to deliver faultlessly operating and optimally adjusted equipment.

You may assure yourself of it even before delivery, being our guest during the test run at the workshop.



Conference room in the Green Building, Slovenia



Car center in Fellbach, Germany

## ADVANTAGES

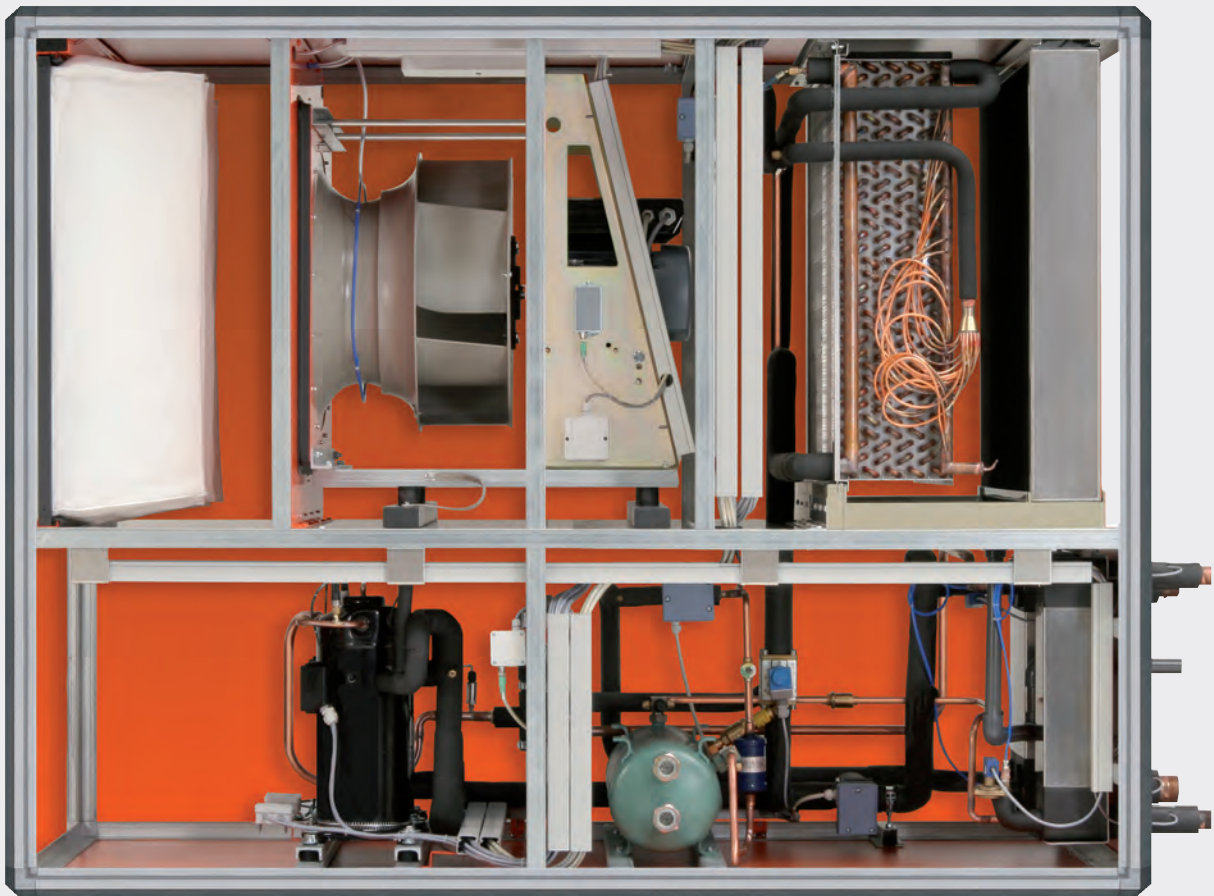
- To cool and to heat at the same time – steplessly adjustable, independent from each other
- Different heat sources may be used, like return air
- According to its use, only a small buffer storage – or even none – may be necessary on the heating side
- Simple and cost-efficient assembly, because only the water pipes of the building are necessary, but not the coolant pipes
- Energy-saving fan with pressure reserve for additional noise dampening and capacity according to the requirements due to infinitely variable control.
- Integrated control, easy to integrate into any building control system
- Low operating costs due to heat recovery



Company Stihl in Waiblingen, Germany



Company Marposs in Weinstadt, Germany

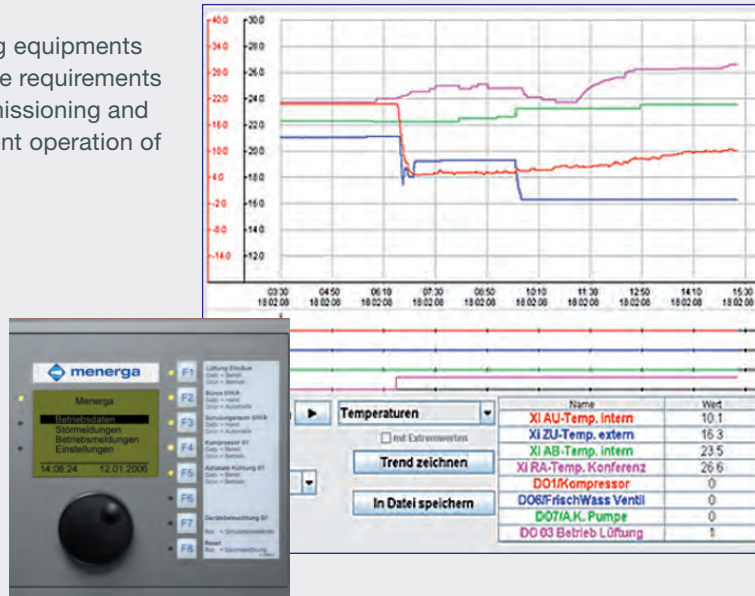


Type 95 10 01

## DETAILS ... WHICH ARE RIGHT EVERY TIME!

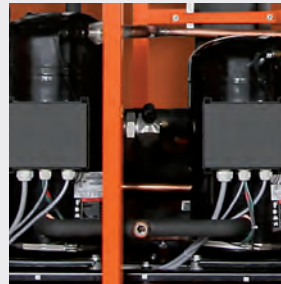
### Adjustment

Menerga delivers all air conditioning equipments with an adjustment that matches the requirements of the project. This facilitates commissioning and subsequently guarantees the efficient operation of the system.



### Fan unit

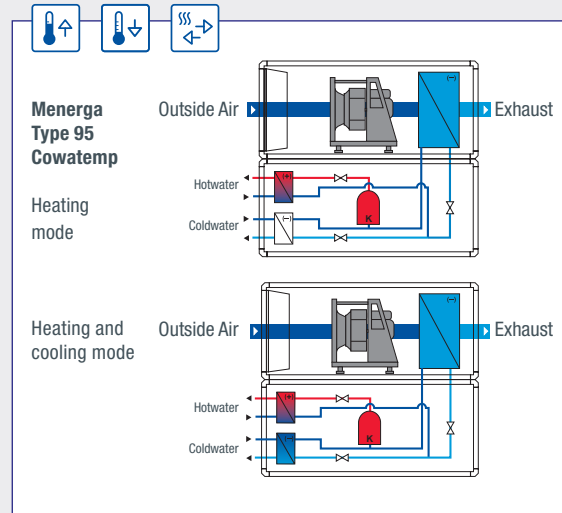
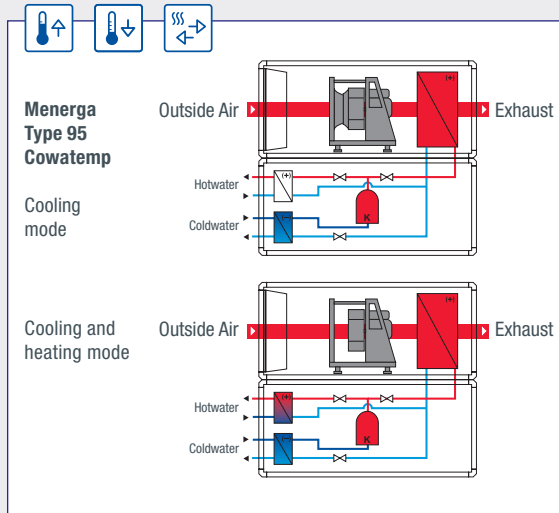
The frequency converter controlled fan unit, type solVent, guarantees an optimum operation due to the permanent measurement of the actual air flows. At the same time, safety ranks first. Permanent monitoring of oscillations, rotational speed, flows and tensions are self-evident.



### Compression cold installation

The integrated compression cold installation/heat pump is equipped with the latest state-of-the-art components. From the standard expansion valve to analogue pressure sensors, an energy-efficient operation is guaranteed for all operation modes. Stepless power modulation over a range from 10 % to 100 %. The power input decreases proportional to the generated refrigeration capacity.

## THAT'S HOW IT WORKS:



### Operation for cooling requirements only and operation if the cooling requirements are higher than the heating requirements

The capacity of the coolant compressor adjusts to the higher cooling requirements. The desired flow temperature of the cold water is steplessly adjusted by adjusting the capacity of the refrigerating machine. That part of heat taken from the cold water and necessary to heat up the warm water circuit to the desired temperature is transferred to the warm water in the warm water condenser. Only the part of the condensation heat which is of no use in the building escapes into the ambient air via the air condenser. The rotational speed of the fan sets the air flow rate to the flow rate which is necessary for transferring the excess heat.

### Operation for cooling requirements only and operation if the heating requirements are higher than the cooling requirements

The capacity of the coolant compressor adjusts to the higher heating requirements. The desired flow temperature of the warm water is steplessly adjusted by adjusting the capacity of the refrigerating machine. The necessary heat for heating up the warm water circuit to the desired temperature is basically taken from the cold water circuit in the water evaporator. Additionally, the necessary amount heat for balancing the heat balance is taken from the ambient air in the air evaporator. The rotational speed of the fan sets the air flow rate to the necessary flow rate for the heat supply.

## DATA YOU WILL NEED!

Compact chilled water unit with heat pump function Equipment types 95 Cowatemp		95 05 01	95 08 01	95 10 01	95 13 01	95 16 01	95 19 01	95 25 01
Cooling and heating capacity <sup>1)</sup>								
Supply/return flow 16,0/20,0 °C	kW	18,3	32,6	36,8	53,8	62,9	73,5	107,3
Compressor rated input	kW	5,0	8,8	10,0	15,5	17,3	19,9	31,2
Cooling performance	EER	3,7	3,7	3,7	3,5	3,6	3,7	3,4
Cooling performance <sup>2)</sup> cold water								
Supply/return flow 35,0/32,0 °C	kW	12,3	22,2	24,6	36,8	41,1	49,2	73,5
Compressor rated input	kW	3,7	6,6	7,4	11,1	12,4	14,8	22,2
Heating performance	COP	3,3	3,4	3,3	3,3	3,3	3,3	3,3
Heating capacity <sup>3)</sup> warm water								
Cold water FL/RF 16,0/20,0 °C	kW	21,9	38,6	43,9	65,8	75,0	87,8	131,7
Warm water FL/RF 35,0/32,0 °C	kW	25,7	45,1	51,4	77,1	87,9	102,9	154,3
Compressor rated input	kW	3,8	6,5	7,5	11,3	13,0	15,1	22,6
Cooling performance	EER	5,8	5,9	5,9	5,8	5,8	5,8	5,8
Heating performance	COP	6,8	6,9	6,9	6,8	6,8	6,8	6,8
Nominal air output	m <sup>3</sup> /h	4.600	8.000	9.500	12.600	15.800	19.000	25.000

COP = Coefficient of performance EER = Energy Efficiency Ratio <sup>1)</sup>simultaneous cold & warm water generation

<sup>2)</sup>100% heating capacity at fresh air = 32°C; 40% r.h. <sup>3)</sup>100% heating capacity at fresh air = -5°C; 90% r.h. Subject to technical changes without notice



Green Building of Menerga Slovenia





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