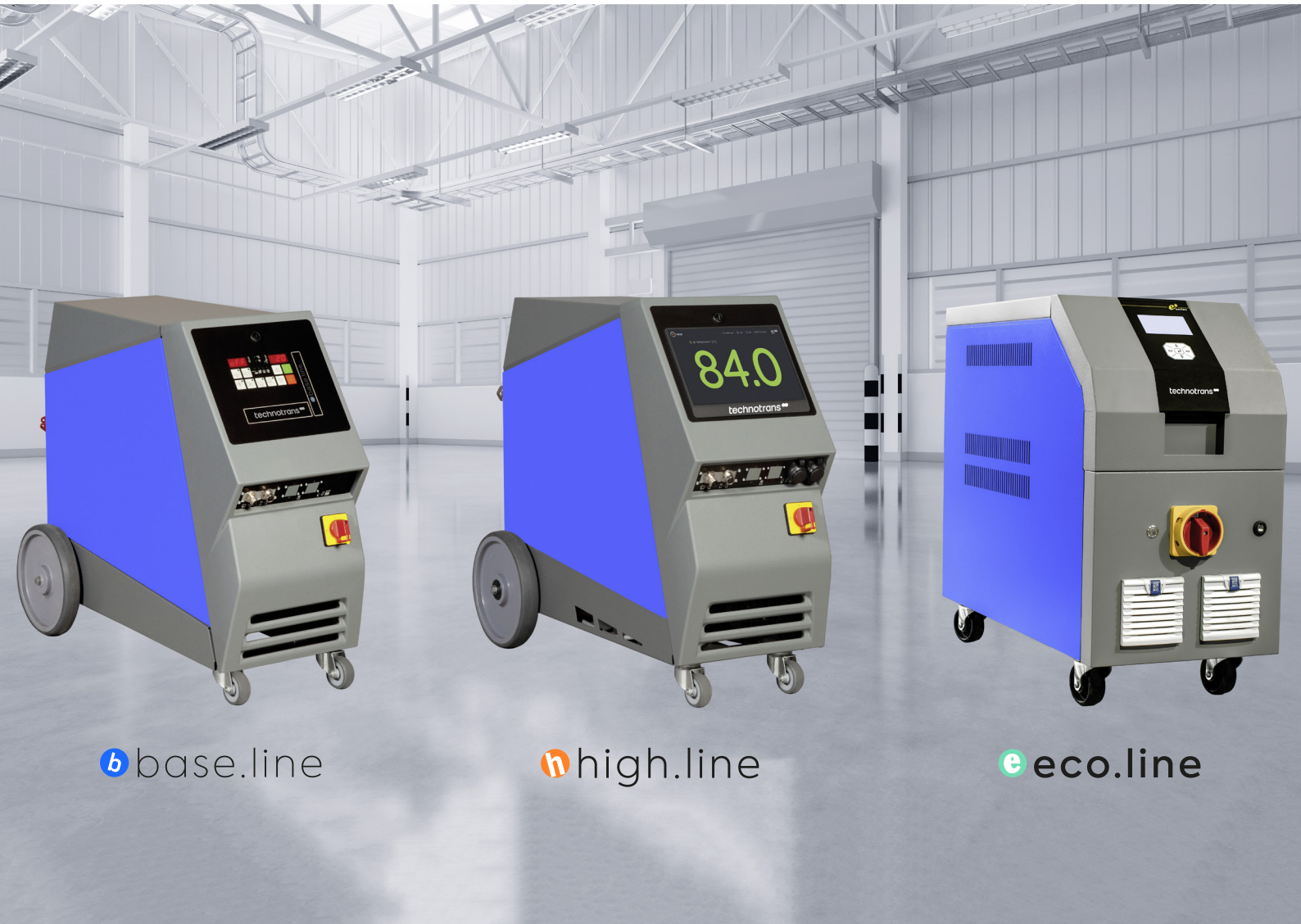
technotrans

power to transform

# Compact temperature controllers

Indispensable for $CO_2$-neutral production



# Your reliable partner in the field of thermal management


### Partner of the industry for more than 50 years

Know-how, not only in the plastics and metal industry

### Solutions for an efficient future

Indispensable for a $CO_2$ neutral production

### Extensive power range from cold to hot

Instruments, equipment and systems from - 80 °C to 400 °C

## In almost all industry sectors

Wherever temperatures and fluids play an important role in work and production processes, there are also opportunities for products from the technotrans Group. Our cooling and temperature control systems and other solutions are used worldwide in a wide range of industries. There is a broad spectrum:

**From the printing industry to the plastics industry**, and e-mobility to the food and beverage industry, via precise measurement technology and metalworking to safety technology.

Each industry sector has its own unique requirements, and each application is a new and exciting challenge.

In doing so, the technotrans Group is transferring its many years of expertise from established core sectors to new areas.

Because the basic requirements are the same across all sectors:

Reliable, precise, and energy-efficient technology. technotrans also creates **specific added value** – through **application-specific innovations**.

If there is a thermal management challenge, we design and build a better solution.

technotrans vision

### Globally active – positioned internationally

A worldwide presence in all major markets

### Flexibility as a result of multiple locations

Effective organisational units

### 24/7 Customer Service

Worldwide technical support. Around the clock.

# We have the perfect solution for you!

Our **compact temperature control unit**s are grouped into the three product lines base.line, high.line, and eco.line. These temperature control units differ essentially in their operating concept with regard to comfort, analysis functions, and the efficiency technology that is being applied.

The **compact temperature control unit series** is largely preconfigured with extensive features and can be customised, using a variety of options.

The performance range of the **compact temperature control units** includes devices with a heat output of up to 50 kW, a flow rate of up to 440 L/min, and a medium temperature of up to 180 °C.

Upon request, the modular temperature control unit series from the flex.line product line provide the option to configure the unit individually, using extensive equipment features and numerous options.

The performance range of the **compact temperature control units** includes devices with a heat output of up to 72 kW, a flow rate of up to **500 L/min**, and a medium temperature of up to 350 °C.

Further information can be found in the brochure “Modular temperature control units”.

A special feature of almost all standard technotrans temperature control units is the longlife heater with zero-loss heat transfer. Together, all three product lines and both degrees of individualisation stand for high quality and reliability, as well as the “MADE IN GERMANY” label.

The “longlife” stainless steel heating cartridges used in the high.line and eco.line come with an additional 10-year long-term guarantee.

# Our product lines and their key features!

base.line

## The inexpensive ones!

In terms of its efficiency and user-friendliness, the base.line series is in line with the current, „simpler“ market standard which is based on peripheral pumps.

high.line

## The individual ones!

In terms of its efficiency and user-friendliness, the high.line series is in line with the current, „more sophisticated“ market standard which is based on peripheral or centrifugal pumps.

eco.line

## The efficient ones!

The eco.line, with its peripheral impeller and highly efficient centrifugal pumps, in combination with speed control, sets new standards in the market in terms of efficiency and ease of use.

Reduced energy and operating costs through the use of highly efficient pump designs, power-regulated pump drives, and optimised heat transfer.

**Efficient**
Reduced energy and operating costs through the use of highly efficient pump designs, power-regulated pump drives, as well as optimized ones Heat transfer.

**Sustainable**
Both customers and the climate benefit in the long term from resource-saving operation – efficient cooling and temperature control solutions not only reduce operating costs, but also protect the environment.

**Reliable**
High process and operational reliability – in combination with proven technology – ensure high quality, availability, and reproducibility; for example, extremely precise temperature control ensures reliable processes.

**Innovative**
Efficient cooling and temperature control systems ensure consistent performance and extend the service life of the processes. Low-vibration, smooth-running, and efficient solutions reduce the $CO_2$ footprint.

# An overview of our “compact” series!

base.line

Page 19

**teco cd e**
(direct cooling)
**Temperature control unit [water]**
95 °C

Page 20

**teco cs e**
(indirect cooling)
**Temperature control unit [water]**
95 °C, 140 °C, 160 °C, 180 °C

Page 23

**teco cw e**
(indirect cooling)

**Coling units [glycol-free water]**
O °C to 25 °C

high.line

Page 25

**teco cd t**
(direct cooling)
**Temperature control unit [water]**
95 °C, 120 °C

Page 26

**teco cs t**
(indirect cooling)
**Temperature control unit [water]**
95 °C, 140 °C, 160 °C, 180 °C

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**teco cs t itc** evo
(indirect cooling)
**Temperature control unit [water] with monitored distributor**
95 °C, 140 °C, 160 °C

# Focus on efficiency and sustainability!

eco.line

NEW

Page 34

**teco cd t eco**
(direct cooling)
**Temperature control unit [water]**
95 °C

NEW

Page 36

**teco ci t eco**
(indirect cooling)
**Temperature control unit [water]**
95 °C, 140 °C, 160 °C, 180 °C

NEW

Page 38

**teco itd** evo
(direct /indirect cooling)
**Temperature control unit [water] with monitored distributor**
95 °C, 120 °C

Page 40

**protemp cd selection eco**
(direct cooling)
**Temperature control unit [water]**
95 °C

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**protemp cd advanced eco**
(direct cooling)
**Temperature control unit [water]**
95 °C

Page 44

**protemp ci selection eco**
(indirect cooling)
**Temperature control unit [water]**
95 °C

Page 46

**protemp ci advanced eco**
(indirect cooling)
**Temperature control unit [water]**
95 °C, 140 °C

Page 48

**teco/ protemp itd** evo
(direct /indirect cooling)
**Temperature control unit [water] with monitored distributor**
95 °C, 120 °C

# Features by product line!

The units, conceived in modern industrial design, stand for high-quality but affordable technology, high availability, ease of use and service friendliness.

The compact temperature control units of the base.line are our investment-cost-optimised standard units. They guarantee economical temperature control with water at temperatures up to 180 °C and flow rates up to **60 L/min**.

The e-unit is easy to operate. It uses a membrane keypad with a 7-segment display. Thus, it is the preferred solution for many applications and offers an excellent price/performance ratio.

The basic equipment includes the technotrans basic-Control microprocessor control system with display of the preset and actual temperatures, automatic replenishment, automatic mould draining, energy-saving continuous heating control, and much more.

If customisation is required, there are different interfaces, an individual colour scheme and labelling, mounting on rubber buffers or rails, and other important options available.

The compact temperature control units of the high.line are our investment-cost-optimised standard units. They guarantee economical **and simultaneous easy temperature control** with water at temperatures up to 180 °C and flow rates up to 200 L/min.

The t-series is equipped with the innovative technotrans compact-Control regulator, using a fast 32-bit processor. This processor has an independent, an in-house developed display, a logotherm control unit, and a 7-inch multi-touch screen with intuitive user interface, and a menu that is easy to navigate.

base.line

| | Type | Medium | Tempe-rature range (°C) | Heating capacity (kW) | Max. cooling capacity (kW) | Pump capacity max. (l/min / bar) |
|---|---|---|---|---|---|---|
| direct cooling (cd) | **teco cd 90e** | water | 95 | 9 | 52 | 60 / 3,8 (6,0) |
| indirect cooling (cs/cw) | **teco cs 90e** | water | 95 | 6 / 9 | 23 (42) | 60 / 3,8 (6,0) |
| | **teco cs 140e** | water | 140 | 6 / 9 | 40 | 50 / 6,3 |
| | **teco cs 160e** | water | 160 | 6 / 9 | 40 | 60 / 6,0 |
| | **teco cs 180e** | water | 180 | 9 | 40 | 60 / 6,0 |
| | **teco cw 25e** | water | 0 – 25 | - | 4 | 60 / 3,5 |
| | **teco cw 60e** | water | 0 – 25 | - | 10 | 60 / 5,8 |

high.line

| | Type | Medium | Tempe-rature range °C) | Heating capacity (kW) | Max. cooling capacity (kW) | Pump capacity max. (l/min / bar) |
|---|---|---|---|---|---|---|
| direct cooling (cd) | **teco cd 95t 18** | water | 95 | 9 / 18 | 140 | 70 / 4,7 |
| | **teco cd 120t 18** | water | 120 | 9 / 18 | 117 | 70 / 4,7 |
| indirect cooling (cs) | **teco cs 90t 9** | water | 95 | 9 | 23 (42) | 60 / 3,8 (6,0) |
| | **teco cs 140t 9** | water | 140 | 9 | 40 | 50 / 6,3 |
| | **teco cs 160t 9** | water | 160 | 6 / 9 | 40 | 60 / 6,3 |
| | **teco cs 180t 9** | water | 180 | 9 | 40 | 60 / 6,3 |
| | **teco cs 90t 18** | water | 95 | 9 / 18 | 56 / 75 | 70 / 5,5 |
| | **teco cs 140t 18** | water | 140 | 12 / 18 | 40 | 50 / 6,3 |
| | **teco cs 90t 36** | water | 95 | 9 / 18 / 27 / 36 | 250 | (200) 150 / 5,0 |
| | **teco cs 90t 9 itc evo** | water | 95 | 9 | 23 (42) | 60 / 3,8 (6,0) |
| | **teco cs 140t 9 itc evo** | water | 140 | 9 | 40 (120) | 50 / 6,3 |
| | **teco cs 160t 9 itc evo** | water | 160 | 6 / 9 | 40 (120) | 60 / 6,0 |

# The most efficient product line on the market!

technotrans' eco.line is currently the most efficient integrated product line available on the market.

The compact temperature control units of the eco.line are our operating cost-optimised standard units. They are designed to **guarantee consistent sustainability**, economical temperature control with water at temperatures up to 180 °C and **flow rates** up to 440 L/min.

This unit is designed with efficient peripheral impellers and highly efficient centrifugal pumps, each in combination with speed control and display of the pump energy consumption. Thus, this unit line sets new standards in the market with regard to efficiency and ease of operation.

eco.line

**direct cooling (cd)**

| Typ | Medium | Tempe-rature range (°C) | Heating capacity (kW) | Max. cooling capacity (kW) | Pump capacity max. (l/min / bar) |
|---|---|---|---|---|---|
| **teco cd 95 eco 60** | water | 95 | 9 | 140 | 70 / 4,7 |
| **protemp cd 95-s2 eco** | water | 95 | 0 / 9 / 18 | 264 | 165 / 5,1 |
| **protemp cd 95-a1 eco** | water | 95 | 0 / 9 / 18 | 397 | 83 / 6,8 |
| **protemp cd 95-a2 eco** | water | 95 | 0 / 9 / 18 / 27 / 36 | 397 | 125 / 7,0 |
| **protemp cd 95-a3 eco** | water | 95 | 0 / 20 / 30 / 40 / 50 | 632 | 300 / 7,0 |
| **protemp cd 95-a4 eco** | water | 95 | 0 / 20 / 30 / 40 / 50 | 632 | 440 / 5,0 |
| **teco cd 95t eco itd** evo | water | 95 | 9 | 42 | 60 / 6,0 |
| **protemp cd 95 eco itd** evo | water | 95 | 0 / 9 / 18 / 27 / 36 | 264 / 397 | 165 / 5,1 |

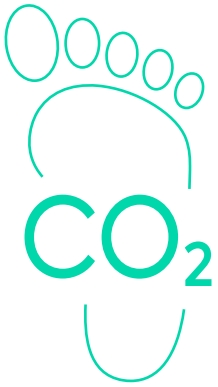
**indirect cooling (ci)**

| Typ | Medium | Tempe-rature range (°C) | Heating capacity (kW) | Max. cooling capacity (kW) | Pump capacity max. (l/min / bar) |
|---|---|---|---|---|---|
| **teco ci 95 eco 60** | water | 95 | 9 | 42 | 60 / 6,0 |
| **teco ci 140 eco 60** | water | 140 | 9 | 40 | 60 / 6,0 |
| **teco ci 160 eco 60** | water | 160 | 9 | 40 | 60 / 6,0 |
| **teco ci 180 eco 60** | water | 180 | 9 | 40 | 60 / 6,0 |
| **teco ci 95 eco 130** | water | 95 | 9 / 18 / 27 / 36 | 250 | 130 / 5,3 |
| **teco ci 95 eco 230** | water | 95 | 9 / 18 / 27 / 36 | 250 | 230 / 5,7 |
| **protemp ci 95-s2 eco** | water | 95 | 0 / 9 / 18 | 92 | 165 / 5,1 |
| **protemp ci 95-a1 eco** | water | 95 | 0 / 9 / 18 | 92 | 83 / 6,8 |
| **protemp ci 140-a1 eco** | water | 140 | 0 / 9 / 18 | 140 | 83 / 6,8 |
| **protemp ci 95-a2 eco** | water | 95 | 0 / 9 / 18 / 27 / 36 | 92 | 125 / 7,0 |
| **protemp ci 140-a2 eco** | water | 140 | 0 / 9 / 18 | 140 | 125 / 7,0 |
| **protemp ci 95-a3 eco** | water | 95 | 0 / 20 / 30 / 40 / 50 | 308 | 300 / 7,0 |
| **protemp ci 140-a3 eco** | water | 140 | 0 / 20 / 30 / 40 / 50 | 472 | 300 / 7,0 |
| **protemp ci 95-a4 eco** | water | 95 | 0 / 20 / 30 / 40 / 50 | 308 | 440 / 5,0 |
| **protemp ci 140-a4 eco** | water | 140 | 0 / 20 / 30 / 40 / 50 | 472 | 440 / 5,0 |
| **teco ci 95 eco 60 itd** evo | water | 95 | 9 | 42 | 60 / 6,0 |
| **teco ci 95 eco 130 itd** evo | water | 95 | 9 / 18 / 27 / 36 | 250 | 130 / 5,3 |
| **protemp ci 95 t 95 eco itd** evo | water | 95 | 0 / 9 / 18 / 27 / 36 | 92 / 140 | 165 / 5,1 |

# As much as possible, but only as much as necessary!

The pump efficiency module (PEM), which is already included as standard in the eco.line, offers various options for setpoint specification for controlling the speed.

Customers prefer to use the control according to the temperature difference between the **circulation medium supply flow** and the **circulation medium return flow**. Alternatively, specifying the flow rate as an absolute value in L/min or as a percentage value of the speed are available as an option.




lesser $CO_2$ footprint

**Hands-on example of a standard temperature control unit application:**

In a customised project, different scenarios could be compared under production conditions:

**Customer specification:**
Flow rate: 85 L/min
Heating capacity: 27 kW

**Result 1 – Technology used so far**

Device of a market facilitator with unregulated peripheral impeller pump

Annual electricity consumption in a three-shift operation: **14,495 kWh**

**Result 2 – technotrans high.line instruments**

Instrument of our high.line series with unregulated peripheral impeller pump

Annual electricity consumption in a three-shift operation: **12,756 kWh**

**Result 3 – technotrans eco.line instruments**

Instrument of our eco.line series with centrifugal pump without control mode

Annual electricity consumption in a three-shift operation: **10,436 kWh**

**Result 4 – technotrans eco.line instruments**

Instrument of our eco.line series with centrifugal pump in control mode (ΔT control)

Annual electricity consumption in a three-shift operation: **1,160 kWh**

**Savings with the technotrans solutions PEM:** **13,335 kWh/year = 92 % or 7.161 t $CO_2$/year**

# Putting the $CO_2$-savings effect into perspective!

How a $CO_2$ savings of **7,161 t per year** can be achieved by using just one eco.line temperature control unit is shown in the customer example. Here, comparisons with the possibility of offsetting beech trees or the $CO_2$ emissions from flying are used.

Just **1** efficient technotrans temperature control unit can make so much difference, because ...

**573**

beech trees are needed to offset approx. **7,161 t $CO_2$ per year**, or ...

(1 beech with a height of 23 m = neutralization of 12,5 kg $CO_2$)

... **1** person flying

**109**

times between Cologne and Munich generates approx. **7,161 t of $CO_2$**.

(1 flight Cologne/Munich = 65,9 kg $CO_2$ per person)

# The savings potential is significant!

If just one temperature control unit achieves such high results, what does that mean when considering something on a larger scale?

**Consider the following:**

Per year, approx.

**40.000** standard temperature control units are shipped to customers outside of Europe.

The average consumption of a single unit's pump is approx.

**0,80** kW.

Each temperature control unit is operated for an average of

**4.000** hours per year.

And if we could reduce energy consumption by

**50** %

# It is entirely up to us!

Then, the energy consumption of the temperature control units delivered from Europe in one year will be reduced by about

**80.000.000** kWh

This is equivalent to a $CO_2$ reduction

of approx. **42.961.000** kg per year

# Energy efficiency is eligible for government funding!

Thanks to the integrated centrifugal pumps and the pump efficiency module (PEM), the temperature control units of the eco.line series reduce high operating costs and are eligible for government funding.

The funding programmes are specific to each country. In Germany, up to 40 % of eligible investments can currently be subsidised. Investments by smaller enterprises (SME) as well as investments by large companies are eligible for government funding.

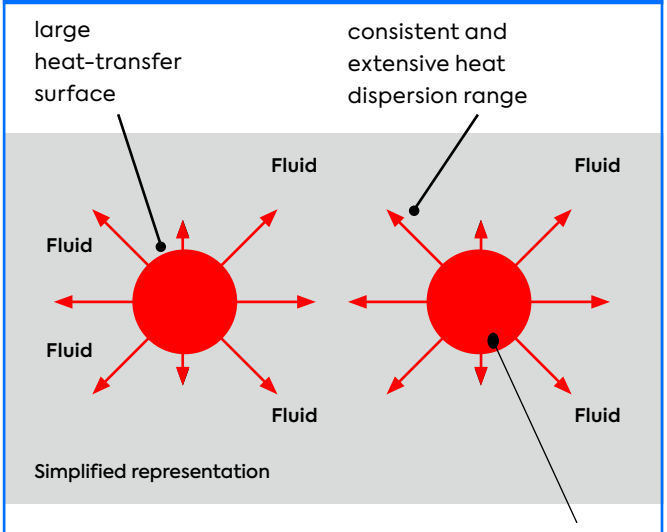
**«$CO_2$ reduction is rewarded several times over»**

# Zero-loss heat transfer!

The innovative technotrans “longlife heating cartridge” transfers the heat directly to the medium without any resistance, thereby ensuring continuous, high efficiency combined with excellent accessibility and cleanability.

Other notable advantages are the fine-tuning of the heat output, excellent heating rates in a small installation space, low weight and manageable need for insulation.

**Direct heat transfer with technotrans “long-life” heating unit**




- **Minimal energy losses**
- **High degree of efficiency**
- **„low carbon footprint“**
- **Long service life due to technotrans “long-life” technology**

## «Ultra-fast heating and excellent cleaning capability»

The excellent reliability and fundamental efficiency of technotrans temperature control units provide the user with a high level of investment safety.

Combined with the highly efficient centrifugal pumps and the innovative technotrans “longlife heating cartridges” with their long-term warranty, this investment safety becomes truly outstanding.

# High cleanroom class included in the standard models!

Many standard version of the technotrans temperature control units already meet the clean room requirements of ISO class 6 and 7.
The typical additional costs for special cleanroom equipment can thus be avoided.

**«Additional costs based on “special” clean room equipment do not apply»**

# Future-proof connectivity!

technotrans temperature control units can be equipped with state-of-the-art interfaces. Apart from standard serial interfaces (4 - 20 mA TTY and RS 485), digital interfaces such as Profibus, Profinet and OPC UA with remote access are also available. As one of the first manufacturers, technotrans uses the standardised EUROMAP 82.1 protocol for the data transfer via OPC UA.

technotrans is one of the first device manufacturers to use the standardized EUROMAP 82.1 Protocol for data transfer via OPC UA.

## «Condition monitoring for maximum sustainability»

# The product line base.line


The compact temperature control units of the base.line are our investment-cost-optimised standard units. They guarantee economical temperature control with water at temperatures up to 180 °C and flow rates up to **60 L/min**.

The e-unit is easy to operate. It uses a membrane keypad with a 7-segment display. Thus, it is the preferred solution for many applications.

**«Outstanding price/ performance ratios»**

# teco cd e – temperature control units with direct cooling in 95 °C version


- Temperature control units with direct cooling in 95 °C version
- Easy to operate, using a membrane keypad with a 7-segment display
- basicControl micro controller
- Stainless steel "longlife" heating cartridge
- Durable peripheral pump without a mechanical seal
- Stainless steel tank
- Splash proof control cabinet acc. to IP 54
- Ready for connection with cable and CEE socket
- Interface port integrated in the front of the unit (e.g. for optional interface analogue, serial, Profibus, Profinet, or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt-grey
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

• = Standard / ○ = Option / – = not available / Values in () optional

Technical data

Standard specification/Options

| At | 95 °C | |
|---|---|---|
| **Model teco** | **cd 95e** | |
| Medium | water | water |
| Temperature max. ( °C) | 95 | 95 |
| Pump capacity max. (l/min / bar) | 60 / 3,8 | 60 / 6,0 |
| Pump mode | constant | constant |
| Heating capacity (kW) | 9 | 9 |
| Cooling | direct | direct |
| Cooling capacity (kW) [1] | 52 | 52 |
| Weight (kg) | 44 | 44 |
| Mould circuit supply and return connections | G 1/2" | G 1/2" |
| Could water supply and return connections | G 1/4" | G 1/4" |
| Dimensions without attachment parts in mm (L x W x H) | 674 x 356 x 607 | 674 x 356 x 607 |
| Membrane keyboard and 7-segment display | • | • |
| „longlife" stainless steel heater cartridge | • | • |
| Continuous heater control via solid state semiconductor relays | • | • |
| Automatic filling and top up device | • | • |
| Additional manual filling operation for treated water | • | • |
| Strainer in cooling water inlet | • | • |
| Strainer in return line circulation medium | ○ | ○ |
| Shut-off valves in the media and cooling water circuit | ○ | ○ |
| All contact parts made of non-corrosive materials | • | • |
| Acoustic alarm | • | • |
| Mould draining | • [2] | • [2] |
| Low-maintenance flow measurement | ○ | ○ |
| Sealless pump | • | • |

[1]) at 15 °C cooling water and 90 °C circuit water temperature
[2]) by reversing the direction of rotation of the pump

Subject to technical modification without notice!

base.line

# teco cs e – temperature control units with indirect cooling in 95 °C, 140 °C, 160 °C and 180 °C version


- Temperature control units with direct cooling in 95 °C version
- Easy to operate, using a membrane keypad with a 7-segment display
- basicControl micro controller
- Stainless steel "longlife" heating cartridge
- Durable peripheral pump without a mechanical seal
- Stainless steel tank
- Splash proof control cabinet acc. to IP 54
- Ready for connection with cable and CEE socket
- Interface port integrated in the front of the unit (e.g. for optional interface analogue, serial, Profibus, Profinet, or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt-grey
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

• = Standard / ○ = Option / – = not available / Values in () optional

| | At | 95 °C | |
|---|---|---|---|
| Technical data | Model teco | cs 95e | |
| | Medium | water | water |
| | Temperature max. ( °C) | 95 | 95 |
| | Pump capacity max. (l/min / bar) | 60 / 3,8 | 60 / 6,0 |
| | Pump mode | constant | constant |
| | Heating capacity (kW) | 6 / 9 | 9 |
| | Cooling | indirect | indirect |
| | Cooling capacity (kW) [1] | 23 | 42 |
| | Weight (kg) | 37 | 37 |
| | Circulation medium supply and return connections | G 1/2" | G 1/2" |
| | Cooling water supply and return connections | G 1/4" | G 1/4" |
| | Dimensions without attachment parts in mm (L x W x H) | 674 x 356 x 607 | 674 x 356 x 607 |
| Standard specification/Options | Membrane keyboard and 7-segment display | • | • |
| | „longlife" stainless steel heater cartridge | • | • |
| | Continuous heater control via solid state semiconductor relays | • | • |
| | Automatic filling and top up device | • | • |
| | Additional manual filling operation for treated water | • | • |
| | Strainer in cooling water inlet | • | • |
| | Strainer in return line circulation medium | ○ | ○ |
| | Shut-off valves in the media and cooling water circuit | ○ | ○ |
| | All contact parts made of non-corrosive materials | • | • |
| | Acoustic alarm | • | • |
| | Mould draining/Leak stop operation | • 2, 4 | • 2, 4 |
| | Low-maintenance flow measurement | ○ | ○ |
| | Sealless pump | • | • |

[1]) t 15 °C cooling water and 90 °C circuit water temperature [2]) by reversing the direction of rotation of the pump
[3]) not in combination with leakage stop operation [4]) not in combination with return stop

Subject to technical modification without notice!

## «The e-unit is easy to operate. Thus, it is the preferred solution for many applications and offers an excellent price/performance ratio»


• = Standard / ○ = Option / – = not available / Values in () optional

| | At | 140 °C | | 160 °C | 180 °C |
|---|---|---|---|---|---|
| Technical data | Model teco | cs 140e | | cs 160e | cs 180e |
| | Medium | water | water | water | water |
| | Temperature max. ( °C) | 140 | 140 | 160 | 180 |
| | Pump capacity max. (l/min / bar) | 50 / 6,3 | 60 / 6,0 | 60 / 6,0 | 60 / 6,0 |
| | Pump mode | constant | constant | constant | constant |
| | Heating capacity (kW) | 6 / 9 | 9 | 9 | 9 |
| | Cooling | indirect | indirect | indirect | indirect |
| | Cooling capacity (kW) [1] | 40 (120) | 120 | 40 (120) | 40 |
| | Weight (kg) | 52 | 52 | 56 | 59 |
| | Circulation medium supply and return connections | G 1/2" | G 1/2" | G 1/2" | G 1/2" |
| | Cooling water supply and return connections | G 1/4" | G 1/4" | G 1/4" | G 1/4" |
| | Dimensions without attachment parts in mm (L x W x H) | 674 x 356 x 607 | 674 x 356 x 607 | 674 x 356 x 607 | 674 x 356 x 607 |
| Standard specific./Options | Membrane keyboard and 7-segment display | • | • | • | • |
| | „longlife" stainless steel heater cartridge | • | • | • | • |
| | Continuous heater control via solid state semiconductor relays | • | • | • | • |
| | Automatic filling and top up device | • | • | • | • |
| | Integrated make-up pump | – | – | • | • |
| | Strainer in cooling water inlet | • | • | • | • |
| | Strainer in return line circulation medium | ○ | ○ | ○ | ○ |
| | Shut-off valves in the media and cooling water circuit | ○ | ○ | ○ | ○ |
| | All contact parts made of non-corrosive materials | • | • | • | • |
| | Acoustic alarm | • | • | • | • |
| | Mould draining/Leak stop operation | ○ [3] | ○ [3] | ○ [3] | ○ [3] |
| | Leakage stop operation | • [5] | • [5] | • [5] | • [5] |
| | Seal-less, magnetically coupled stainless steel pump | – | • | • | • |

[1]) at 15 °C cooling water and 90 °C resp. 130 °C circuit water temperature [2]) by reversing the direction of rotation of the pump [3]) not in combination with leakage stop operation [4]) not in combination with return stop [5]) not in combination with mould draining function

Subject to technical modification without notice!

# teco cw e – Cooling in temperature control unit design

If the central cooling system is fully utilised or the piping effort is too high, a decentralised solution directly on the machine is suitable for cooling consumers.

technotrans offers a unique concept with the teco cw cooling unit, because it can be used like a temperature control unit.

Once again, sustainability has top priority when it comes to this series. The teco cw unit can be used without glycol.

**«A truely plug and play solution»**

# Cold water from 0 to 25 °C without warm exhaust air in the production area


- Easy to operate, using a membrane keypad with a 7-segment display
- basicControl micro controller
- Integrated cold water generator
- Long-life peripheral impeller pump (sealless)
- Stainless steel tank (at 95 °C)
- Splash proof control cabinet acc. to IP 54
- Ready for connection with cable and CEE socket
- Interface port integrated in the front of the unit (e.g. for optional interface analogue, serial, Profibus, Profinet, or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt-grey
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

• = Standard / ○ = Option / – = not available / Values in () optional

| At | 0 - 25 °C | |
|---|---|---|
| **Technical data** | | |
| **Model teco** | **cw 25e** | **cw 60e** |
| Medium | water | water |
| Temperature max. ( °C) | 0 - 25 | 0 - 25 |
| Pump capacity max. (l/min / bar) | 60 / 3,5 | 60 / 5,8 |
| Pump mode | constant | constant |
| Heating capacity (kW) | - | - |
| Cooling | indirect | indirect |
| Cooling capacity (kW) [1] | 4 | 10 |
| Weight (kg) | 76 | 125 |
| Circulation medium supply and return connections | G 1/2" | G 1/2" |
| Cooling water supply and return connections | G 1/4" | G 1/4" |
| Dimensions without attachment parts in mm (L x W x H) | 921 x 340 x 607 | 1.281 x 500 x 749 |
| **Standard specific./Options** | | |
| Membrane keyboard and 7-segment display | • | • |
| Automatic filling and top up device | • | • |
| Additional manual filling operation for treated water | • | • |
| Strainer in cooling water inlet | • | • |
| Strainer in return line circulation medium | ○ | ○ |
| Shut-off valves in the media and cooling water circuit | ○ | ○ |
| All contact parts made of non-corrosive materials | • | • |
| Acoustic alarm | • | • |
| Mould draining / Leak stop operation | • [2, 3] | • [2, 3] |
| Low-maintenance flow measurement | ○ | ○ |
| Sealless pump | • | • |

[1]) at 15 °C cooling water and 10 °C circuit water temperature [2]) by reversing the direction of rotation of the pump
[3]) not in combination with return stop

Subject to technical modification without notice!

# The product line high.line


The compact temperature control units of the high.line are our investment-cost-optimised standard units. They guarantee economical and simultaneous easy temperature control with water at temperatures up to 180 °C and flow rates up to 200 L/min.

The t-series is equipped with the innovative technotrans compact-Control regulator, using a fast 32-bit processor.

**«Intuitive user interface with user-friendly menu navigation»**

# teco cd t – temperature control units with direct cooling in 95 °C and 120 °C version


**Alternative colour concept:gwk farewell Edition**

- Convenient operation via gesture-enabled logotherm 7-inch multi-touch display
- compactControl microcontroller
- "longlife" stainless steel cartridge heater with long-term guarantee
- Durable and highly efficient centrifugal pump
- „Tankless" device for minimal oxygen uptake
- ISO 6 clean room class
- Splash proof control cabinet acc. to IP 54
- Ready for connection with cable and CEE socket
- Interface port integrated in the front of the unit (e.g. for optional interface analogue, serial, Profibus, Profinet, or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt-grey
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

• = Standard / ○ = Option / – = not available / Values in () optional

| At | 95 °C | 120 °C |
|---|---|---|
| **Model teco** | **cd 15 t 18** | **cd 120 t** |
| Medium | water | water |
| Temperature max. ( °C) | 95 | 120 |
| Pump capacity max. (l/min / bar) | 70 / 4,7 | 70 / 4,7 |
| Pump mode | constant | constant |
| Heating capacity (kW) | 9 / 18 | 9 / 18 |
| Cooling | direct | direct |
| Cooling capacity (kW) [1] | 140 | 117 |
| Weight (kg) | 50 | 50 |
| Circulation medium supply and return connections | G ¾" | G ¾" |
| Cooling water supply and return connections | G ½" | G ½" |
| Dimensions without attachment parts in mm (L x W x H) | 865 x 506 x 749 | 865 x 506 x 749 |
| 7" logotherm multi-touch-display | • | • |
| „longlife" stainless steel heater cartridge with long term guarantee | • | • |
| Continuous heater control via solid state semiconductor relays | • | • |
| Automatic filling and top up device | • | • |
| Cleanroom class 6 | • | • |
| Strainer in cooling water inlet | • | • |
| Strainer in return line circulation medium | ○ | ○ |
| Shut-off valves in the media and cooling water circuit | ○ | ○ |
| All contact parts made of non-corrosive materials | • | • |
| Acoustic alarm | • | • |
| Mould draining | ○ [2] | ○ [2] |
| Low-maintenance flow measurement | ○ | ○ |
| Return temperature indication | • | • |

Technical data

Standard specification/Options

[1]) at 15 °C cooling water and 90 °C resp. 130 °C circuit water temperature
[2]) with compressed air in the cooling water return

Subject to technical modification without notice!

high.line

# teco cs t – temperature control units with indirect cooling in 95 °C, 140 °C, 160 °C and 180 °C version


**Alternative colour concept:gwk farewell Edition**

- Convenient operation via gesture-enabled logotherm 7-inch multi-touch display
- compactControl microcontroller
- "longlife" stainless steel cartridge heater with long-term guarantee
- Durable peripheral pump (also sealless)
- "Stainless" steel tank (at 95 °C)/closed circuit (from 140 °C)
- ISO 6 clean room class
- Splash proof control cabinet acc. to IP 54
- Ready for connection with cable and CEE socket
- Interface port integrated in the front of the unit (e.g. for optional interface analogue, serial, Profibus, Profinet, or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt-grey
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

• = Standard / ○ = Option / – = not available / Values in () optional

| | At | 95 °C | | | | |
|---|---|---|---|---|---|---|
| Technical data | Model teco | cs 90t 9 | | cs 90t 18 | cs 90t 36 | |
| | Medium | water | water | water | water | water |
| | Maximale Temperatur | 95 | 95 | 95 | 95 | 95 |
| | Pumpenleistung maximal (l / min / bar) | 60 / 3,8 | 60 / 6,0 | 75 / 5,5 | 150 / 5,5 | 200 / 5,5 |
| | Pump mode | constant | constant | constant | constant | constant |
| | Heating capacity (kW) | 9 | 9 | 9 / 18 | 9 / 18 / 27 / 36 | 9 / 18 / 27 / 36 |
| | Cooling | indirect | indirect | indirect | indirect | indirect |
| | Cooling capacity (kW) [1] | 23 | 42 | 56 (75) | 250 | 250 |
| | Weight (kg) | 39 | 39 | 95 | 100 | 100 |
| | Circulation medium supply and return connections | G 1/2" | G 1/2" | G 1" | G 1/2" | G 1/2" |
| | Cooling water supply and return connections | G 1/4" | G 1/4" | G 3/4" | G 3/4" | G 3/4" |
| | Dimensions without attachment parts in mm (L x W x H) | 674 x 356 x 607 | 674 x 356 x 607 | 865 x 506 x 749 | 865 x 506 x 749 | 865 x 506 x 749 |
| Standard specific./Options | 7" logotherm multi-touch-display | • | • | • | • | • |
| | „longlife" stainless steel heater cartridge with long term gar. | • | • | • | • | • |
| | Continuous heater control via solid state semiconductor relays | • | • | • | • | • |
| | Automatic filling and top up device | • | • | • | • | • |
| | Strainer in cooling water inlet | • | • | • | • | • |
| | Strainer in return line circulation medium | ○ | ○ | ○ | ○ | ○ |
| | Shut-off valves in the media and cooling water circuit | ○ | ○ | ○ | ○ | ○ |
| | All contact parts made of non-corrosive materials | • | • | • | • | • |
| | Acoustic alarm | • | • | • | • | • |
| | Mould draining | • [2, 4] | • [2, 4] | • [2, 4] | • [2, 4] | • [2, 4] |
| | Low-maintenance flow measurement | • | • | • | • | • |
| | Seal-less pump | • | • | • | • | • |

[1]) at 15 °C cooling water and 90 °C circuit water temperature [2]) by reversing the direction of rotation of the pump
[3]) not in combination with leakage stop operation [4]) not in combination with return stop

Subject to technical modification without notice!



Display and control unit logotherm with user-friendly 7-inch touchscreen

• = Standard / ○ = Option / – = not available / Values in () optional

| At | 140 °C | | | | 160 °C | 180 °C |
|---|---|---|---|---|---|---|
| **Model teco** | **cs 140t 9** | | **cs 140t 18** | | **cs t 160t 9** | **cs t 180t 9** |
| Medium | water | water | water | water | water | water |
| Temperature max. ( °C) | 140 | 140 | 140 | 140 | 160 | 180 |
| Pump capacity max. (l/min / bar) | 50 / 6,3 | 60 / 6,0 | 50 / 6,3 | 60 / 6,0 | 60 / 6,0 | 60 / 6,0 |
| Pump mode | constant | constant | constant | constant | constant | constant |
| Heating capacity (kW) | 9 | 9 | 18 | 18 | 9 | 9 |
| Cooling | indirect | indirect | indirect | indirect | indirect | indirect |
| Cooling capacity (kW) [1] | 40 | 120 | 40 | 120 | 40 | 40 |
| Weight (kg) | 54 | 54 | 95 | 95 | 58 | 60 |
| Circulation medium supply and return connections | G 1/2" | G 1/2" | G 3/4" | G 3/4" | G 1/2" | G 1/2" |
| Cooling water supply and return connections | G 1/4" | G 1/4" | G 1/4" | G 1/4" | G 1/4" | G 1/4" |
| Dimensions without attachment parts in mm (L x W x H) | 674 x 365 x 607 | 674 x 365 x 607 | 865 x 506 x 749 | 865 x 506 x 749 | 674 x 365 x 607 | 674 x 365 x 607 |
| 7" logotherm multi-touch-display | • | • | • | • | • | • |
| „longlife" stainless steel heater cartridge with long term guarantee | • | • | • | • | • | • |
| Continuous heater control via solid state semiconductor relays | • | • | • | • | • | • |
| Automatic filling and top up device | • | • | • | • | • | • |
| IIntegrated top up-pump | – | – | – | – | – | – |
| Strainer in cooling water inlet | • | • | • | • | • | • |
| Strainer in return line circulation medium | ○ | ○ | ○ | ○ | ○ | ○ |
| Shut-off valves in the media and cooling water circuit | ○ | ○ | ○ | ○ | ○ | ○ |
| All contact parts made of non-corrosive materials | • | • | • | • | • | • |
| Acoustic alarm | • | • | • | • | • | • |
| Mould draining | ○ [3] | ○ [3] | ○ [3] | ○ [3] | ○ [3] | ○ [3] |
| Leak stop function | • [5] | • [5] | • [5] | • [5] | • [5] | • [5] |
| Seal-less, magnetically coupled stainless steel pump | – | • | – | • | • | • |

Technical data

Standard specification/Options

[1]) at 15 °C cooling water and 130 °C circuit water temperature [2]) by reversing the direction of rotation of the pump [3]) not in combination with leakage stop operation [4]) not in combination with return stop [5]) not in combination with mould draining function

Subject to technical modification without notice!

high.line

# teco cs t itc evo – temperature control units with indirect cooling in 95 °C, 140 °C and 160 °C version ...

The multiple distribution system has been designed for the attachment to temperature controllers to adjust and monitor individually the flow volume and the return

temperature of parallel connected consumer circuits. Thus the system ensures the hydraulic balance in the temperature control circuits with different pressure losses and ensures an economic and reliable distribution of the flow rate delivered.

The flow rate and the return temperature of each circuit is indicated on the central display of the temperature controller.

The process monitoring is performed by the adjustment of minimum and maximum limit values for the flow rate, return temperature and differential temperature per circuit. In addition, process performances per distribution circuit are displayed. When the tolerance band is exceeded alarm functions are activated and displayed.



Display, communication, operation via the 7-inch touch screen of the temperature control units


**Alternative colour concept:gwk farewell Edition**

# ... combined with 4-fold water distributor including single circuit monitoring

- Flow rate measurement insensitive to contamination per distribution circuit
- Common temperature measurement and display in the supply flow line
- Separate temperature measurement in the return line per distribution circuit
- Display of process performance per distribution circuit
- Display and monitoring of the flow per distribution circuit
- Limit setting for flow rate and temperature per distribution circuit
- Throttle valve for adjusting the volume flow and hydraulic balancing for each distribution circuit
- Differential temperature monitoring
- Corrosion-resistant materials
- Shut-off ball valve per distributor in the supply and return line

• = Standard / ○ = Option / – = not available / Values in () optional

| At | 95 °C | | 140 °C | | 160 °C |
|---|---|---|---|---|---|
| **Technical data** | | | | | |
| **Combined unit teco cs t with multiple distributor itc evo** | **cs 90t 9 itc evo** | | **cs 140t 9 itc evo** | | **cs 160t 9 itc evo** |
| Medium | water | water | water | water | water |
| Temperature max. ( °C) | 95 | 95 | 140 | 140 | 160 |
| Pump capacity max. (l/min / bar) | 60 / 3,8 | 60 / 6,0 | 50 / 6,3 | 60 / 6,0 | 60 / 6,0 |
| Pump mode | constant | constant | constant | constant | constant |
| Heating capacity (kW) | 9 | 9 | 9 | 9 | 9 |
| Cooling | indirect | indirect | indirect | indirect | indirect |
| Cooling capacity (kW) [1] | 23 | 42 | 40 | 120 | 40 |
| Number of individual / monitoring circuits | 4 | 4 | 4 | 4 | 4 |
| Maximum flow rate single circuit (l/min/ bar) | 15 | 15 | 15 | 15 | 15 |
| Weight (kg) | 58 | 58 | 58 | 58 | 58 |
| Circulation medium supply and return connections | G 1/2“ | G 1/2“ | G 1/2“ | G 1/2“ | G 1/2“ |
| Cooling water supply and return connections | G 1/4“ | G 1/4“ | G 1/4“ | G 1/4“ | G 1/4“ |
| Dimensions without attachment parts in mm (L x W x H) | 887 x 356 x 624 | 887 x 356 x 624 | 887 x 356 x 624 | 887 x 356 x 624 | 887 x 356 x 624 |
| **Standard specification/Options** | | | | | |
| 7“ logotherm multi-touch-display | • | • | • | • | • |
| „longlife“-„longlife“ stainless steel heater cartridge with long term guarantee | • | • | • | • | • |
| Continuous heater control via solid state semiconductor relays | • | • | • | • | • |
| Automatic filling and top up device | • | • | • | • | • |
| Integrierte Nachspeisepumpe | • | • | • | • | • |
| Strainer in cooling water inlet | • | • | • | • | • |
| All contact parts made of non-corrosive materials | • | • | • | • | • |
| Acoustic alarm | • | • | • | • | • |
| Mould draining | • [2, 4] | • [2, 4] | ○ [3] | ○ [3] | ○ [3] |
| Leak stop function | • [2, 4] | • [2, 4] | • [5] | • [5] | • [5] |
| Sealless pump | • | • | • | • | • |

[1]) at 15 °C cooling water and 90 °C resp. 130 °C circuit water temperature [2]) by reversing the direction of rotation of the pump [3]) not in combination with leakage stop operation [4]) not in combination with return stop [5]) not in combination with mould draining function

Subject to technical modification without notice!

# The product line eco.line ...

technotrans' eco.line is currently the most efficient integrated product line available on the market.

The compact temperature control units of the eco.line are our operating cost-optimised standard units. They are designed to guarantee consistent sustainability, economical temperature control with water at temperatures up to 180 °C and flow rates up to 440 L/min.

**«Efficient pumps, speed control, and easy to use are standard features.»**

# … sustainable and affordable



**«High reliability, maximum operating cost savings and subsidies making amortisation periods as short as possible.»**

eco.line

# Proven technology in a new enclosure concept – The best of both worlds!

The new temperature control units of the teco ci/cd t eco series integrated in the eco.line are actually not new at all, because they are based on proven concepts of the teco cs and protemp series.

The innovative series combines the fundamental advantages of the successful and investment cost-optimised teco cs series with those of the no less successful and operating cost-optimised protemp series in a new design.

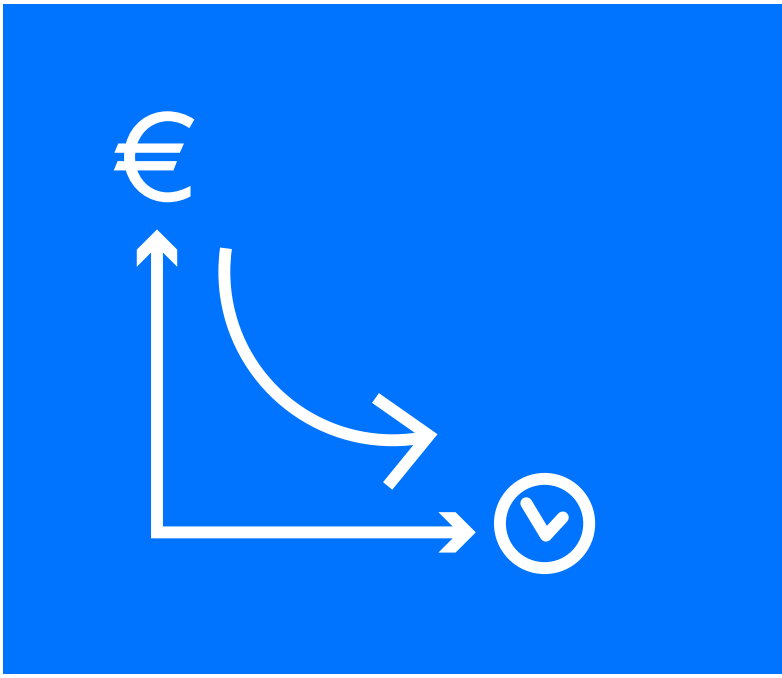
**The best of both worlds!**

The innovative temperature control units of this unit series stand for **high reliability** and ensure **particularly efficient, sustainable and convenient** temperature control with water at temperatures up to 180 °C and flow rates up to 230 L/min.

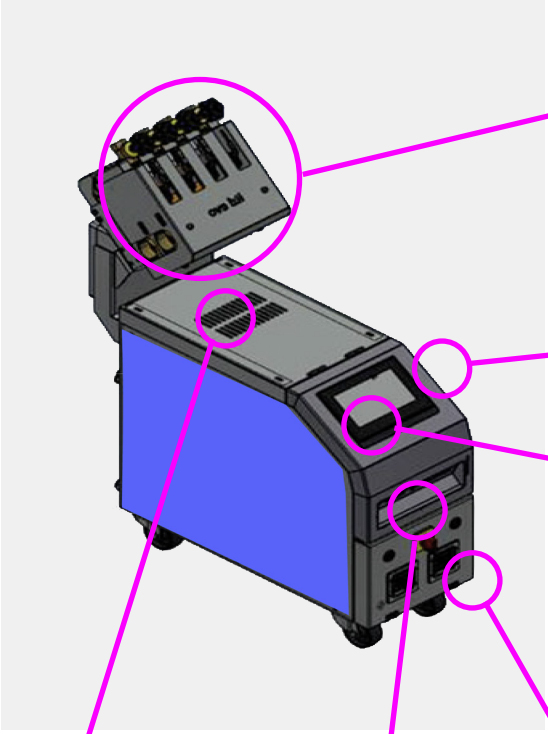
The unique feature of this series is the price/performance ratio, which is unparalleled for highly efficient temperature control units.

The key features adopted from the previous units include the use of highly efficient and speed-controlled pumps, the innovative logotherm display and operating concept with 7-inch multi-touch display, intuitive user interface and user-friendly menu navigation, as well as the compact and particularly service-friendly housing concept.

**«Additional investments for speed controllers and the associated control intelligence pay for themselves in a short time.»**



# Highlights of the teco cd/ci eco series:



Option: Concept for connecting itd evo water distributors with flow monitoring and passive/active individual circuit control

Swivelling control cabinet front

Innovative 7-inch multi-touch screen display


Panel parts can be opened without tools

Easily accessible interface slot

Display of the energy consumption of the pump

Reduced unit width

**«State-of-the-art microcontroller and control intelligence with energy-saving SSR heating control, speed-controlled pump, etc. Δ T control mode included as standard feature»**

eco.line

# teco cd 95 eco – temperature control units with direct cooling in 95 °C version …


- Convenient operation via gesture-enabled logotherm 7-inch multi-touch display
- compactControl microcontroller
- "longlife" stainless steel cartridge heater with long-term guarantee
- Durable peripheral impeller pump without seals (up to 60 L/min)
- Durable and highly efficient centrifugal pump (> 60 L/min)
- Pump speed control (PEM)
- Stainless steel tank (up to 95 °C) / closed circuit (starting at 140 °C)
- ISO 7 clean room class
- Splash proof control cabinet acc. to IP 54
- Ready for connection with cable and CEE socket
- Interface port integrated in the front of the unit (e.g. for optional interface analogue, serial, Profibus, Profinet, or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt-grey
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

## «Sustainable and affordable at high performance»


Example: Display

# … inclusive PEM – The Pump Efficiency Module

## An investment that pays for itself in a very short time

Experience shows that energy cost savings of more than 50 % can be achieved when using the PEM in control mode ΔT. In many individual cases, savings of > 90 % have already been generated.

**Model calculation of the savings potential in 3-shift operation with 5,940 h**
(Using a rate of € 0.16/kWh for the electricity and a conversion factor of 0.537 t $CO_2$/MWh):

| | | 50 % | 75 % | 90 % | |
|---|---|---|---|---|---|
| 1,0 kW | **Energy consumption to be saved** | **2,970.00** | **4,455.00** | **5,346.00** | **kWh/year** |
| | **Energy costs to be saved** | **475.20** | **712.80** | **855.36** | **€/year** |
| | **$CO_2$ emission to be saved** | **1.59** | **2.39** | **2.87** | **$CO_2$ in t/year** |

| | At | 95 °C |
|---|---|---|
| Technical data | **Model teco** | **cd 95 eco 60** |
| | Medium | water |
| | Temperature max. ( °C) | 95 |
| | Pump capacity max. (l/min / bar) | 60 / 6,0 |
| | Pump mode | speed-controlled |
| | Heating capacity (kW) | 9 |
| | Cooling | direct |
| | Cooling capacity (kW) [1] | 140 |
| | Weight (kg) | 60 |
| | Circulation medium supply and return connections | G ¾" |
| | Cooling water supply and return connections | G ½" |
| | Dimensions without attachment parts in mm (L x W x H) | 665 x 280 x 611 |
| Standard specific./Options | 7" logotherm multi-touch-display | • |
| | „longlife"-„longlife" stainless steel heater cartridge with long term guarantee | • |
| | Continuous heater control via solid state semiconductor relays | • |
| | Automatic filling and top up device | • |
| | Strainer in cooling water inlet | • |
| | Strainer in return line circulation medium | ○ |
| | All contact parts made of non-corrosive materials | • |
| | Acoustic alarm | • |
| | Mould draining | ○ |
| | Low-maintenance flow measurement | • |
| | Return temperature indication | • |

[1]) at 15 °C cooling water
and 90 °C circuit water temperature

Subject to technical modification
without notice!

eco.line

# teco ci eco – temperature control units with indirect cooling in 95 °C, 140 °C ...

**Alternative colour concept: enersave farewell Edition**

- Convenient operation via gesture-enabled logotherm 7-inch multi-touch display
- compactControl microcontroller
- "longlife" stainless steel cartridge heater with long-term guarantee
- Durable peripheral impeller pump without seals (up to 60 L/min)
- Durable and highly efficient centrifugal pump (> 60 L/min)
- Pump speed control (PEM)
- Stainless steel tank (up to 95 °C) / closed circuit (starting at 140 °C)
- ISO 7 clean room class
- Splash proof control cabinet acc. to IP 54
- Ready for connection with cable and CEE socket
- Interface port integrated in the front of the unit (e.g. for optional interface analogue, serial, Profibus, Profinet, or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt-grey
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

## «Sustainable and affordable at high performance»


Example: Display

# … 160 °C and 180 °C version inclusive PEM – The Pump Efficiency Module

## An investment that pays for itself in a very short time

Experience shows that energy cost savings of more than 50 % can be achieved when using the PEM in control mode ΔT. In many individual cases, savings of > 90 % have already been generated.

**Model calculation of the savings potential in 3-shift operation with 5,940 h**

(Using a rate of € 0.16/kWh for the electricity and a conversion factor of 0.537 t $CO_2$/MWh):

| | | 50 % | 75 % | 90 % | |
|---|---|---|---|---|---|
| 1,0 kW | **Energy consumption to be saved** | **2.970,00** | **4.455,00** | **5.346,00** | **kWh/year** |
| | **Energy costs to be saved** | **475,20** | **712,80** | **855,36** | **€/year** |
| | **$CO_2$ emission to be saved** | **1,59** | **2,39** | **2,87** | **$CO_2$ in t/year** |
| 2,2 kW | **Energy consumption to be saved** | **6.534,00** | **9.801,00** | **11.761,20** | **kWh/year** |
| | **Energy costs to be saved** | **1.045,44** | **1.568,16** | **1.881,79** | **€/year** |
| | **$CO_2$ emission to be saved** | **3,51** | **5,26** | **6,32** | **$CO_2$ in t/year** |

• = Standard / ○ = Option / – = not available / Values in () optional

| | At | 95 °C | | | 140 °C | 160 °C | 180 °C |
|---|---|---|---|---|---|---|---|
| Technical data | **Model teco** | **ci 95 eco 60** | **ci 95 eco 130** | **ci 95 eco 230** | **ci 140 eco 60** | **ci 160 eco 60** | **ci 180 eco 60** |
| | Medium | water | water | water | water | water | water |
| | Temperature max. ( °C) | 95 | 95 | 95 | 140 | 160 | 180 |
| | Pump capacity max. (l/min / bar) | 60 / 6,0 | 130 / 5,3 | 230 / 5,3 | 60 / 6,0 | 60 / 6,0 | 60 / 6,0 |
| | Pump mode | speed-con. | speed-con. | speed-con. | speed-con. | speed-con. | speed-con. |
| | Heating capacity (kW) | 9 | 9 / 18 / 27 / 36 | 9 / 18 / 27 / 36 | 9 | 9 | 9 |
| | Cooling | indirect | indirect | indirect | indirect | indirect | indirect |
| | Cooling capacity (kW) [1] | 42 | 250 | 250 | 120 | 120 | 120 |
| | Weight (kg) | 49 | 52 | 55 | 64 | 68 | 70 |
| | Circulation medium supply and return connections | G 3/4" | G 1" | G 1 1/2" | G 1/2" | G 1/2" | G 1/2" |
| | Cooling water supply and return connections | G 1/4" | G 3/4" | G 3/4" | G 1/4" | G 1/4" | G 1/4" |
| | Dimensions without attachment parts in mm (L x W x H) | 655 x 280 x 611 | 850 x 398 x 752 | 850 x 398 x 752 | 807 x 280 x 611 | 807 x 280 x 611 | 807 x 280 x 611 |
| Standard specification/Options | 7" logotherm multi-touch-display | • | • | • | • | • | • |
| | „longlife" stainless steel heater cartridge with long term guarantee | • | • | • | • | • | • |
| | Continuous heater control via solid state semiconductor relays | • | • | • | • | • | • |
| | Automatic filling and top up device | • | • | • | • | • | • |
| | Additional manual filling operation for treated water | • | • | • | – | – | – |
| | Integrated top up-pump | – | – | – | – | – | – |
| | Strainer in cooling water inlet | • | • | • | • | • | • |
| | Strainer in return line circulation medium | ○ | ○ | ○ | ○ | ○ | ○ |
| | Shut-off valves in the media and cooling water circuit | ○ | ○ | ○ | ○ | ○ | ○ |
| | All contact parts made of non-corrosive materials | • | • | • | • | • | • |
| | Acoustic alarm | • | • | • | • | • | • |
| | Mould draining | • | • | • | • | • | • |
| | Sealless pump | • [2,4] | • [2,4] | • [2,4] | ○ [3] | ○ [3] | ○ [3] |

[1]) at 15 °C cooling water and 130 °C circuit water temperature [2]) by reversing the direction of rotation of the pump [3]) not in combination with leakage stop operation [4]) not in combination with return stop [5]) not in combination with mould draining function

Subject to technical modification without notice!

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# teco cd/ci t itd evo temperature control units with direct and indirect cooling ...

The itd evo multiple distribution system is specially designed for control integration on technotrans temperature control units with 7-inch logotherm multi-touch display. The water distributor can be attached to the temperature control unit or directly to the consumer, e.g. injection mould or the machine clamping plate.

The visualisation of the measured values provided at the water distributor, such as flow rate and temperature, is carried out on the temperature control unit display, and so is a setpoint specification for automatic flow rate control. This eliminates the need for a separate control unit, which was previously common on the market for water distribution systems.

**An adaptive system with many possibilities!**

The flow rate and the return temperature of each individual circuit are recorded and transmitted to the temperature control unit.

Two alternative measuring methods, the **low-maintenance** vortex measurement and the **maintenance-free** ultrasonic flow measurement, are available for flow rate measurement.

For hydraulic balancing and control of the individual circuits, a passive variant with manual valves or an active variant with automatic control valves can be selected.

Coordinated with each other:
Temperature control unit and water distributor



Display and control unit logotherm
with 7 “multi-touch display

# … combined with manually or automatically adjustable 4 and 6-way water distributors

- Easy mounting on temperature control units up to maximum 6 circuits
- Display, communication, operation via the 7-inch touch screen of the temperature control units
- Continuous, low-maintenance or maintenance-free and contamination-insensitive flow rate measurement for each distribution circuit
- Common temperature measurement and display in the supply flow line
- Separate temperature measurement in the return line per distribution circuit
- Display and monitoring of the flow per distribution circuit
- Limit setting for flow rate for each distribution circuit
- Limit setting for temperature for each distribution circuit
- Flow measurement based on the Vortex principle
- Optional: Flow measurement based on the Ultrasound principle
- Throttle valve for adjusting the volume flow and hydraulic balancing for each distribution circuit
- Shut-off ball valve for each distribution circuit flow
- Optional: Automatic flow rate control
- Differential temperature monitoring
- Optional: Differential temperature control
- Corrosion-resistant materials

Optional equipment:
maintenance-free ultrasonic flow measurement

| Multiple distributor itd evo | Vortex passive | Vortex active | Ultrasonic passive | Ultrasonic active |
|---|---|---|---|---|
| Maximum medium temperature | 95 °C / 120 °C | 95 °C / 120 °C | 95 °C / 120 °C | 95 °C / 120 °C |
| Number of individual circuits | 4 / 6 | 4 / 6 | 4 / 6 | 4 / 6 |
| Type of flow measurement | Vortex | Ultrasonic | Vortex | Ultrasonic |
| Flow measuring range single circuits | 2 – 40 l/min | 2 – 40 l/min | 1 – 30 l/min | 1 – 30 l/min |
| Temperature sensor return individual circuits | • | • | • | • |
| Hydraulic balancing (Hand valve) | • | • | • | • |
| Stop ball valve flow | • | - | • | - |
| Automatic flow rate control | - | active via motor valve | - | active via motor valve |
| Individual circuits can be switched on/off | manual | automatic | manual | automatic |
| Central connection for flow/return single | G 1 1/4" | G 1 1/4" | G 1 1/4" | G 1 1/4" |
| Connection for flow/return single circuits | G 1/2" | G 1/2" | G 1/2" | G 1/2" |
| Maximum operating pressure | 16 bar | 16 bar | 16 bar | 16 bar |

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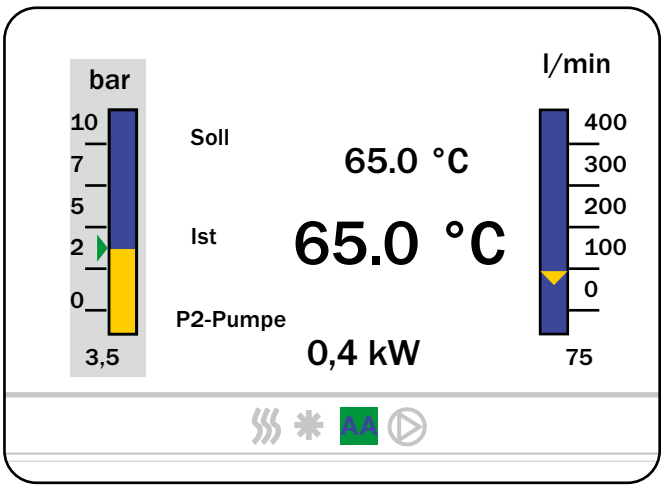
# protemp selection series – temperature control units with direct cooling in 95 °C version ...

Alternative colour concept: enersave farewell Edition

- Convenient operation via 4.3" touch display
- protemp I microcontroller
- "longlife" stainless steel cartridge heater with long-term guarantee
- Durable and highly efficient centrifugal pump
- Speed control of the pumps (PEM)
- "Tankless" device for minimal oxygen uptake
- ISO 7 clean room class
- Splash proof control cabinet acc. to IP 54
- Ready for connection with cable and CEE socket
- Optional interface connections (e.g. analogue, serial, Profibus, Profinet or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt-grey
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

## «Sustainable and affordable at high performance»




Example: Display

# … inclusive PEM – The Pump Efficiency Module

## An investment that pays for itself in a very short time

Experience shows that energy cost savings of more than 50 % can be achieved when using the PEM in control mode ΔT. In many individual cases, savings of > 90 % have already been generated.

**Model calculation of the savings potential in 3-shift operation with 5,940 h**
(Using a rate of € 0.16/kWh for the electricity and a conversion factor of 0.537 t $CO_2$/MWh):

| | | 50 % | 75 % | 90 % | |
|---|---|---|---|---|---|
| 1,5 kW | **Energy consumption to be saved** | **4,455.00** | **6,682.50** | **8,019.00** | **kWh/year** |
| | **Energy costs to be saved** | **712.80** | **1,069.20** | **1,283.04** | **€/year** |
| | **$CO_2$ emission to be saved** | **2.39** | **3.59** | **4.31** | **$CO_2$ in t/year** |

• = Standard / ○ = Option / – = not available / Values in () optional

| | At | 95 °C |
|---|---|---|
| Technical data | **Model protemp** | **cd 95 s2 eco** |
| | Medium | water |
| | Temperature max. ( °C) | 95 |
| | Pump capacity max. (l/min / bar) | 165 / 5,1 |
| | Pump mode | speed-controlled |
| | Heating capacity (kW) | 0 / 9 / 18 |
| | Cooling | direkt |
| | Cooling capacity (kW) [1] | 264 |
| | Weight (kg) | 105 |
| | Circulation medium supply and return connections | G 1" |
| | Cooling water supply and return connections | G $^3/_4$" |
| | Dimensions without attachment parts in mm (L x W x H) | 908 x 380 x 750 |
| Standard specif./Options | 4,3" touch display | • |
| | „longlife" stainless steel heater cartridge with long term guarantee | • |
| | Continuous heater control via solid state semiconductor relays | • |
| | Automatic filling and top up device | • |
| | Strainer in cooling water inlet | • |
| | Strainer in return line circulation medium | • |
| | All contact parts made of non-corrosive materials | • |
| | Acoustic alarm | ○ |
| | Low-maintenance flow measurement | • |
| | Return temperature indication | • |

[1]) at 15 °C cooling water and 90 °C circuit water temperature

Subject to technical modification without notice!

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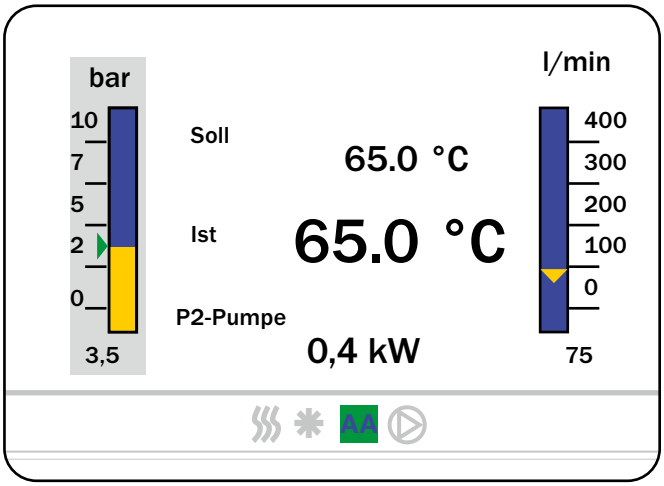
# protemp advanced series – temperature control units with direct cooling in 95 °C version ...

Alternative colour concept: enersave farewell Edition

- Convenient operation via 4.3" touch display
- protemp I microcontroller
- "longlife" stainless steel cartridge heater with long-term guarantee
- Durable and highly efficient centrifugal pump
- Speed control of the pumps (PEM)
- "Tankless" device for minimal oxygen uptake
- ISO 7 clean room class
- Splash proof control cabinet acc. to IP 54
- Ready for connection with cable and CEE socket
- Optional interface connections (e.g. analogue, serial, Profibus, Profinet or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt-grey
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

## «HighEnd temperature control – Sustainable and reliable»




Example: Display

# … inclusive PEM – The Pump Efficiency Module

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**Model calculation of the savings potential in 3-shift operation with 5,940 h**
(Using a rate of € 0.16/kWh for the electricity and a conversion factor of 0.537 t $CO_2$/MWh):

| | | 50 % | 75 % | 90 % | |
|---|---|---|---|---|---|
| 1,1 kW | Energy consumption to be saved | 3,267.00 | 4,900.50 | 5,880.60 | kWh/year |
| | Energy costs to be saved | 522.72 | 784.08 | 940.90 | €/year |
| | $CO_2$ emission to be saved | 1.75 | 2.63 | 3.16 | $CO_2$ in t/year |
| 22 kw | Energy consumption to be saved | 6,534.00 | 9,801.00 | 11,761.20 | kWh/year |
| | Energy costs to be saved | 1,045.44 | 1,568.16 | 1,881.79 | €/year |
| | $CO_2$ emission to be saved | 3.51 | 5.26 | 6.32 | $CO_2$ in t/year |
| 4,0 kW | Energy consumption to be saved | 11,880.00 | 17,820.00 | 21,384.00 | kWh/year |
| | Energy costs to be saved | 1.,900.80 | 2,851.20 | 3,421.44 | €/year |
| | $CO_2$ emission to be saved | 6.38 | 9.57 | 11.48 | $CO_2$ in t/year |

• = Standard / ○ = Option / – = not available / Values in () optional

| | At | 95 °C | | | |
|---|---|---|---|---|---|
| Technical data | Model protemp | cd 95 a1 eco | cd 95 a2 eco | cd 95 a3 eco | cd 95 a4 eco |
| | Medium | water | water | water | water |
| | Temperature max. ( °C) | 95 | 95 | 95 | 95 |
| | Pump capacity max. (l/min / bar) | 83 / 6,8 | 125 / 7,0 | 300 / 7,0 | 440 / 5,0 |
| | Pump mode | speed-controlled | speed-controlled | speed-controlled | speed-controlled |
| | Heating capacity (kW) | 0 / 9 / 18 | 0 / 9 / 18 / 27 / 36 | 0 / 20 / 30 / 40 / 50 | 0 / 20 / 30 / 40 / 50 |
| | Cooling | direct | direct | direct | direct |
| | Cooling capacity (kW) [1] | 397 | 397 | 632 | 632 |
| | Weight (kg) | 85 | 100 | 215 | 215 |
| | Circulation medium supply and return connections | G ¾" | G 1" | G 1 ½" | G 2" |
| | Cooling water supply and return connections | G ¾" | G ¾" | G 1" | G 1" |
| | Dimensions without attachment parts in mm (L x W x H) | 908 x 380 x 750 | 908 x 380 x 750 | 1.105 x 520 x 1.050 | 1.105 x 520 x 1.050 |
| Standard specif./Options | 4,3" touch display | • | • | • | • |
| | „longlife" stainless steel heater cartridge with long term guarantee | • | • | • | • |
| | Continuous heater control via solid state semiconductor relays | • | • | • | • |
| | Automatic filling and top up device | • | • | • | • |
| | Strainer in cooling water inlet | • | • | • | • |
| | Strainer in return line circulation medium | • | • | • | • |
| | All contact parts made of non-corrosive materials | • | • | • | • |
| | Acoustic alarm | • | • | • | • |
| | Mould draining | ○ | ○ | ○ | ○ |
| | Low-maintenance flow measurement | ○ | ○ | ○ | ○ |
| | Return temperature indication | • | • | • | • |

[1]) at 15 °C cooling water and 90 °C circuit water temperature

Subject to technical modification without notice!

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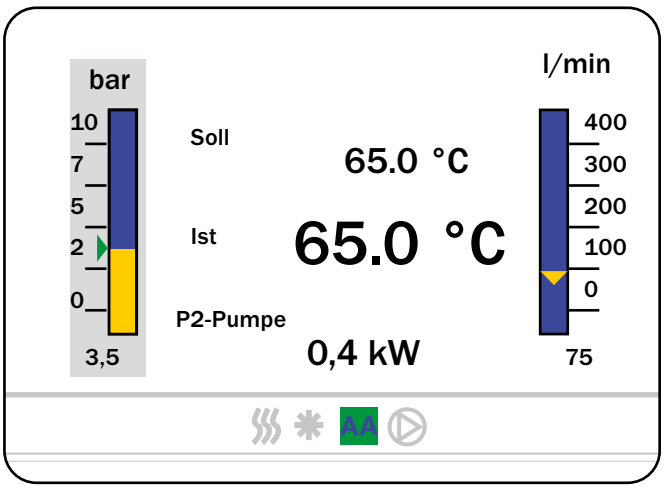
# protemp selection series – temperature control units with indirect cooling in 95 °C version ...

Alternative colour concept: enersave farewell Edition

- Convenient operation via 4.3" touch display
- protemp I microcontroller
- "longlife" stainless steel cartridge heater with long-term guarantee
- Durable and highly efficient centrifugal pump
- Speed control of the pumps (PEM)
- "Tankless" device for minimal oxygen uptake
- ISO 7 clean room class
- Splash proof control cabinet acc. to IP 54
- Ready for connection with cable and CEE socket
- Optional interface connections (e.g. analogue, serial, Profibus, Profinet or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt-grey
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

## «Sustainable and affordable at high performance»




Example: Display

# … inclusive PEM – The Pump Efficiency Module

## An investment that pays for itself in a very short time

Experience shows that energy cost savings of more than 50 % can be achieved when using the PEM in control mode ΔT. In many individual cases, savings of > 90 % have already been generated.

**Model calculation of the savings potential in 3-shift operation with 5,940 h**
(Using a rate of € 0.16/kWh for the electricity and a conversion factor of 0.537 t $CO_2$/MWh):

| | | 50 % | 75 % | 90 % | |
|---|---|---|---|---|---|
| 1,5 kW | **Energy consumption to be saved** | **4,455.00** | **6,682.50** | **8,019.00** | **kWh/year** |
| | **Energy costs to be saved** | **712.80** | **1,069.20** | **1,283.04** | **€/year** |
| | **$CO_2$ emission to be saved** | **2.39** | **3.59** | **4.31** | **$CO_2$ in t/year** |

• = Standard / ○ = Option / – = not available / Values in () optional

| | At | 95 °C |
|---|---|---|
| Technical data | **Model protemp** | **ci 95 s2 eco** |
| | Medium | water |
| | Temperature max. ( °C) | 95 |
| | Pump capacity max. (l/min / bar) | 165 / 5,1 |
| | Pump mode | speed-controlled |
| | Heating capacity (kW) | 0 / 9 / 18 |
| | Cooling | indirect |
| | Cooling capacity (kW) [1] | 92 |
| | Weight (kg) | 105 |
| | Circulation medium supply and return connections | G 1" |
| | Cooling water supply and return connections | G $^3/_4$" |
| | Dimensions without attachment parts in mm (L x W x H) | 908 x 830 x 750 |
| Standard specif./Options | 4,3" touch-Display | • |
| | „longlife" stainless steel heater cartridge with long term guarantee | • |
| | Continuous heater control via solid state semiconductor relays | • |
| | Automatic filling and top up device | • |
| | Strainer in cooling water inlet | • |
| | Strainer in return line circulation medium | • |
| | All contact parts made of non-corrosive materials | • |
| | Acoustic alarm | ○ |
| | Low-maintenance flow measurement | • |
| | Return temperature indication | • |

[1]) at 15 °C cooling water and 90 °C circuit water temperature

Subject to technical modification without notice!

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# protemp advanced series – temperature control units with indirect cooling in 95 °C ...

**Alternative colour concept: enersave farewell Edition**

- Convenient operation via 4.3" touch display
- protemp I microcontroller
- "longlife" stainless steel cartridge heater with long-term guarantee
- Durable and highly efficient centrifugal pump
- Speed control of the pumps (PEM)
- "Tankless" device for minimal oxygen uptake
- ISO 7 clean room class
- Splash proof control cabinet acc. to IP 54
- Ready for connection with cable and CEE socket
- Optional interface connections (e.g. analogue, serial, Profibus, Profinet or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt-grey
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

• = Standard / ○ = Option / – = not available / Values in () optional

| At | 95 °C | | | |
|---|---|---|---|---|
| **Model protemp** | **ci 95 a1 eco** | **ci 95 a2 eco** | **ci 95 a3 eco** | **ci 95 a4 eco** |
| **Technische Daten** | | | | |
| Medium | water | water | water | water |
| Temperature max. ( °C) | 95 | 95 | 95 | 95 |
| Pump capacity max. (l/min / bar) | 83 / 6,8 | 125 / 7,0 | 300 / 7,0 | 440 / 5,0 |
| Pump mode | speed-controlled | speed-controlled | speed-controlled | speed-controlled |
| Heating capacity (kW) | 0 / 9 / 18 | 0 / 9 / 18 / 27 / 36 | 0 / 20 / 30 / 40 / 50 | 0 / 20 / 30 / 40 / 50 |
| Cooling | indirect | indirect | indirect | indirect |
| Cooling capacity (kW) [1] | 92 | 92 | 472 | 472 |
| Weight (kg) | 95 | 100 | 225 | 225 |
| Circulation medium supply and return connections | G ¾" | G 1" | G 1 ½" | G 2" |
| Cooling water supply and return connections | G ¾" | G ¾" | G 1" | G 1" |
| Dimensions without attachment parts in mm (L x W x H) | 908 x 380 x 750 | 908 x 380 x 750 | 1.105 x 520 x 1.050 | 1.105 x 520 x 1.050 |
| **Standard specif./Options** | | | | |
| 4,3" touch display | • | • | • | • |
| „longlife" stainless steel heater cartridge with long term guarantee | • | • | • | • |
| Continuous heater control via solid state semiconductor relays | • | • | • | • |
| Automatic filling and top up device | • | • | • | • |
| Strainer in cooling water inlet | • | • | • | • |
| Strainer in return line circulation medium | • | • | • | • |
| All contact parts made of non-corrosive materials | • | • | • | • |
| Acoustic alarm | • | • | • | • |
| Mould draining | ○ | ○ | ○ | ○ |
| Low-maintenance flow measurement | • | • | • | • |
| Return flow temperature control | • | • | • | • |

[1]) at 15 °C cooling water and 90 °C circuit water temperature

Subject to technical modification without notice!

# … and 140 °C version … inclusive PEM – The Pump Efficiency Module

## An investment that pays for itself in a very short time

Experience shows that energy cost savings of more than 50 % can be achieved when using the PEM in control mode ΔT. In many individual cases, savings of > 90 % have already been generated.

**Model calculation of the savings potential in 3-shift operation with 5,940 h**
(Using a rate of € 0.16/kWh for the electricity and a conversion factor of 0.537 t $CO_2$/MWh):

| | | 50 % | 75 % | 90 % | |
|---|---|---|---|---|---|
| 1,1 kW | Energy consumption to be saved | 3,267.00 | 4,900.50 | 5,880.60 | kWh/year |
| | Energy costs to be saved | 522.72 | 784.08 | 940.90 | €/year |
| | $CO_2$ emission to be saved | 1.75 | 2.63 | 3.16 | $CO_2$ in t/year |
| 22 kw | Energy consumption to be saved | 6,534.00 | 9,801.00 | 11,761.20 | kWh/year |
| | Energy costs to be saved | 1,045.44 | 1,568.16 | 1,881.79 | €/year |
| | $CO_2$ emission to be saved | 3.51 | 5.26 | 6.32 | $CO_2$ in t/year |
| 4,0 kW | Energy consumption to be saved | 11,880.00 | 17,820.00 | 21,384.00 | kWh/year |
| | Energy costs to be saved | 1,900.80 | 2,851.20 | 3,421.44 | €/year |
| | $CO_2$ emission to be saved | 6.38 | 9.57 | 11.48 | $CO_2$ in t/year |

• = Standard / ○ = Option / – = not available / Values in () optional

| | At | 140 °C | | | |
|---|---|---|---|---|---|
| Technical data | Model protemp | ci 140 a1 eco | ci 140 a2 eco | ci 140 a3 eco | ci 140 a4 eco |
| | Medium | water | water | water | water |
| | Temperature max. ( °C) | 140 | 140 | 140 | 140 |
| | Pump capacity max. (l/min / bar) | 83 / 6,8 | 125 / 7,0 | 300 / 7,0 | 440 / 5,0 |
| | Pump mode | speed-controlled | speed-controlled | speed-controlled | speed-controlled |
| | Heating capacity (kW) | 0 / 9 / 18 | 0 / 9 / 18 / 27 / 36 | 0 / 20 / 30 / 40 / 50 | 0 / 20 / 30 / 40 / 50 |
| | Cooling | indirect | indirect | indirect | indirect |
| | Cooling capacity (kW) [1] | 92 | 92 | 472 | 472 |
| | Weight (kg) | ??? | ??? | ??? | ??? |
| | Circulation medium supply and return connections | G ¾" | G 1" | G 1 ½" | G 2" |
| | Cooling water supply and return connections | G ¾" | G ¾" | G 1" | G 1" |
| | Dimensions without attachment parts in mm (L x W x H) | 908 x 380 x 750 | 908 x 380 x 750 | 1.105 x 520 x 1.050 | 1.105 x 520 x 1.050 |
| Standard specif./Options | 4,3" touch display | • | • | • | • |
| | „longlife" stainless steel heater cartridge with long term guarantee | • | • | • | • |
| | Continuous heater control via solid state semiconductor relays | • | • | • | • |
| | Automatic filling and top up device | • | • | • | • |
| | Strainer in cooling water inlet | • | • | • | • |
| | Strainer in return line circulation medium | • | • | • | • |
| | All contact parts made of non-corrosive materials | • | • | • | • |
| | Acoustic alarm | • | • | • | • |
| | Mould draining | ○ | ○ | ○ | ○ |
| | Low-maintenance flow measurement | • | • | • | • |
| | Return flow temperature control | • | • | • | • |

[1]) at 15 °C cooling water and 130 °C circuit water temperature

Subject to technical modification without notice!

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# protemp flow ultrasonic – temperature control units with direct or indirect ...

The proflow multiple distribution system is specially designed for control integration on technotrans temperature control units with 4.3-inch multi-touch display.

The water distributor can be attached to the temperature control unit or directly to the consumer, e.g. injection mould or the machine clamping plate.

The visualisation of the measured values provided at the water distributor, such as flow rate and temperature, is carried out on the temperature control unit display, and so is a setpoint specification for automatic flow rate control. This eliminates the need for a separate control unit, which was previously common on the market for water distribution systems.

**Maintenance-free ultrasonic flow measurement system**

The flow rate and the return temperature of each individual circuit are recorded and transmitted to the temperature control unit.

An innovative **maintenance-free** ultrasonic flow meter is used to measure the flow rate of the individual distribution circuits.

A passive variant with manual valves is available for hydraulic balancing and control of the individual circuits.

Synchronised with each other:
Temperature control unit and water distributor

**»Non-contact flow measurement – the best the market currently offers.«**

# … cooling combined with manually adjustable 4 and 6-way water distributors

- Easy mounting on temperature control units up to maximum 6 circuits
- Display, communication, operation via the 4.3-inch touch screen of the temperature control units
- Continuous, maintenance-free and contamination-insensitive flow rate measurement for each distribution circuit
- Common temperature measurement and display in the supply flow line
- Separate temperature measurement in the return line per distribution circuit
- Display and monitoring of the flow per distribution circuit
- Limit setting for flow rate for each distribution circuit
- Limit setting for temperature for each distribution circuit
- Flow measurement based on the Ultrasound principle
- Throttle valve for adjusting the volume flow and hydraulic balancing for each distribution circuit
- Shut-off ball valve for each distribution circuit flow
- Corrosion-resistant materials

Maintenance-free ultrasonic flow measurement

| Multiple distributors proflow ultrasonic | Vortex passive | Vortex active | Ultrasonic passive | Ultrasonic active |
|---|---|---|---|---|
| Maximum medium temperature | 95 °C / 120 °C | 95 °C / 120 °C | 95 °C / 120 °C | 95 °C / 120 °C |
| Number of individual circuits | 4 / 6 | 4 / 6 | 4 / 6 | 4 / 6 |
| Type of flow measurement | Vortex | Ultrasonic | Vortex | Ultrasonic |
| Flow measuring range single circuits | 2 – 40 l/min | 2 – 40 l/min | 1 – 30 l/min | 1 – 30 l/min |
| temperature sensor return individual circuits | • | • | • | • |
| Hydraulic balancing (Hand valve) | • | • | • | • |
| Stop ball valve flow | • | - | • | - |
| Automatic flow rate control | - | active via motor valve | - | active via motor valve |
| Individual circuits can be switched on/off | manual | automatic | manual | automatical |
| Central connection for flow/return single | G 1 1/4" | G 1 1/4" | G 1 1/4" | G 1 1/4" |
| Connection for flow/return single circuits | G 1/2" | G 1/2" | G 1/2" | G 1/2" |
| Maximum operating pressure | 16 bar | 16 bar | 16 bar | 16 bar |

Subject to technical modification without notice!

# Impressions



KraussMaffei


teco cs 90e
LWB


KraussMaffei
BluePower

technotrans

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