technotrans

power to transform

The eco.line

The efficient ones!

eco.line

Appreciated around the globe:

Cold-water temperature controllers

Compact water chillers

Industrial cooling equipment

Free cooling systems

Cooling and water supply systems

HotCooled solutions –

in a unique temperature spectrum.

Innovative, efficient, sustainable.

Temperature control units

Basic standard temperature controllers

Innovative standard temperature controllers

Highly efficient premium temperature controllers

Temperature controllers with water distributors

Customised premium temperature controllers

our product portfolio.

Central cooling systems

Water treatment systems

Mold cleaning

Flexible Installation

directly at the consumer installed. Visualization on the device.

Process monitoring with vortex or Ultrasonic measurement

factory fitted to the temperature control unit (also retrofittable)

Wasserverteiler

Temperature control machines

Customised premium temperature control machines

Temperature control systems

Variothermal temperature control systems

We have the perfect solution for you!

Our temperature control units are divided into four product lines: **base.line, high.line, eco.line** and **flex.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 temperature controller series of the **base.line, high.line** and **eco.line** is largely preconfigured with extensive features and can be customized with individual options.
The performance range of the preconfigured temperature controllers includes units with a heating capacity of up to 72 kW, a flow rate of up to 440 l/min and a media temperature of up to 180 °C.
In the **flex.line** series, the temperature controller can be individually and flexibly configured on request with extensive features and numerous options.

The performance range of the flexible tempera ture controllers includes units with a heating capacity of up to 72 kW, a flow rate of up to 500 l/min and a media temperature of up to 350 °C.

A special feature of almost all standard technotrans temperature control units is the longlife heater with zero-loss heat transfer. Together, all four 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.

flex.line

The flexible ones!

The **flex.line** allows a high degree of freedom in unit configuration. Customer requirements can be met individually from a comprehensive modular system.

Efficient
Reduced energy and operating costs through the use of high-efficiency pump designs, performance-controlled pump drives, and optimized heat transfer.

Sustainable
Both customers and the climate benefit in the long term from resource- saving operation – efficient cooling and tem-perature 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 tem- perature 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 CO2 footprint.

The most efficient product line in the market!

With the eco.line, technotrans offers the most efficient most efficient integrated product line on the market. The temperature control units of the **eco.line** are our standard units that are optimized in terms of operating costs and thus consistently sustainability for economical temperature control with water economical temperature control with water at temperatures temperatures up to 180°C and flow rates up to 400 l/min.

With their efficient peripheral impeller and high-efficiency efficient centrifugal pumps, each in combination with speed control and display of pump energy consumption.energy consumption, this equipment line sets new standards in the market in terms of efficiency and ease of operation.

eco.line

	Typ	Medium	Temperature-range [°C]	Heating power [kW]	Cooling power [kW]	Pump capacity Modulating duty [l/min / bar]
direct cooling (cd)	**teco cd 95 eco 60**	water	95	9	140	60 (4,7)
indirect cooling (ci)	**teco ci 95 eco 60**	water	95	9	75	60/60
	teco ci 140 eco 60	water	140	9	120	60/ 6,0
	teco ci 160 eco 60	water	160	9	120	60/ 6,0
	teco ci 180 eco 60	water	180	9	120	60/6,0
	teco ci 95 eco 125	water	95	9/18/27/36	250	125/5,3
	teci ci 95 eco 230	water	95	9/18/27/36	250	230/5,7
	teco ci 95 eco 60 itd^{evo}*	water	95	9	75	60/(6,0)
	teco ci 95 eco 125 itd^{evo}*	water	95	9/18/27/36	250	125/5,3
	teci ci 95 eco 230 itd^{evo}	water	95	9/18/27/36	250	230/5,7
	teco ci 140 eco 60 itd^{evo}	water	140	9	120	60/6,0
	teco ci 160 eco 60 itd^{evo}	water	160	9	120	60/6,0

***with factory-mounted itd^{evo} distributor**

Efficiency and sustainability in focus!

eco.line

Page 14

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

Page 16

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

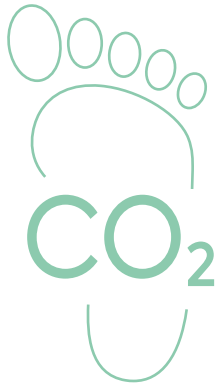
Page 18

teco cd/ ci eco with itd distributor
(direct/ indirect cooling)
Temperature control unit [water]
95 °C, 140 °C, 160 °C

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 power :	27 kW

Result 1 – Technology used so far

Device of a market competitor 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 consumptio 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 PEM

13,335 kWh/year = 92%
or 5.8 CO / year*

*Basi CO2 factor as of 05/2023

Putting the CO2-savings effect into perspective!

How a CO_2 savings of 5,8 t per year can beachieved by using just one **eco.line** temperaturecontrol 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

(1 beech with a height of 23 m = neutralization of 12,5 kg CO2)

464

beech trees are needed to offset approx **5,8 t CO_2 per year**, or ...

... **1** Person flying i

88

times between Cologne and Munich generates

approx. **5,8 t of CO_2.**

(1 flight Cologne/Munich = 65.9 kg CO_2 per person)

The product line eco.line ...

technotrans **eco.line** is currently the most efficient integrated product line available on the market. The temperature control units of the **eco.line** are operating-cost-optimized and sustainable standard units for economical temperature control with water a 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.«

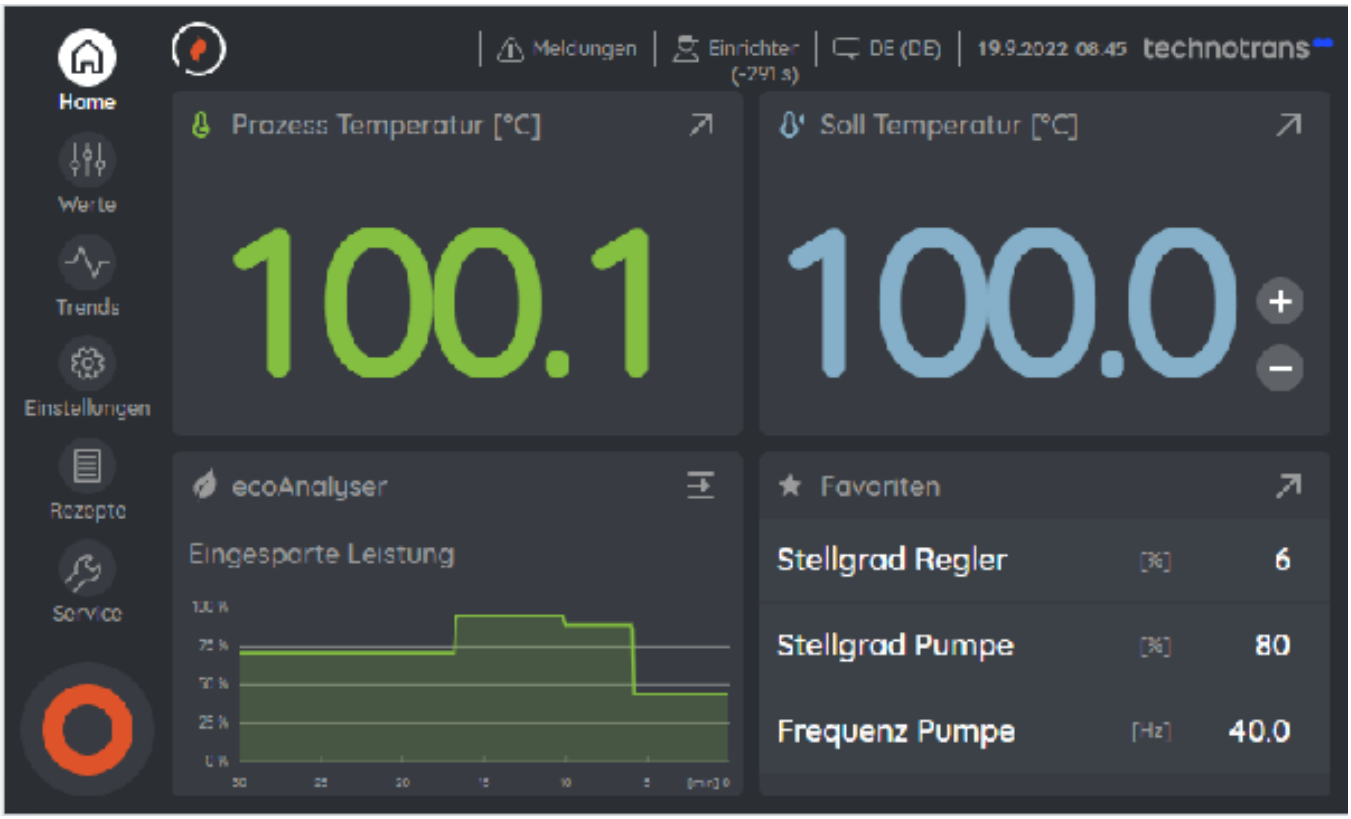
eco.line

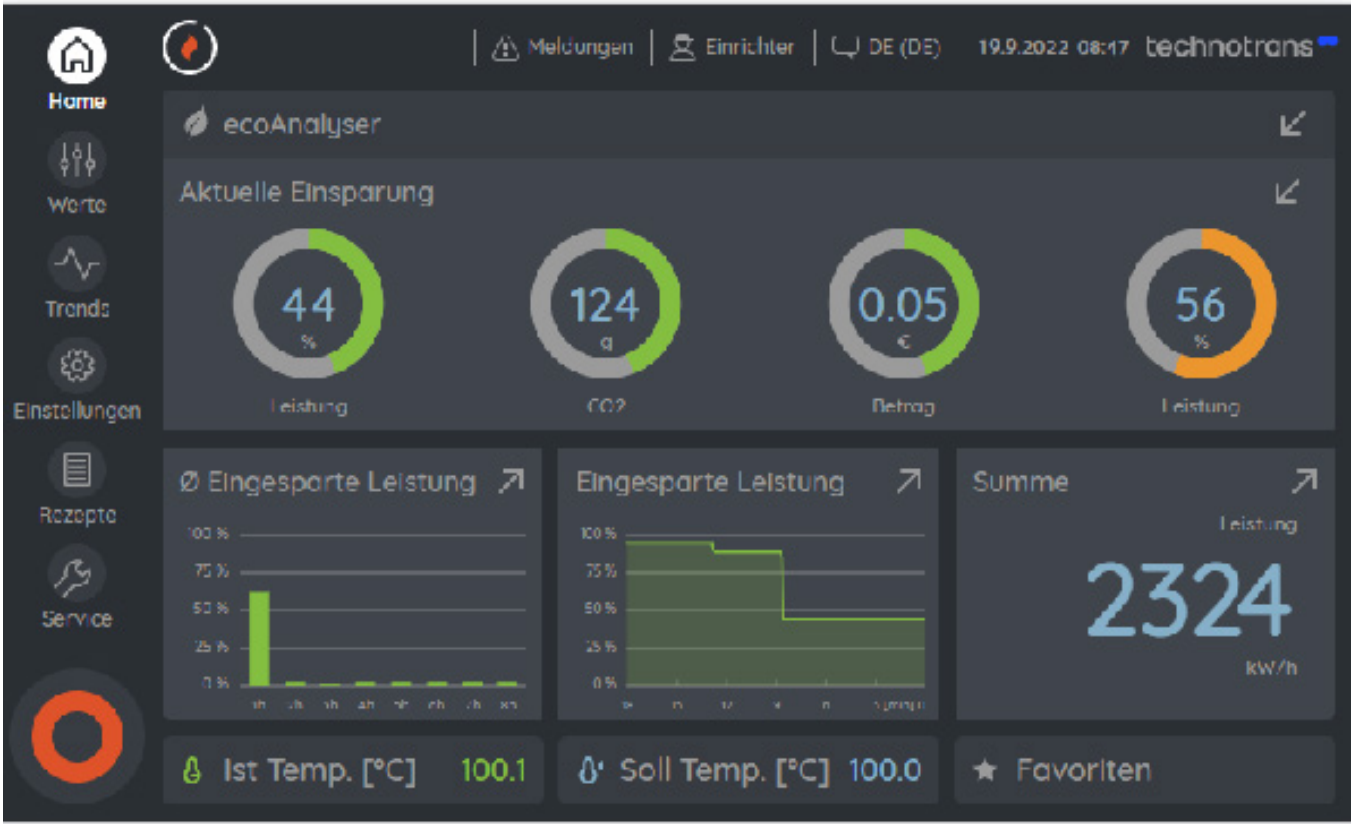
The technotrans ecoAnalyser

The intelligent add-on for logotherm with pump efficiency module (PEM) makes it easy to keep an eye on the complete energy management. Thanks to the unique usability, all essential efficiency data are visualized and individually retrievable with one click on the leaf icon:

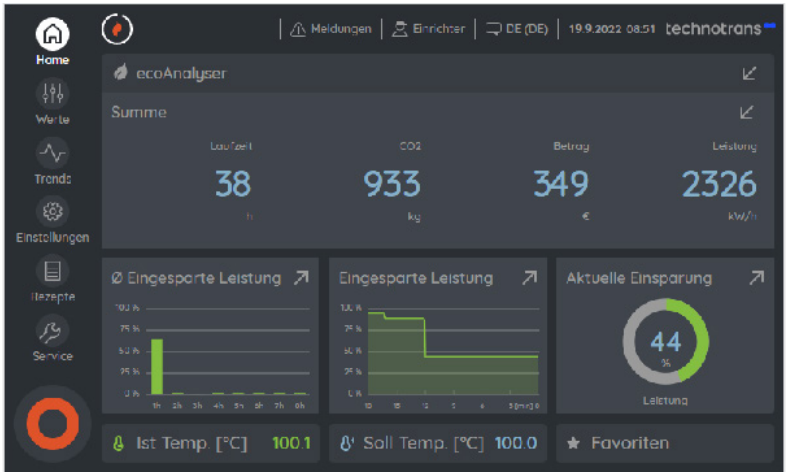
- Balance: Energy saving (kW) of the last 24 hours
- Trend: Energy saving (kW) of the last hour in the course
- Current: Required and saved power (kW), CO2 savings and cost savings
- Total: Total efficiency data saved ove the entire runtime (assigned to the process).

»One step ahead with innovations«





»The essential information at a glance«



eco.line

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

- Convenient operation via gesture-enabled logotherm 7“ multi-touch display
- compactControl micro controller
- Stainless steel „longlife“ heating cartridge with long-term guarantee
- Long-life seal-less peripheral impeller pump (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 (from 140 °C)
- Clean room class aac. to ISO 7
- Splash-proof control cabinet acc. to IP 54
- Ready for connection with supply cable and CEE socket
- Interface port integrated in front panel (e.g. for optional interface analog, serial, Profibus, Profinet or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt gray
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

»Sustainable and inexpensive with high performance«

Example: Display

... including 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 the ΔT control mode. In numerous applications, savings of > 90 % have already been achieved.

Model calculation for savings potential in 3-shift operation with 5,940 h
(with an electricity price of € 0.26/kWh and a conversion factor of 0.435 t CO2/MWh):

		50 %	75 %	90 %	
	Electricity consumption to be saved	**2.970,00**	**4.455,00**	**5.346,00**	**kWh/Jahr**
1,0 kW	**Electricity cost savings**	**772,20**	**1158,30**	**1389,96**	**€/Jahr**
	CO2 emission savings	**1,29**	**1,94**	**2,33**	**CO_2 in t/Jahr**

*according to BDEW average electricity price July 23: € 0.26/kWh

• = standard / ∘ = option / – = not available

	Model teco	95 °C cd 95 eco 60
Technical data	Medium	water
	Temperature max. [°C]	95
	Pump capacity max. [l/min / bar]	60 / 4,7
	Pump mode	speed-con.
	Heating capacity [kW]	9
	Cooling	direct
	Cooling capacity [kW] [1]	140
	Weight [kg]	71
	Circulating medium supply and return connections	G 3/4"
	Cooling water supply and return connections	G 1/2"
	Dimensions without attachement parts in mm [D x W x H]	807 x 280 x 611
Equipment/Options	7" logotherm multi-touch display	•
	Stainless steel „longlife" heating cartridge with long-term guarantee	•
	Continuous heating control via solid state relays	•
	Automatic filling and replenishment	•
	Strainer in cooling water connection	•
	Strainer in circulation medium return	•
	Wetted parts made of corrosion-resistant materials	•
	Acoustic alarm	•
	Mold draining	∘
	Low maintenance flow measurement	•
	Return temperature indication	•

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

Technical modifications reserved.

eco.line

teco ci eco – temperature control units with indirect cooling in 95 °C, 140 °C, 160 °C ...

- Convenient operation via gesture-enabled logotherm 7“ multi-touch display
- compactControl micro controller
- Stainless steel „longlife“ heating cartridge with long-term guarantee
- Long-life seal-less peripheral impeller pump (up to 60 l/min)
- Durable and highly efficient centrifugal pump (> 60 l/min)
- Speed control of the pump (PEM)
- Stainless steel tank (up to 95°C) / closed circuit (from 140°C)
- Clean room class acc. to ISO 7
- Splash-proof control cabinet acc. to IP 54
- Ready for connection with supply cable and CEE socket
- Interface port integrated in front panel (e.g. for optional interface analog, serial, Profibus, Profinet or OPC UA)
- Optional external sensor connection
- Housing and hood: RAL 7012 basalt gray
- Side panels: RAL 260 40 45 LED blue
- Customised paint on request

»Sustainable and affordable at high performance«

Example: Display

... and 180 °C version including 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 the ΔT control mode. In numerous applications, savings of > 90 % have already been achieved.

Model calculation for savings potential in 3-shift operation with 5,940 h
(with an electricity price of € 0.26/kWh and a conversion factor of 0.435 t CO2/MWh):

		50 %	75 %	90 %	
1,0 kW	**Power consumption to be saved**	**2.970,00**	**4.455,00**	**5.346,00**	**kWh/Year**
	Electricity costs to be saved	**772,20**	**1158,30**	**1389,96**	**€/Year**
	CO2 emission to be saved	**1,29**	**1,94**	**2,33**	**CO_2 in t/Year**
2,2 kW	**Power consumption to be saved**	**6.534,00**	**9.801,00**	**11.761,20**	**kWh/Year**
	Electricity costs to be saved	**1.698,84**	**2548,26**	**3057,91**	**€/Year**
	CO2 emission to be saved	**2,84**	**4,26**	**5,12**	**CO_2 in t/Year**

*according to BDEW average electricity price July 23: € 0.26/kWh

• = standard / ∘ = option / – = not available

		95 °C			140 °C	160 °C	180 °C
	Model teco	ci 95 eco 60	ci 95 eco 125	ci 95 eco 230	ci 140 eco 60	ci 160 eco 60	ci 180 eco 60
Technical data	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	125 / 5,3	230 / 5,3	60 / 6,0	60 / 6,0	60 / 6,0
	Pump mode	speed com.	speed com.	speed com.	speed com.	speed com.	speed com.
	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]	75	250	250	120	120	120
	Weight [kg]	50	95	100	–	–	–
	Circulating medium supply and return connections	G 1/2"	G 1"	G 1 1/2"	G 1/2"	G 1/2"	G 1/2"
	Cooling water supply and return connections	G 1/2"	G 3/4"	G 3/4"	G 1/4"	G 1/4"	G 1/4"
	Dimensions without attachment parts in mm [D x W x H]	662 x 280 x 611	849 x 399 x 752	849 x 399 x 752	807 x 280 x 611	807 x 280 x 611	807 x 280 x 611
Equipment/Options	7" logotherm multi-touch display	•	•	•	•	•	•
	Stainless steel „longlife" heating cartridge with long-term	•	•	•	•	•	•
	Continuous heating control via solid state relays	•	•	•	•	•	•
	Automatic filling and replenishment	•	•	•	•	•	•
	Additional manual filling option for conditioned water	•	•	•	–	–	–
	Integrated makeup pump	–	–	–	–	•	•
	Strainer in cooling water connection	•	•	•	•	•	•
	Strainer in the circulation medium return	•	•	•	•	•	•
	Shut-off fittings in the circulating media circuit	•	•	•	•	•	•
	Shut-off valves in the cooling water circuit	∘	∘	∘	∘	∘	∘
	Wetted parts made of corrosion-resistant materials	•	•	•	•	•	•
	Acoustic alarm	•	•	•	•	•	•
	Mold draining	•[2]	∘	∘	∘	•	•
	Sealless pump	•	–	–	∘	∘	∘

[1] at 15 °C cooling water temperature and 90 °C or 130 °C flow temperature
[2] by reversing the direction of pump rotation

Technical modifications reserved.

teco cd/ci itd^{evo} temperature control units with direct or 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.

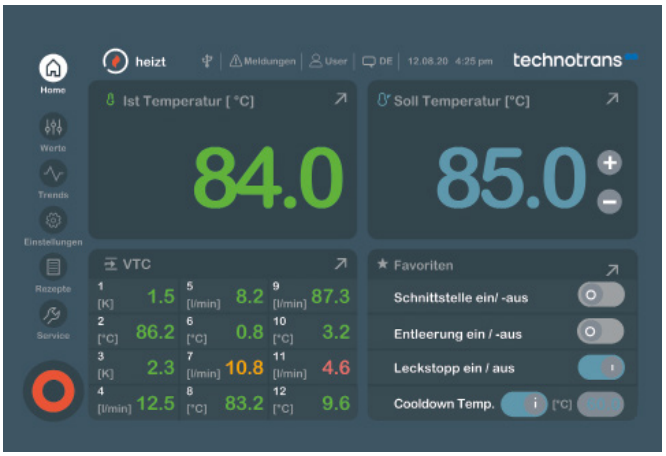
An adaptive system with many possibilities!

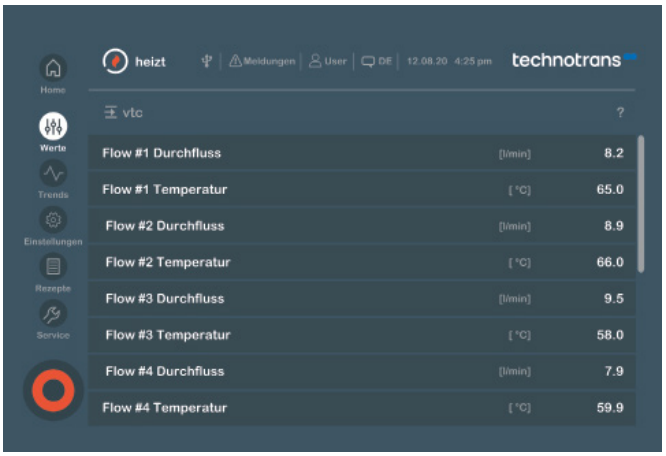
The flow rate and the return temperature of each individual circuit are recorded and transmitted to the temperature control unit.

Two alternative measuring methods, the lowmaintenance 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



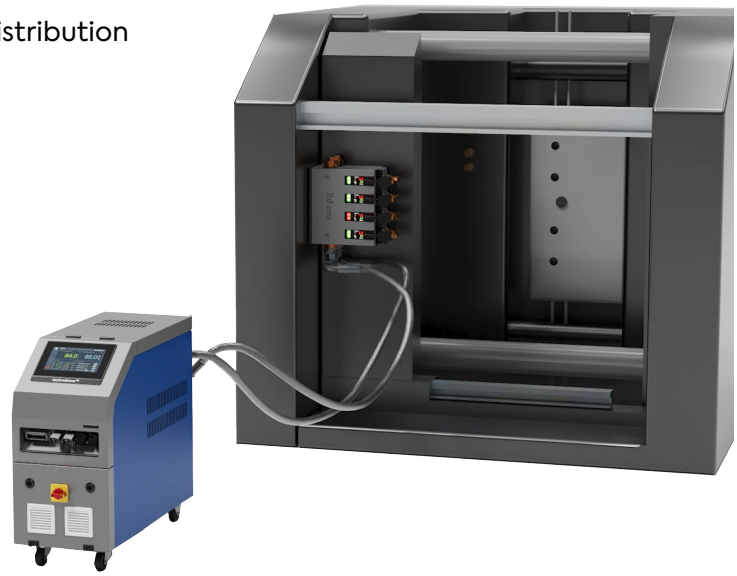


Display and operating unit logotherm
with 7“ multi-touch display

... 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 7-inch touch screen of the temperature control units
- Continuous, low-maintenance or maintenancefree 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 according to 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

Installation example-integration at the consumer with maintenance-free ultrasonic sensors



Technische Daten

	95°C						140°C		160 °C
Model teco	ci 95 eco 60itd VB	ci 95 eco 60itd UB	ci 95 eco 125td VB	ci 95 eco 125td UB	ci 95 eco 230itd VB	ci 95 eco 230itd UB	ci 140 eco 60itd VB	ci 140 eco 60td UB	ci 160 eco 60itd VB
Medium	water	water	water	water	water	water	water	water	water
Temperature max. [°C]	95	95	95	95	95	95	140	140	160
Pump capacity max. [l/min / bar]	60 / 6,0	60 / 6,0	125 / 5,3	125 / 5,3	230 / 5,3	230 / 5,3	60 / 6,0	60 / 6,0	60 / 6,0
Pump mode	speed com.	speed com.,	speed com..	speed com..	speed com.,	speed com.,	speed com.,	speed com.,	speed com.,
Heating capacity [kW]	9	9	9/18/27/36	9/18/27/36	9/18/27/36	9/18/27/36	9	9	9
Flow measurement	vortex	ultrasonicl	vortex	ultrasonic	vortex	ultrasonic	vortex	ultrasonic	vortex
Flow measuring range	2-40	0,3-60	2-40	0,3-60	2-40	0,3-60	2-40	0,3-60	2-40
Quantity of individual circles	4	4	6	6	6	6	4	4	4
Circulating medium supply and return	4x G 1/2"	4x G 1/2"	6x G 1/2"	6x G 1/2"	6x G 1/2"	6x G 1/2"	4x G 1/2"	4x G 1/2"	G 1/2"
Dimensions without attachment parts in mm [T x B x H]	662x280x226	662x280x226	849x399x226	849x399x226	849x399x226	849x399x226	662x280x226	662x280x226	662x280x226

Technical modifications reserved. .

Energy efficiency is eligible for government funding!

Temperature controllers of the **eco.line** and **flex.line** not only save high operating costs by using centrifugal pumps and the pump efficiency module (PEM), they also allow the use of government subsidies.

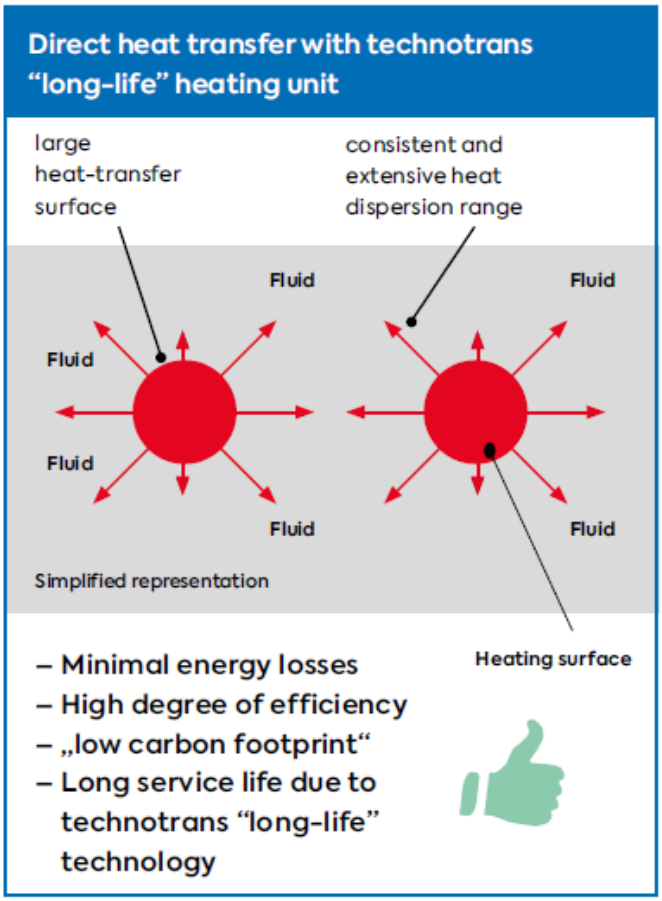
The funding programmes are specific to each country. In Germany, up to 40 % of eligible investments can currently be subsidised. Investments by smaller enterprises (SME) as well as investments by large companies are eligible for government funding.

»CO2 reduction is rewarded several times over«

Zero-loss heat transfer!

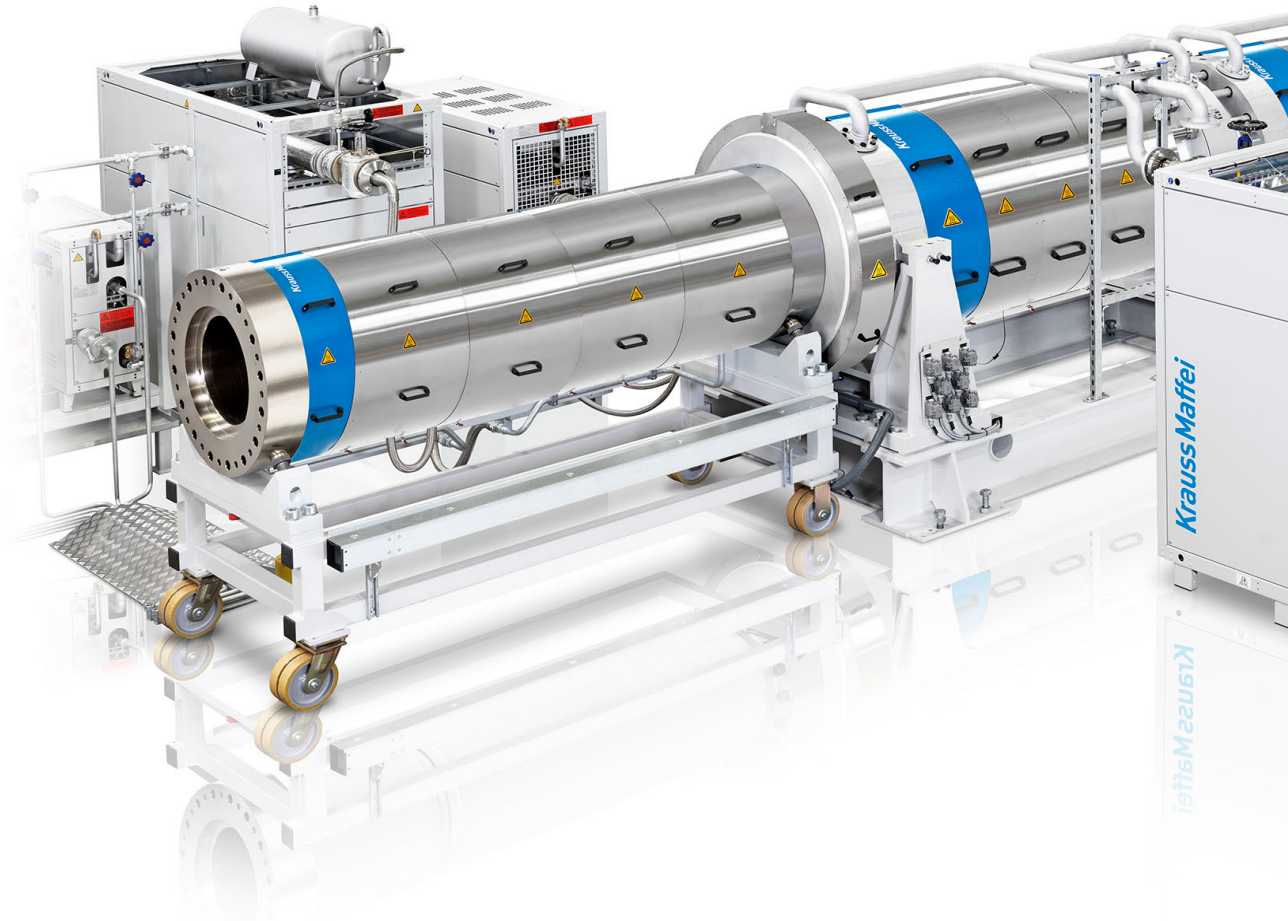
The innovative technotrans "longlife heating cartridge" transfers the heat directly to the medium without any resistance, thereby ensuring continuous, high efficiency combined with excellent accessibility and cleanability.
Other notable advantages are the fine-tuning of the heat output, excellent heating rates in a small installation space, low weight and manageable need for insulation.

»Ultra-fast heating and excellent cleaning capabi-lity«

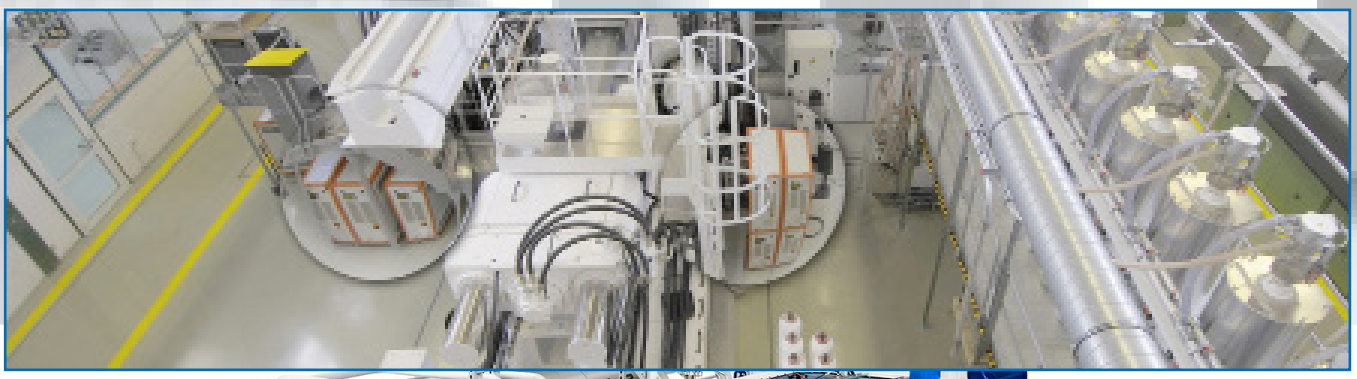


The excellent reliability and fundamental efficiency of technotrans temperature control units provide the user with a high level of investment safety.
Combined with the highly efficient centrifugal pumps and the innovative technotrans "longlife heating cartridges" with their long-term warranty, this investment safety becomes truly outstanding.

Impressions



ENGEL
duo 500



technotrans

technotrans solutions GmbH
Scherl 10 · D-58540 Meinerzhagen
Tel. +49 2354 7060-0 · Fax +49 2354 7060-150
info-solutions@technotrans.de · **www.temperiergeraete-tt.com**