technotrans

power to transform

The flex.line

The flexible ones!

flex.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

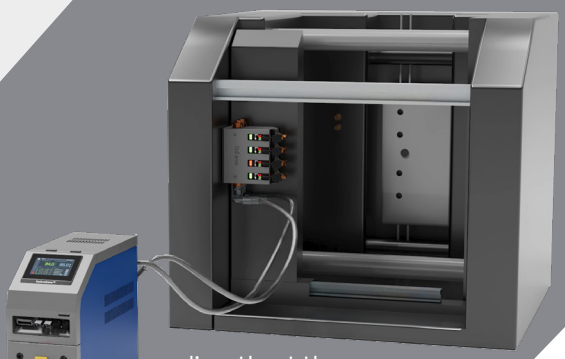
Customised premium temperature controllers

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.

Highly flexible and still standard!

On the basis of an extensive and standardized modular system, technotrans is in a position to respond flexibly to individual customer requirements with an outstanding price/performance ratio.
to individual customer requirements with an outstanding price/performance ratio.

The modular concept also enables short delivery times for freely configured temperature control units.
units.

The extensive equipment features and available options are a special feature on the market.

„At technotrans, we can configure our temperature control unit the way we need it for our process. We can't get that anywhere else."

Customer statement

flex.line

Direct cooling (wd)

NEW

Medium water

Typ	Medium	Temperature-range [°C]	Heating power max. [kW]	Cooling power max. [kW]	Pump capacity Modulating duty max. [l/min / bar]
teco wd 140 flex 125	water	140	0/9/18/27/36/45/54/63/72	120/350/900	125/6,8
teco wd 140 flex 250	water	140	0/9/18/27/36/45/54/63/72	105/235/400/800	250/6,8
teco wd 140 flex 350	water	140	0/9/18/27/36/45/54/63/72	215/350/600/1500	350/5,9

Indirect cooling (wi)

NEW

teco wi 140 flex 85	water	140	0/9/18/27/36/45/54 (35/60)	0/210/350	83/6,5
teco wi 140 flex 125	water	140	0/9/18/27/36/45/54/63/72 (35/60/100)	0/225/385/475	125/6,8
teco wi 140 flex 250	water	140	0/9/18/27/36/45/54/63/72 (35/60/100)	0/215/400/530/755	250/6,8
teco wi 140 flex 350	water	140	0/9/18/27/36/45/54/63/72 (60/100/160)	0/620/890/1300	350/5,9

teco wi 160 flex 125	water	160	0/9/18/27/36/45/54/63/72 (35/60/100)	0/225/385/475	125/5,0
teco wi 160 flex 250	water	160	0/9/18/27/36/45/54/63/72 (35/60/100)	0/215/400/530/755	250/5,5
teco wi 160 flex 350	water	160	0/9/18/27/36/45/54/63/72 (60/100/160)	0/620/890/1300	350/6,3

Indirect cooling (wh)

teco wh 90	water	200	0/9/18/27	50/90/150	80/5,0
teco wh 120	water	200	0/18/27/36/45/54	50/90/150/250	200/6,3

flex.line

Medium termo oil

Typ	Medium	Temperature-range [°C]	Heating power max. [kW]	Cooling power max. [kW]	Pump capacity Modulating duty max. [l/min / bar]
teco tt 50	thermal oil	300	4/6/8	0/15/30	60/6,0
teco tt 60	thermal oil	300	9/13,5/18	0/82/110/200	60/6,3
teco tt 100	thermal oil	300	9/12/18/27/36	0/82/110/200/250/275	100/8,0
teco tt 140	thermal oil	300	12/18/27/36/45/54	0/82/110/200/250/275/450	160/7,0

Indirect cooling (tt)

Indirect cooling (th)

teco th 60	thermal oil	350	6	0/82/110	60/6,3
teco th 100	thermal oil	350	6/9/12	0/82/110	100/8,0
teco th 140	thermal oil	350	9/18/27	0/82/110/200	160/7,0

The most flexible way to temper!

flex.line

Page 14

teco wd flex
(direct cooled)
Temperature control unit [water]
140 °C

Page 16

teco wi flex
(indirect cooled)
Temperature control unit [water]
140 °C, 160 °C

Page 18

teco wh
(indirect cooled)
Temperature control unit [water]
200°C

Page 20

teco tt
(indirect cooled)
Temperature control unit [water]
300°C

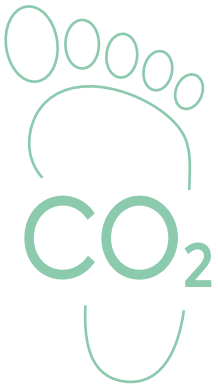
Page 21

teco th
(indirect cooled)
Temperature control unit [Thermal oil]
350°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 :	85l/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

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

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

... **1** Person flying

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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 flex.line...

With the flex.line, technotrans offers a highly flexible product line that can be configured from an extensive modular system.

… sustainable and inexpensive!

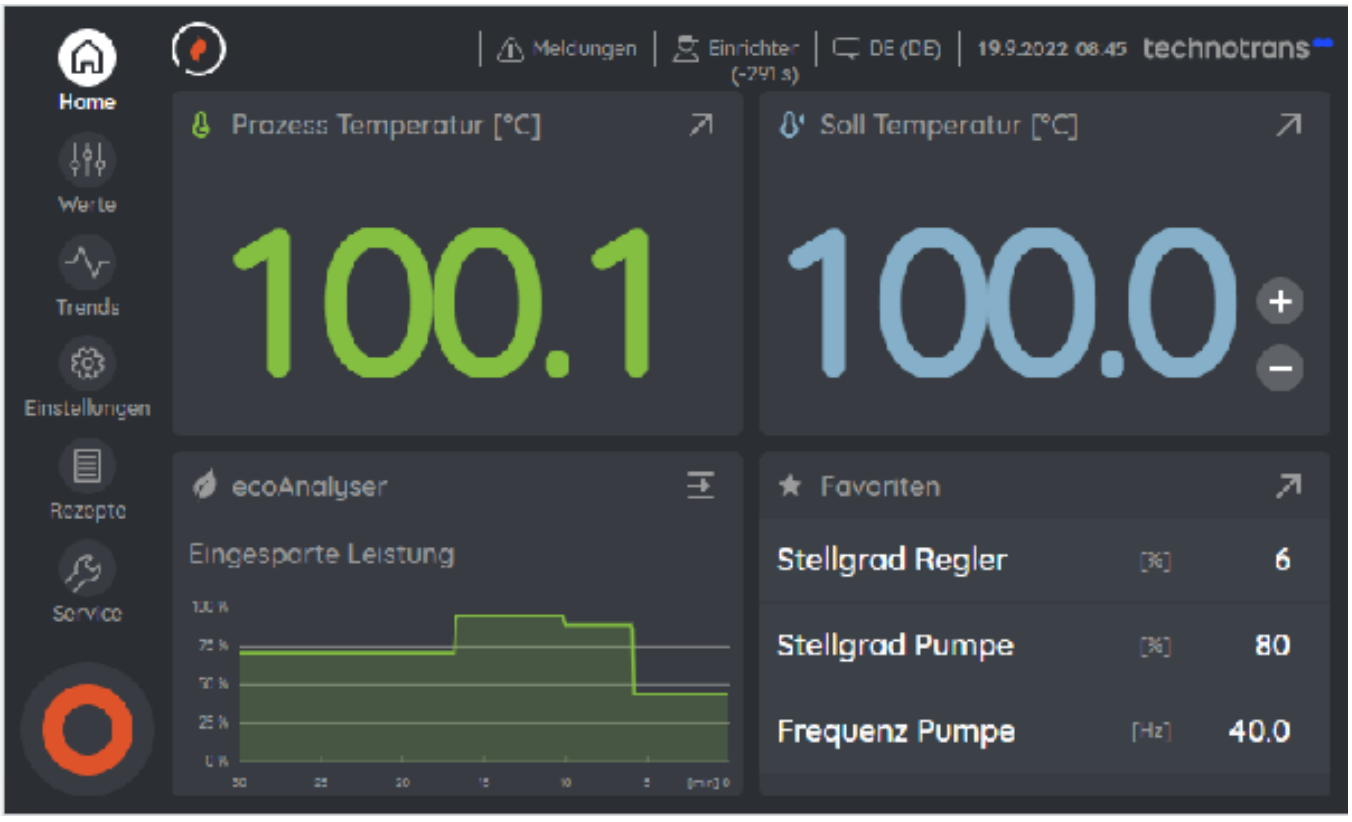
»High reliability, maximum operating cost savings and subsidies making amortisation periods as short as possible.«

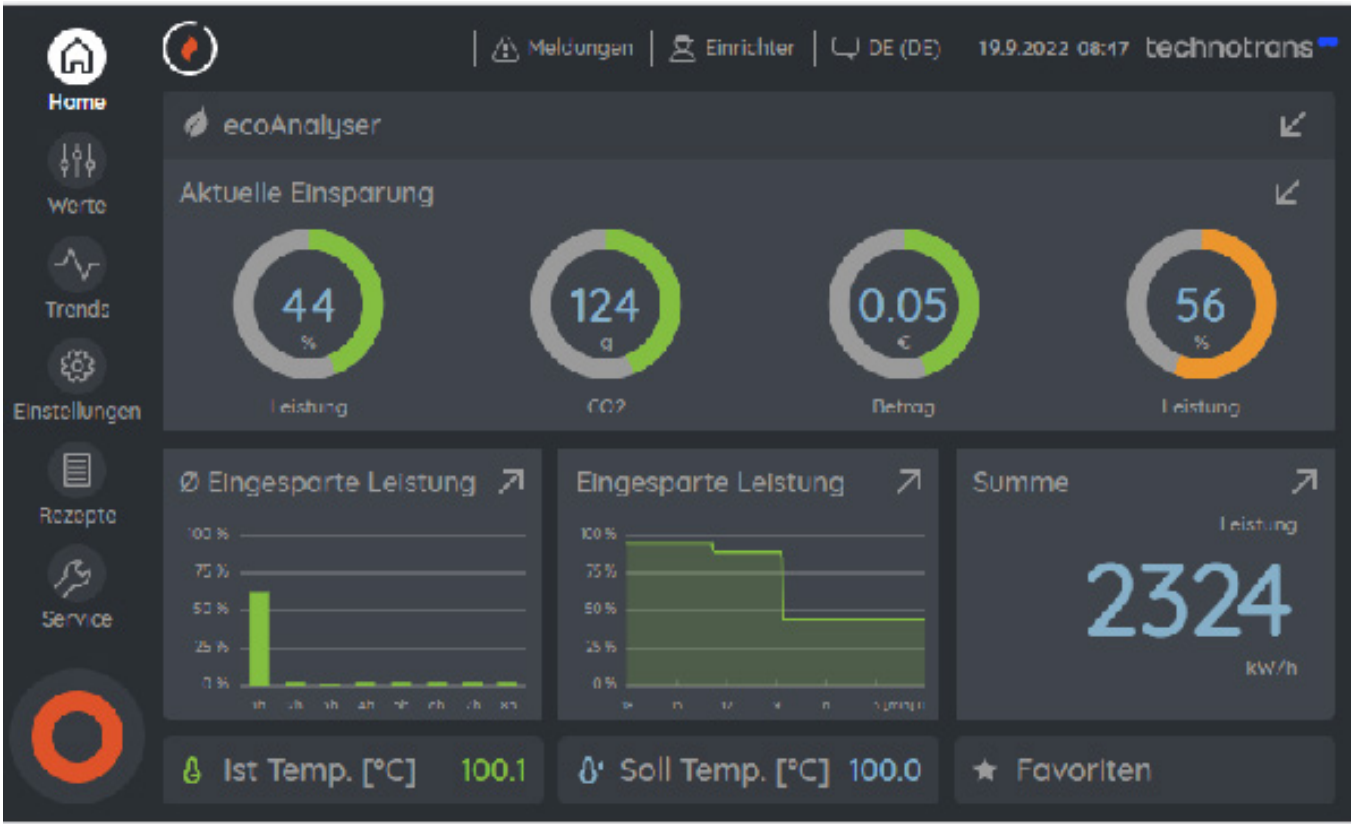
The technotrans ecoAnalyser

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:

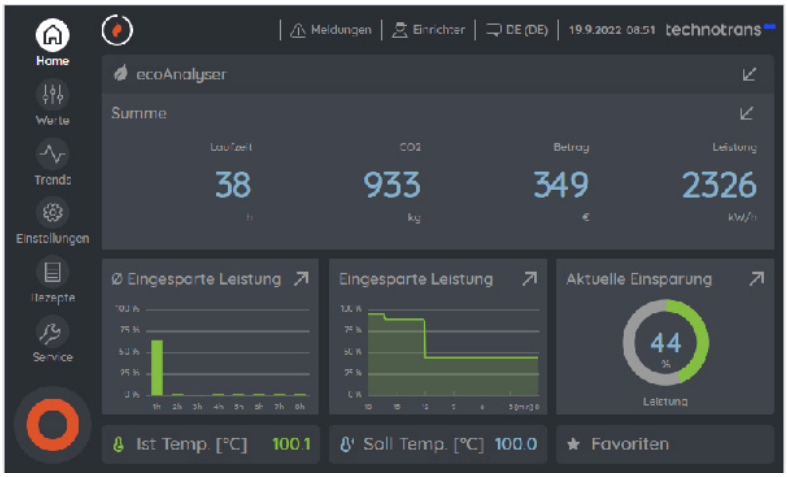
- Balance: Energy saving (kW) of the last 24 hours
- Trend: Energy saving (kW) of the last hour in the course
- Current: Required and saved power (kW), CO2 savings and cost savings
- Total: Total efficiency data saved ove the entire runtime (assigned to the process).

»One step ahead with innovations«





»The essential information at a glance«



teco wd flex – temperature control units with direct cooling in 140 °C version ...

- Convenient operation via gesture-enabled logotherm 7“ multi-touch display
- Stainless steel „longlife“ heating cartridge with long-term guarantee
- Long-life and highly efficient centrifugal pump
- Pump speed control (PEM) optional
- „Tankless“ unit for minimum oxygen consumption
- Splash-proof control cabinet acc. to IP 54
- Digital system pressure indication
- also available in bifrequency multivoltage
- Interface port integrated in front of unit (e.g. for optional interface analog, serial, Profibus, Profinet or OPC UA)
- Optional external sensor connection
- Color: RAL 7035 light gray / RAL 260 40 45 LED blue
- Customised paint on request

»Sustainable and inexpensive with high performance«

Example: Display

...flexibly configurable from an extensive configurable from an extensive modular system!

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/Jahr
	Electricity costs to be saved	772,20	1158,30	1389,96	€/Jahr
	CO2 emission to be saved	1,29	1,94	2,33	CO_2 in t/Jahr

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

New model series (replaces previous teco wd 100-400)

• = standard / ◦ = option / Values in ( ) optional

	Model teco	wd 140 flex 125	wd 140 flex 250	wd 140 flex 350
		140 °C		
Technical data	Medium	water	water	water-
	Temperature max. [°C]	140	140	140
	Pump capacity max. [l/min / bar]	125/6,5	250/6,8	350/5,9
	Heating capacity max. [kW]	0/9/18/27/ 36/45/54/63/72	0/9/18/27/ 36/45/54/63/72	0/9/18/27/ 36/45/54/63/72
	Cooling	direkt	direkt	direkt
	Cooling capacity [kW] [1]	120/350/900	105/235/400/800	215/350/600/1500
	Weight [kg]	70-340	90-350	160-380
	Circulating medium supply and return connections	Rp 1 1/4	Rp 1 1/2	DN 50 / PN 16
	Cooling water supply and return connections	Rp 1 1/2 3/4 1	Rp 1/1/2/3/4/1/1 1/4	Rp 1 3/4/ 1 1/2
	Dimensions without attachment parts in mm [D x W x H]	1110x450x905 [2]	1110x450x905 [2]	1290x570x1055 [2]
Equipment/Options	7“ logotherm multi-touch display	•	•	•
	Pump operating speed controlled	◦	◦	◦
	„longlife“ stainless steel 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	◦	◦	◦
	CEE socket	◦	◦	◦
	Mold draining	◦	◦	◦
	Low maintenance flow measurement	◦	◦	◦
	Return temperature indication	◦	◦	◦

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

[2] Specification in [ ] for steam heating Temperature difference 40 Kelvin

flex.line

teco wi flex – temperature control units with indirect cooling in 140 °C and 160 °C versions ...

- Convenient operation via gesture-enabled logotherm 7“ multi-touch display
- Stainless steel „longlife“ heating cartridge with long-term guarantee
- Long-life and highly efficient pump
- Speed control of the pump (PEM) optional
- „Tankless“ unit for minimum oxygen consumption
- Splash-proof control cabinet acc. to IP 54
- Digital system pressure indication
- System pressure overlay (at 160°C)
- Interface port integrated in front panel (e.g. for optional interface analog, serial, Profibus, Profinet or OPC UA)
- Optional external sensor connection
- Color: RAL 7035 light gray / RAL 260 40 45 LED blue
- Customised paint on request

New model series (replaces previous teco wi 85-400)

• = standard / ◦ = option / Values in ( ) optional

		140 °C			
	Model teco	**wi 140 flex 85**	**wi 140 flex 125**	**wi 140 flex 250**	**wi 140 flex 350**
Technical data	Medium	water	water	water	water
	Temperature max. [°C]	140	140	140	140
	Pump capacity max. [l/min / bar]	83/6,5	125/6,5	250/6,8	350/5,9
	Heating capacity [kW]	0/9/18/27/36/45/54 (35/60)	0/9/18/27/36/45/54 63/72 (35/60/100)	0/9/18/27/36/45/54 63/72 (35/60/100)	0/9/18/27/36/45/54 63/72 (60/100/160)
	Cooling	indirect	indirect	indirect	indirect
	Cooling capacity [kW][1)]	0/210/350	0/225/385/475	0/215/400/530/755	0/620/890/1300
	Weight [kg]	60 - 160	60 - 370	70 - 380	100 - 400
	Circulating medium supply and return connections	Rp 1”	Rp 1 1/4”	Rp 1 1/2“	DN 50 / PN 16
	Cooling water supply and return connections	Rp 1/2” / 3/4”	Rp 1/2” / 3/4” / 1”	Rp1/2”/3/4”/1”/1 1/4”	Rp 1” / 1 1/4” / 1 1/2”
	Dimensions without attachement parts in mm [D x W x H]	1110 x 450 x 905 [3)]	1110 x 450 x 905 [3)]	1110 x 450 x 905 [3)]	1290 x 570 x 1055 [3)]
Equipment/Options	7“ logotherm multi-touch display	•	•	•	•
	Pump operating speed controlled	◦	◦	◦	◦
	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	◦	◦	◦	◦
	CEE socket	◦	◦	◦	◦
	Mold draining	◦	◦	◦	◦
	Low maintenance flow measurement	◦	◦	◦	◦
	Return temperature indication	◦	◦	◦	◦

[1)] At 15 °C cooling water temperature and 130 °C circulating medium flow
[2)] Specification in [ ] for steam heating temperature difference 40 Kelvin.
[3)] Specification for basic rack: Dimensions increase with increasing power configuration.

Technical modifications reserved.

... flexible from an extensive modular system!

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 %	
1,1 kW	Power consumption to be saved	3.267,00	4.900,50	5.880,60	kWh/Jahr
	Electricity costs to be saved	849,42	1.274,13	1.528,96	€/Jahr
	CO2 emission to be saved	1,42	2,13	2,56	CO_2 in t/Year
2,2 kw	Power consumption to be saved	6.534,00	9.801,00	11.761,20	kWh/Jahr
	Electricity costs to be saved	1.698,84	2.548,26	3.057,91	€/Jahr
	CO2 emission to be saved	2,84	4,26	5,12	CO_2 in t/Yearr
4,0 kW	Power consumption to be saved	11.880,00	17.820,00	21.384,00	kWh/Jahr
	Electricity costs to be saved	3.088,80	4.633,20	5.559,84	€/Jahr
	CO2 emission to be saved	5,17	7,75	9,30	CO_2 in t/Year

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

New model series (replaces previous teco wi 100 - 400)

• = standard / ◦ = option / Values in ( ) optional

		160 °C		
	Model teco	wi 160 flex 125	wi 160 flex 250	wi 160 flex 350
Technical data	Medium	water	water	water
	Temperature max. [°C]	160	160	160
	Pump capacity [l/min / bar]	125/5,0	250/5,5	350/6,3
	Heating capacity [kW]	0/9/18/27/36/45/54/ 63/72 (35/60/100)	0/9/18/27/36/45/54/ 63/72 (35/60/100)	0/9/18/27/36/45/54/ 63/72 (60/100/160)
	Cooling	indirect	indirect	indirect
	Cooling capacity [kW][1)]	0 - 475	0 - 755	0 - 1300
	Weight [kg]	60 - 370	70 - 380	100 - 400
	Circulating medium supply and return connections	Rp 1 1/4"	Rp 1 1/2"	DN 50 / PN 16
	Cooling water supply and return connections	Rp 1/2" / 3/4" / 1"	Rp 1/2" / 3/4" / 1" / 1 1/4"	Rp 1" / 1 1/4" / 1 1/2"
	Dimensions without attachment parts in mm [D x W x H]	1420 x 600 x 1230 [3)]	1420 x 600 x 1230 [3)]	1570 x 700 x 1510 [3)]
Equipment/Options	7" logotherm multi-touch display	•	•	•
	Pump operating speed controlled	◦	◦	◦
	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	◦	◦	◦
	CEE sockett	◦	◦	◦
	Mold draining	◦	◦	◦
	Low maintenance flow measurement	◦	◦	◦
	Return temperature indication	◦	◦	◦

[1)] At 15 °C cooling water temperature and 130 °C circulating medium flow
[2)] Specification in [ ] for steam heating temperature difference 40 Kelvin.
[3)] Specification for basic rack: Dimensions increase with increasing power configuration.

Technical modifications reserved.

flex.line

teco wh – temperature control units with indirect cooling in 200 °C version ...

- Convenient operation via gesture-enabled logotherm 7“ multi-touch display
- Stainless steel „longlife“ heating cartridge
- Sealless stainless steel pump (magnetically coupled)
- Speed control of the pump (PEM) optional
- „Tankless“ unit for minimum oxygen consumption
- splash-proof control cabinet acc. to IP 54
- also available in bifrequency multivoltage
- Interface port integrated in control cabinet (e.g. for optional interface analog, serial, Profibus, Profinet or OPC UA)
- Optional external sensor connection
- Color: RAL 7035 light gray / RAL 260 40 45 LED blue
- Customised paint on request

»For high Water temperatures«

Example: Display

… flexible from an extensive modular system!

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 %	
1,1 kW	Power consumption to be saved	3.267,00	4.900,50	5.880,60	kWh/Year
	Electricity costs to be saved	849,42	1.274,13	1.528,96	€/Year
	CO2 emission to be saved	1,42	2,13	2,56	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	2.548,26	3.057,91	€/Yea
	CO2 emission to be saved	2,84	4,26	5,12	CO_2 in t/Year
4,0 kW	Power consumption to be saved	11.880,00	17.820,00	21.384,00	kWh/Year
	Electricity costs to be saved	3.088,80	4.633,20	5.559,84	€/Year
	CO2 emission to be saved	5,17	7,75	9,30	CO_2 in t/Year

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

• = standard / ◦ = option

		200 °C	
	Model teco	wh 90	wh 120
Technical data	Medium	water	water
	Temperature max. [°C]	200	200
	Pump capacity [l/min / bar]	80/5,0	200/6,3
	Heating capacity [kW]	0/9/18/27	0/9/18/27/36/45/54
	Cooling	indirect	indirect
	Cooling capacity [kW][1)]	50/90/150	50/90/150/250
	Weight [kg]	170 - 340	180 - 380
	Circulating medium supply and return connections	DN32 / PN40	DN32 / PN40
	Cooling water supply and return connections	Rp 1½" / ¾"	Rp 1½" / ¾"
	Dimensions without attachement parts in mm [D x W x H]	1320 x 570 x 1275 [2)]	1320 x 570 x 1275 [2)]
Equipment/Options	7" logotherm multi-touch display	•	•
	Pump operating speed controlled	◦	◦
	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	◦	◦
	CEE socket	◦	◦
	Mold draining	◦	◦
	Low maintenance flow measurement	•	•
	Return temperature indication	•	•

[1)] at 15 °C cooling water temperature and 200 °C circulating medium flow.

[2)] Specification for base rack: Dimensions increase with increasing power configuration.

Technical modifications reserved.

flex.line

teco tt/th – oil temperature control units in 300 °C and 350 °C version …

- Convenient operation via gesture-enabled logotherm 7“ multi-touch display
- Stainless steel „longlife“ heating cartridge
- Sealless stainless steel pump (magnetically coupled)
- Speed control of the pump (PEM) optional
- Splash-proof control cabinet acc. to IP 54
- also available in bifrequency multivoltage
- Cold oil reservoir to avoid air-oxygen ingress
- Interface port integrated in control cabinet (e.g. for optional interface analog, serial, Profibus, Profinet or OPC UA)
- Optional external sensor connection
- Color scheme: RAL 7035 light gray / RAL 260 40 45 LEDblue
- Customised paint on request

• = standard / ◦ = option / – = not available / Values in ( ) optional

		300 °C			
	Model teco	tt 50	tt 60	tt 100	tt 140
Technical data	Medium	thermal oil	thermal oil	thermal oil	thermal oil
	Temperature max. [°C]	300	300	300	300
	Pump capacity max. [l/min / bar]	60/6,0	60/6,3	100/8,0	160/6,0 (7,0)
	Heating capacity [kW]	4/6/8	9/13,5/18	9/12/18/27/36	12/18/27/36/45/54
	Cooling	indirect	indirect	indirect	indirect
	Cooling capacity [kW][1)]	0 - 30	0 - 200	0 - 275	0 - 450
	Weight [kg]	80	150 - 320	170 - 340	180 - 380
	Circulating medium supply and return connections	DN20 / PN40	DN25 / PN40	DN25 / PN40	DN32 / PN40
	Cooling water supply and return connections	Rp ½“	Rp ½“ / ¾“	Rp ½“ / ¾“ / 1“	Rp½“/¾“/1“/1¼“
	Dimensions without attachment parts in mm [D x W x H]	860 x 350 x 735	1320 x 500 x 1275 [2)]	1320 x 570 x 1275 [2)]	1320 x 570 x 1275 [2)]
Equipment/Options	7“ logotherm Multitouch-Display	•	•	•	•
	Pump operating mode speed controlled	◦	◦	◦	◦
	„longlife“ stainless steel heating cartridge with long-term	•	•	•	•
	Continuous heating control via solid state solid state relays	•	•	•	•
	Automatic filling and replenishment	•	•	•	•
	Strainer in cooling water connection	•	•	•	•
	Strainer in the circulation medium return	•	•	•	•
	Wetted parts made of corrosion-resistant materials	–	•	•	•
	CEE plug	◦	◦	◦	◦
	Mold draining	◦	◦	◦	◦
	Low maintenance flow measurement	•	•	•	•
	Return temperature indication	•	•	•	•

[1)] at 15 °C cooling water temperature and 300 °C circulating medium flow.
[2)] Specification for base rack: Dimensions increase with increasing power configuration.

... flexible from an extensive modular system!

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 %	
1,1 kW	Power consumption to be saved	3.267,00	4.900,50	5.880,60	kWh/Year
	Electricity costs to be saved	849,42	1.274,13	1.528,96	€/Year
	CO2 emission to be saved	1,42	2,13	2,56	CO_2 in t/Year
1,5 kw	Power consumption to be saved	4.455,00	6.682,50	8.019,00	kWh/Year
	Electricity costs to be saved	1.158,30	1.737,45	2.084,94	€/Year
	CO2 emission to be saved	1,94	2,91	3,49	CO_2 in t/Year
2,8 kW	Power consumption to be saved	8.316,00	12.474,00	14.968,80	kWh/Year
	Electricity costs to be saved	2.162,16	3.243,24	3.891,89	€/Year
	CO2 emission to be saved	3,62	5,43	6,51	CO_2 in t/Year

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

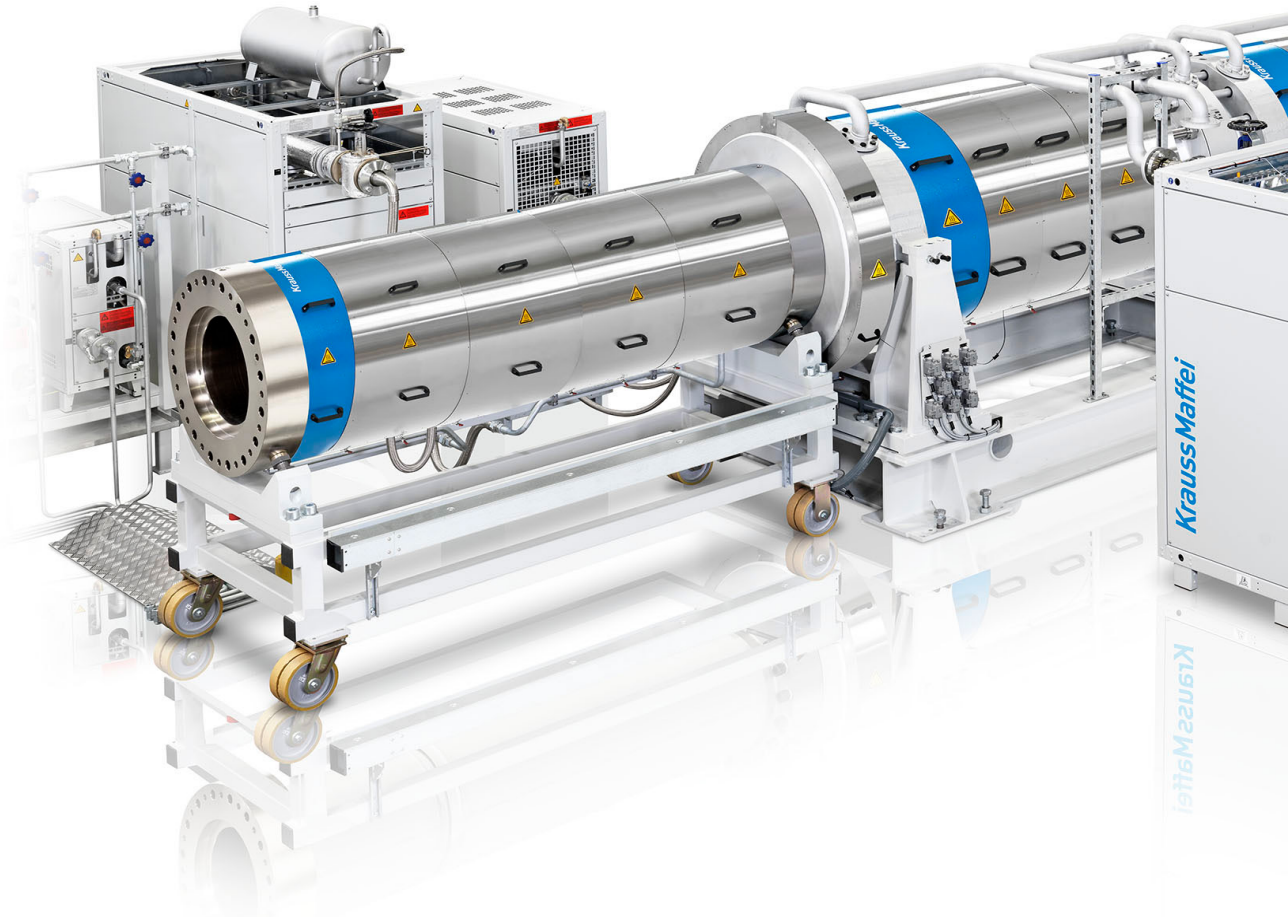
• = standard / ◦ = option / Values in ( ) optional

		350 °C		
Technical data	Model teco	th 60	th 100	th 140
	Medium	thermal oil	thermal oil	thermal oil
	Temperature max. [°C]	350	350	350
	Pump capacity [l/min / bar]	60/6,3	100/8,0	160/6,0 (7,0)
	Heating capacity [kW]	6	6/9/12	9/18/27
	Cooling	indirect	indirect	indirect
	Cooling capacity [kW] [1]	0/82/110	0/82/110	0/82/110/127
	Weight [kg]	150 - 320	170 - 340	180 - 380
	Circulating medium suplly and return connections	DN25 / PN40	DN25 / PN40	DN32 / PN40
	Cooling water supply and return connections	Rp 1/2"	Rp 1/2" / 3/4"	Rp 1/2" / 3/4"
	Dimensions without attachment parts in mm [D x W x H]	1320 x 500 x 1275 [2]	1320 x 570 x 1275 [2]	1320 x 570 x 1275 [2]
Equipment/Options	7" logotherm multi-touch display	•	•	•
	Pump operating speed controlled	◦	◦	◦
	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	•	•	•
	CEE socket	◦	◦	◦
	Mold draining	◦	◦	◦
	Low maintenance flow measurement	•	•	•
	Return temperature indication	•	•	•

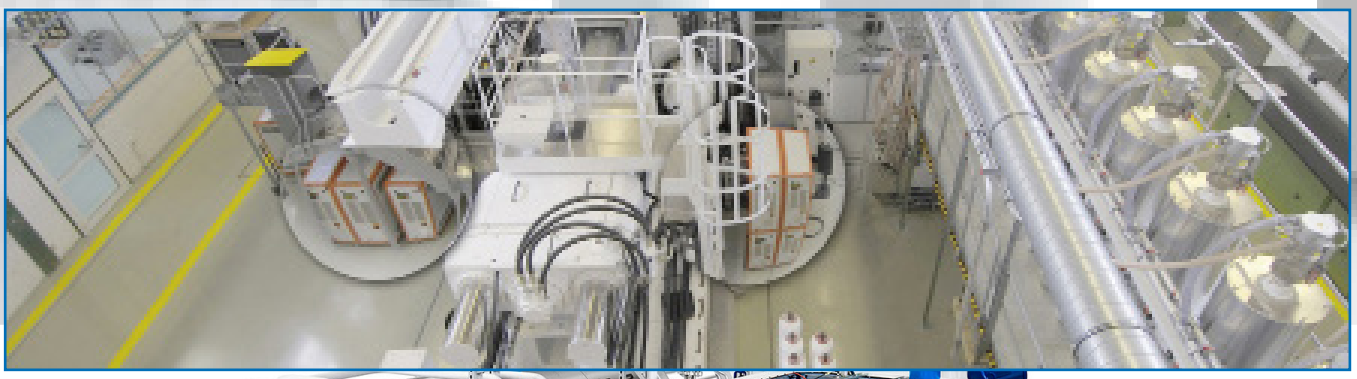
[1] at 15 °C cooling water temperature and 300 °C circulating medium flow.
[2] Specification for base rack: Dimensions increase with increasing power configuration.

Technical modifications reserved.

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**