



enersave series



Innovative and highly efficient
temperature control units and
systems

gwk

The high-end temperature control units and s

The compact **protemp** series is characterized by its special energy efficiency, high performance and connectivity.

The units are available with highly efficient **stainless steel centrifugal pumps** in a **constant** or **controlled (eco)** version.

The units stand for particularly high-quality technology, extensive standard equipment, easy use and ease of service.

Modern interfaces for connecting machine control systems, MES BDE systems or analysis apps, and an internal bus system for the integration of proflow water distributors fulfil the demands placed on a modern Industry 4.0 solution.

A **EUROMAP 82.1**-capable OPC UA interface,

various manufacturer-specific OPC UA interfaces, a **PROFINET interface** and serial RS 485 and TTY interfaces are also available.

In the **eco version**, the pump energy consumption can be shown on the display, so that the energy consumption can be constantly monitored and optimized.

The **protemp** series is equipped with a micro-processor controller with fast high-performance processors designed specifically for this premium series. Uniform operation via the **protemp** display and control unit with a 4.3" touch screen with intuitive user interface and user friendly menu navigation.

protemp temperature controllers for water, using indirect cooling

Type	Medium	Temperature range (°C)	Heating capacity (kW)	Max.cooling capacity (kW)	Pump capacity, constant operation max. (l/min / bar)	Pump capacity, control mode x max. (l/min / bar)
protemp ci 95-s1	water	95	6/9	62	50 / 4,3	55 / 5,0
protemp ci 140-s1	water	140	6/9	95	50 / 4,3	55 / 5,0
protemp ci 95-a1	water	95	9/18	92	70 / 4,7	83 / 6,8
protemp ci 140-a1	water	140	9/18	140	70 / 4,7	83 / 6,8
protemp ci 95-a2	water	95	9/18/27/36	92	105 / 4,9	125 / 7,0
protemp ci 140-a2	water	140	9/18/27/36	140	105 / 4,9	125 / 7,0
protemp ci 95-a3	water	95	30/40/50	308	-	300 / 7,0
protemp ci 140-a3	water	140	30/40/50	472	-	300 / 7,0
protemp ci 95-a4	water	95	30/40/50	308	-	440 / 5,0
protemp ci 140-a4	water	140	30/40/50	472	-	440 / 5,0

x = eco version

Subject to technical modification without notice!

protemp temperature controllers for water, using direct cooling

Type	Medium	Temperature range (°C)	Heating capacity (kW)	Max.cooling capacity (kW)	Pump capacity, constant operation max. (l/min / bar)	Pump capacity, control mode x max. (l/min / bar)
protemp cd 95-s2	water	95	9/18	264	140 / 4,2	165 / 5,1
protemp cd 95-a1	water	95	9/18/27/36	397	70 / 4,7	83 / 6,8
protemp cd 95-a2	water	95	9/18/27/36	397	105 / 4,9	125 / 7,0
protemp cd 95-a3	water	95	30/40/50	632	-	300 / 7,0
protemp cd 95-a4	water	95	30/40/50	632	-	440 / 5,0

x = eco version

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systems of the enersave series at a glance

With the outstanding **efficiency and performance**, as well as numerous features of the standard equipment, such as control cabinet with protection class IP 54, stainless steel pump, dual-frequency 50/60 Hz pump motor, increased flow rate with 3 bar back pressure, increased cooling capacity, flow and return temperature sensor, digital pressure display, electronic flow measurement, acoustic and visual alarm, dirt collector in cooling water inlet and consumer return, separate cooling and fill up connection for indirectly cooled advanced devices, the digitization concept **protemp connect** ^{4.0}, and much more **makes the enersave series an outstanding product on the market even in the premium segment.**

By means of the digitization concept **protemp connection** ^{4.0}, water distributors of the **enersave series** can be connected directly to the temperature controller and the process parameters flow rate and return flow temperature can be displayed and controlled for up to twelve single circuits. Furthermore, via **OPC UA** or **Profinet** the process data can be transferred to the machine control systems, MES systems or the gwk **tempanalyser** ^{APP} if required.

gwk enersave series-> Leading in energy efficiency due to centrifugal pump technology:

Sample calculation of energy efficiency on the basis of a user benchmark under production conditions:

Pump data competitors

peripheral pump
2,8 kW kW pump motor
max. flow rate 110 l/min
flow rate at 3.8 bar: **50 l/min**

Measured

energy consumption: **2,2 kW**

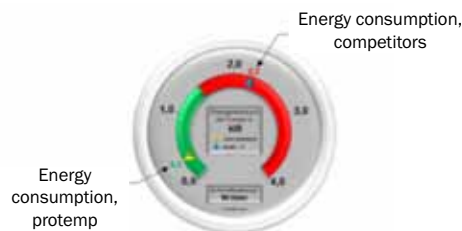
Pump data

gwk "enersave" technology

centrifugal pump
2.5 kW pump motor
max. flow rate 125 l/min
flow rate at 3.8 bar: **50 l/min**

Measured

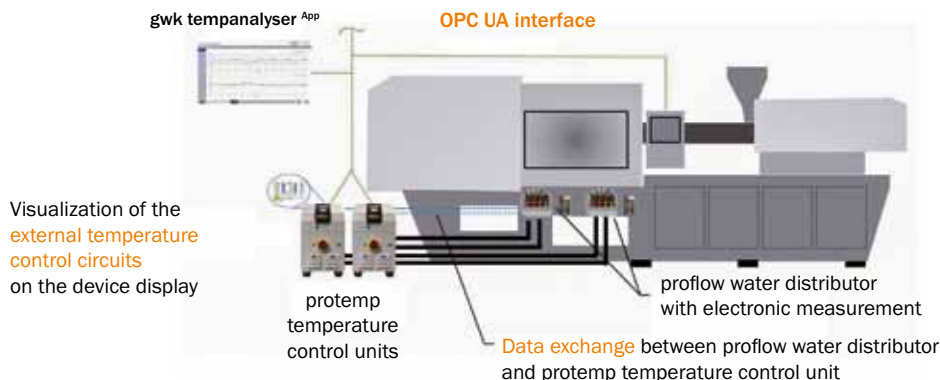
energy consumption: **0,3 kW**



Savings through "enersave" technology
1.9 kW or 86.4 %, or 1,653 euros / year*

* with 5,800 operating hours/year and electricity price of € 0.15 / kWh

gwk enersave series -> advanced connectivity due to OPC UA technology:



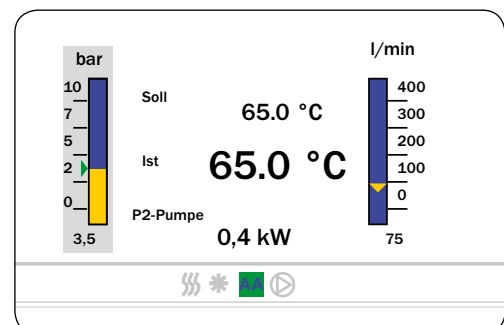
protemp selection series 1 – Designed for smaller consumers

Standard equipment:

- Self-optimizing microcontroller with high control accuracy
- Touch screen (4.3") for input, control and monitoring of process parameters
- Measurement, display and monitoring of flow rate
- Intuitive user interface with user-friendly menu navigation
- **Measurement, display and monitoring of supply pressure**
- Temperature display of return flow
- Continuous monitoring of process parameters
- **Stainless steel centrifugal pump and stainless steel heat exchanger**
- **Energy consumption display (eco version)**
- Pump dry run and overheat protection
- **Speed-controlled centrifugal pump in efficiency class IE5 (eco version)**
- Digitization concept protemp connect ^{4.0}
- Automatic water exchange
- Strainer in consumer return and cooling water inlet
- Air separator in the consumer return
- Control cabinet protection class IP 54
- Ready for connection with 3 m cable and CEE socket
- Unit front: RAL 7035 Light grey
- Hood and side panels: RAL 7016 Anthracite grey
- Optional external sensor connection (Pt 100)
- Optional interface (RS 485, TTY, Profinet, **OPC UA** and proflow)
- Optional gwk tempanalyser ^{APP}



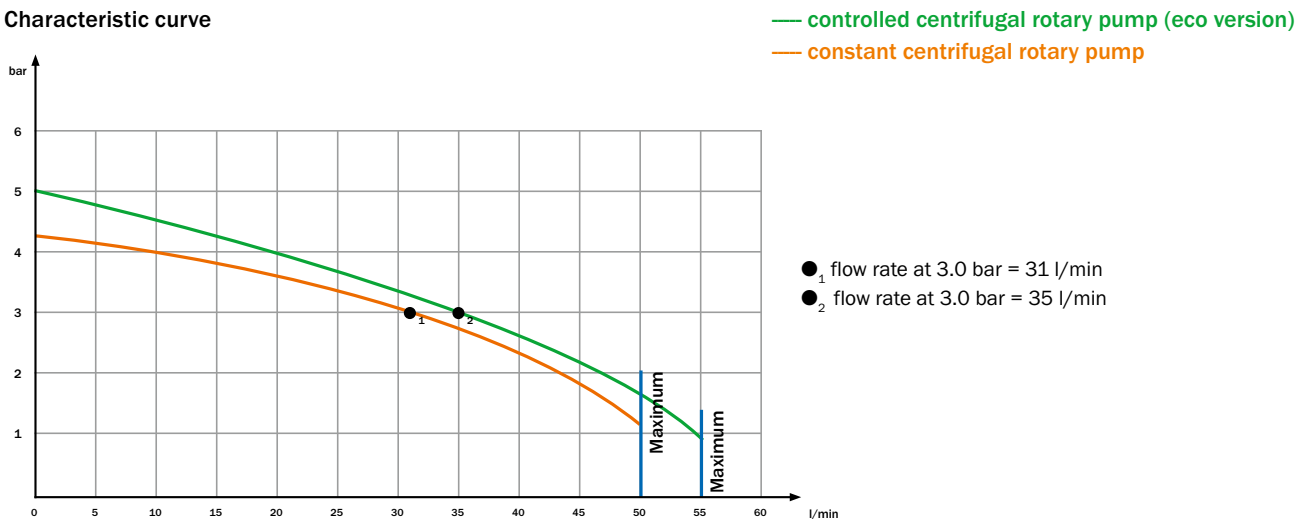
OPC UA
interface



Example: Display

High-performance temperature control unit with increased flow rate and reduced energy consumption

Characteristic curve



Temperature controllers water indirect 95 °C and 140 °C

• = Standard / o = Option
- = not available

	Model protemp selection, series 1	ci 95-s1	ci 140-s1	ci 95-s1 eco	ci 140-s1 eco
Technical data	Medium	water	water	water	water
	Temperature max. (°C)	95	140	95	140
	Pump capacity max. (l/min / bar)	50 / 4,3	50 / 4,3	55 / 5,0	55 / 5,0
	Heating capacity (kW)	6 / 9	6 / 9	6 / 9	6 / 9
	Cooling	indirect	indirect	indirect	indirect
	Cooling capacity (kW) ¹	62	95	62	95
	Mould circuit supply and return connections	G 3/4"	G 3/4"	G 3/4"	G 3/4"
	Cooling water supply and return connections	G 1/2"	G 1/2"	G 1/2"	G 1/2"
	Dimensions in mm (L x W x H)	710 x 210 x 615	710 x 210 x 615	710 x 380 x 615	710 x 380 x 615
	Operating mode of centrifugal pump	constant	constant	controlled / IE5	controlled / IE5
Standard specification/Options	Dual frequency 50/60 Hz	o	o	•	•
	Touchscreen with colour display	•	•	•	•
	Robust partly galvanized steel housing, painted in two colours	•	•	•	•
	Automatic filling and top up device	•	•	•	•
	Strainer in cooling water inlet	•	•	•	•
	Strainer in consumer return flow	•	•	•	•
	All contact parts made of non-corrosive materials	•	•	•	•
	Adapted heating system	•	•	•	•
	Acoustic and optical alarm	•	•	•	•
	Mould draining	o	o	o	o
	Integrated top up-pump	-	o	-	o
	Return temperature indication	•	•	•	•
	System pressure gauge	-	•	-	•

¹) at 15 °C cooling water and 90 °C resp. 130 °C circuit water temperature

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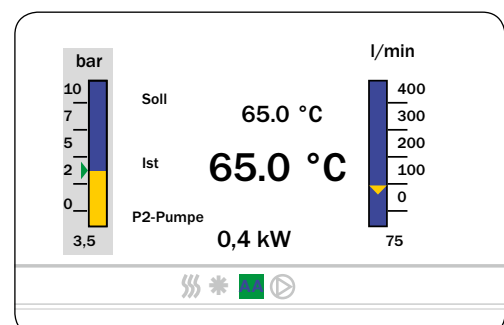
protemp selection series 2 – Designed for medium consumers

Standard equipment:

- Self-optimizing microcontroller with high control accuracy
- Touch screen (4.3") for input, control and monitoring of process parameters
- Measurement, display and monitoring of flow rate
- Intuitive user interface with user-friendly menu navigation
- **Measurement, display and monitoring of supply pressure**
- Temperature display of return flow
- Continuous monitoring of process parameters
- **Stainless steel centrifugal pump and stainless steel heating elements**
- **Energy consumption display (eco version)**
- Pump dry run and overheat protection
- **Speed-controlled centrifugal pump in efficiency class IE5 (eco version)**
- Digitization concept protemp connect ^{4.0}
- Automatic water exchange
- Control cabinet protection class IP 54
- Strainer in consumer return flow and cooling water inlet
- Ready for connection with 3 m cable and CEE socket
- Unit front: RAL 7035 Light grey
- Hood and side panels: RAL 7016 Anthracite grey
- Optional external sensor connection (Pt 100)
- Optional interface (RS 485, TTY, Profinet, **OPC UA** and proflow)
- Optional gwk tempanalyser ^{APP}



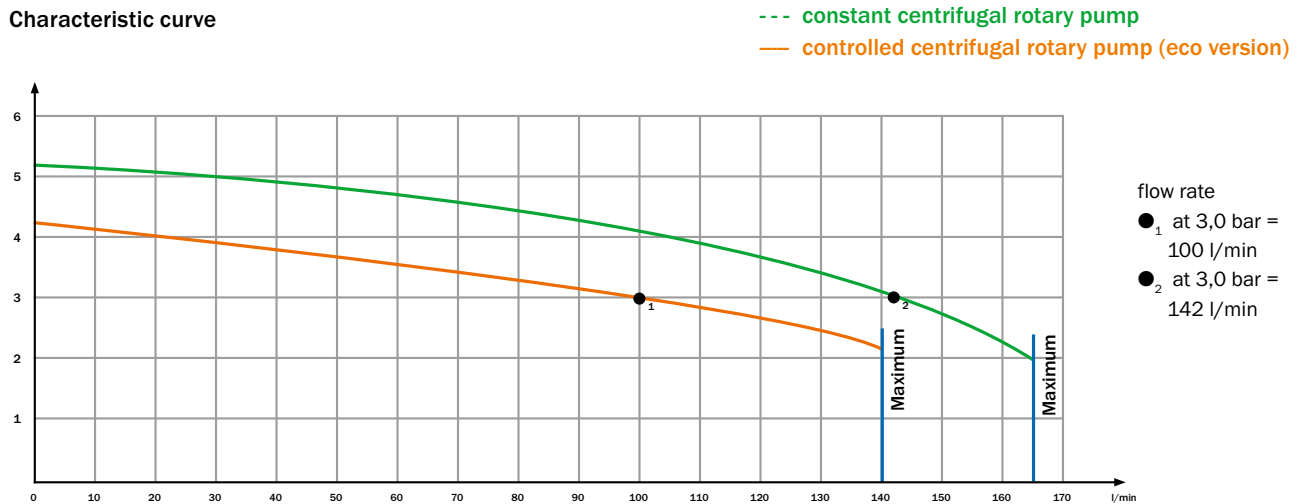
OPC UA
interface



Example: Display

High-performance temperature control units with increased flow rate and reduced energy consumption

Characteristic curve



Temperature controllers water direct 95 °C

• = Standard / o = Option / - = not available

	cd 95-s2	cd 95-s2 eco
Model protemp selection, series 2		
Medium	water	water
Temperature max. (°C)	95	95
Pump capacity max. (l/min / bar)	140 / 4,2	165 / 5,1
Heating capacity (kW)	9 / 18	9 / 18
Cooling	direct	direct
Cooling capacity (kW) ¹	264	264
Mould circuit supply and return connections	G 1"	G 1"
Cooling water supply and return connections	G 3/4"	G 3/4"
Dimensions in mm (L x W x H)	1.000 x 280 x 750	1.000 x 280 x 750
Operating mode of centrifugal pump	constant / IE3	controlled / IE5
Dual frequency 50/60 Hz	-	•
Touchscreen with colour display	•	•
Robust partly galvanized steel housing, painted in two colours	•	•
Automatic filling and top up device	•	•
Strainer in cooling water inlet	•	•
Strainer in consumer return flow	•	•
All contact parts made of non-corrosive materials	•	•
Adapted heating system	•	•
Acoustic and optical alarm	•	•
Mould draining	o	o
Return temperature indication	•	•

¹) bei 15 °C Kühlwassertemperatur und 90 °C Vorlauftemperatur

Subject to technical modification without notice!

protemp advanced series 1 and 2 – Designed for small and medium consumers

Standard equipment:

- Self-optimizing microcontroller with high control accuracy
- Touch screen (4.3") for input, control and monitoring of process parameters
- Measurement, display and monitoring of flow rate
- Intuitive user interface with user-friendly menu navigation
- **Measurement, display and monitoring of supply pressure**
- Temperature display of return flow
- Continuous monitoring of process parameters
- **Stainless steel centrifugal pump and stainless steel heating elements**
- **Energy consumption display (eco version)**
- Stainless steel heat exchanger at indirect cooling
- Pump dry run and overheat protection
- Strainer in consumer return flow and cooling water inlet
- **Speed-controlled centrifugal pump in efficiency class IE3 (eco version)**
- Digitization concept protemp connect ^{4.0}
- Automatic water exchange
- Control cabinet protection class IP 54
- Ready for connection with 3 m cable and CEE socket
- Unit front: RAL 7035 Light grey
- Hood and side panels: RAL 7016 Anthracite grey
- Optional external sensor connection (Pt 100)
- Optional interface (RS 485, TTY, Profinet, OPC UA, und proflow)
- Optional gwk tempanalyser ^{APP}

Temperature controllers water indirect und direct 95 °C and 140 °C

	Model protemp advanced, series 1 and 2	cd 95-a1	ci 95-a1	ci 140-a1	cd 95-a1 eco	ci 95-a1
Technical data	Medium	water	water	water	water	v
	Temperature max. (°C)	95	95	140	95	
	Pump capacity max. (l/min / bar)	70 / 4,7	70 / 4,7	70 / 4,7	83 / 6,8	83
	Heating capacity (kW)	9 / 18	9 / 18	9 / 18	9 / 18	9
	Cooling	direct	indirect	indirect	direct	in
	Cooling capacity (kW) ¹	397	92	140	397	
	Mould circuit supply and return connections	G ¾"	G ¾"	G ¾"	G ¾"	C
	Cooling water supply and return connections	G ¾"	G ¾"	G ¾"	G ¾"	C
	Dimensions in mm (L x W x H)	1.000 x 380 x 750	1.000 x 380 x 750	1.000 x 380 x 750	1.000 x 380 x 750	1.000 x
	Operating mode of centrifugal pump	constant / IE3	constant / IE3	constant / IE3	controlled / IE4	contro
Standard specification / Options	Dual frequency 50/60 Hz	•	•	•	•	
	Touchscreen with colour display	•	•	•	•	
	Robust partly galvanized steel housing, painted in two colours	•	•	•	•	
	Automatic filling and top up device	•	•	•	•	
	Strainer in cooling water inlet	•	•	•	•	
	Strainer in consumer return flow	•	•	•	•	
	All contact parts made of non-corrosive materials	•	•	•	•	
	Adapted heating system	•	•	•	•	
	Acoustic and optical alarm	•	•	•	•	
	Separate connection for cooling and fill up	-	•	•	-	
	Mould draining	o	o	o	o	
	Integrated top up-pump	-	-	o	-	
	Return temperature indication	•	•	•	•	
System pressure gauge	-	-	•	-		

¹⁾ at 15 °C cooling water and 90 °C resp. 130 °C circuit water temperature

protemp advanced 3 and 4 – Designed for medium and large consumers

Standard equipment:

- Self-optimizing microcontroller with high control accuracy
- Touch screen (4.3") for input, control and monitoring of process parameters
- Measurement, display and monitoring of flow rate
- Intuitive user interface with user-friendly menu navigation
- **Measurement, display and monitoring of supply pressure**
- Temperature display of return flow
- Continuous monitoring of process parameters
- **Stainless steel centrifugal pump and stainless steel heating elements**
- **Energy consumption display**
- Stainless steel heat exchanger with indirect cooling
- Pump dry run and overheat protection
- **Speed-controlled centrifugal pump in efficiency class IE3**
- Digitization concept protempconnect 4.0
- Automatic water exchange
- Control cabinet protection class IP 54
- Strainer in consumer return flow and cooling water inlet
- Ready for connection with 3 m cable and CEE socket
- Unit front: RAL 7035 Light grey
- Hood and side panels: RAL 7016 Anthracite grey
- Optional external sensor connection (Pt 100)
- Optional interface (RS 485, TTY, Profinet, OPC UA and proflow)
- Optional gwk tempanalyser APP



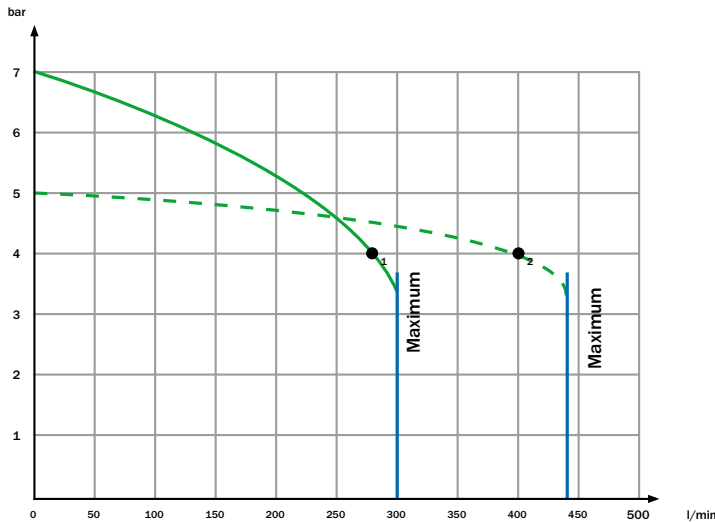
Temperature controllers water direct

Model protemp advanced, series 3 and 4	
Technical data	Medium
	Temperature max. (°C)
	Pump capacity max. (l/min / bar)
	Heating capacity (kW)
	Cooling
	Cooling capacity (kW) ¹
	Mould circuit supply and return connections
	Cooling water supply and return connections
	Dimensions in mm (L x W x H)
	Operating mode of centrifugal pump
Ausstattung /Optionen	Dual frequency 50/60 Hz
	Touchscreen with colour display
	Robust partly galvanized steel housing, painted in two colours
	Automatic filling and top up device
	Strainer in cooling water inlet
	Strainer in consumer return flow
	All contact parts made of non-corrosive materials
	Adapted heating system
	Acoustic and optical alarm
	Separate connection for cooling and fill up
Mould draining	
Integrated top up-pump	
Return temperature indication	
System pressure gauge	

¹⁾ at 15 °C cooling water and 90 °C resp. 130 °C circuit water temperature

High-performance temperature control units with increased flow rate and reduced energy consumption

Characteristic curve



— controlled centrifugal rotary pump series 3
 - - - controlled centrifugal rotary pump series 4

flow rate

- ₁ = at 4,0 bar = 280 l/min
- ₂ = at 4,0 bar = 400 l/min

and indirect 95 °C and 140 °C

• = Standard / o = Option / - = not available

cd 95-a3 eco	ci 95-a3 eco	ci 140-a3 eco	cd 95-a4 eco	ci 95-a4 eco	ci 140-a4 eco
water	water	water	water	water	water
95	95	140	95	95	140
300 / 7,0	300 / 7,0	300 / 7,0	440 / 5,0	440 / 5,0	440 / 5,0
20 / 30 / 40 / 50	20 / 30 / 40 / 50	20 / 30 / 40 / 50	20 / 30 / 40 / 50	20 / 30 / 40 / 50	20 / 30 / 40 / 50
direct	indirect	indirect	direct	indirect	indirect
632	308	472	632	308	472
G 1 ½"	G 1 ½"	G 1 ½"	G 2"	G 2"	G 2"
G 1"	G 1"	G 1"	G 1"	G 1"	G 1"
1.300 x 520 x 1.050	1.300 x 520 x 1.050	1.300 x 520 x 1.050	1.300 x 520 x 1.050	1.300 x 520 x 1.050	1.300 x 520 x 1.050
controlled / IE3	controlled / IE3	controlled / IE3	controlled / IE3	controlled / IE3	controlled / IE3
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
-	•	•	-	•	•
o	o	o	o	o	o
-	-	o	-	-	o
•	•	•	•	•	•
-	-	•	-	-	•

Subject to technical modification without notice!

protemp flow ultrasonic - Mobile multi-circuit flow measurement

The mobile multi-circuit temperature control **protemp flow** offers the maximum energy efficiency, performance and monitoring. This device concept combines the advantages of the **protemp advanced**, series 2, and of the **enersave proflow ultrasonic** in one device.

The multiple distribution system is designed for individual adjustment and monitoring of the flow and the return flow temperature of parallel load circuits.

The system thus ensures the hydraulic compensation in temperature control circuits with different pressure losses and allows a cost-efficient and reliable distribution of the flow rate supplied by the device.

The flow measurement of the individual consumer circuits is contactless and takes place by means of ultrasonic sensors.

The flow rates and the return flow temperature

are displayed for each circuit on the display of the temperature control unit.

In addition to the indication in the device display, the flow rate is displayed on the sensor and the status is signalled with a large red/green LED.

Process monitoring takes place by setting minimum flow rate limits. Once the limit value falls below the threshold, an alarm function is triggered and displayed in the device as well as on the sensor.

The process values can be transferred to higher-level control systems via the optional OPC UA temperature control unit interface and visualized there.

The **gwk tempanalyser APP**, offers a process data analysis and visualization solution which can be used on Windows, Adroid or iOS operating systems.



In addition to the display in the temperature control unit: Display of the flow rate and the status on the sensor



Exemplary display on the gwk tempanalyser APP

Circuit temperature control with contactless

Standard equipment:

- Multi-distributor for 4 or 6 circuits installed on the device
- Display, communication, operation via the touch screen of the temperature control unit
- Continuous, maintenance-free and dirt-insensitive flow measurement (no media contact) per distributor circuit
- Common temperature measurement and display in the flow
- Separate temperature measurement in the return line per distribution circuit
- Display and monitoring of the flow per distribution circuit
- Limit setting for flow rate per distribution circuit
- Shut-off ball valve per distributor circuit in the feed and return line
- Bypass line to bypass the distributor and use the temperature control unit as a single circuit unit
- Optional interface (RS 485, TTY, Profinet, **OPC UA** and proflow)

Temperature controllers water direct 95 °C

• = Standard / o = Option / - = not available

	Model protemp flow ultrasonic	cd 95-a2 pf eco	cd 95-a2 pf eco
Technical data	Number of monitoring circuits	4	6
	Medium	water	water
	Temperature max. (°C)	95	95
	Pump capacity max. (l/min / bar)	125 / 7,0	125 / 7,0
	Heating capacity (kW)	9 / 18 / 27 / 36	9 / 18 / 27 / 36
	Cooling	direct	direct
	Cooling capacity (kW) ¹	397	397
	Mould circuit supply and return connections (distributor mode)	G ½"	G ½"
	Mould circuit supply and return connections (single operation)	G 1"	G 1"
	Cooling water supply and return connections	G ¾"	G ¾"
	Dimensions in mm (L x W x H)	1.200 x 380 x 1.100	1.200 x 380 x 1.100
	Operating mode of centrifugal pump	controlled / IE3	controlled / IE3
	Dual frequency 50/60 Hz	•	•
Standard specification/Options	Touchscreen with colour display	•	•
	Robust partly galvanized steel housing, painted in two colours	•	•
	Automatic filling and top up device	•	•
	Strainer in cooling water inlet	•	•
	Strainer in consumer return flow	•	•
	All contact parts made of non-corrosive materials	•	•
	Adapted heating system	•	•
	Acoustic and optical alarm	•	•
	Mould draining	o	o
	Return temperature indication	•	•

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

Subject to technical modification without notice!

proflow mechanical – maximum process control

Maximum process data acquisition and process control and almost maintenance-free

To meet user's desire for easy maintenance and low sensitivity to slightly soiled water, the **proflow mechanical**, as a replacement for the previous and commonly used standard measuring device with impeller, nozzle or Vortex, allows the mechanical measurement based on the differential pressure principle, **without rotating parts**. The sensors can be visualized via a pulsetemp® or protemp control depending on version, or be connected to a PLC. The **proflow ultrasonic** allows a completely contactless flow measurement based on the ultrasonic principle.

- Robust flow measurement in the consumer return
- PT 1.000 temperature measurement in the consumer return
- No infeed/outfeed sections required
- 4 or 6 x temperature control connection 3/4" IG
- 1 x main connection 1" IG
- Available in three temperature versions: Operating temperatures up to 100 °C, up to 160 °C and up to 180 °C
- Max. flow rate per circuit: 25 l/min or 50 l/min
- Max. temperatures: 100 °C / 160 °C / 180 °C

Flow measurement available in two versions:



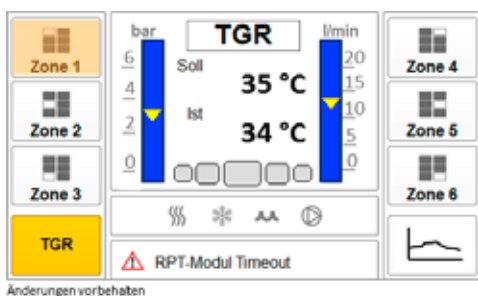
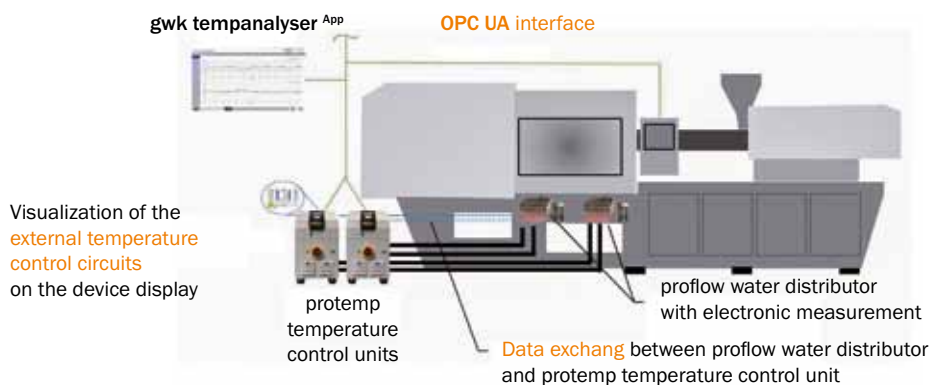
6-way distributor with flow and temperature measurement



For connecting to an enersave visualization
Temperature range -10 to 100 °C
Measuring range: 1.0 bis 25 l/min



For connecting to an enersave visualization
Temperature range 10 to 180 °C
Measuring range: 0.3 bis 50 l/min



Exemplary display on the gwK tempanalyser APP

Model	proflow mechanical
Temperature range max.	100 °C / 160 °C / 180 °C
Heat transfer medium	water
Operating modes	Temperature and flow monitoring
Number of circuits	4 or 6
Temperature measurement	PT 1000
Flow measurement per temperature control circuit	mechanical; measuring range 1 - 25 l/min (100 °C); 0.3 - 50 l/min (160/180 °C)
Mechanical connection	Main connection 1 x flow R1" IG; 1 return R1" IG
Distribution module	Temperature control circuits: 4 or 6 x R 1/2" IG
Coating	Stainless steel

Subject to technical modification without notice!

proflow ultrasonic – maximum process control

Maximum process data acquisition and process control and maintenance-free

To meet user's desire for easy maintenance and low sensitivity to slightly soiled water, the **proflow ultrasonic**, in addition to the previous and commonly used standard measuring device with impeller or turbines or vortex, allows now the contactless ultrasonic measurement using the dTOF technology. The sensors can be visualized via a PulseTemp® or ProTemp or PLC control depending on version, or be used as a pure local display.

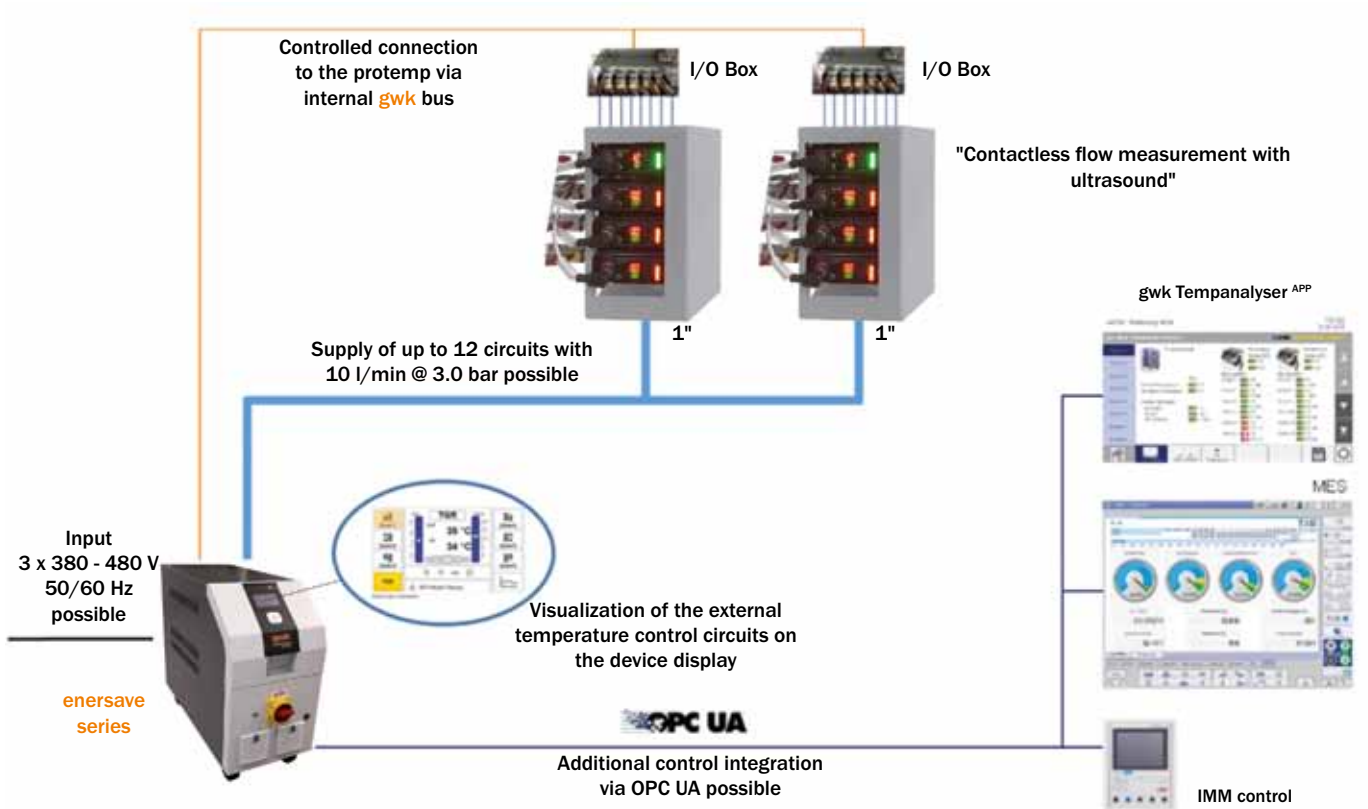
The mechanical flow measurement based on the differential pressure principle with the **proflow mechanical** can be used as an alternative.

- Simple integration in machines and systems possible
- 4 or 6 x consumer circuit connection (flow/return) 1/2" IG
- Contactless flow measurement
- Numerous possibilities of data communication
- With dTOF technology and DDS function
- With LED local display of flow values
- Temperature measurement PT 1.000
- Large RED/GREEN status LED
- 1 x main connection 1" IG
- Flow rate per circuit: 1 ... 30 l/min (no "overload-risk", a permanent-> 60 l/min possible)
- Operating temperature: 0 ... 120 °C



4-fold distributor with contact-free flow rate measuring

The **protemp connect** 4.0 digitization concept offers many communication options:



Model	proflow ultrasonic
Temperature range max.	120 °C
Heat transfer medium	water
Operating modes	Temperature / flow display
Operating modes	4/6
Temperature measurement	PT 1000
Flow measurement per temperature control circuit	contactless; Measuring range 1-30 l/min
Mechanical connection	Main connection 1 x flow R1" IG; 1 return R1" IG
Distribution module	Temperature control circuits: 4 or 6 x R 1/2" IG
Coating	RAL 7035

Subject to technical modification without notice!

pulsetemp advanced – temperature control moulded parts

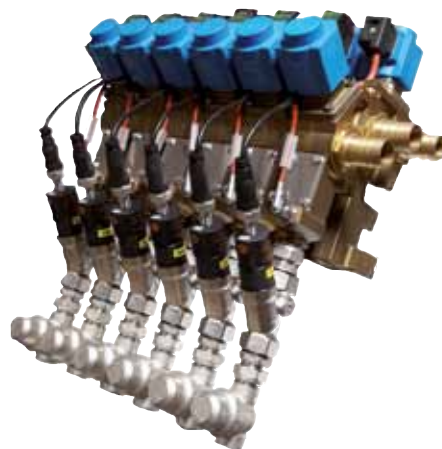
Temperature control with individual heat dissipation/supply and contactless flow measurement adapted to moulded parts

Due to the innovative regulation of the **pulsetemp**[®], heat supplied to the mould zones can be regulated.

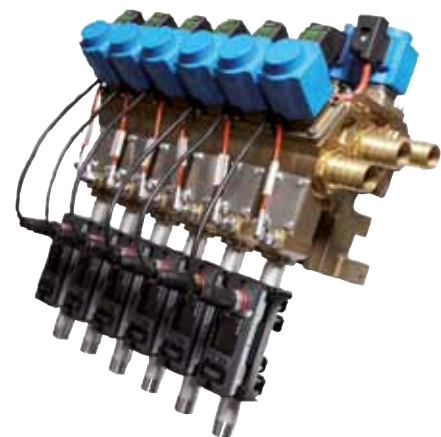
From two basic temperature levels, the **pulsetemp**[®] automatically provides the required and each case different mould inlet temperatures. The mould outlet temperature is used as a control value. The **pulsetemp**[®] system allows, due to its modular design, almost any combination. A unique feature is the multi-functionality of the system.

Depending on requirements, the **pulsetemp**[®] can be used both in continuous control mode and in discontinuous pulse mode. In the **pulsetemp**[®] ultrasonic, the flow measurement is contactless.

- Individual regulation of the heat balance in individual circles
- Regulation depending on the mould outlet temperature
- Temperature as target value specification
- Automatic regulation to different mould inlet temperatures (combination of two temperature levels)
- Also available with contactless flow measurement
- Main connection: 3 x 1" IG
- Consumer connection: 1/2" IG
- Number of circuits per distributor: 6
- Max. number of circuits, total: 48

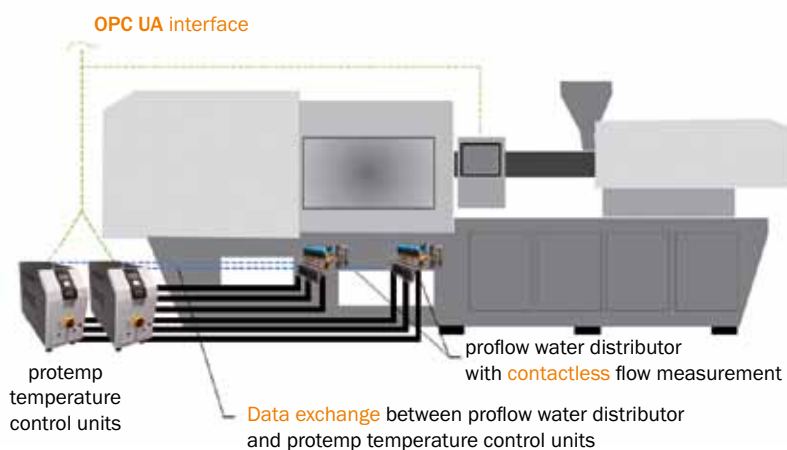


*No rotating parts in the medium.
The flow measurement takes place through a mechanical movement.
Contaminated tempering medium is therefore from now on not a big problem.*



*No connection to the medium.
The flow measurement takes place without contact to the temperature control medium. Contaminated tempering medium is therefore from now on no longer a problem.*

with individual heat dissipation adapted to

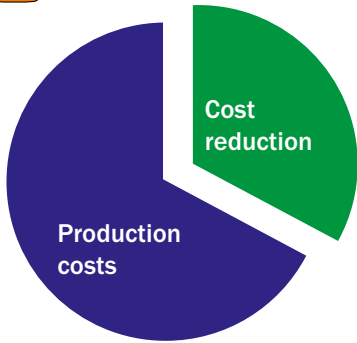


Visualization of the external temperature control circuits on a touchscreen (10,4")

Model	pulsetemp advanced
Temperature range max.	95 °C
Heat transfer medium	water
Operating modes	Continuous temperature control (single-circuit control), Temperature and flow monitoring, pulse temperature control
Number of circuits	6 to 48 (in 6-points increments)
Temperature measurement	PT 1000
Flow measurement per temperature control circuit	mechanical; measuring range 1 - 25 l/min contactless; measuring range 1 - 30 l/min
Temperature and flow monitoring	Touchscreen 10,4 " TFT
Mechanical connection	Main connection 2 x flow R1" IG; 1 return R1" IG
Distribution module	Temperature control circuits: 6 x R 1/2" IG
Power supply, central unit	400 V - 3N - 50 Hz - connection cable 5 m including connection plug CEE 16 A
Coating	Switch box RAL 7035

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gwk Perfect Cooling and Temperature Control

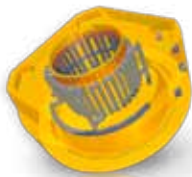


Increased productivity

In many areas of the industry, cooling and temperature control provides a great potential for increasing productivity and thus for lowering costs.

Many factors serve to improve productivity:

- Reduction of cooling time, therefore savings in required machine hours
- Improvement of product quality
- Increasing availability of production plants
- Decreasing running cost
- Reduction of maintenance cost



gwk integrat 4D

Optimal product quality through homogeneous temperature distribution by temperature control with close-to-cavity mould inserts.



gwk weco

Controllable production in variable climatic conditions and high flexibility with compact, energy-saving water chillers using environmentally friendly refrigerant.



integrat 40/80/direct

Increase of productivity by means of specific and segmented mould temperature control.



gwk hermeticool hybrid

Innovative cooling system to decrease the running and maintenance cost in comparison to conventional cooling systems.



gwk teco c

The compact series with excellent price-performance ratio for the demanding plastics processor.



gwk container-plants

Highest flexibility and lowest expenses for planning, installation and relocation of a centralised cooling plant.



gwk teco wi/wd

Effective temperature control of applications with high material throughput. Also ideal for pre-heating of large injection moulds.



gwk skl/skw

Reliable and economic supply of cooling water in the low temperature range, even under the toughest ambient conditions.



gwk moldclean

Increased productivity through effective, automatically controlled cleaning of heat exchange surfaces in cooling and temperature controlled circuits.



gwk service

Decreasing the maintenance cost and protection of company owned resources through professional execution of installation and maintenance works incl. cooling water treatment.



Member of the technotrans group

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