



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	0/9/18	92	70 / 4,7	83 / 6,8
protemp ci 140-a1	water	140	0/9/18	140	70 / 4,7	83 / 6,8
protemp ci 95-a2	water	95	0/9/18/27/36	92	105 / 4,9	125 / 7,0
protemp ci 140-a2	water	140	0/9/18/27/36	140	105 / 4,9	125 / 7,0
protemp ci 95-a3	water	95	0/20/30/40/50	308	-	300 / 7,0
protemp ci 140-a3	water	140	0/20/30/40/50	472	-	300 / 7,0
protemp ci 95-a4	water	95	0/20/30/40/50	308	-	440 / 5,0
protemp ci 140-a4	water	140	0/20/30/40/50	472	-	440 / 5,0

x = eco version

Subject to technical modification without notice!

protemp temperature controllers for water, using direct cooling

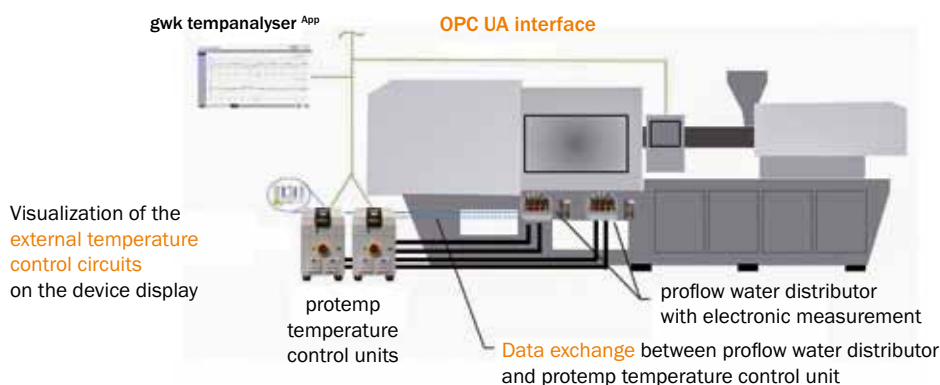
Type	Medium	Temperature range (°C)	Heating capacity (kW)	Max.cooling capacity (kW)	Pump capacity, constant operation max. (l/min / bar)	Pump capacity, control mode x max. (l/min / bar)
protemp cd 95-s2	water	95	0/9/18	264	140 / 4,2	165 / 5,1
protemp cd 95-a1	water	95	0/9/18/27/36	397	70 / 4,7	83 / 6,8
protemp cd 95-a2	water	95	0/9/18/27/36	397	105 / 4,9	125 / 7,0
protemp cd 95-a3	water	95	0/20/30/40/50	632	-	300 / 7,0
protemp cd 95-a4	water	95	0/20/30/40/50	632	-	440 / 5,0

x = eco version

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systems of the enersave series at a glance

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



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 technology – climate protection can be so easy



Reducing CO₂ emissions with our highly effic

In addition to high cost savings, the gwk **enersave** technology also enables a **considerable reduction** of CO₂ emissions for temperature control applications.

Innovative pump technology

The water pumps that are usually integrated in temperature control units and systems play an important role for the total energy consumption of the unit.

This is why only highly efficient centrifugal pumps are used for the **protemp** series with gwk **enersave** technology. Compared to conventional, less **efficient peripheral pumps**, CO₂ emissions can be considerably reduced.



Did you know



that the average CO₂ emissions value for a flight from Cologne to Munich is stated to be **65.9 kg** / person ...

or that a 23 m high beech tree can neutralise about **12.5 kg** of CO₂ per year?

Sources: International Civil Aviation Organization (ICAO), Handelsblatt



ient enersave technology

3 examples emphasising the outstanding efficiency of our enersave technology:

enersave technology with a centrifugal pump *	VS.	Conventional system with a peripheral pump
<p>Effective flow rate at 3 bar: 18 l/min</p> <p>Power consumption of the pump: 0.38 kW</p> <p>Annual consumption (5,800 h of use): 2,204 kWh/year</p> <p>Annual emissions: 1.19 tons of CO₂/year</p>		<p>Effective flow rate at 3 bar: 18 l/min</p> <p>Power consumption of the pump: 0.85 kW</p> <p>Annual consumption (5,800 h of use): 4,930 kWh/year</p> <p>Annual emissions: 2.65 tons of CO₂/year</p>
<p>CO₂-reduction thanks to the enersave technology: 1.46 tons/year</p>		<p>The reduction can be compared to: 22 fewer flights or 117 newly planted trees.</p>

enersave technology with a centrifugal pump *	VS.	Conventional system with a peripheral pump
<p>Effective flow rate at 3 bar: 26 l/min</p> <p>Power consumption of the pump: 0.34 kW</p> <p>Annual consumption (5,800 h of use): 1,972 kWh/year</p> <p>Annual emissions: 1.06 tons of CO₂/year</p>		<p>Effective flow rate at 3 bar: 26 l/min</p> <p>Power consumption of the pump: 0.75 kW</p> <p>Annual consumption (5,800 h of use): 4,350 kWh/year</p> <p>Annual emissions: 2.33 tons of CO₂/year</p>
<p>CO₂-reduction thanks to the enersave technology: 1.27 tons/year</p>		<p>The reduction can be compared to: 20 fewer flights or 102 newly planted trees.</p>

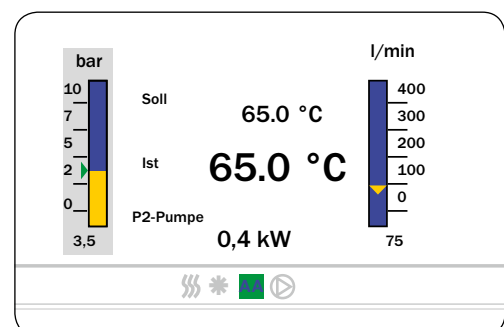
enersave technology with a centrifugal pump *	VS.	Conventional system with a peripheral pump
<p>Effective flow rate at 3 bar: 95 l/min</p> <p>Power consumption of the pump: 0.91 kW</p> <p>Annual consumption (5,800 h of use): 5,278 kWh/year</p> <p>Annual emissions: 2.83 tons of CO₂/year</p>		<p>Effective flow rate at 3 bar: 95 l/min</p> <p>Power consumption of the pump: 2.30 kW</p> <p>Annual consumption (5,800 h of use): 13,340 kWh/year</p> <p>Annual emissions: 7.16 tons of CO₂/year</p>
<p>CO₂-reduction thanks to the enersave technology: 4.33 tons/year</p>		<p>The reduction can be compared to: 66 fewer flights or 346 newly planted trees.</p>

* To ensure optimum comparability, enersave units with speed control have been used for the calculation.

protemp selection series 1 – Designed for smaller consumers

Standard equipment:

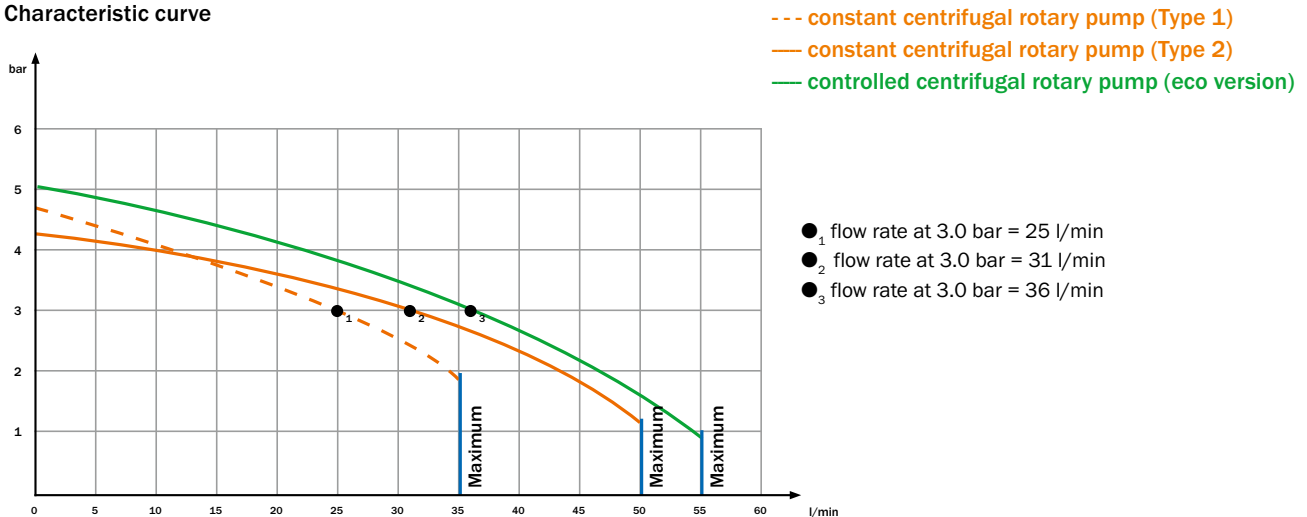
- Self-optimizing microcontroller with high control accuracy
- Touch screen (4.3") for input, control and monitoring of process parameters
- Measurement, display and monitoring of flow rate
- Intuitive user interface with user-friendly menu navigation
- **Measurement, display and monitoring of supply 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}



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

	ci 95-s1	ci 140-s1	ci 95-s1 eco	ci 140-s1 eco
Model protemp selection, series 1				
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
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	-	•	-	•

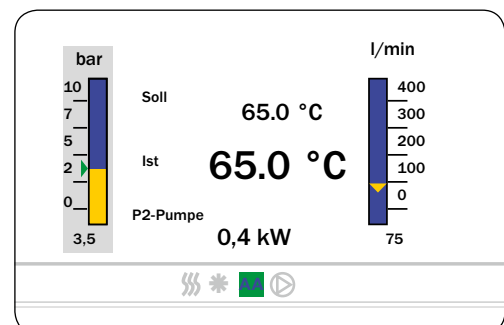
¹) at 15 °C cooling water and 90 °C resp. 130 °C circuit water temperature

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protemp selection series 2 – Designed for medium consumers

Standard equipment:

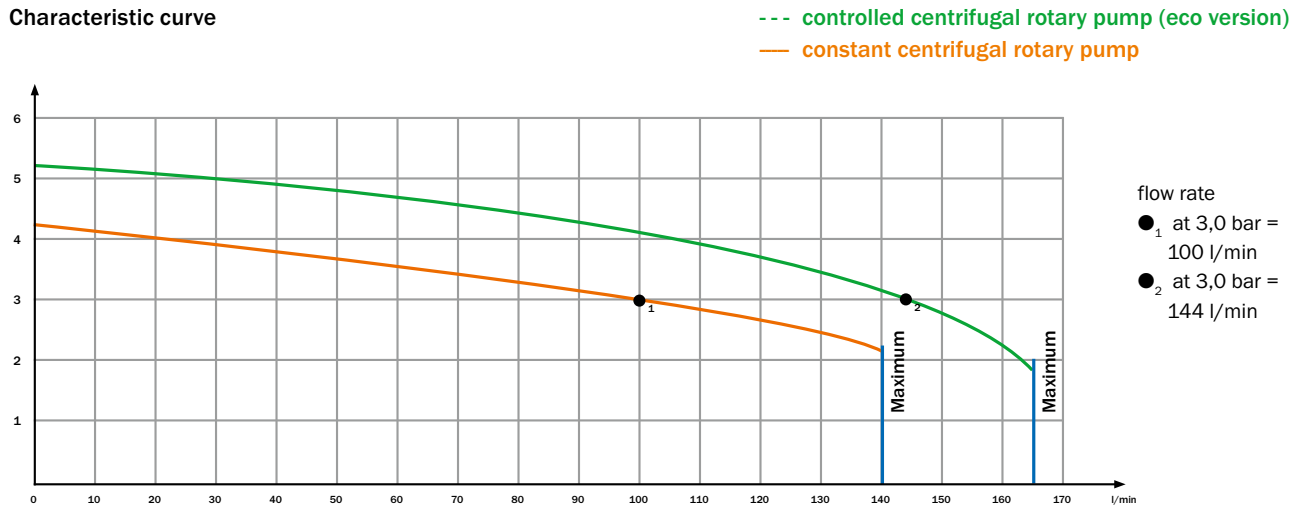
- Self-optimizing microcontroller with high control accuracy
- Touch screen (4.3") for input, control and monitoring of process parameters
- Measurement, display and monitoring of flow rate
- Intuitive user interface with user-friendly menu navigation
- **Measurement, display and monitoring of supply 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}



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

	Model protemp selection, series 2	cd 95-s2	cd 95-s2 eco
Technical data	Medium	water	water
	Temperature max. (°C)	95	95
	Pump capacity max. (l/min / bar)	140 / 4,2	165 / 5,1
	Heating capacity (kW)	0 / 9 / 18	0 / 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
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	•	•
	Mould draining	o	o
Return temperature indication	•	•	

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

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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}

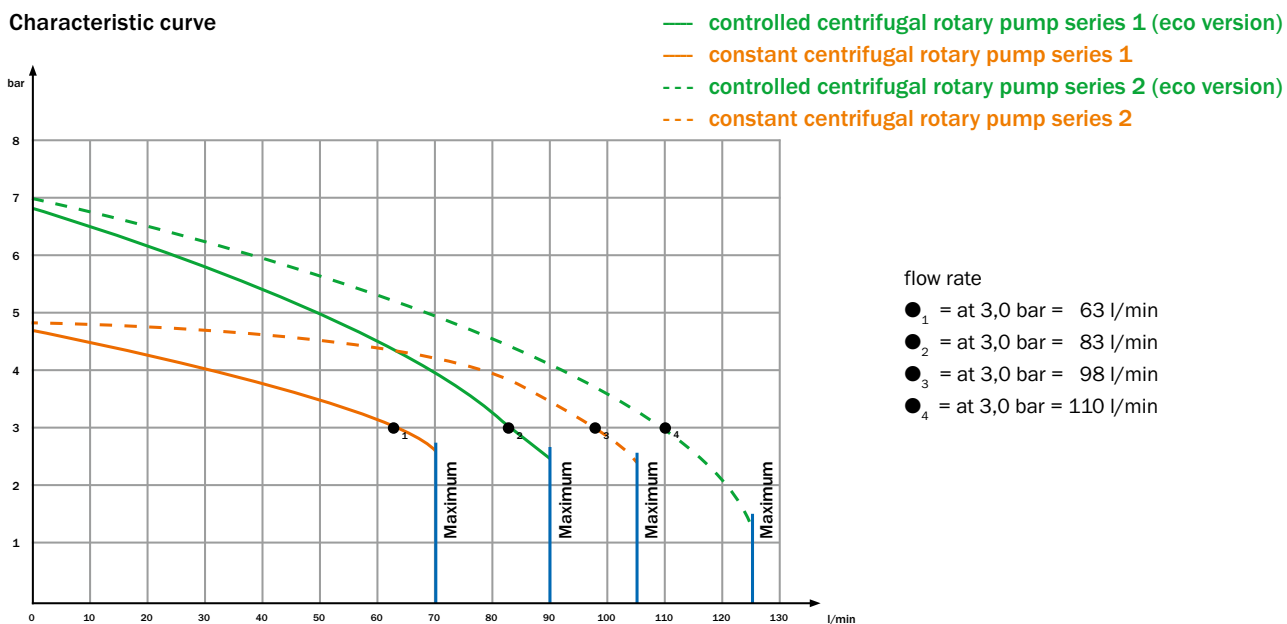
Temperature controllers water indirect und direct 95 °C and 140 °C

	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	w
	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)	0 / 9 / 18	0 / 9 / 18	0 / 9 / 18	0 / 9 / 18	0 /
	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 / IE3	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

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

Characteristic curve



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

ca-a1 eco	ci 140-a1 eco	cd 95-a2	ci 95-a2	ci 140-a2	cd 95-a2 eco	ci 95-a2 eco	ci 140-a2 eco
water	water	water	water	water	water	water	water
95	140	95	95	140	95	95	140
0/6,8	83/6,8	105/4,9	105/4,9	105/4,9	125/7,0	125/7,0	125/7,0
0/9/18	0/9/18	0/9/18/27/36	0/9/18/27/36	0/9/18/27/36	0/9/18/27/36	0/9/18/27/36	0/9/18/27/36
direct	indirect	direct	indirect	indirect	direct	indirect	indirect
92	140	397	92	140	397	92	140
G 3/4"	G 3/4"	G 1"	G 1"	G 1"	G 1"	G 1"	G 1"
G 3/4"	G 3/4"	G 3/4"	G 3/4"	G 3/4"	G 3/4"	G 3/4"	G 3/4"
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 380 x 750	1.000 x 380 x 750	1.000 x 380 x 750	1.000 x 380 x 750
controlled / IE3	controlled / IE3	constant / IE3	constant / IE3	constant / IE3	controlled / IE3	controlled / IE3	controlled / IE3
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
o	o	o	o	o	o	o	o
-	o	-	-	o	-	-	o
•	•	•	•	•	•	•	•
-	•	-	-	•	-	-	•

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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



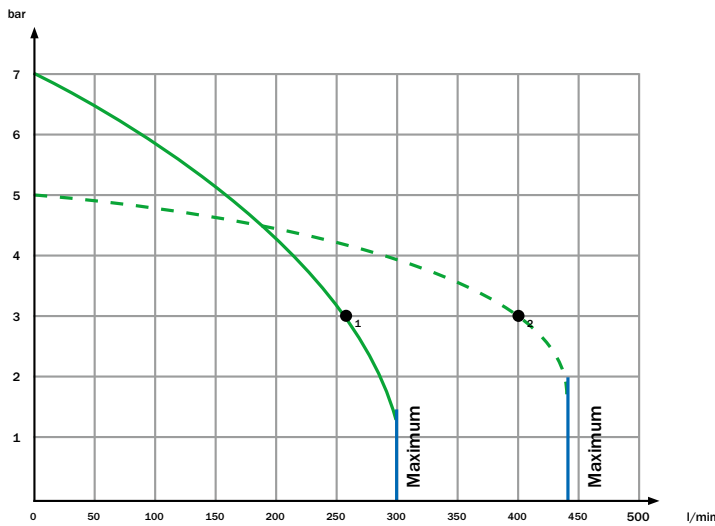
Temperature controllers water direct

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 3,0 bar = 258 l/min
- ₂ = at 3,0 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
0 / 20 / 30 / 40 / 50	0 / 20 / 30 / 40 / 50	0 / 20 / 30 / 40 / 50	0 / 20 / 30 / 40 / 50	0 / 20 / 30 / 40 / 50	0 / 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
•	•	•	•	•	•
-	-	•	-	-	•

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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)	0 / 9 / 18 / 27 / 36	0 / 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:



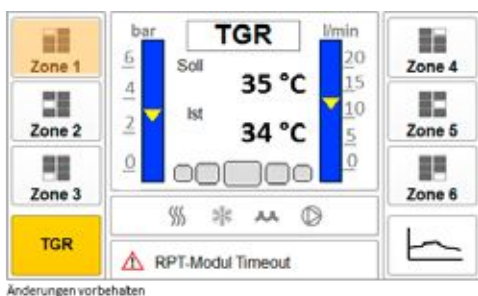
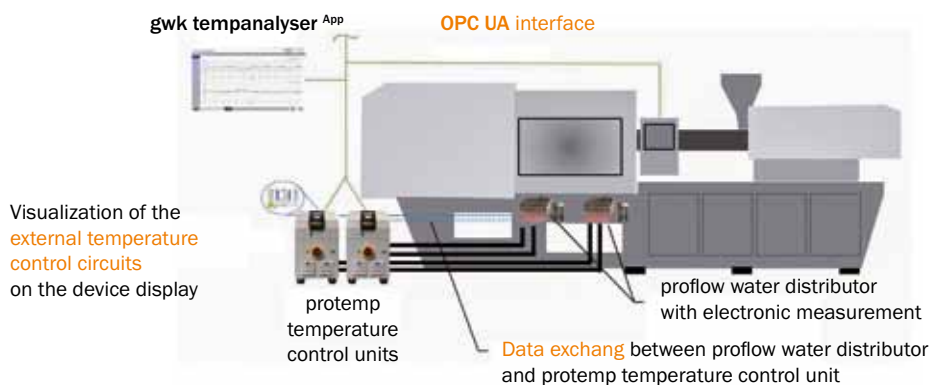
6-way distributor with flow and temperature measurement



For connecting to an Enersave visualization
Temperature range 10 up 100 °C
Measuring range: 1.0 to 25 l/min



For connecting to an Enersave visualization
Temperature range 10 to 180 °C
Measuring range: 0.3 to 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.

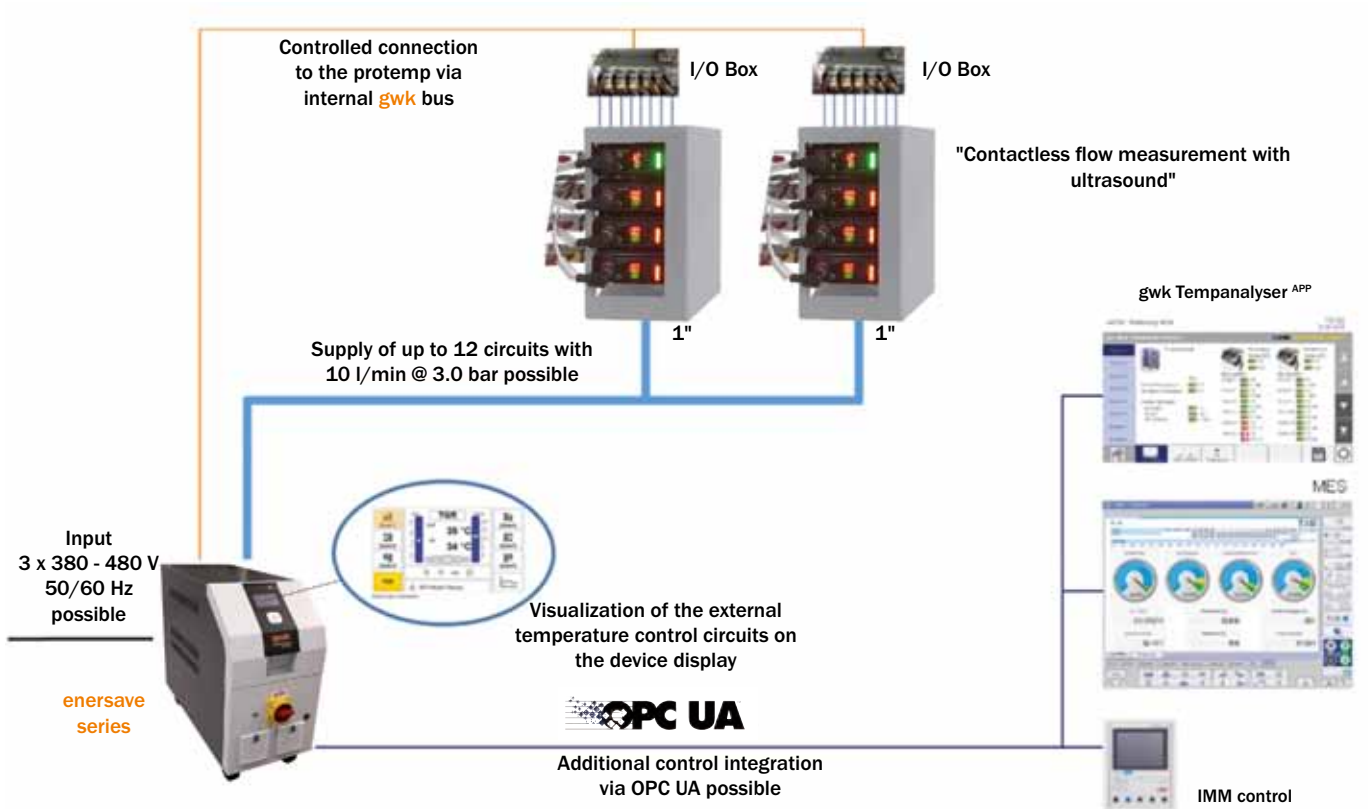
The mechanical flow measurement based on the differential pressure principle with the **proflow mechanical** can be used as an alternative.

- 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!

protemp meets **integrat direct**. Active flow control – maximum efficiency

The proven "integrat direct" distribution system with active control and long-standing market maturity can be combined with the most efficient temperature control units available on the market.

Optimum results and maximum economic efficiency.

Savings of up to 95% are not just a marketing slogan. The real-life example and years of experience have shown that this value is quite realistic.

These high savings are possible thanks to the innovative enersave technology and highly-efficient, speed-controlled centrifugal pumps.

Brief explanation of the operating principle of the active distribution system

The flow distribution principle with active control can be compared to a modern heating supply system.

The temperature of the various zones is controlled by a specific volume flow control. A thermostat-controlled control valve reduces the volume flow over the heating surface, thereby determining the heat transfer.



While many thermoplastics processing applications also use active distribution systems with a mould zone control by way of temperature-controlled control valves, there are certain differences in terms of the pump types that are used.

Use of centrifugal pumps for the supply of distribution systems with active control

Many water distribution systems are still supplied by way of peripheral pumps. However, this pump type not only has a low level of efficiency. It is also characterised by an increase in energy consumption when the flow rate decreases.

The opposite is the case with centrifugal pumps which are also used for the heating systems of buildings or for central cooling systems. In this case, the energy consumption decreases when the flow rate decreases.

Reliability and efficiency based on many years of experience

More than 15 years ago, gwk developed the first "integrat direct" distribution system with an active control of the individual temperature control circuits.

Continuous further development resulted in an extremely reliable and efficient system. The system has been optimised based on years of experience and developments.

Our experienced experts would gladly assist you in the selection and configuration of the various systems.

Benefit from our extensive experience.

TIPS FOR SAVING ENERGY

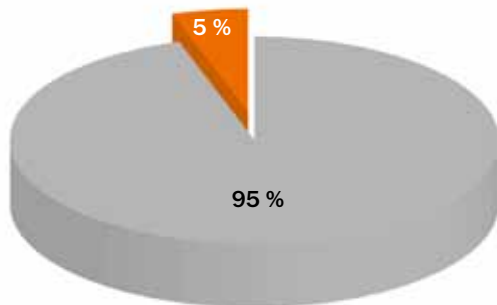


For economic reasons, a water distribution system with active control should always be supplied by way of a speed-controlled centrifugal pump.

Highly efficient multi-zone temperature control with active, smart control for precise and stable processes

Efficiency example:

The example is a real-life comparison between a distribution system with a speed-controlled, highly efficient centrifugal pump and a distribution system with a less efficient constant-speed peripheral pump.



- Savings compared to the conventional peripheral pump technology
- Energy demand in the case of the enersave centrifugal pump technology

Basic data:

Maximum number of supplied circuits:	12 circuits
Maximum flow rate:	95 to 125 l/min
Active circuits in the example:	6 circuits
Set flow rate per circuit:	8 l/min

Scenario with a constant-speed peripheral pump:

System start:

- The temperature control unit runs at 100 % speed.
- The pump provides 95 l/min or 15.8 l/min per circuit
- The pump has a power consumption of **2.3 kW**

The control process begins:

- The control valves of the distributor reduce the flow rate of the individual circuits to 8 l/min (unit: 48 l/min).
- The pressure loss inside the system increases.
- The power consumption of the pump increases to **2.95 kW** (in the case of a centrifugal pump, it would decrease).

Scenario with a speed-controlled centrifugal pump:

System start:

- **In a first step**, the temperature control unit is adapted to the number of active circuits based on a setpoint specification. As a result, it runs at reduced speed.
- The pump provides **48 l/min** or **8 l/min** per circuit.
- The pump has a power consumption of **0.15 W**.

The control process begins:

- The control valves of the distributor do not need to reduce the flow rate. They ensure the hydraulic compensation and disturbance compensation during the process.

✓ Energy consumption reduction by **2.8 kW** or **95 %**,
 or **16,240 kWh / year** or **2,858,- € / year** or
8.72 tons of CO₂ / year



(5,800 hours of operation/year, electricity price: € 0.16/kWh)

Interesting comparisons:

The CO₂ reduction of the example can be compared to:

132 fewer flights

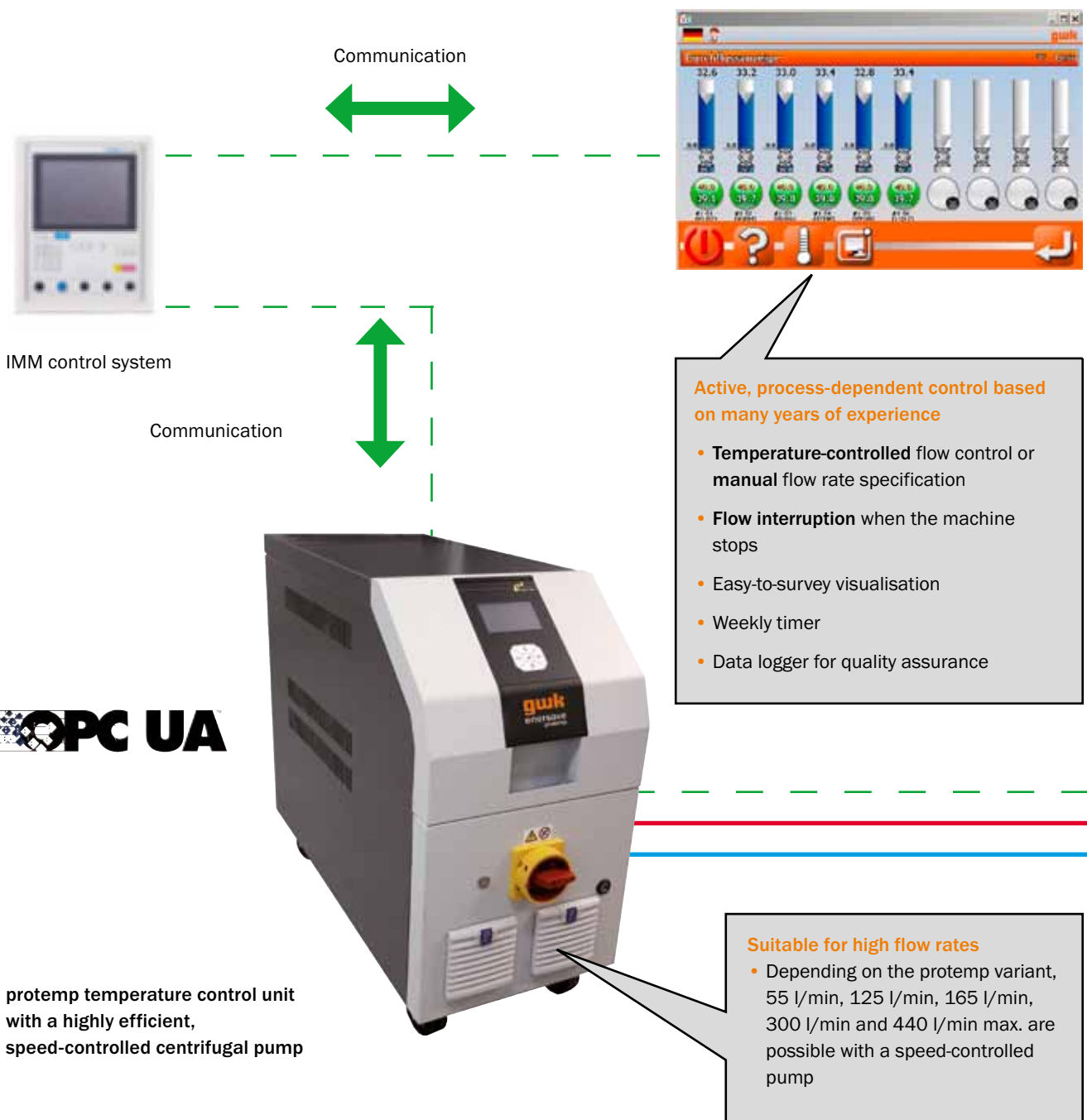


or

698 newly planted trees



protemp meets **integrat direct**.
Reliable and flexible.



A proven system for integration into machines

integrat direct distributor

Communication



Robust and energy-efficient control valve with low susceptibility to malfunctions

- Compared to proportional valves or solenoid valves, the water quality plays a less important role
- Requires up to 48 times less energy compared to standard proportional valves (0.5 W to 24 W)
- Steady control behaviour, no pressure surges like in the case of solenoid valves

Monitored circuits, wide measuring range

- Flow measurement based on the low-maintenance vortex principle
- Measuring range from 1.8 to 32 l/min
- Temperature measurement in the return flow

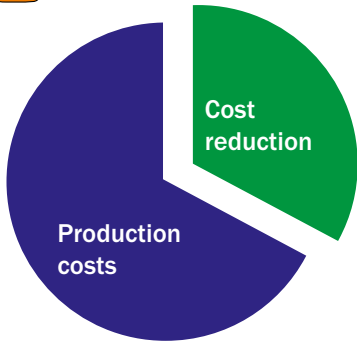
Large central connector

- The connector cross-section of 1 1/4" enables the connection of up to 12 circuits to a single distributor

Communication



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
- Increasing availability of production plants
- Improvement of product quality
- Decreasing running cost
- Reduction of maintenance cost



integrat evolution

Dynamic mould cavity temperature control system using ceramic high-performance heaters



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

gwk Gesellschaft Wärme Kältetechnik mbH
 Scherl 10 · D-58540 Meinerzhagen
 Tel. +49 2354 7060-0 · Fax +49 2354 7060-150
 info@gwk.com · www.gwk.com

