



## integrat

Segmented mould temperature control



Effective and energy-conscious temperature control. Significantly increasing productivity.

# gwk



## integrat direct

integrat direct is innovative **gwk-technology** for cooling, multiple temperature control and temperature monitoring for plastic processing. By means of the integrat direct temperature control processes perform in a safe, reproducible, quick and simple way.





We have combined the advantages of traditional water distributors, of impulse cooling systems and continuously operating temperature control devices while eliminating the disadvantages of each of these systems.



*R version with automatic flow rate control*



*B version with manual setting of flow rate*

-  **Improve parts quality**
-  **Minimize reject rates**
-  **Increase process reliability**
-  **Lower energy costs**

# Modular flow control for water up to 95 °C / 120 °C

- Permanent multi-circuit temperature control for segmented mould heating and cooling in modular design
- Individual temperature control of up to 128 temperature control circuits
- Highly efficient direct cooling
- No pump / no heating / no heat exchanger = Minimizing of wear parts = Optimized availability
- Temperature control / regulation optionally via return or external temperature sensor in the mould
- Setting and monitoring of flow rate (B version)
- Setting and regulation of flow rate (R version)
- Continuity of the temperature control process through permanently regulating valves (R version)
- Mould check flow measurement
- Pneumatic mould draining of the circuits by cascade or parallel connection (option)
- Hose rupture safety device (option)
- Display of service intervals
- Graphic display of the process data
- Intelligent process data management
- Network compatible control system
- Interface compatible microprocessor control

## Advantages :

- Individual closed-loop control of the flow rate for each circuit (Version R)
- Optimum process control through setting, regulation and continuous monitoring of the return water temperature and the flow rate (Version R)
- Energy saving up to 70 %
- Optimum parts quality during the complete production process
- Touch screen with simple, intuitive operation
- Perfect integration into injection moulding machines possible, close to the mould
- Low complexity in terms of pipes and hoses

## Technical data and standard equipment

• = Standard / - = not available

Type (B = Basic version, R = Control version)	itd B	itd R
Medium	water	water
Maximum temperature standard version/ high-temperature version ( °C)	120	95 / 120
Max. heating /cooling capacity per circuit <sup>1</sup> (kW)	44	44
Flow rate (l/min)	1,8 up to 32	1,8 up to 32
Maximum operating pressure (bar)	10 / 16	10 / 16
Flow monitoring	•	•
Flow control	-	•
Return temperature monitoring	•	•
Temperature setting of external water supply	•	•
Return temperature control	-	•
Common supply temperature for all circuits	•	•
On/Off of individual circuits possible	manual	automatic
Limited control temperature and flow rate	•	•
Process control using graphic display of temperature	•	•
Memory saving of mould data records	•	•
Mould check: checking of flow rate prior to production	manual	automatic
Mould circuit supply / return connections per circuit	G 1/2"	G 1/2"
Central cooling water supply connections	G 1 1/4"	G 1 1/4"
Central cooling water return connections	G 1 1/4"	G 1 1/4"

<sup>1</sup>) temperature difference mould circuit supply/return 20 K

Technical changes reserved!



## integrat 40



gwk integrat 40 is a modular multi-circuit temperature control system that can be integrated into the overall process for segmented mould temperature control.



**Improve parts quality**



**Minimize reject rates**



**Increase productivity**



**Low space requirement**



*A visible advantage at first glance of the integrat 40 multi-circuit temperature control system: 6 temperature controllers on a footprint of 60 x 60 cms*

# Temperature control with minimum space requirement

- Central operating unit with touch screen and coloured display for input and monitoring of the process parameters
- Clearly structured operator guidance and process monitoring by means of tables and charts
- Saving of process data records in the integrated mould management
- Display of operation and error messages as text
- Limit comparator (tolerance monitoring of actual values with alarm report)
- Lowering to safety temperature
- Automatic venting
- Automatic water top up via cooling circuit supply
- **Only one central electrical connection**
- **Only one central cooling water supply with strainer**
- Strainer in each circulation medium return
- **Flow measurement with digital display for each circuit**
- Display of service intervals
- **Magnetically coupled stainless steel pumps**
- **Highly efficient direct cooling with flow regulation**
- Central pressure relief in the cooling water supply

#### Options:

- Hose rupture safety device for cooling water supply
- Connection of external Pt 100 thermocouple
- Mould draining via compressed air
- Interfaces for cable connections: Serial/Profibus
- Cable-free communication interface: Bluetooth (in connection with serial interface)
- Additional operating unit with touch screen for decentralized data input and process monitoring

## Technical data

Per module	<b>Model</b>		integrat 40
	Maximum operating temperature	°C	95 / 140 <sup>1</sup>
	Operating pump		peripheral pump
	Maximum flow rate	l/min	30
	Maximum pressure	bar	5,3
	Motor power	kW	0,55
	Heating capacity	kW	3
	Weight	kg	35
	Process connections	supply/return	G 1/2"
	Nominal cooling capacity at cooling water temperature of 15 °C and process temperature of 60 °C	kW	27

Per unit	Number of temperature control modules		2 to 6
	Basic width for connection	mm	608
	Height incl. plug connection	mm	1720
	Depth incl. manifold	mm	545
	Cooling water connections	supply/return	G 1"

<sup>1</sup> = high-temperature version integrat 40 ht

Technical changes reserved!

## integrat 80



The gwk integrat 80 is a modularly constructed multi-circuit temperature control system for the segmented mould temperature control, which can be integrated into the overall process.



**Energy efficient differential pressure control**



**Comprehensive process control**



**Less installation work**



**Low space requirement**



# High degrees of freedom for all temperature control applications

- Self-optimising modulControl-microcontroller with high control accuracy
- 7" touchscreen for the input, regulation and control of process parameters
- Measurement, digital display and control of the flow rate per circuit
- Integrated operating and service information
- Saving of process data records with integrated tool management (tolerance range monitoring of the actual value with alarm message)
- Network support through VNC server
- Automatic ventilation
- Automatic water top-up directly via cooling water supply
- Only one central power supply
- Only one central cold water inlet with strainer
- Service interval display
- Strainers in each circulating medium return line
- Magnetically coupled stainless steel pumps per circuit with IE 3 motor
- Highly efficient direct, volume-controlled cooling
- Low space requirement

## Options:

- Central hose breakage protection in the cooling water circuit
- External Pt 100 temperature probe
- Mould draining via compressed air connection
- Interface connections: serial RS 232, RS 422, RS 485 and Profibus
- **Temperature difference control via frequency-controlled pumps**
- Expandable to 24 temperature control modules
- 4-circuit distributor vtc with flow and temperature measurement per circuit
- 96 temperature control circuits max. in combination with 4-circuit distributor per temperature control module

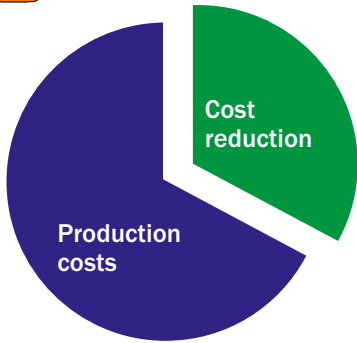
## Technical data

Per module	<b>Model</b>		integrat 80
	Maximum operating temperature	°C	140
	Operating pump		Magnetically coupled peripheral pump
	Maximum flow rate	l/min	60
	Maximum pressure	bar	6,0
	Motor power	kW	1,0
	Heating capacity	kW	9
	Cooling capacity	kW	84
	Weight	kg	35
	Process connections	supply/return	G ¾"
Nominal cooling capacity at cooling water temperature of 15 °C and process temperature of 60 °C	kW	62	
Per unit	Number of temperature control modules		4 to 6
	Basic width for connection	mm	848
	Height incl. plug connection	mm	1998
	Depth incl. manifold	mm	750
	Cooling water connections	supply/return	G 1"

Technical changes reserved!



# gwk Perfect Cooling and Temperature Control

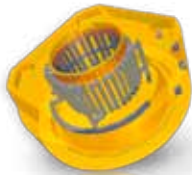


## Increased productivity

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



### gwk integrat 4D

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



### gwk moldclean

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



### gwk teco c

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



### gwk weco

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



### gwk protemp

High-performance temperature controller with increased flow rate and reduced energy consumption due to high quality stainless steel centrifugal pump.



### gwk hermeticool hybrid

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



### 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 teco cw

Wirtschaftlichste Wärmeableitung aus sehr kalt zu fahrenden Verbrauchern durch patentierte Kaltwassertemperierung.



### 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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