English

ONI Temperiertechnik RHYTEMPER®

Temperature control for injection moulding

Intelligent multi-circuit temperature control for maximum process stability, component quality and efficiency.

MADE IN GERMANY

"Less cycle time, less scrap, less energy use – our innovative product solutions enable you to achieve this with a payback period that often takes just a few months. In this way, we are all contributing to the global reduction of CO_2 emissions."

CO_2 reduction

ONI
Temperiertechnik
RHYTEMPER®

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Exact temperature control

As a leading supplier of multi-channel temperature control systems for plastic injection moulding and metal die casting, we develop innovative system solutions for maximum efficiency.

Our broad portfolio of highly efficient multi-circuit temperature control systems offers unique possibilities worldwide for injection moulding processes where short cycle times, consistent product quality and minimal scrap rates are crucial.

Our systems enable the highest component quality and reproducible thermal management within the mould in demanding injection moulding processes. With over 30 years of experience, **ONI Temperiertechnik** offers **RHYTEMPER®** a product portfolio that covers all the requirements of modern tool temperature control: from robust stainless steel distributors to self-optimising multi-circuit pulse temperature control and intelligent flow monitoring systems. We implement both cost-optimised standard solutions and complex special projects for the most demanding tool and production requirements. **ONI Temperiertechnik RHYTEMPER® GmbH**, based in Großröhrsdorf, is a subsidiary of **ONI-Wärmetrafo GmbH** from Lindlar. Companies in the automotive industry, medical technology, consumer sector, electronics, rubber industry and other plastics processing industries worldwide rely on our technology for stable processes and maximum cost-effectiveness.

ONI Temperiertechnik RHYTEMPER® GmbH in Großröhrsdorf, Saxony is a subsidiary of ONI-Wärmetrafo GmbH in Lindlar, North-Rhine Westphalia.

Intelligent temperature control –
highest quality, short payback period.

RHYTEMPER® systems are used worldwide in demanding injection moulding applications.

Our customers rely on stable processes, high component quality and cost-effective temperature control solutions. The high savings potential of our pulse cooling technology **typically** enables **payback periods of well under 1 year**.

The efficiency and performance of RHYTEMPER® systems in injection moulding are demonstrated by real-world examples from the automotive, electronics, medical and packaging industries. The combination of pulse temperature control, precise flow monitoring and optimised heat dissipation significantly reduces cycle times, improves component quality in the long term and extends mould life.

MANUFACTURING FOR THE AUTOMOTIVE SECTOR

- Item: car bumper
- Material: PP + EPDM
- Shot weight: 5,666 g

RESULTS ACHIEVED BY USE OF THE RHYTEMPER® SYSTEM

- Cycle time saving: 22 sec. = 20.6%
- Temperature control units saved: 1 unit
- Payback period: 0.21 years

MANUFACTURING FOR THE ELECTRONICS SECTOR

- Item: Socket cover
- Material: ABS
- Shot weight: 110 g

RESULTS ACHIEVED BY USE OF THE RHYTEMPER® SYSTEM

- Cycle time saving: 10 sec. = 27%
- Temperature control units saved: 4 units
- Payback period: 0.47 years

MANUFACTURING FOR THE PACKAGING SECTOR

- Item: Cream jar
- Material: SAN
- Shot weight: 475 g

RESULTS ACHIEVED BY USE OF THE RHYTEMPER® SYSTEM

- Cycle time saving: 21 sec. = 26.3%
- Temperature control units saved: 5 units
- Payback period: 0.63 years

MANUFACTURING FOR THE MEDICAL INDUSTRY

- Item: Ergonomic handle
- Material: PP GF27
- Shot weight: 240 g

RESULTS ACHIEVED BY USE OF THE RHYTEMPER® SYSTEM

- Cycle time saving: 10 sec. = 20%
- Payback period: 0.93 years

Focus on mould temperature control – comprehensive analysis with RHYTEMPER®

Mobile optimisation under real conditions
An ONI application engineer will carry out an optimisation directly in your production facility using our mobile equipment.

Analysis of the current process conditions
Analysis of the current process parameters and temperature circuits in your system.

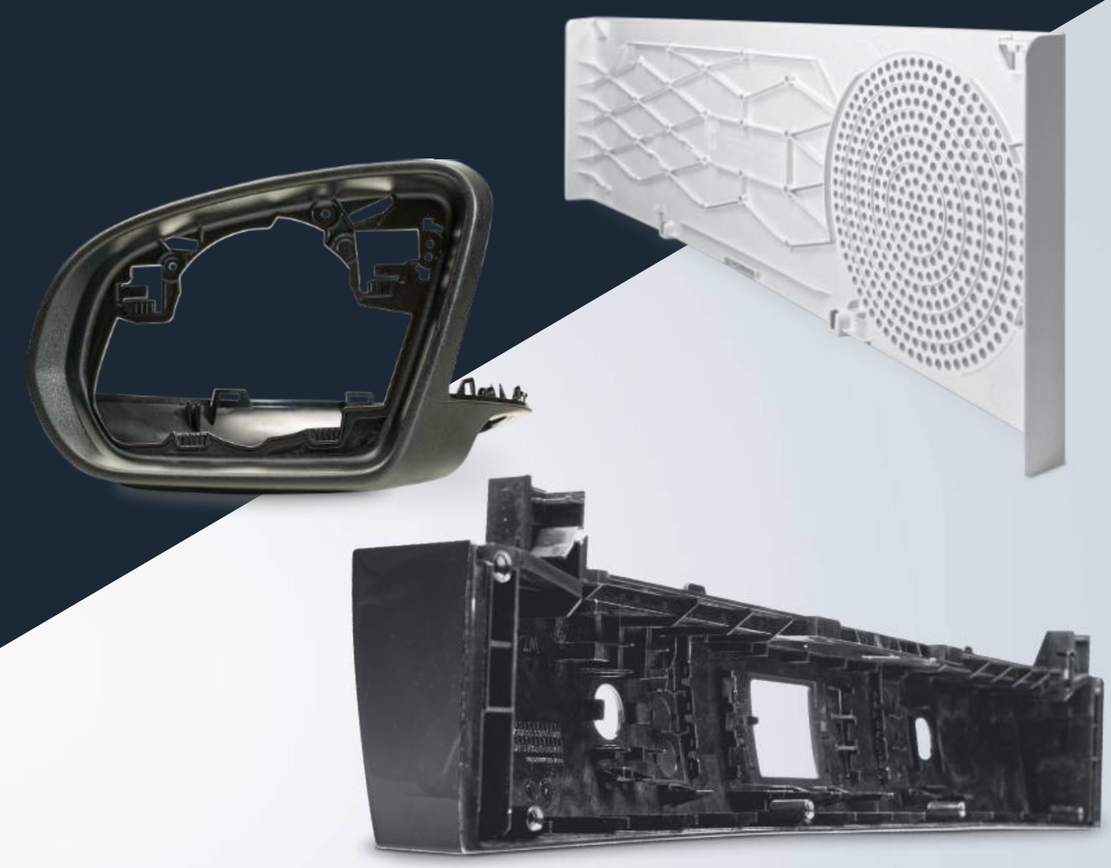
Cycle time optimisation
Step-by-step process optimisation with measurable results: comparison of initial values and optimised status.

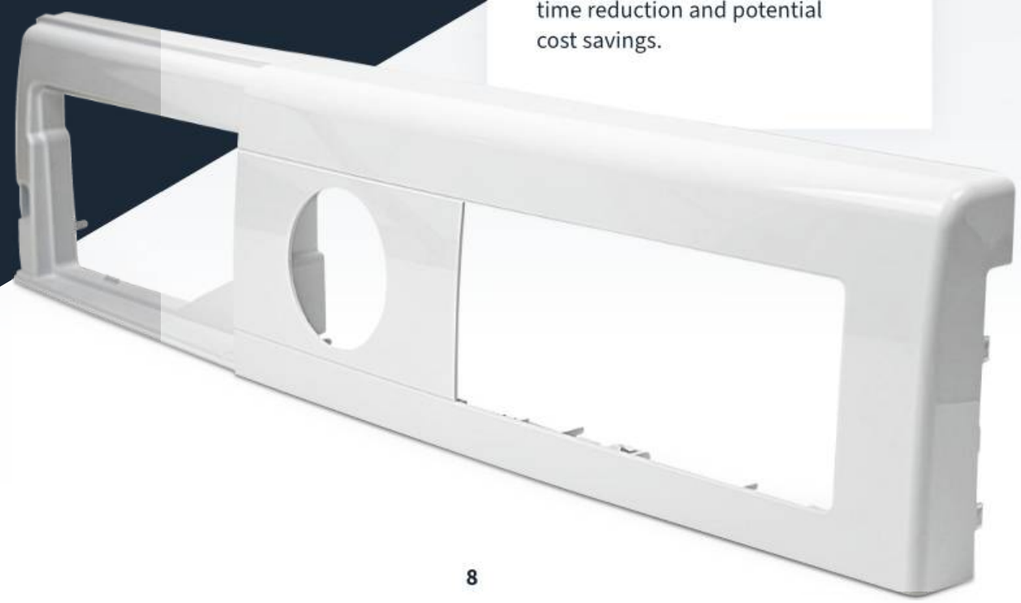
Fast. Transparent. Efficient. RHYTEMPER® process analysis on your premises

Quality control via thermal imaging camera
Continuous monitoring of component temperatures to detect thermal fluctuations.

Targeted pulse temperature control
Each individual circuit is temperat-ure-controlled separately – for precise thermal control.

Transparent savings analysis
Direct demonstration of cycle time reduction and potential cost savings.





Process monitoring, reference profile and visualisation

A stable mould temperature is crucial for a reproducible injection moulding process. ONI RHYTEMPER® continuously records all temperature and flow rate values and displays them as setpoint-actual values for each cooling circuit. Individual limit and tolerance ranges make deviations immediately visible, while trend curves clearly show the thermal profile within the mould.

A reference process is derived from the measured values, which describes the optimal thermal equilibrium. Deviations caused by deposits, changed cooling water conditions, pressure fluctuations or reduced flow rates are detected at an early stage. **RHYTEMPER®** automatically adjusts the heat extraction of each individual cooling circuit based on this data and controls the cooling times cycle-dependently, so that the reference process is kept stable over time.

Variations outside defined tolerance ranges trigger graduated warning and alarm messages. In the event of critical process deviations, a machine stop can be optionally triggered. This serves to prevent scrap, protect the mould and ensure long-term process stability.

In addition to maximum process reliability, ONI RHYTEMPER® is particularly economical. The self-optimising multi-circuit pulse temperature control regulates the heat removal per cooling circuit cycle-dependently. This shortens cooling times, reduces energy losses and sustainably improves the dimensional accuracy of the components.

On average, cycle time reductions of over 20% are achieved. The investment typically pays for itself well under a year.

In combination with frequency-controlled **RHYTEMPER® temperature control units**, CO_2 emissions can often be reduced by up to 30%. The system thus makes a measurable contribution to reducing energy consumption and sustainable production.

The result is lower unit costs, higher system availability and stable series production, even with complex mould designs.

We are a dedicated, medium-sized company with a motivated team and are happy to accept your challenges.

Reduce cycle times

Improve quality

Reduce energy costs

Short payback period

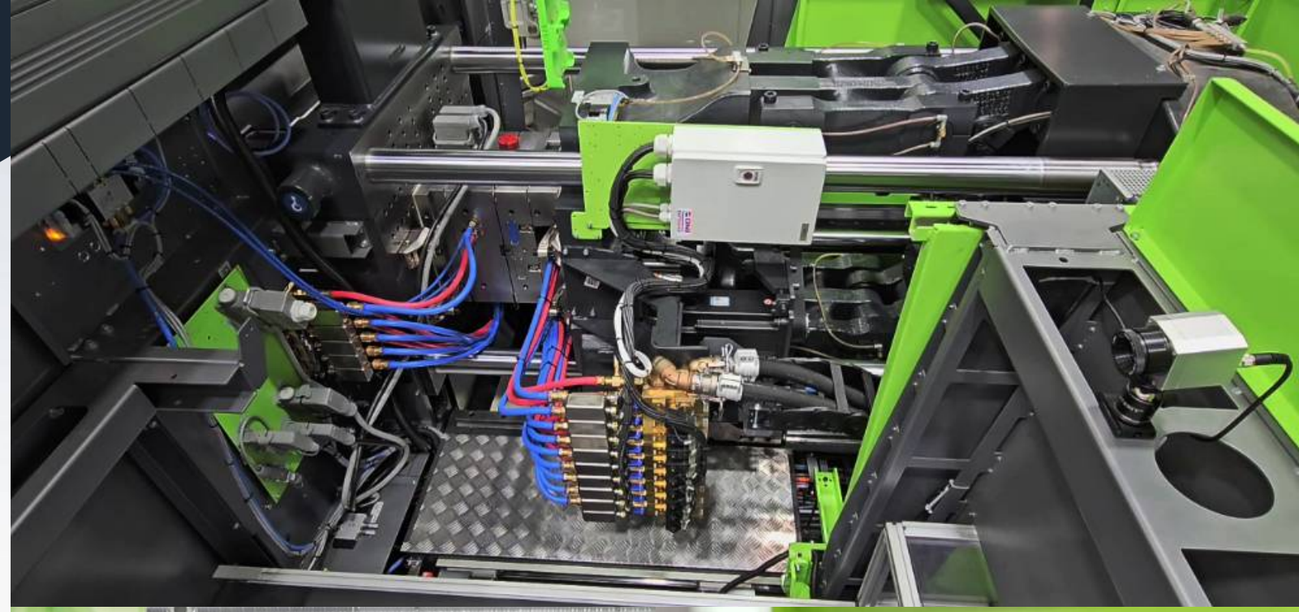
The heart and soul of every ONI system

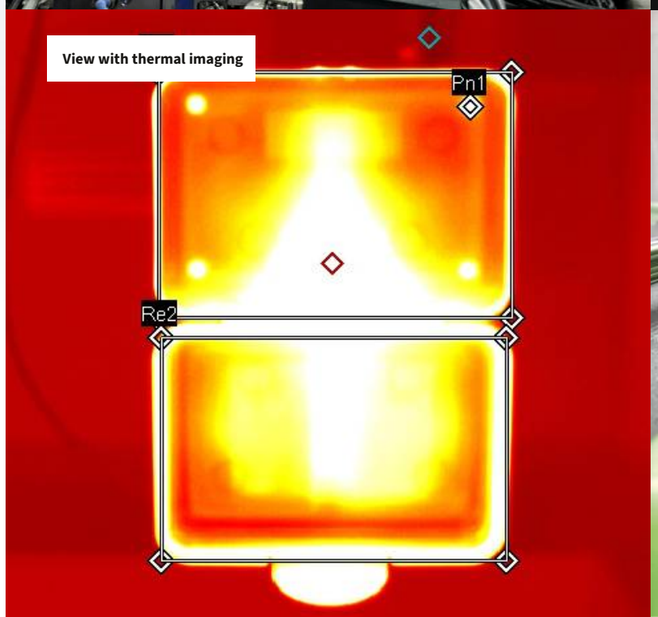
15.6" panel

7" panel

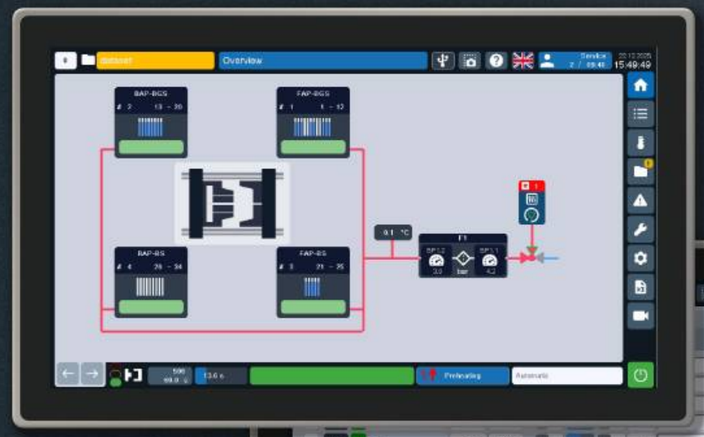
7" panel	15.6" panel
Temperature and flow monitoring, Limit setting, Alarm function, Process data output to USB stick (optional: OPC UA), Mould data management, Multiple interface connections, Integration into the machine control system	

- Full process overview
- Optional: Integration and individual design of cooling plans
- Optional: Thermographic monitoring via full integration of a thermal imaging camera into the HMI
- Individual circuit labelling
- Real-time language switching
- Direct link to the operating instructions in the Help Menu
- Leakage monitoring
- Optional: remote access for maintenance
- RFID login
- Integration of all system components





Product lines and features



The complete process at a glance
All displays are linked to the respective settings pages

The Rhytemper settings at a glance
Quick and easy access to the respective individual circuit

Circle detail view
Display and editing of values

Integration of mould cooling plans
Visualisation of all cooling circuits per mould side in a complete overview

Integration of thermal imaging cameras
for visual monitoring of injection moulded components and moulds

	FlowWatch®	FlexControl	HotPulse®	FlowControl
Circuit control	**Manual valve**	**Solenoid valve**	**Pneumatic valve**	**Proportional valve**
Vortex measuring principle Flow: 1.8–32 l/min | 1.0–15 l/min Max. media temperature: 125°C	✓	✓	✓	✓
Ultrasonic measuring principle Flow: 0.5–65 l/min Max. media temperature: 160°C	✓	✓	✓	✓
7" panel	✓			
15.6" panel	✓	✓	✓	✓
Operating modes	• Flow monitoring • Temperature monitoring	• Control based on the heat content or return temperature • Closed-loop control based on predefined control times • Control based on extracted energy • Continuous cooling		• Control based on a temperature difference • Control based on predefined flow rate

Reference curve and Actual temperature
As a target value for control of the heat content

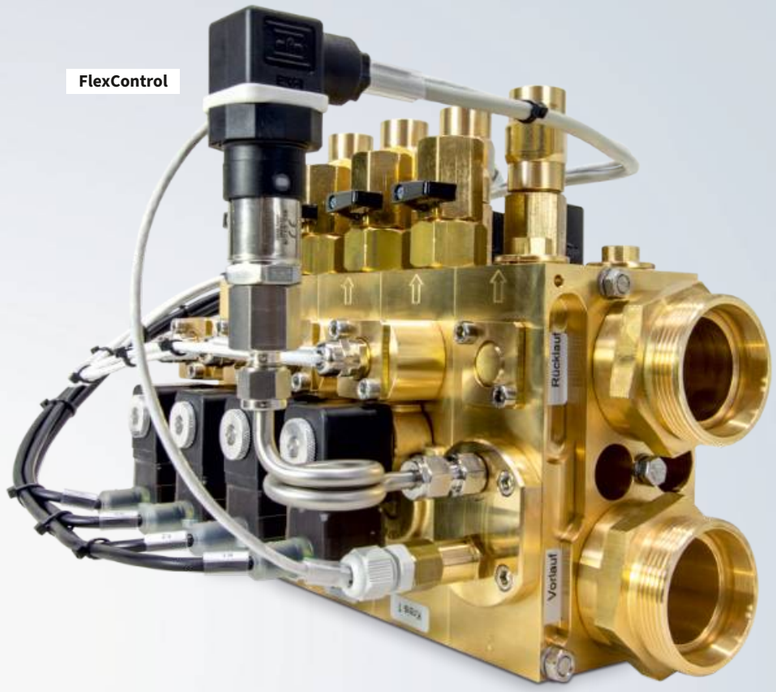
RHYTEMPER® FlexControl / HotPulse®

Pulse temperature control

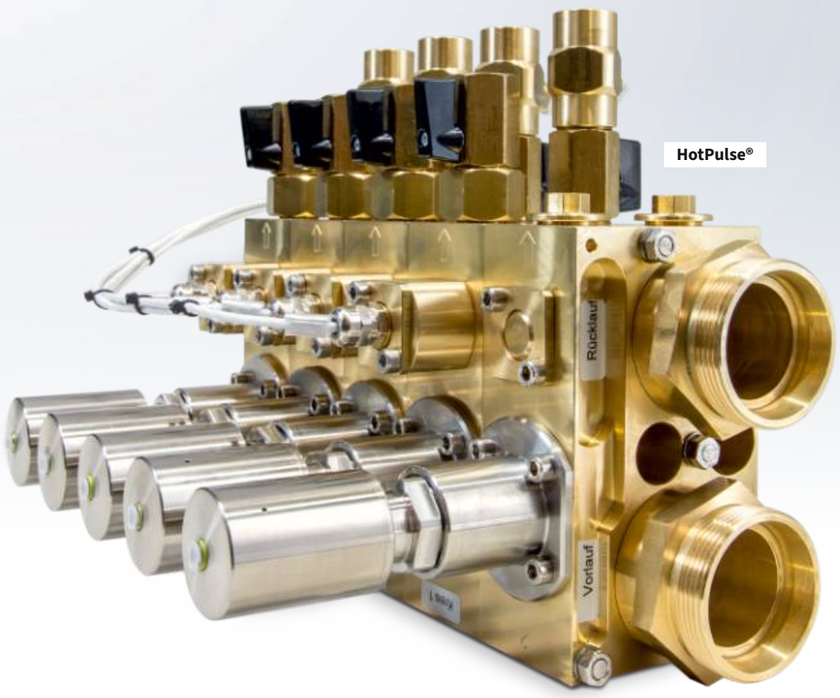
The self-optimising **ONI RHYTEMPER® multi-circuit temperature control system** regulates the heat requirement of each individual cooling circuit of the injection moulding tool. The aim is to continuously dissipate the same heat content per cycle as required. This ensures the shortest cycle times and permanently consistent quality of the injection moulded products with the lowest energy consumption.

Your benefits at a glance

- **Maximum process stability**
  Each cooling circuit is individually controlled and monitored. Thermal imbalances are actively compensated before they lead to quality problems.
- **Consistent component quality**
  A constant energy removal per cycle ensures reproducible dimensional accuracy and minimises warping even with complex tools.
- **Mould protection through active monitoring**
  Strong flow deviations, for example due to hose breaks, clogged cooling channels or detached deposits in the tool, are immediately detected. In critical states, the system can trigger an alarm or initiate a machine stop to prevent tool damage and unnecessary waste.
- **Quick support through remote access**
  With optional remote maintenance access, systems can be analysed from a distance, software can be updated and support can be provided for process adjustments. This reduces downtime and enables a fast response time during ongoing operation.
- **Retrofittable even for existing machines**
  Optimisation potential can be realised even without conformal cooling or complex tool changes on already existing machines.
- **Exclusively from ONI RHYTEMPER®**
  FlexControl and HotPulse® are proprietary systems and enable optimization potentials that are not achievable with conventional temperature control solutions.



FlexControl



HotPulse®

RHYTEMPER® FlowWatch®

Transparent and pressure-optimised individual circuit distribution

RHYTEMPER® FlowWatch® is available as an electronic water distribution system for professional flow and temperature monitoring, or can be fully integrated into the injection moulding machine control system, provided that a corresponding interface from the respective machine manufacturer is available.

Unlike traditional water batteries, **FlowWatch®** is installed directly on the machine's clamping plates. In combination with generously sized distributor pipes and individual circuits, the pressure loss is significantly reduced, while series connections are consistently avoided through bridged mould channels.

The cooling water is optimally directed to the mould, reducing pressure losses in the system. This results in a lower required pump capacity of the temperature control devices, thereby reducing energy consumption. Furthermore, under suitable process profile, cycle time reductions of an average of 10% can be achieved.

Additionally, the continuous flow and temperature monitoring of each individual circuit ensures full process transparency.

RHYTEMPER® FlowControl

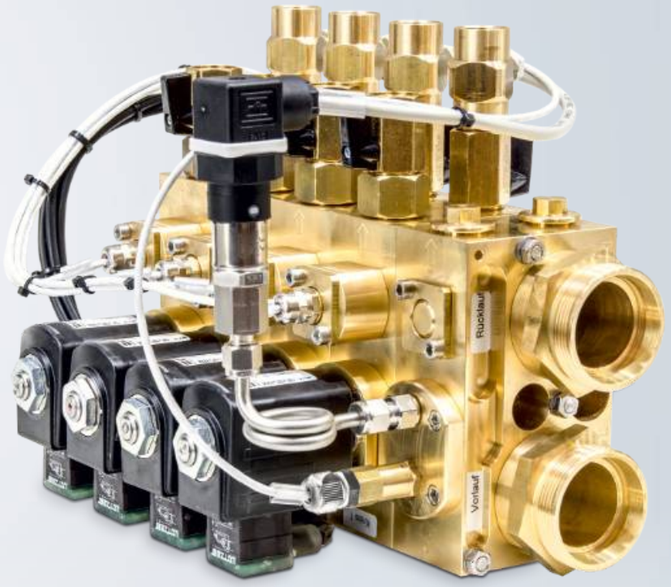
Continuous Delta-T control with servo-controlled proportional valves

RHYTEMPER® FlowControl extends the **RHYTEMPER® FlexControl** system with continuous flow control based on servo-controlled proportional valves. The system is designed for media temperatures up to 140°C and takes over all the functions of the **FlexControl system**.

The proven single-circuit control system remains fully intact. Additionally, the thermal management of the mould can be implemented via a Delta-T control. In this case, the temperature difference between the supply and return for each cooling circuit is continuously controlled via the flow rate.

FlowControl thus extends classic pulse temperature control with continuous Delta-T control, enabling energy-efficient continuous temperature control based on the return temperature.

FlowControl is particularly suitable for applications where, in addition to pulse control, a constant temperature difference or a permanently consistent thermal management of the mould is required.



Your benefits with RHYTEMPER® FlowControl

- **Combination of multiple setting options**
  pulse temperature control, continuous delta-T control, flow rate setting, return temperature control within a system.
- **Robust servo-controlled valve technology**
  Significantly more responsive than motor-driven proportional valves and with a longer service life, reducing maintenance and service costs.
- **Stepless flow adjustment per individual circuit**
  Precise control of the volume flow for sensitive thermal process control.
- **Energy-efficient continuous control**
  Constant temperature control based on the return temperature with stable process control.

RHYTEMPER® temperature control

Shortest start-up times – best starting conditions

For plastics processors, it is crucial to achieve quickly reproducible series conditions. **RHYTEMPER® temperature control units** significantly shorten the heating phase, as moulds are brought up to the required operating temperatures quickly and in a controlled manner.

The injection moulding tools or cavity areas that require continuous heating can be supplied in a targeted manner according to demand. The entire pre-temperature control and zone-specific heating energy supply is conveniently controlled via the central **RHYTEMPER® control unit**.

Efficient devices for all performance ranges

Our temperature control units are designed for use in plastics and metal processing and cover a wide range of performance. Compared to conventional peripheral gear pumps, multi-stage centrifugal pumps are able to generate up to 100% more flow volume at the operating point, depending on the design, while consuming less power. This significantly minimises the required number of temperature control devices, thereby considerably reducing maintenance costs for the large number of devices. Powerful heaters with low surface load, monitored heating zones and integrated PLC control ensure safe and modern system operation. The compact dimensions allow use as a stand-alone unit or – even more efficiently – in combination with the **ONI RHYTEMPER® multi-circuit temperature control systems.**

Special designs are available on request.

MADE IN GERMANY

High-performance temperature control units from 95°C to 160°C

The **RHY-T95 S** to **RHY-HighT160 XL** series includes direct-cooled high-performance temperature control units up to 120°C and indirect-cooled high-temperature units up to 160°C. Both variants have high cooling capacities and a closed stainless steel tank. UL CSA certification, etc. is possible.
The models are generously and maintenance-friendly sized and equipped with internal stainless steel piping and consumer connections up to 2". The devices can be directly connected to **RHYTEMPER® systems** such as **FlexControl**, **HotPulse®**, **FlowControl** or **FlowWatch®** via defined interfaces. No manual operation is required, eliminating the risk of user error.

Standard equipment

- user-friendly PLC control with 7-inch touch display
- digital interface RS485 included in the base unit
- robust, powder-coated housing for industrial applications
- in RAL 7016 / 5002 | Special colours on request
- corrosion-resistant components made of stainless steel / brass
- heating elements made of highly corrosion-resistant alloy
- filters at the inlet of the temperature control unit and in the load return line are factory-installed
- 5 m connection cable with CEE plug, insulation test and additional costs are not applicable
- multi-stage centrifugal pumps with energy-saving motors
- control cabinet with protection class IP54
- fully automatic air vent
- optimised accessibility thanks to single-sided pipe routing

Find out more about RHYTEMPER® temperature control

Technical Specifications

Temperature control units		95 S	95 M	95 L	120 S	140 M	160 M	160 L	160 XL
Max. media temperature	**°C**	95	95	95	120	140	160	160	160
Heating capacity	**kW**	6, 8	4, 6, 8, 12, 16, 18, 24	9, 18, 27, 36, 45, 54, 72	6,8	18, 36	18, 36	18, 36, 54, 72, 90	108
Max. cooling capacity direct / indirect	**kW**	80	140 / 125	290 / 255	80	220 / 150	220 / 150	220 / 150	220 / 150
Max. delivery pressure	**bar**	6.3	8.5	12.8	6.3	7.1	9	9.2	9.2
Max. flow rate	**l/min**	125	301	580	125	301	170	580	580
Load circuit connections	**Inch**	1	1, 1 ½	2	1	1 ½	1 ½	2	2
Cooling water circuit connections	**Inch**	½	¾	1	½	¾	¾	1	1
Dimensions: Length Width Height	**mm**	840 / 860 260 / 360 675	1160 390 785	1435 500 1320	840 / 860 260 / 360 675	1285 420 970	1285 420 970	1605 500 1470	1705 500 1720
Empty weight	**kg**	100–150	150–250	250–350	100–150	150–250	150–250	400–450	550

Additional Options for Temperature control units

*** with indirect cooling**

Option	95 S	95 M	95 L	120 S	140 M	160 M	160 L	160 XL
Frequency control of the pump motor	✓	✓	✓	✓		✓	✓	✓
Shut-off valves	✓	✓	✓	✓	✓	✓	✓	✓
Flow measurement	✓	✓	✓	✓	✓	✓	✓	✓
Heat exchanger for indirect cooling		✓	✓		Standard	Standard	Standard	Standard
Increased cooling capacity		✓	✓				✓	✓
Switching between direct and indirect cooling					✓	✓	✓	✓
Water exchange function		✓*	✓*		✓	✓	✓	✓
Measurement of cold water outlet temperature					✓	✓	✓	✓
Interfaces • 4-20 mA • Profinet • Profibus • OPC UA with Euromap 82.1 • TTY	✓	✓	✓	✓	✓	✓	✓	✓
Housing in special colour	✓	✓	✓	✓	✓	✓	✓	✓
Special voltages worldwide	✓	✓	✓	✓	✓	✓	✓	✓
Housing designs in stainless steel	✓	✓	✓	✓	✓	✓	✓	✓
All media-wetted components made of stainless steel	✓	✓	✓	✓	✓	✓	✓	✓

Service when it matters – fast, personal, solution-focused

When support is needed, we are there

Whether technical queries, acute malfunctions or urgent spare part requirements – we respond quickly, straightforwardly and always with the aim of keeping your production running.

Short response times – reliable solutions

Our experienced team is available to assist you at short notice. We take care of your enquiry and coordinate directly with you – solution-oriented, technically sound and without long waiting times.

Loaner equipment for maximum availability

If a repair is ever needed, we will provide you with loaner equipment to tide you over – including by express delivery – on request. So your production remains operational even in critical situations.

Fast spare parts delivery

We ensure that the spare parts you need reach you as quickly as possible – by direct delivery or express shipping on request.

On-site technician support

If required, one of our technicians will assist you at short notice directly on site to resolve the issue quickly and reliably.

Our service promise

Available in person, flexible in our actions and always focused on what matters – maintaining your productivity.

ONI Temperiertechnik RHYTEMPER®

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