English

ONI Temperiertechnik RHYTEMPER®

Temperature Control for Die Casting

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

MADE IN GERMANY

"Shorter cycle times, reduced scrap rates and lower energy consumption – our innovative product solutions enable you to achieve these benefits with a return on investment that is often realised within just a few months. In this way, we jointly contribute to global CO_2 reduction."

CO_2 Reduction

ONI
Temperiertechnik
RHYTEMPER®

Table of contents

Temperature Control – Precisely on Point

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

Our broad portfolio of highly efficient multi-circuit temperature control systems offers globally unique capabilities for processes where short cycle times, consistent product quality and minimal scrap rates are critical.

With more than 30 years of experience, RHYTEMPER® offers a product portfolio that covers all requirements of modern tool temperature control – ranging from robust stainless-steel distributors and self-optimising impulse temperature control to high-pressure cooling systems for quills and cores. Our systems ensure maximum component quality and reproducible thermal management in the most demanding casting processes. ONI Temperiertechnik RHYTEMPER® GmbH, headquartered in Großröhrsdorf, is a subsidiary of ONI-Wärmetrafo GmbH based in Lindlar. Companies worldwide from the automotive industry, metal processing and other industrial sectors rely on our technology – for stable processes and maximum cost efficiency.

ONI Temperiertechnik RHYTEMPER® GmbH in Großröhrsdorf, a subsidiary of ONI-Wärmetrafo GmbH, Lindlar.

Intelligent Thermal Management –
Highest Quality, Rapid Payback

RHYTEMPER® systems are deployed worldwide in demanding die casting applications.
Our customers include international automotive manufacturers, foundries and metal processing companies that depend on stable processes, high component quality and cost-effective temperature control solutions. Thanks to the significant savings potential of our technology, p**ayback periods of well under one year are typically achieved.**

How effectively and economically RHYTEMPER® systems operate in die casting is demonstrated by real-world applications in the automotive and metal processing industries. The combination of impulse temperature control, precise flow monitoring and optimised heat dissipation significantly reduces cycle times, sustainably improves component quality and extends tool service life.

STRUT HOUSING

- Material: AL
- Shot weight: 7.900 g

RESULTS ACHIEVED WITH THE RHYTEMPER® SYSTEM

- Cycle time reduction: 27 sec = 30,3%
- Temperature control units saved: 10 units
- Payback period: 0,19 years

HOUSING PART (RACK HOUSING)

- Material: AL226
- Shot weight: 4.455 g

RESULTS ACHIEVED WITH THE RHYTEMPER® SYSTEM

- Cycle time reduction: 9,7 sec = 16,0%
- Temperature control units saved: 2 units
- Payback period: 0,62 years

VALVE BLOCK

- Material: AL226
- Shot weight: 3.238 g

RESULTS ACHIEVED WITH THE RHYTEMPER® SYSTEM

- Cycle time reduction: 5,0 sec = 7,7%
- Temperature control units saved: 1 unit
- Payback period: 0,59 years

CONNECTION PLATE

- Material: AC-AlSi
- Shot weight: 13.500 g

RESULTS ACHIEVED WITH THE RHYTEMPER® SYSTEM

- Cycle time reduction: 9,0 sec = 9,3%
- Temperature control units saved: 4 units
- Payback period: 0,75 years

Tool Temperature Control in Focus – Comprehensive Analysis with RHYTEMPER®

Mobile optimisation under real production conditions
An ONI application engineer visits your production facility with our mobile equipment.

Assessment of the current process status
Analysis of existing process parameters and temperature control circuits on your system.

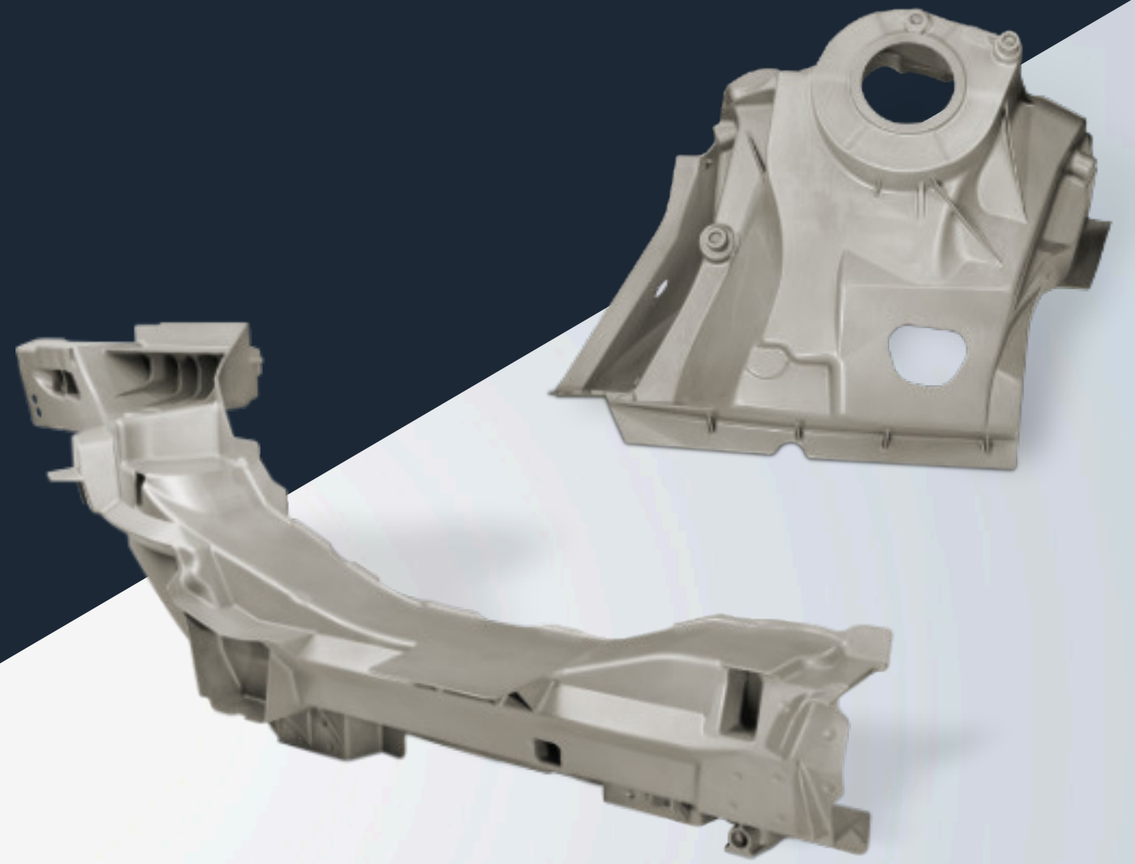
Transparent demonstration of savings
Direct verification of cycle time reduction and potential cost savings.

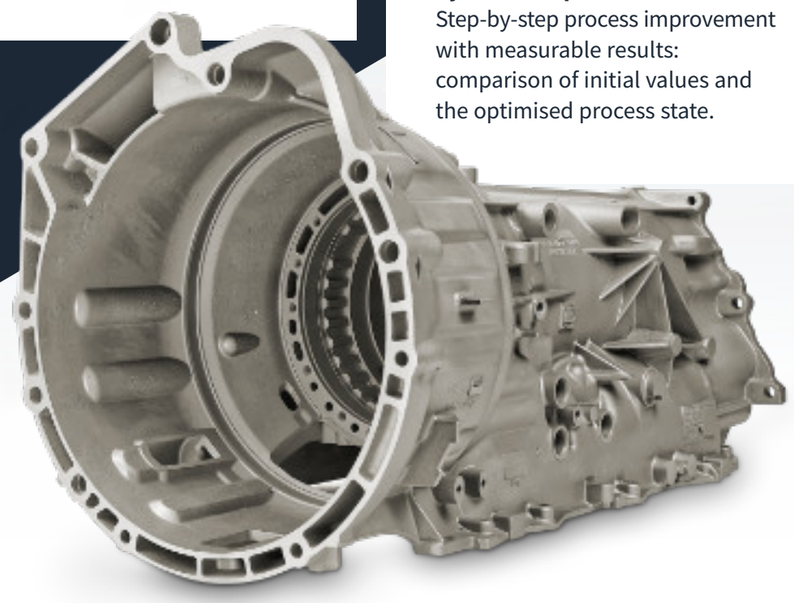
Fast. Transparent. Efficient. RHYTEMPER® process analysis at your site

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

Focused impulse temperature control
Each individual circuit is controlled separately – enabling pinpoint, precise thermal regulation.

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





Process Monitoring, Reference State & Visualisation

A stable tool temperature is essential for a reproducible die casting process. RHYTEMPER® continuously records all temperature and flow values and displays them as target/actual curves for each cooling circuit.
Individual limit and tolerance ranges make deviations immediately visible, while trend curves provide a clear overview of the thermal behaviour.

Based on the measured data, a reference state is derived that represents the optimum process condition. Deviations – caused by deposits, restricted channels, fluctuating shot energy or reduced flow rates – are detected at an early stage. The system issues graduated warning and alarm messages; critical events such as hose ruptures, severe flow reductions or detected leakages can automatically result in the withdrawal of the shot release.

Optionally, the tool channels can be automatically evacuated to reliably remove residual water and facilitate tool changes. The integrated leakage monitoring system measures the internal tool pressure of each individual circuit and reliably detects leakages.

In addition to maximum process reliability, RHYTEMPER® also delivers clear economic benefits: cycle time reductions of up to 30 % are achievable. The result is significantly lower energy consumption, reduced scrap rates and decreased maintenance costs. The systems often pay for themselves within two to eight months – a strong argument for fast and sustainable return on investment. In addition, release agent consumption is reduced – often by 40 – 55 % – as the tool surface no longer needs to be actively cooled by increased amounts of release agent.

"Impulse temperature control leads to a substantial increase in tool service life."

We are a committed, medium-sized company with a highly motivated team, ready to meet your challenges.

Reducing cycle times

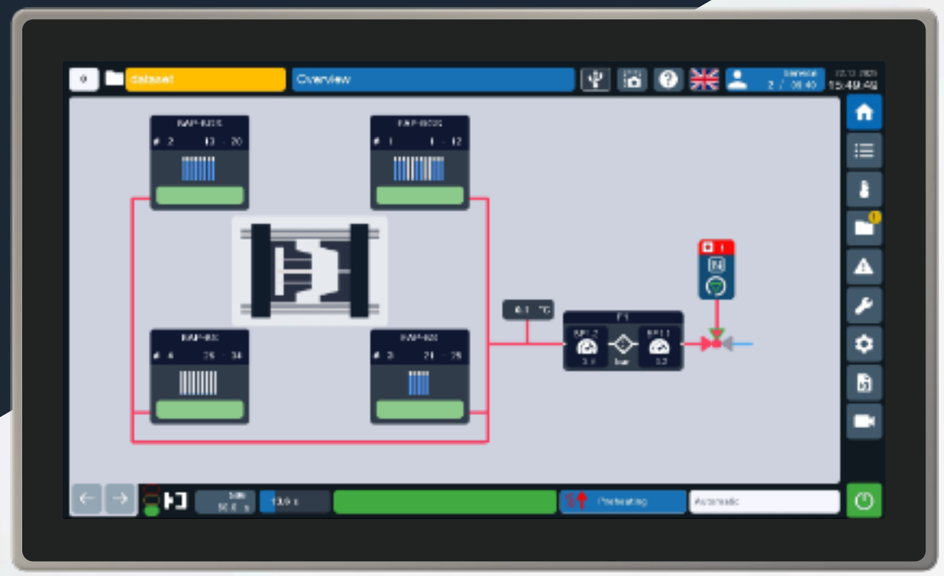
Improving quality

Cutting cost of energy

Short payback period

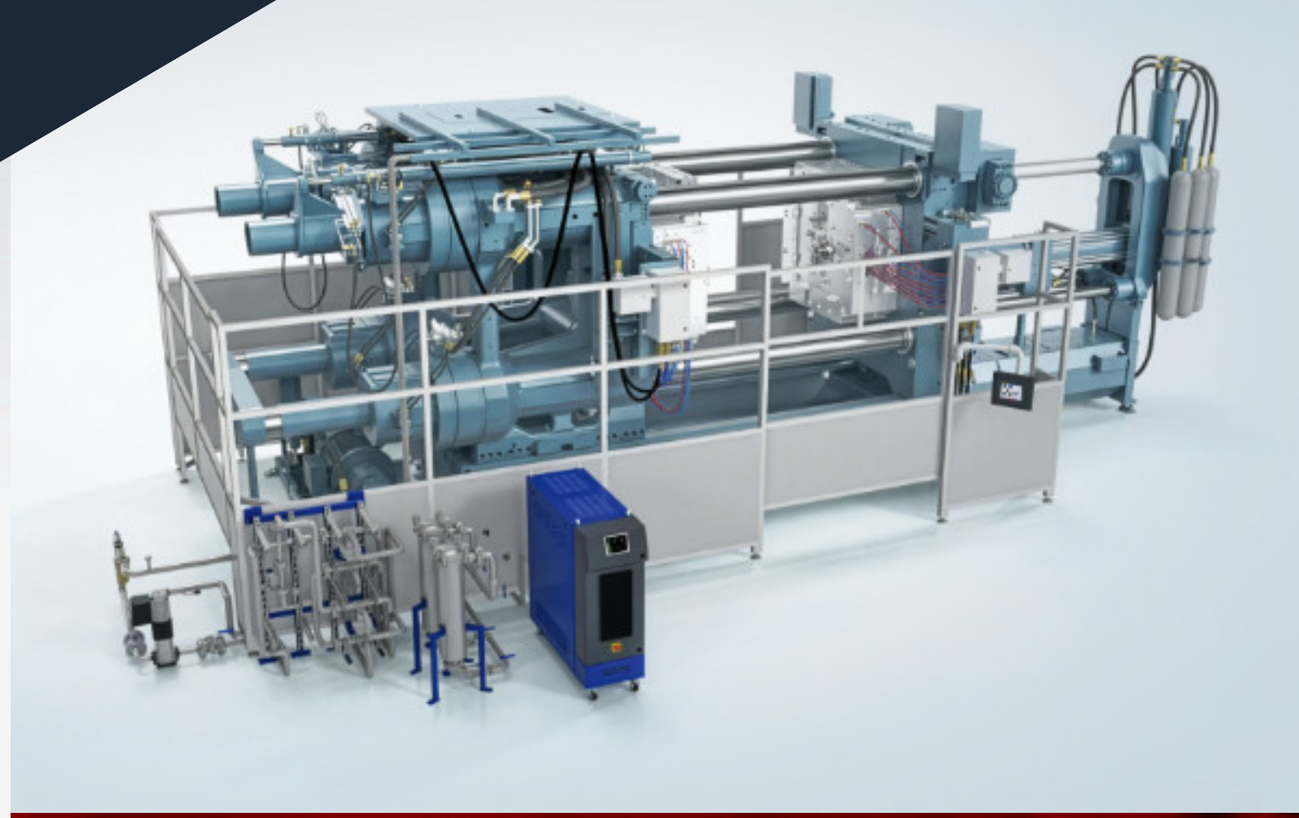
Heart and soul of every ONI system

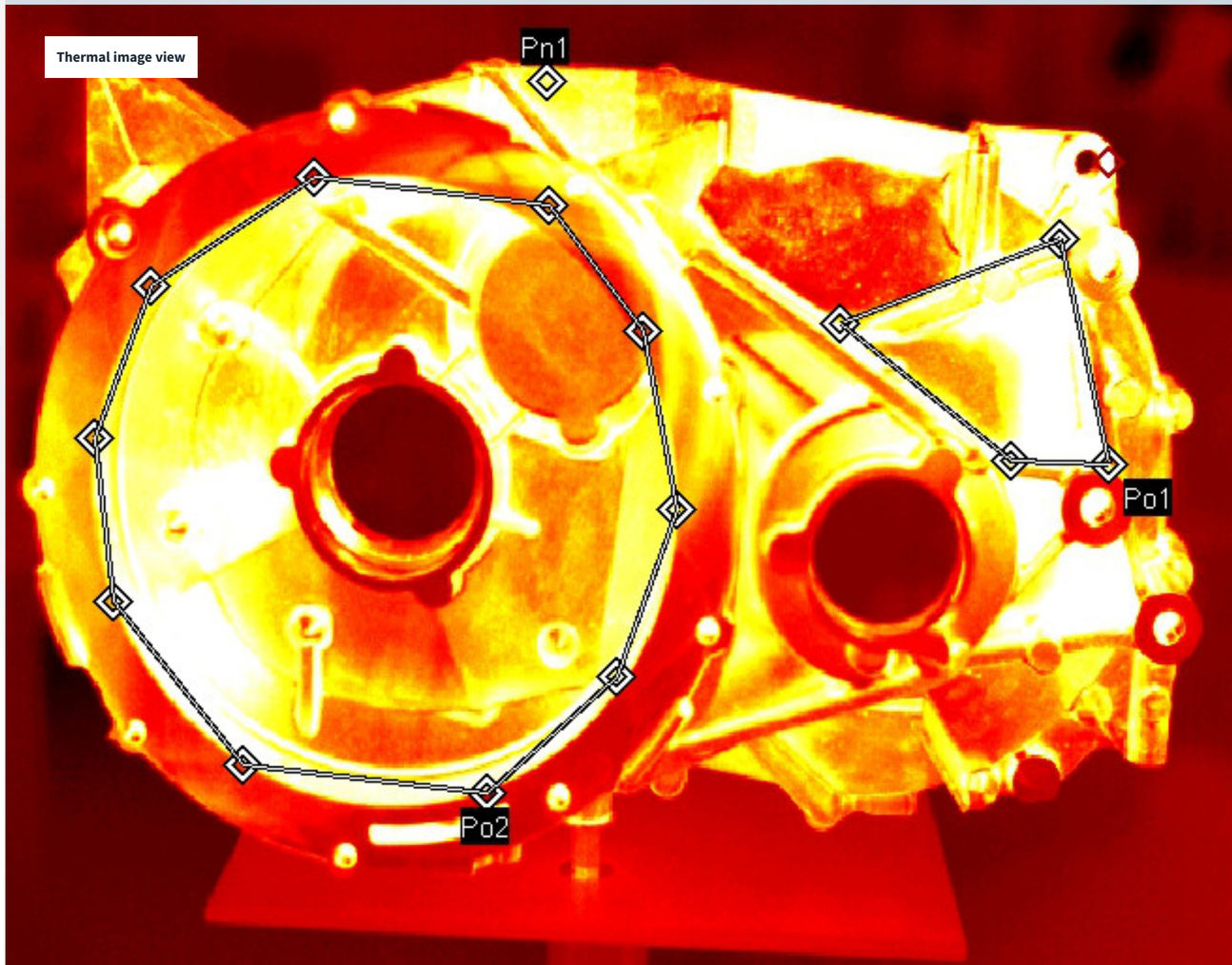
15,6" Panel



Temperature and Flow Monitoring, limit value definition, alarm functions, process data output, tool data set management, multiple interface connections, integration into the machine control system

- Overview screen of the complete process
- Integration and customised design of cooling layouts
- Thermographic monitoring
- Individual circuit labelling
- Real-time language switching
- Direct link to the operating manual via the help menu
- Remote service access
- Leakage monitoring
- Optional remote service access
- RFID login
- Integration of all plant and peripheral components





Product lines and features

Complete process at a glance
All visualisations are directly linked to the corresponding parameter setting pages

RHYTEMPER® settings at a glance
Fast and intuitive access to each individual circuit

Detailed circuit view
Displaying and editing of all relevant values

Integration of tool cooling layouts
Visualisation of all cooling circuits per tool side in a single overall view

Integration of thermal imaging cameras
For visual monitoring of die cast components and tools

	FlowWatch	HotPulse©
Circuit control	**Manual valve**	**Pneumatic valve**
Measurement principle: Vortex Flow rate: 1,8 – 32 l/min | 1,0 – 15 l/min Max. medium temperature: 125°C	✓	✓
Measurement principle: Ultrasonic Flow rate: 0,15 - 50 l/min Max. medium temperature: 160°C	✓	✓
15,6" Panel	✓	✓
Operating modes	Flow monitoring Temperature monitoring	
		Control based on heat index / return temperature Control based on predefined actuation times Control based on extracted energy Continuous cooling

Reference curve and actual temperature
Used as target input for controlling the thermal content

RHYTEMPER® FlowWatch / HotPulse©

Flow and Temperature Monitoring

The **RHYTEMPER® FlowWatch** is a compact water distribution system made of corrosion-resistant materials for monitoring the flow rate and temperature of each individual tool circuit.

Impulse Temperature Control

The self-optimising **RHYTEMPER® Hotpulse©** multi-circuit temperature control system regulates the thermal demand of each individual temperature control zone of the die casting tool. The objective is to continuously remove the same thermal content per cycle according to demand. This ensures the shortest possible cycle times and consistently high quality of die cast components.

Your advantages at a glance

- **Durable and corrosion-resistant:** All media-carrying components are manufactured entirely from stainless steel – ensuring maximum durability, minimal thermal expansion and highest reliability.
- **Designed for high temperatures** All sealing materials are made of PTFE and FKM, optimised for continuous operation at elevated temperatures.
- **Precise measurement:** A new generation of sensors provides significantly higher measurement dynamics and accuracy compared with conventional solutions.
- **Optimised flow dynamics:** The revised distributor design improves flow characteristics by 32.5 % – enabling stable processes and faster response times.
- **Compact design:** The electronics box is integrated directly into the distributor – minimal space requirements, easy installation and enhanced protection.
- **Robust stainless-steel housing:** Reliably protects sensors and actuators against mechanical loads and metal splashes.
- **Flexible expansion with additional functional units and distributors:** Optional functional units (bypass, blow-out unit, leakage monitoring) are integrated directly.
- **High operational safety:** Each distributor is equipped with a safety valve.
- **Maintenance-friendly access to each individual circuit**
- **Additional safety features**: Housing temperature monitoring and insulation of internal components to reduce heat losses

10-way distributor

8-way distributor

RHYTEMPER® temperature control units

Shortest start-up times – optimum initial conditions

For die casters, rapidly achieving reproducible series production conditions is crucial. Temperature control units significantly shorten the heat-up phase. **RHYTEMPER® temperature control units** reduce this time considerably by bringing tools quickly and in a controlled manner to the required operating temperatures. Manual preheating processes are eliminated.

Individual tool zones that require continuous heating output can be supplied selectively and on demand. When using frequency-controlled pumps, the required flow rates can be set with high precision. Complete preheating as well as zone-specific heating energy supply is conveniently managed via the central **RHYTEMPER® control system**.

Efficient Units for All Performance Ranges

Our temperature control units are designed for use in plastic and metal processing and cover a wide range of performance requirements. Compared with conventional peripheral pumps, multi-stage centrifugal pumps are capable of generating significantly higher flow rates at the operating point while requiring lower power input. This considerably reduces the number of temperature control units required.
Powerful heaters with low surface load, monitored heating zones and the integrated PLC control system ensure safe and state-of-the-art system operation.
The compact design allows use as a stand-alone unit or – even more efficiently – in combination with an **ONI temperature control system**. Customised versions 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 X**L series includes directly cooled high-performance temperature control units up to 120 °C as well as indirectly cooled high-temperature units up to 160 °C. Both variants offer high cooling capacity and feature a closed stainless-steel tank. UL certification is available on request.

The units are equipped with generously dimensioned internal stainless-steel piping and consumer connections up to 2".
Via defined interfaces, the units can be directly connected to **RHYTEMPER® systems** such as **HotPulse©** or **FlowWatch**, making local operation at the unit unnecessary.

Standard Equipment

- User-friendly PLC control system with 7-inch touchscreen
- Digital interface RS485
- Robust, powder-coated housing for industrial applications
- Available in RAL 7016 / 5002 | special colours on request
- Optimised accessibility through single-sided piping layout
- Heating elements made of highly corrosion-resistant alloy
- Filters at the inlet of the temperature control unit and in the consumer return line
- 5 m connection cable with CEE plug
- Multi-stage centrifugal pumps with energy-efficient motors
- Control cabinet with IP54 protection rating
- Fully automatic air vent
- Corrosion-resistant components made of stainless steel / brass

Find out more about RHYTEMPER® products here

Technical specifications

temperature control units		95 S	95 M	95 L	120 S	140 M	160 M	160 L	160 XL
max. medium 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
Connections for consumer circuits	inch	1	1; 1 1/2	2	1	1 1/2	1 1/2	2	2
Connections for cooling water circuits	inch	1/2	3/4	1	1/2	3/4	3/4	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
Net weight	kg	100 – 150	150 – 250	250 – 350	100 – 150	150 – 250	150 – 250	400 – 450	550

Additional options for temperature control units

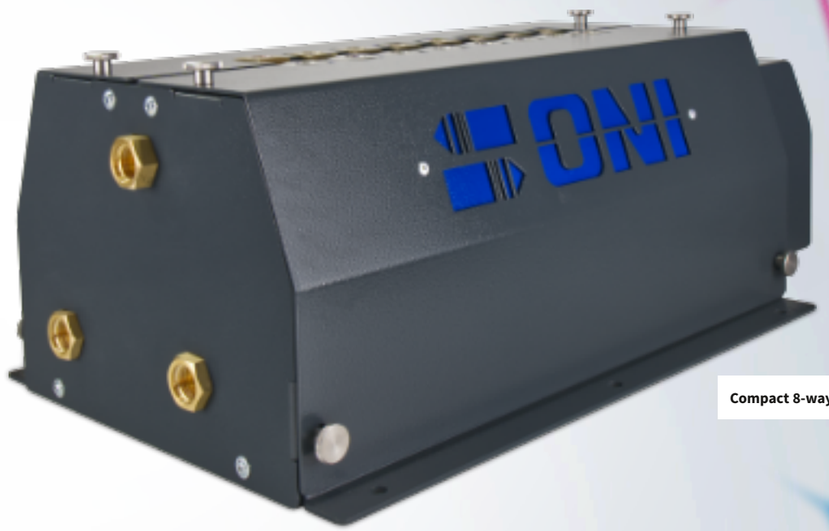
*as indirectly cooled high-temperature units

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		✓	✓				✓	✓
Changeover between direct and indirect cooling					✓	✓	✓	✓
Automatic 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 colours.	✓	✓	✓	✓	✓	✓	✓	✓
Worldwide special supply voltages	✓	✓	✓	✓	✓	✓	✓	✓
Stainless-steel housing versions	✓	✓	✓	✓	✓	✓	✓	✓
All media-contacting components in stainless steel	✓	✓	✓	✓	✓	✓	✓	✓

RHYTEMPER® CorePulse©

RHYTEMPER® CorePulse© is a water-based high-pressure cooling system designed for targeted temperature control of mould cores with small cross-sections in die casting tools.
The CorePulse base unit supplies up to **32 individual circuits** with constant high pressure, ensuring that the cooling medium can efficiently cool deep-lying channels with small diameters. Critical temperature peaks are selectively reduced, preventing tool damage and increasing overall process stability. Each individual circuit is monitored for both temperature and flow. In addition, the flow of each individual circuit can be manually checked if required. CorePulse features an integrated **leakage detection** system that analyses pressure and flow behaviour, reliably detects leakages and automatically withdraws the shot release in the event of **critical deviations. Defined machine signals within the safety chain** ensure that consequential damage to the tool is reliably prevented.

The **CorePulse M** and **CorePulse L** series are designed to cover different performance levels and flow capacities.



Compact 8-way distributor

CorePulse© device

Find out more about RHYTEMPER® products here

Technical specifications

			RHY-CorePulse© M	RHY-CorePulse© L
max. water forerun temperature		**°C**	70	70
max. delivery pressure		**bar**	20,0 – 25,0	20,0 – 25,0
max. volume		**m³/h** (l/min)	3,6 (60)	6,0 (100)
number of single circuits (cores)			32 (at 25bar and max, core inside diameter of 1,5mm)	32 (at 25bar and max, core inside diameter of 3,0mm
Number of distributors			4	4
compressed air		**bar**	6 – 10 Compressed air boost optional	6 – 10 Compressed air boost optional
Operating voltage			400 V AC | 3~ PE | 50 Hz Special voltages on request	400 V AC | 3~ PE | 50 Hz Sonderspannungen auf Anfrage
Pump power		**kW**	4	7,5
Connection consumer / to distributor (at the device)	**forerun**	**inch**	1/2"	1/2"
	return	**inch**	1	1
Connection single circuits (cores) at distributor		**inch**	1/4	1/4
Dimensions:	**length** (with connection fittings) **width** **height**	**mm**	1072 (1450) 490 1000	1270 (1560) 600 1300
Empty weight		**kg**	200 – 250	380
Tank volume		**litres**	70	130

Service When It Matters –
Fast, Personal, Solution-Oriented

Our customers can rely on us:

When support is needed, we are there
Whether technical enquiries, acute faults or urgent spare parts requirements – we respond quickly, efficiently and always with one goal in mind: keeping your production running.

Short Response Times – Reliable Solutions
Our experienced team is available at short notice. We take care of your request and coordinate directly with you – solution-oriented, technically sound and without long waiting times.

Loan Equipment for Maximum Availability
If repairs are required, we can provide loan **equipment on request to bridge the gap – including express delivery if needed**. This ensures your production remains operational even in critical situations.

Fast Spare Parts Delivery
We make sure that required **spare parts reach you as quickly as possible** – optionally via direct delivery or express shipping.

On-Site Technical Support
When the situation requires it, one of our technicians will support you directly on site to resolve the issue quickly and reliably.

Our Service Promise:
Personally accessible, flexible in our approach and always focused on what matters most – maintaining your productivity.

ONI Temperiertechnik RHYTEMPER®

ONI Temperiertechnik RHYTEMPER® GmbH
Christian-Bürkert-Straße 4 // 01900 Großröhrsdorf // Germany
Tel. +49 35952 41100

Office Lindlar
Niederhabbach 17 // 51789 Lindlar // Germany
Tel. +49 2266 47480

info@oni-rhytemper.de // **www.oni-rhytemper.de**

Imprint Publisher: ONI Temperiertechnik RHYTEMPER® GmbH // **Layout:** Christian Voigt – www.christianvoigt.net
Photos: ONI Temperiertechnik RHYTEMPER® GmbH, Conny Walther, © rangizzz/Adobe Stock // **Print:** Flyeralarm // **Print run:** 01/2026