

COMPANY PORTRAIT

GLOBAL PRESENCE





Dear reader,

We want to set new standards in the field of temperature control technology and provide our valued customers with intelligent temperature control solutions.

Driven by the idea to create a model-based controller with AI features along with the knowledge that there are still many future possibilities yet to be developed for control technology in the temperature control unit market, we want to turn our company into a centre of excellence for control technology.

We have already taken our first successful steps in this direction. With wide array of support from sales partners, experts and cooperating universities, our development team has succeeded in implementing complex control algorithms within the smart and intelligent IRIS control system. We are extremely grateful to all our partners who were involved in its creation and to our customers of many years for their expert knowledge and valuable input that has been crucial in developing many aspects of this system.

The first products featuring the new IRIS control system will shortly be released on the market. They will then form the basis for even more new and innovative products from Tool-Temp. Thanks to its modular design, creating bespoke products is easier than ever before and firmware updates can be made available to customers and users quickly and simply.

We hope that you, our customers and partners, will be as excited as we are and that the technical capabilities of the system will provide you with smart, predictive and professional solutions.

Smart and intelligent solutions for production systems around the world made in Switzerland – this is our promise to our customers, employees and partners. And to us as a family.

JASMINE KOLLER
Management

SERGE KOLLER
Management



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EXPERIENCE IN DELIVERING THE PERFECT TEMPERATURE

For you and your line of work, we are all about temperature. We've been manufacturing temperature-control and cooling units for production industries for more than 49 years now. Whether you work in plastics processing, metal die casting, rubber industry, printing or laminating, the chemical or pharmaceutical industry, or food production, we ensure that your processing facilities are kept at the ideal temperature – offering over 60 standard models and enough individual solutions to satisfy any special wishes you may have.

From Switzerland to the world – and vice versa

As the second generation of a family business, we manufacture all our products in Sulgen in the Swiss canton of Thurgau. From here, we manage our national and international activities with 16 subsidiaries, 30 country representatives and 180 experienced employees worldwide. 9,000 temperature-control and cooling units leave our assembly line each year. This only succeeds because we too provide an ideal working environment in our own production facility.

LEADING-EDGE SINCE 1973, UNPARALLELED EACH AND EVERY DAY

Our work has always centred on the quality and reliability of your Tool-Temp devices. That's why we manufacture the key components ourselves, or at least play a part in their development. This is how we can ensure the quality of the components.

With this philosophy in mind, we produce maintenance-free and service-friendly devices that give you highly precise temperature control. Our commitment to quality also includes logical operation and ease of repair. This allows us to keep your initial and operating costs low.

A lot has changed since our story began in 1973. But one thing is set in stone – you and your wishes are still at the heart of our operations, day in day out. We set the bar ambitiously high – for your satisfaction.

GLOBAL PRESENCE

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1973
ESTABLISHED

16
BRANCHES

30
REPRESENTATIVES

180
EMPLOYEES



GLOBAL PRESENCE BUT ALWAYS BY YOUR SIDE

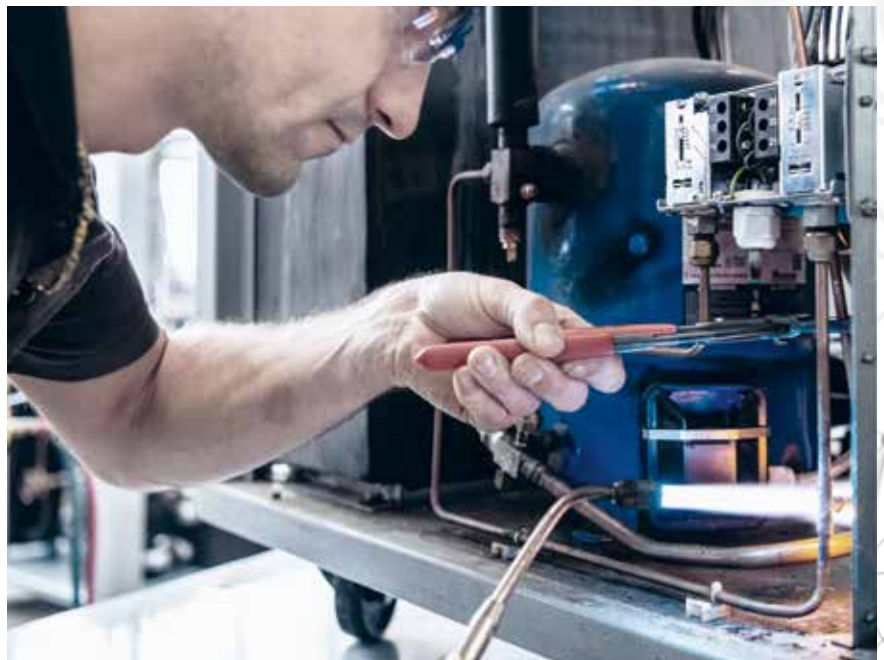
Over the past two generations, we have built up a dense distribution and service network throughout the world, with many of our branches being opened in the last 16 years. This evolution goes hand in hand with permanent investment in our operating resources.

Today, we can assist you with highly qualified professionals who have sound expertise in your Tool-Temp products. With our quick repair, and spare parts service, and well-stocked warehouses, we're on hand to help at any time – no matter what you manufacture, where your production plants are located, what language you speak and when you need us. Technical advice and troubleshooting assistance is also one of our top priorities.

ON THE WAY TO YOU, FROM OUR WAREHOUSES

As a Swiss family business, we're deeply rooted in the canton of Thurgau. And as an international niche supplier, we operate across the globe – wherever you need us. We maintain customer relationships that are as long-lasting as our products – in other words generations long. This is important to us in two respects. Firstly, your Tool-Temp devices should perform to an exceptional

level for you. Secondly, we're constantly developing them further to ensure they are still going strong in years to come. Part of this involves supplying spare parts from our stocks, even for first-generation equipment. This service is extremely popular as it translates into an immediate benefit with long-lasting effects for you – zero downtime.



VITAL FOR YOU, ALL PART OF THE SERVICE FOR US

Breakdowns, malfunctions, disruptions – downtime can be costly for your production process. But it doesn't have to be this way. As part of our servicing offer, we inspect, maintain and repair all equipment models and components, covering all generations. This enables our experienced service team to extend the service life of your facilities and ensure that they're running smoothly.

What we offer at the Sulgen Service Centre

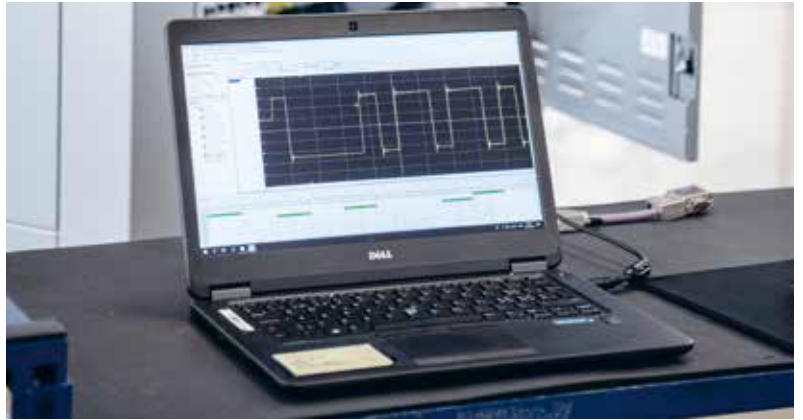
- › Condition-based maintenance
- › Prevention
- › Repair
- › Remote service through telephone support
- › General overhaul and upgrading



DEDICATED TO YOUR EFFICIENCY

From our initial contact and commissioning through to phasing out a generation of units – you can count on us throughout the entire life cycle of your temperature-control and cooling units. We consider support to include technical support, maintenance and a fast spare parts and replacement

service straight from the manufacturer. This ensures that your production is a success over the long term and keeps your operating costs attractively low.



YOUR SUCCESS, OUR COMMITMENT

Reliability and efficiency are two important ingredients in your recipe for success. We take this to another level and help make a positive difference – by adding three more variables to the mix with our expertise, passion and top-class advice.

You start planning, we'll find a way

We offer analysis, advice and solutions from a single source. Because our equipment combines technology and value for money in one single solution to meet your requirements. This helps us keep our sales staff at the top of their game in terms of technology and ensures their finger is on the pulse in regards to your industry and facilities. Ultimately, the most sustainable systems are born from a thorough examination of all the framework conditions – and from an open dialogue with you.

USED BY YOU, PUT THROUGH ITS PACES BY US

Temperature is our line of work, and our experience has helped us refine what we do in this area. We make use of this expertise for you in our laboratory.

Water analysis: preventing material damages

If you use water for industrial processes such as when operating heating and cooling circuits, it will often be treated chemically. Particularly with pressurised water systems, you need to keep an eye on

the water quality. This is because dissolved salts, too much chloride or a high copper content may cause corrosion, calcification or material fatigue.

We carry out water analysis for you in our laboratory to make you aware of any changes at an early stage and allow you to react to them appropriately. This enables you to reduce maintenance work, significantly cut costs in that regard and keep your equipment efficient in the long term.



Initial temperature analyses: guaranteeing process security

In our in-house primary laboratory, we conduct high-precision testing of thermodynamic temperatures for controlled systems in accordance with the ITS-90 standard. If requested, we can review the accuracy of the control units for all generations. Based on the results from our initial measurements, you can guarantee flawless production processes.

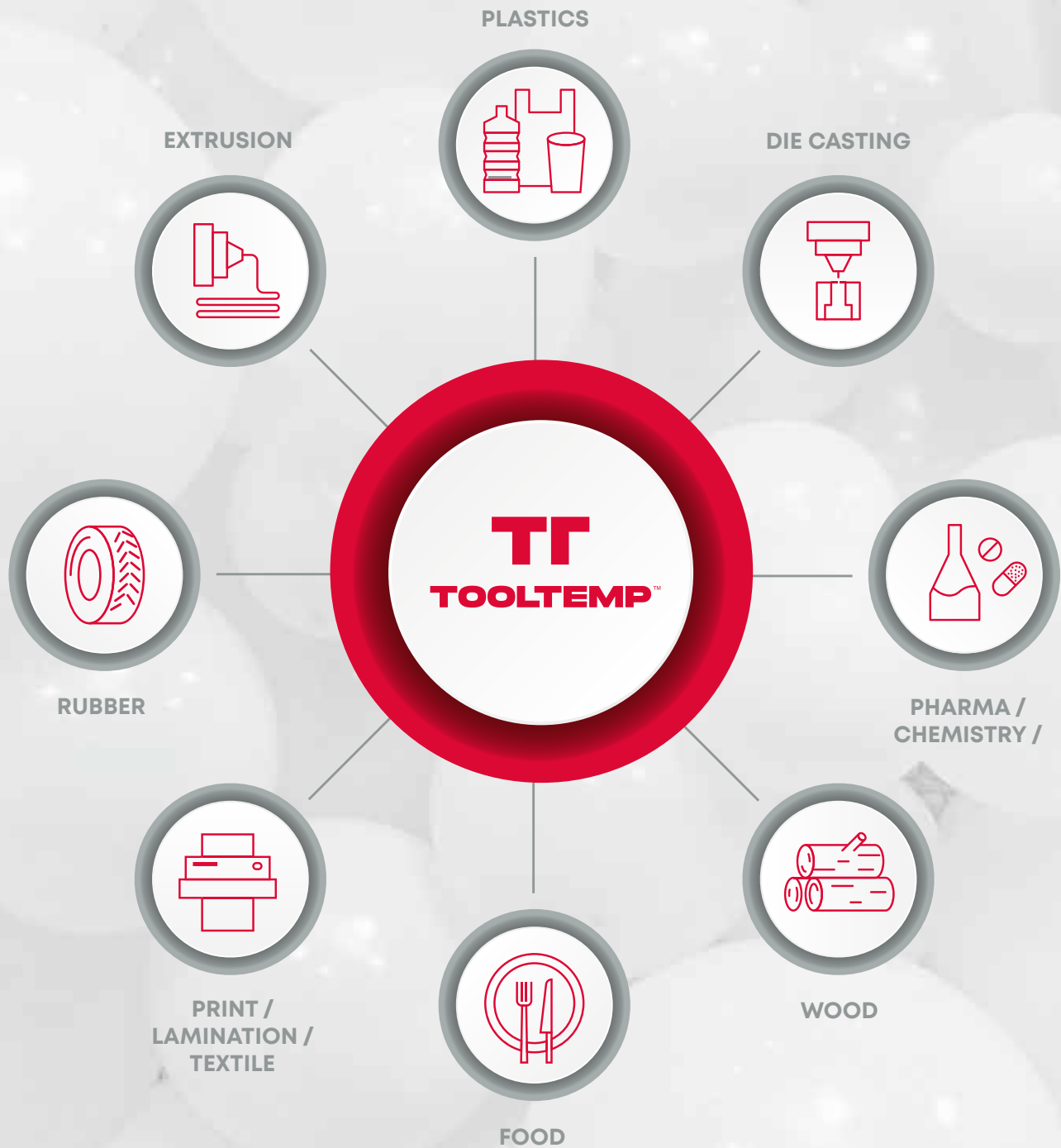
AS DIVERSE AS YOUR
LINE OF WORK, ARE THE
SOLUTIONS WE OFFER.

WE ARE ACTIVE IN ALL
PRODUCING INDUSTRIES.

Temperature control and cooling is always an issue when a production plant works with liquids that are pumped through an external consumer. In this case, the consumer needs to be at exactly the right temperature. This is why you'll find our temperature control-units in a wide variety of industries.

**PLASTICS • DIE CASTING • EXTRUSION • PHARMA • CHEMISTRY •
RUBBER • SILICONES • FOOD • WOOD • PRINT • LAMINATION • TEXTILE**





SWISS THERMAL MANAGEMENT



PLASTICS

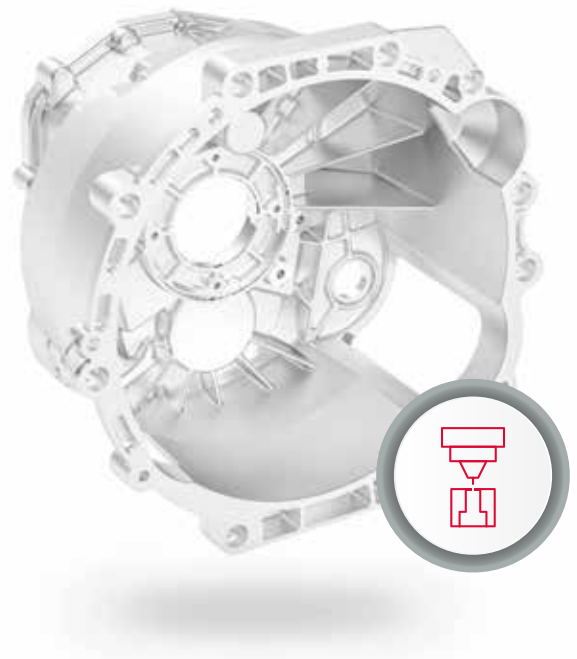
Whether in the injection moulding process, in thermoforming, for sheet products, in pressing or in extrusion – the costs for the tool usually make up a major part of the investment and have a significant influence on the profitability of your production.

In most processes in the plastics industry, constant mould temperature control or zone temperature control play a key role. This is because they increase the quality of the product and ensure consistent dimensional accuracy. Your manufacturing processes also become more stable, which has a positive impact on the productivity of your systems.

DIE CASTING

In the manufacture of die cast parts from aluminium, zinc and magnesium controlling the thermal processes in the mould is crucial when it comes to the efficiency of your processing.

A stable heat balance and reduction of the peak temperature on the mould surface prevent premature damage to the die cast, e.g. from tension cracks, and significantly increase its service life. A high reject rate in die casting is usually due an inadequate die temperature control.



EXTRUSION

Precise temperature control during the entire extrusion process plays a decisive role.

The temperature control and cooling units from Tool-Temp optimise and control the temperature during process steps such as melting, compounding, homogenising, conditioning and discharge, which must be raised or lowered zone by zone depending on the product and production process.

Temperature control with liquid heat transfer media provides clear advantages here. In addition to homogeneous temperature distribution, simultaneous heat supply and removal within a temperature control zone is also possible. Precise and fast-reacting temperature control improves the structure of the material conveyed and helps to achieve an optimum surface finish. The resulting improved conveying behaviour enables higher throughputs with consistent quality and increased energy efficiency. In order to meet the constantly the ever-increasing market demands on production and quality in the extrusion processes, we offer a wide range of high-performance, fast-reacting and precise temperature control units.

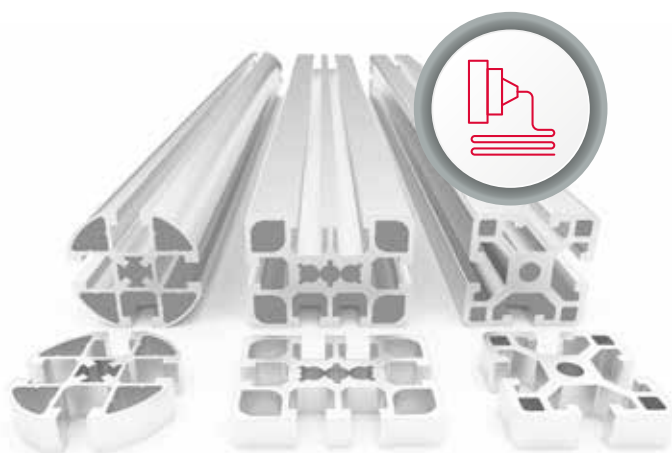


PHARMA/ CHEMISTRY

In the pharmaceutical / chemical industry, you're tasked with the application-optimised temperature control of plant components, reactors, double-walled vessels, extruders and similarly complex facilities.

These tasks are often solved with costly special designs such as steam systems. But it doesn't have to be this way. Our solutions for the pharmaceutical and chemical industry can be adapted to your specific area of application.

Devices with explosion protection, compliance with exceptional control accuracies, fast temperature changes or ramp control are included in our standard programming.



RUBBER & SILICONES

There are several processes used in the manufacture of rubber products. Some of the most common techniques used for rubber processing are extrusion, immersion in latex, moulding and calendering.

We offer you a wide range of temperature control systems that meet the manifold requirements of temperature ranges, volume flows and system integration and are adapted to the various process methods. The reliability of raw material quality, exact weight proportions of the various ingredients, a controlled mixing procedure and optimised forming processes are essential requirements for the production of components made of high-performance elastomer materials. Within this complex environment, we meet all your temperature control requirements – either in the form of standalone solutions, or fully integrated into your system.



FOOD

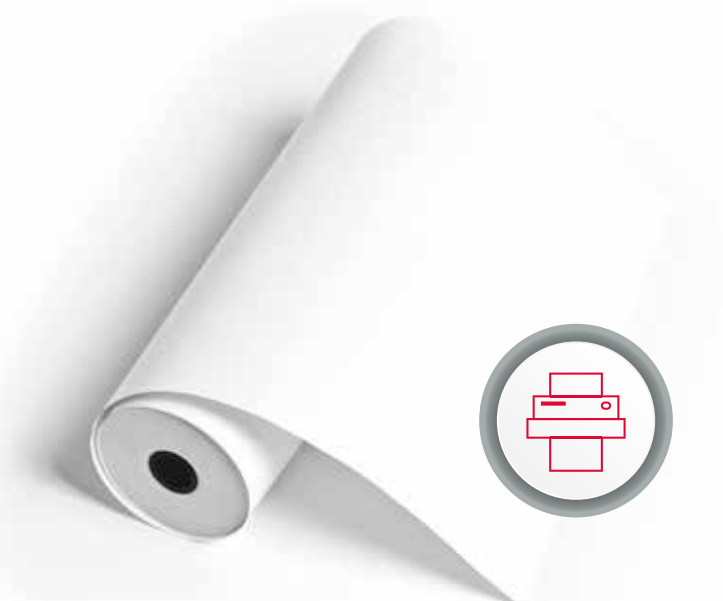
In food production, you face similar challenges as in the pharmaceutical and chemical industries. Added to this are the properties of the food itself, such as the crystallisation of chocolate.

When it comes to these processes, temperature control determines the success or failure of your production. Having said that, you don't necessarily have to resort to expensive special solutions. Our standard applications can be adapted to your production requirements, because functions such as exceptional control accuracy, reacting to immediately changing temperature gradients or ramp control are built in standard.

WOOD

As part of the industrial processing of wood and wood-like materials into fibre and wood panels, water and oil temperature-control units are used to control the temperature of calibration zones, extrusion lines or laboratory facilities.

Temperature control has a vital influence on the efficiency of the processing and the quality of the product in this industry too. With a smart temperature control solution, you can prevent your mould from over-heating and your products from having impurities.



PRINT/ LAMINATION/ TEXTILE

Hollow or double-walled rollers are used in the printing industry and for laminating as a finishing process. Achieving first class results with these processes requires perfectly handled temperature control measures – which means high performance and failure free temperature control units.

Constant temperature control is also a vital factor for success in this industry. You might be interested to know that our temperature control units can be integrated into your systems via a digital interface at the control end. In the event of a printing plate change, the corresponding temperature control unit settings are automatically loaded.

In the textile industry, too, fabric meshes are bonded to other materials using a roller application. Due to the many different textile fibres involved in this process, it calls for meticulous temperature control, as this is the only way the desired function of the textile laminate can be achieved through gluing or fusing. Our temperature control units meet these requirements to the letter.

CUTTING-EDGE TEMPERATURE CONTROL UNIT FOR PRECISE TEMPERA- TURE CONTROL AND CONTINUOUS MONITORING OF MEDIUM CIRCULA- TION. THIS GIVES YOU MANY ADVAN- TAGES:



- › It increases process stability.
- › It monitors the production processes around the clock and improves them continuously.
- › It optimises cycle time and consequently overall productivity.
- › The constant mould temperature control ensures consistent accuracy and so improves product quality. It also ensures an optimum surface finish so eliminates time-consuming corrective work.
- › You can increase the number of pieces produced and lower your overall production costs.



One common production site – one quality commitment – two product lines for different customer requirements

MATIC

The MATIC range of devices – smart intelligence – designed for communication

Requirement profiles for temperature control systems vary significantly between different sectors, processes and even markets. Our customers are highly specialised and therefore require products that are perfectly adapted to their needs. In order to cover this wide range of requirements, we offer two product lines for different focus areas.

STANDARD

The Standard range of devices designed to be robust and simple

We develop and produce our temperature control units exclusively in Switzerland. We only use high-quality device components from the start of the development process. Our temperature control units are almost entirely built using components we have made ourselves. Key components such as pumps, heat exchangers, flow sensors and special electromechanical parts are produced at our factory in Sulgen.

The quality of our equipment and components is guaranteed by stringent quality control. And if you need a solution that goes beyond the conventional, we will be right there at your side.

**ONE SOLUTION –
MANY ADVANTAGES**
OUR UNIT LINES

MATIC PRODUCT RANGE

The MATIC device range covers all needs for production environments that use digital networks. The MATIC product range features the new IRIS controller and comes with an OPC-UA interface as standard. The new device controller comes with a web server to connect with any network by WLAN or LAN. This gives users a broad range of location-independent operating options. It also meets the ever increasing demands for process

monitoring and documentation required by ISO standards. Data recorded by the unit can be easily read out at any time.

Units in the MATIC range put our ecological goals into practice. The energy-saving eco mode and predictive maintenance functions proactively help keep energy consumption of the temperature control process as low as possible and minimise downtimes.

Features and benefits of the MATIC range

- › OPC-UA interface
- › Web interface (LAN cable, WLAN)
- › Smart and intelligent
- › Intuitive user interface – quick to learn
- › Precise and robust control
- › Designed for energy efficiency and precision
- › Ecological thanks to new ECO mode
- › Easily configured behaviour
- › Fully-automated sub-steps and formula memory
- › Information available at any time
- › Constant data monitoring and validation
- › Electronically accessible process documentation: optimum support for meeting ISO requirements

The MATIC range is divided into the following product groups:

MATIC Duo

- › Water and oil temperature control units up to 90 °C / 150 °C

MATIC Water

- › Water temperature control units up to 90 °C
- › Pressurised water temperature control units up to 160 °C

MATIC Oil

- › Oil temperature control units up to 360 °C

The name “MATIC” comes from the word “automatic” and refers to the product’s automated / partially automated characteristics and to the capabilities of our new product range.

STANDARD PRODUCT RANGE

Our standard temperature control and cooling units are perfect as stand-alone solutions. They are both robust and easy to maintain. The use of proven technologies guarantees the durability of this product group.

Our Standard range of temperature control units comes with digital networking capabilities. The standard controller implements 22 machine protocols.

Devices from our Standard range are ideal solutions for applications in which your temperature control unit's main function is to control the temperature of the circulation medium.

Features and benefits of the Standard range

- › Service-friendly
- › Robust and reliable
- › User-friendly thanks to a minimalist user interface

The Standard range is divided into the following product groups:

- › Universal water and oil temperature control units up to 90 °C / 150 °C
- › Water temperature control units up to 90 °C
- › Pressurised water temperature control units up to 160 °C
- › Oil temperature control units up to 360 °C
- › Cooling units from -25 °C to +40 °C

Standard controller MP-888

Your temperature control unit contains a digital temperature controller. This ensures precise temperature control even at high temperatures. It displays the current and target temperature. The controller monitors the circulation of the medium and triggers an alarm if the flow rate drops. The digital temperature controller can be operated in °F or °C units and features analogue interfaces of 0–5 V, 0–10 V and 4–20 mA as standard.

Digital interface controller MP-988

In addition to the standard digital controller we also offer a digital interface controller with RS-485, RS-232, 20 mA current loop, CAN bus, Profibus and Profinet interfaces. These interfaces are accessible without having to insert any additional cards. Also included is a temperature difference display and over 30 integrated machine protocols.

SMART AND INTELLIGENT

– the IRIS controller of the MATIC temperature control units

The IRIS concept

- › Model-based control
- › Focus on energy saving
- › Intelligent monitoring
- › Easily extendable & OEM protocols

Temperature control has a great influence on your product quality, productivity, energy efficiency and your production costs.

The IRIS control system has been specifically developed to provide you with optimum support in all these areas.

The Key Features of IRIS

- › Easy to use
- › Modular design
- › Economical control system
- › Predefined actions & configurable recipes
- › Connectivity – OPC-UA
- › Predictive maintenance

IRIS is more than just a controller. IRIS monitors and regulates the temperature control process comprehensively, in doing so, the control system rapidly reacts and permanently adapts to new conditions.

Modular design

For maximum flexibility & serviceability

- › IRIS Display Module
- › IRIS System Controller
- › IRIS Peripheral Module
- › IRIS Input Output Modules

Predictive Maintenance

- › Self-diagnosis algorithm
- › Monitoring the pump condition
- › Capture of environmental data
- › Condition monitoring of the heat transfer medium

Safety and data log

- › Process data are stored
- › Error log can be read out
- › Different user levels

User-friendliness

- › The 7" touch screen
- › One touch thought
- › Simple user management
- › Safety and data logging
- › Actions available to support the user
- › Recipes for more process reliability
- › Timer functions help to automate processes

INDUSTRIAL CONNECTIVITY

IRIS comes standard with the WLAN accessible web-based interfaces TCP/IP, REST-API and OPC-UA.

Interfaces

- › External Ethernet connection to the company network
- › Ethernet OPC-UA for connecting temperature control units
- › USB for service purposes, downloading data logs, uploading new firmware
- › WLAN for remote control

Communication module 1

- › ProfiNet
- › EtherNet/IP
- › Profibus

Communication module 2

- › RS-232
- › RS-485
- › CAN bus
- › Current-Loop

Over 30 protocols available from worldwide machine manufacturers.

Communication module 3

- › 3 digital inputs 24 V contact potential free
- › 3 pcs. digital outputs 230 V contact potential free
- › 2 analogue input 0-10 V or 0-20 mA resp. 4-20 mA
- › 2 analogue output 0-10 V or 0-20 mA resp. 4-20 mA
- › 1 temperature sensor (Thermocouples like resistance sensors Pt-100, Pt-1000, 2-, 3-, 4-wire)



IRIS IS INDUSTRY 4.0 READY

The control concept holistically covers the Industry 4.0 concepts

Networking

IRIS networks various devices with each other and can be easily integrated into machine control systems. Networking takes place via WLAN or plug connection.

Information transparency

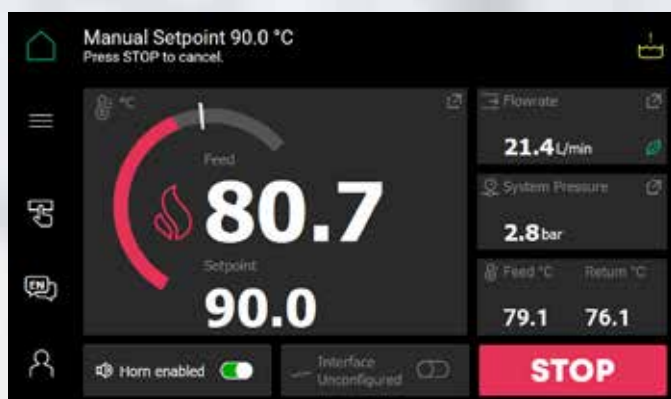
Sensor data is evaluated and continuously expands the control models. Important parameters are stored and can be output at any time.

Technical assistance

The system supports the user by issuing error messages with recommendations for action.

Decentralised decision-making

The system performs the control tasks independently. It reacts to external inputs and acts largely autonomously.



1 Main screen

Simple and intuitive operation.

- › Clear presentation. The operating status of the unit can be seen at all times.
- › Intuitive operation thanks to flat menu structure.



2 Temperature input

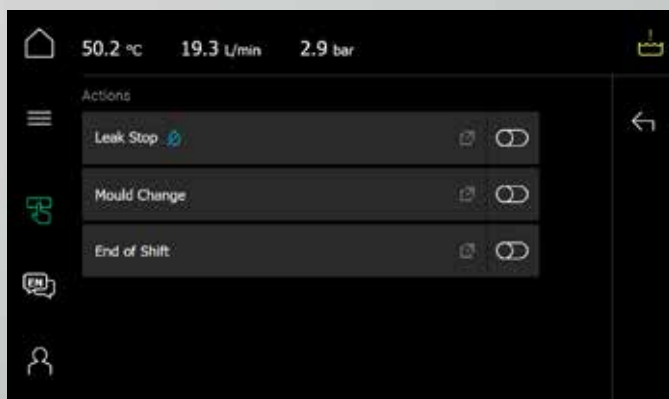
One touch thought.

- › Settings can be pre-saved.
- › 3 different user levels for maximum clarity.



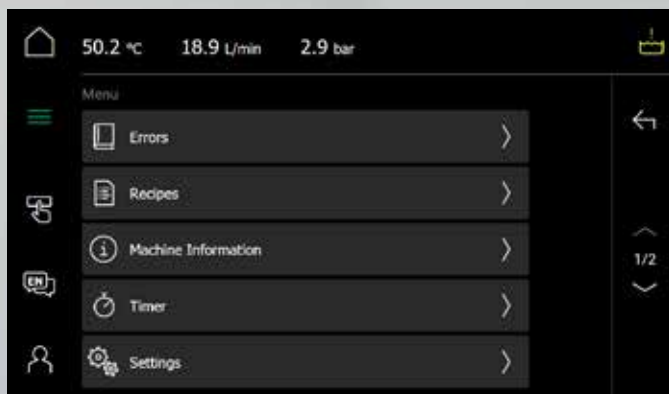
3 Graphical display diagrams

Visual information on the course with additional information. Actual, target, in desired time period and other informations.



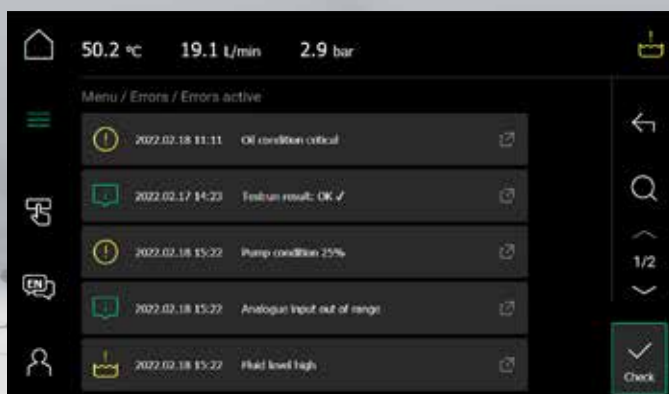
4 Actions support the user

Predefined sequence of steps are user-friendly already stored.



5 Menu navigation - clearly arranged

- › Simple user management.



6 Status display of the system

System errors as well as recommendations for action are continuously logged.

- › Early warnings ensure an error-free production process.
- › Continuous data logging supports compliance with ISO standards.

HERE FOR OUR COSTUMERS



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