Fluid control of die-casting temperature modular and reproducible
A foundry uses the low-pressure die-casting procedure to produce metal parts, predominantly for the automotive industry. Water, air and a mixture of both are used for cooling. Process temperatures can be controlled reliably on the basis of the flow values and with the aid of an intelligent solution.

/ Keeping a cool head / When casting moulded parts from molten metal, precise temperature control of the dies is vital. Since this is reflected in the quality of the end products. Cooling of the dies also has a direct impact on production costs. An automated control system facilitates the entire process. It guarantees quick and reliable cooling. The result: Precise temperature control and short cycle times. The modular platform allows you to keep a cool head when controlling the temperature of your industrial processes.

Do you want to be able to cool your die-casting dies quickly while assuring repeatable accuracy? Read how easy this can be done in your plant on the following pages.
Constant cooling / In the cooling circuit, the water runs directly through the die. For consistently good results, the cooling process must be reproducibly controlled. Homogeneous heat removal is achieved with precisely balanced cooling sections.

Pressure equalisation
The pressure difference often fluctuates in cooling sections that run parallel to each other – and must be compensated.

Conventional solutions
In the traditional on/off process, the flow of cooling water is controlled manually. The process is not reproducible and pressure fluctuations and deposits reduce plant performance.

Transparency
Production must be documented in a comprehensible manner and traceability must be guaranteed at all times. This is supported by digital systems – in every process step.

Greater output
The combination of reproducible and exact cooling parameters reduces the cycle time and increases the yield.
Modular: The Bürkert construction set / Regardless of whether your control system is driven electromotively, pneumatically (continuously or on/off) or manually – we provide you with a drive and control principle that fits your process in every respect. Select the actuators and sensors according to the application, required pressures, temperatures and flow rates. The following applies to all: They offer reliable measurement values and can be easily integrated into your system.

Actuator variants
- Electromotive
- Pneumatic ELEMENT
- Pneumatic CLASSIC
- Manual

Construction variants
- Housing element
- Single-channel solution
- Multi-channel solution

Sensor/Controller variants
- Flow rate (ultrasound) 0.1 – 60 l/min
- Flow rate (paddle wheel) 0.8-200 l/min
- Mass flow (air) 0-250 Nm³/h
- Pressure
- Temperature
- Process control
/ Automatic instead of manual / Controlling the temperature of casting processes is complex – make it easy for yourself: With an individually configurable system. Compared to manual temperature control, the modular solution saves you lots of time – while ensuring consistent high product quality.

**Modular design**
Adaptable nominal diameters and seat combinations (DN1 - DN15). Create valve clusters for collection and distribution functions according to your requirements.

**Fully pre-welded**
Leak-free construction and compact design with minimum dead volume; can be installed close to the casting process.

**Easy to upgrade**
Switch from manual to pneumatic or electromotive control at any time.

**Installation and service friendly**
No installation work needed for piping between the valves; quick replacement of components without having to open the piping. And a single point of contact for all your questions.

**Distributed ID control**
Robust and fast-acting control loops - pre-configured and tested. The advantage: Easy to integrate in your PLC.

**Ready for Industry 4.0**
Can be used as a conventional system and for digital communication. Fieldbus connections facilitate integration in existing plants.
Fluent and profitable:
In a metal foundry, the cooling sections are to be adjusted for a new die. Manual adjustment of 90 cooling sections takes 16 hours. When this process is automated, it takes just four. In the time saved, the company can produce 108 parts.

### Example calculation

<table>
<thead>
<tr>
<th>Manual adjustment</th>
<th>Automated adjustment</th>
</tr>
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<tbody>
<tr>
<td>16 hours</td>
<td>4 hours</td>
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</table>

Time saved:
Cycle time required to produce 1 part (product) 0.11 hours (400 seconds)

Increased production due to reduced adjustment time

+108 parts

Bürkert system solutions are developed to ensure simple integration in your respective network – as if it were a single device.

**Direct line** / Completing tedious manual adjustment of individual cooling sections is now a thing of the past. In the Bürkert system, your devices communicate with each other. It documents all the parameters and makes your processes reproducible at all times. Additionally benefit from the advantages of digital communication – and take your cooling process to the next level.

**Flow measurement — Digital communication**

Bürkert Communicator

**ME43 gateway**
Connection to:
- PROFINET
- EtherCAT/IP
- Modbus/TCP
- PROFINET DPv1
- EtherCAT
- CC-Link

**EDIP**
The Bürkert system bus, based on CANopen, simplifies communication between the components right down to the field level.

**Pluspunkt digitale Kommunikation**
Flow measurement