

ENGEL flomo

intelligent mould temperature control

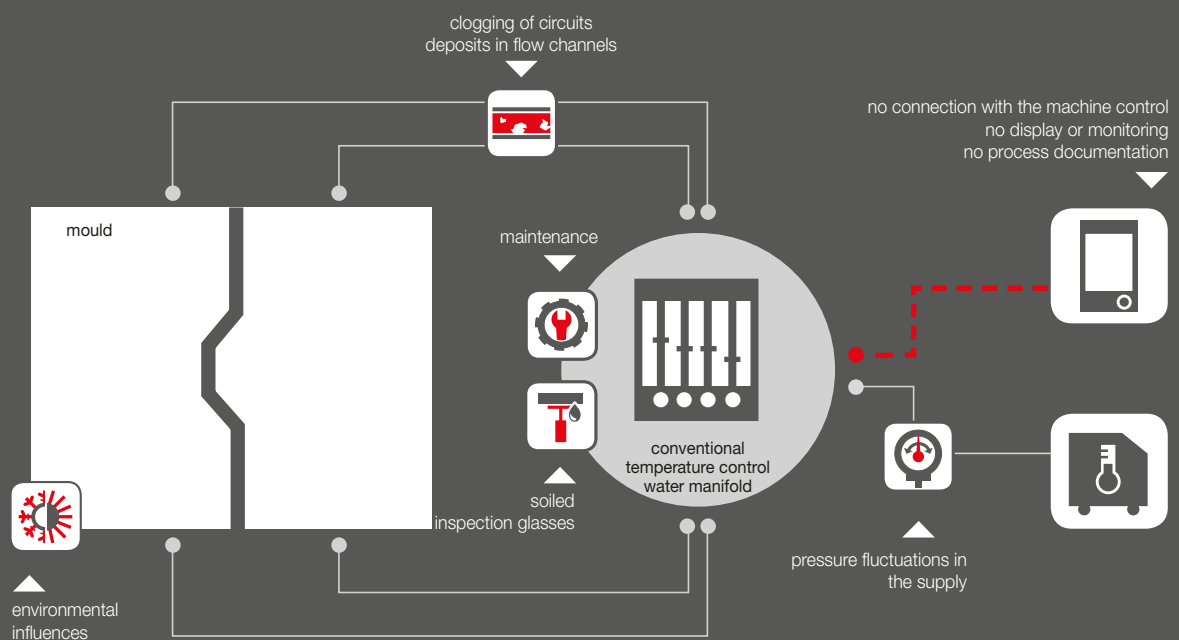


ENGEL
be the first.

For superior production results the **optimum mould temperature** is indispensable: With **ENGEL flomo** you can rise to this challenge. Because this smart **water manifold system** helps to increase parts quality, process stability, cost effectiveness and energy efficiency. Thus you can reduce or exclude influences of changing conditions and achieve higher reproductibility with minimum reject rate.

disturbing factors in cooling and temperature control management

- environmental influences
- clogging of circuits
- depositions in flow channels
- stained inspection glasses
- fluctuations of temperature and flow rate in the supply
- lacking connection with the machine control
- no display, monitoring or process documentation

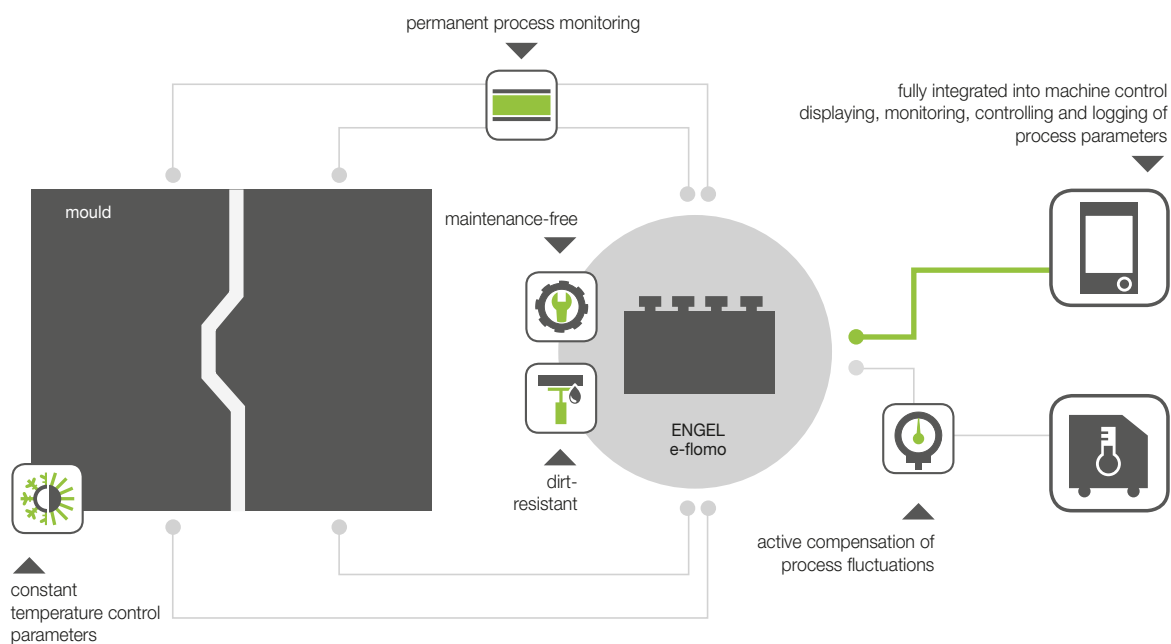


features:

media temperature of up to 120 °C
flow rate: 1-15 l/min or 2-40 l/min
monitors flow rate, pressure, temperature and temperature difference
integrated into ENGEL CC300 machine control
available as upgrade for ENGEL CC200 machine control
available for 2/4/6/8 flow circuits

the solution ENGEL flomo

- permanent process monitoring
- maintenance-free, dirt-resistant system
- active compensation of process fluctuations
- constant temperature control parameters
- fully integrated into ENGEL CC300 machine control
- displaying, monitoring, controlling and logging of process parameters



The optimum **water manifold system** to cool moulds and manage their temperature: the new generation of **ENGEL flomo**. These innovative compact modules which are fully integrated into the ENGEL CC300 machine control, replace conventional water batteries with variable area flow meters.

integrated into CC300

- display
- monitoring
- closed loop control
- process documentation
- data set management
- plug & play

supply line monitoring

- pressure
- temperature

electric motor ball valves

- main shutoff for
supply and return lines
- minimal pressure drop
- short shutoff times
- dirt-resistant

ideal operating conditions

- no water-filter required
- media temperature of up to 120 °C
- operating pressure of up to 10 bar



You can use ENGEL flomo to **measure, monitor, log important temperature control parameters** of the temperature control process; e-flomo even feature a closed loop control. All of this enables you to manage the temperature control process of your moulds in a safe, repeatable, time-efficient and convenient manner.



The new generation of **ENGEL flomo**
compact and space saving



Closer means better: Due to its compact design the new generation of ENGEL flomo can be positioned **close to the mould**. Only **short hose connections** are required; therefore **minimal heat and pressure drops** occur.



ENGEL **flomo**

Monitor the most important parameters of all temperature control circuits permanently: In this water manifold, flow rate and temperature are measured by vortex sensors. These do not comprise any moving parts; consequently, they are maintenance-free. The measured values are displayed in a simple and clear manner on the ENGEL CC300 machine control. (new version available autumn 2015)

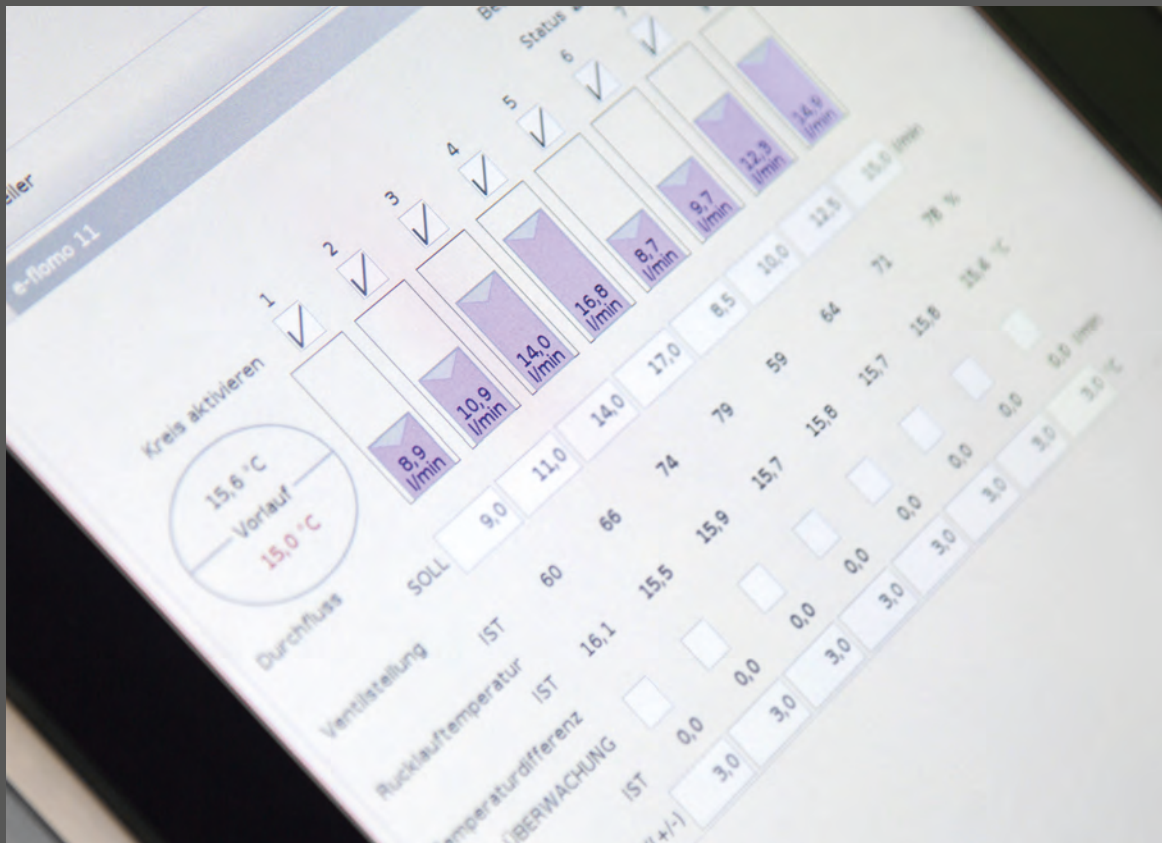
ENGEL **e-flomo**

The smart temperature control water manifold system: ENGEL e-flomo allows every batch to be produced under constant process conditions thanks to its closed loop flow control. With a simple click you can load temperature control programmes and manage them via the ENGEL CC300 machine control. This does not only ensure more process reliability, but also reduced setup times.

ENGEL **e-flomo premium**

The smart water manifold system that can be fully remote-controlled: ENGEL e-flomo premium allows you to operate all its features via the ENGEL CC300 machine control. Thus, direct access to the manifolds is no longer necessary. All features and data are being managed centrally by the machine control: Therefore, it is no longer possible to forget temperature control circuits or mix them up.





perfectly **integrated** into the new **ENGEL CC300**

With the new ENGEL CC300 machine control managing ENGEL flomo and e-flomo is as simple as using a smartphone. Thanks to the clear information structure and various adjustment options on different user levels, the use of the entire system is very straightforward and convenient.

- **elaborate operating logic**

due to individual screens for set up and operation

- **display**

of the temperature control process depending on the operating mode

- **expanded range of features**

to cover the entire application spectrum



the mobile **stand-alone solution**

The water temperature control system for mobile use: With ENGEL flomo stand-alone you can equip your existing injection moulding machines with the advantages of a maintenance-free water manifold system very easily. Irrespective of whether you have an ENGEL injection moulding machine or a machine of a different brand. The system is also ideally suited for flow rate checks on your moulds.

- **monitoring** of important temperature control parameters
- **simultaneous flow rate check** of several mould circuits
- generating of **mould data sets** with the ENGEL portable control unit
- **internal saving and loading** of up to 24 mould data sets
- **recording function** to log measured values of the process monitoring
- **import and export** of generated mould data sets via USB
- **reading of mould data sets** with included computer software
- **uncomplicated assigning of measurement readings** as reference settings

Your ENGEL flomo advantages

maintenance-free

- no cleaning or maintenance of inspection glasses
- no maintenance-related costs
- no production downtimes

constant process conditions

- permanent monitoring of important parameters
- closed loop flow control
- reduced rejects

high operating convenience

- high degree of flexibility also with small production batches
- automatic setting of flow rate
- reduced setup times
- increased machine availability

24%

of rejects result from a problem with the mould temperature

The German company Koziol knows these empirically proven pitfalls of temperature control and is convinced of the benefits of ENGEL flomo:

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"We know now, that if we had installed the system in an older machine, it would have saved us an entire batch," reveals Michael Kredel, head of application technology at Koziol. "Therefore, we now want to equip every new machine with ENGEL flomo as standard feature."

Michael Kredel, Koziol





			installation close to the mould minimum hose length, minimised pressure drop
			little maintenance requirements no contamination through algae formation or deposits and therefore no cleaning required
			optimised cross-section areas pressure drops are halved compared to conventional cooling water manifolds, higher flow rates
			visualisation display of important temperature control parameters, such as flow rates, temperatures or temperature differences at the CC300
			monitoring of important temperature control parameters allowing to determine tolerance ranges for set values, alarm messages in case of deviations
			process documentation logging of readings in the process data protocol, full documentation
			constant process conditions validated temperature control parameters are kept constant by closed loop control
			process reliability loading of a validated temperature control programme from the subset of data avoids "forgetting" or "confusing"
			accelerated production start due to automatic adjustment of set values
			fully remote controlled direct access to e-flomo manifolds no longer required
			increased ease of use thanks to opening and closing of each temperature control circuit via CC300
			CC300, CC200 (available as upgrade)
			stand-alone
			main flow/return line
			flow circuits
			return circuits



ENGEL plus more than a machine



For you and your production cells, plastic processing represents a constantly varying challenge for the lifetime of a machine. To tackle these challenges, we provide highly experienced support with our ENGEL plus range of services. We offer you on-site global service and support, high quality retrofits and optimisation tools, as well as a comprehensive professional training portfolio.



ENGEL know-how

Consolidate your expertise: to make sure you and your staff stay in top form, ENGEL plus features targeted training based on the transfer of comprehensive know-how.

training (seminars, e-training), forums, consulting

ENGEL availability

Guarantee continual productivity: ENGEL plus offers you a comprehensive range of preventive services to keep your valuable machines functioning properly at all times.

maintenance contracts, protect (+), Formula 24, oil maintenance, everQ, consulting

ENGEL optimisation

Specifically optimise your quality level: ENGEL plus optimisation enables you to adapt your production operation to changing conditions and make it even more cost and energy efficient.

flomo, everQ, e-factory, iQ weight control, consulting

ENGEL upgrade

Create reliable added value: enhance your production cell with ENGEL plus upgrade solutions and generate benefits of additional functionality.

viper, Retrofit, foammelt (MuCell®), software, injection units, peripherals

ENGEL efficiency

Reach your full potential: increase the efficiency of your machines through intelligent, well-proven system components from ENGEL plus.

ecodriveR, flomo, oil maintenance, heater band insulation, consulting

ENGEL support

On-site support around the clock: whenever you need assistance, our top service engineers offer comprehensive support worldwide.

e-service.24, hotline, spare parts



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ENGEL
be the first.