

QualiMaster from Eirich

Quality systems for the preparation of
clay-bonded molding materials



Benefit from your molding material preparation system.

Get your production cycle really moving with a molding material preparation system that supplies exactly the molding material you require, whenever you need it.

As a specialist in the preparation of clay-bonded molding materials, we offer solutions that are perfectly tailored to your needs.

The Eirich systems use the following elements to ensure perfect quality in molding material preparation: the QualiMaster AC1 moisture correction system, QualiMaster AT1, and the QualiMaster SandReport/SandExpert software tools.

Perfect your processes

Take advantage of these new opportunities to improve casting quality and make production processes more flexible.

Quality, variety, and flexibility

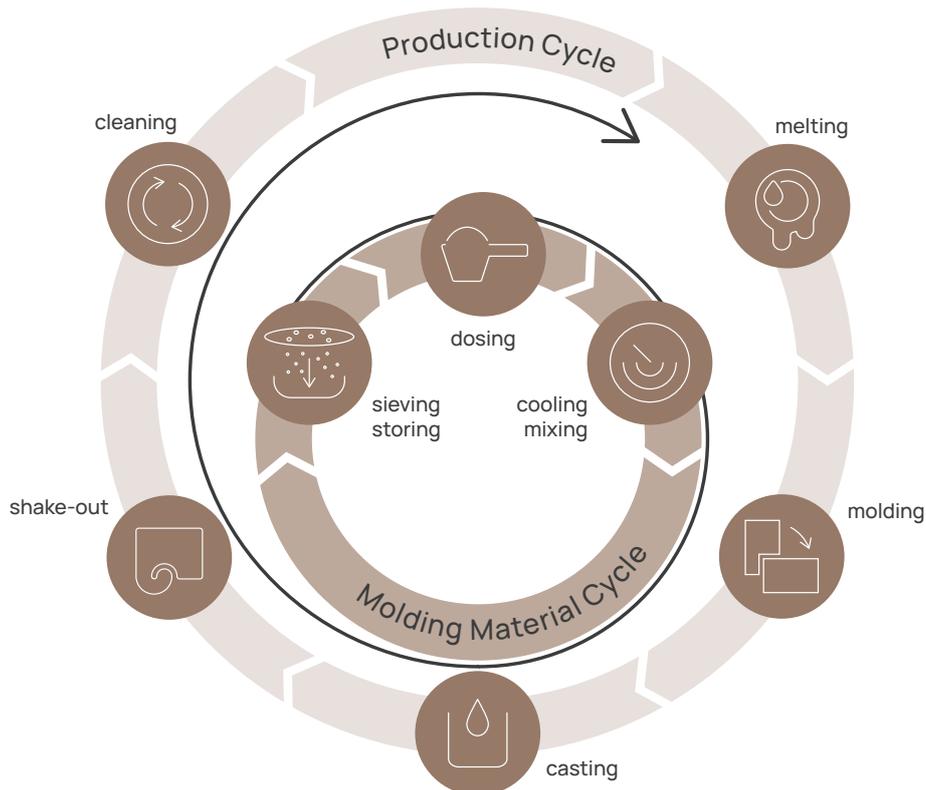
The requirements that need to be met in terms of the quality and surface finish of your castings are constantly increasing. In view of the growing complexity of mold models and the increasing frequency of model changes, molding material quality is becoming an ever more important issue.

Energy, resources, sustainability

Save energy and resources – our QualiMaster quality system with its tailor-made software modules will help you.

Process optimization, autonomous manufacturing, industrial “Internet of Things”

With a concept based on comprehensive data integration, networked processes, and the Eirich QualiMaster SandExpert software tool you can implement a preventive molding material control system.



+
**Are you ready
for your
next level?**

The basis for quality assurance in molding material preparation and networked processes: the QualiMaster AC1 moisture correction system.

1

2

QualiMaster AT1 Eco measures the compactibility of the molding material. This is the first step towards reproducible molding material quality.

The active clay content determines the strength of a mold. QualiMaster AT1 Profi additionally measures the shear strength and determines the deformability of the material.

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Additional measurement options for springback and gas permeability are now offered by QualiMaster AT1 ProfiPlus.

While QualiMaster SandReport is a software tool for production analysis, QualiMaster SandExpert enables preventive molding material control.

5

Molding material quality

A systematic approach for unrivaled molding material quality

QualiMaster, our quality system for the preparation of clay-bonded molding materials, is a modular complete package for quality assurance.

Key components include tailor-made control solutions that have been specially designed for tasks in the foundry industry.

These are based on a concept of comprehensive data integration with networked production and planning processes.

The result: Information relating to the process, product, and quality is available at all times from any location.

Taken together, these factors all help to ensure optimized management and control of molding material quality.



QualiMaster AT1 is available in three versions: Eco, Profi, and ProfiPlus

QualiMaster AT1 – Eco, Profi or ProfiPlus?

QualiMaster AT1 is at the heart of quality assurance in molding material preparation. With the different features and options available in the latest generation of this system, we can offer you exactly the right solution to help move your production processes forward.

Take full advantage of all the options available with the inline tester QualiMaster AT1:

- Modular layout, with the option to upgrade at any time
- Web interface with integrated ProView process data visualization for viewing on portable terminal devices
- New measurement options (springback, temperature, gas permeability, deformability)
- Platform-independent communication via OPC UA
- Rugged design for demanding conditions
- Reduced measurement time for stable process control

Equipment	Eco	Profi	ProfiPlus
Compactibility	•	•	•
Temperature			•
Springback			•
Gas permeability			•
Shear strength		•	•
Deformability		•	•
Sample crusher	optional	•	•
PLC with web interface	•	•	•
QualiMaster ProView	•	•	•
OPC UA	•	•	•



QualiMaster AC1 moisture correction

In a molding material preparation system, moisture and temperature measurement form the basis for reliable quality assurance.

Our QualiMaster AC1 moisture correction system comprises:

- Moisture/temperature sensor in the mixer
- Dosing unit (flowmeter or water scale)
- Moisture correction software solution with integrated processor for parameter entry and process monitoring

Measuring moisture and temperature directly in the mixer

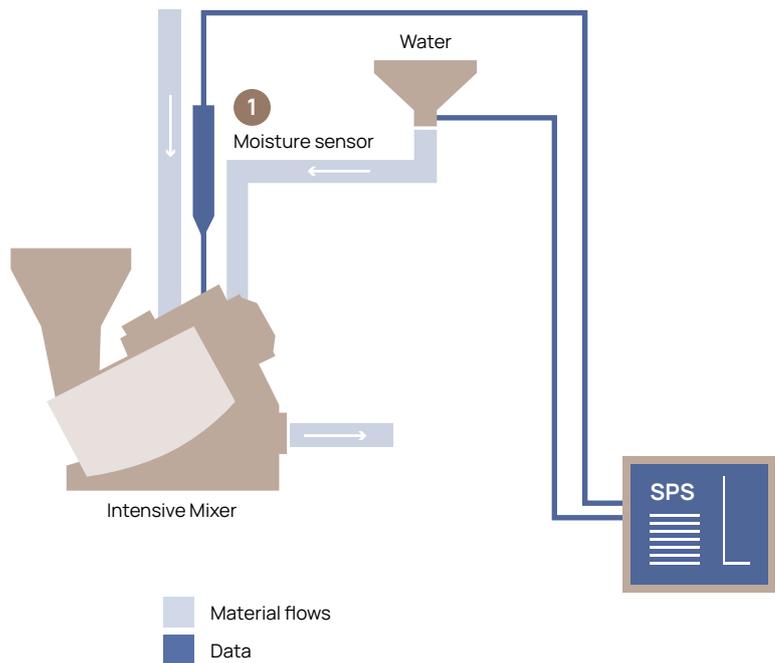
Eirich measures the moisture content of the homogenized molding material mixture directly in the mixer. The value is then used to calculate the water demand. In addition, the temperature of the material is also measured in the mixer so that the expected evaporation can be incorporated as a correction factor.

Moisture sensor in an EvacTherm® mixer





Level 1

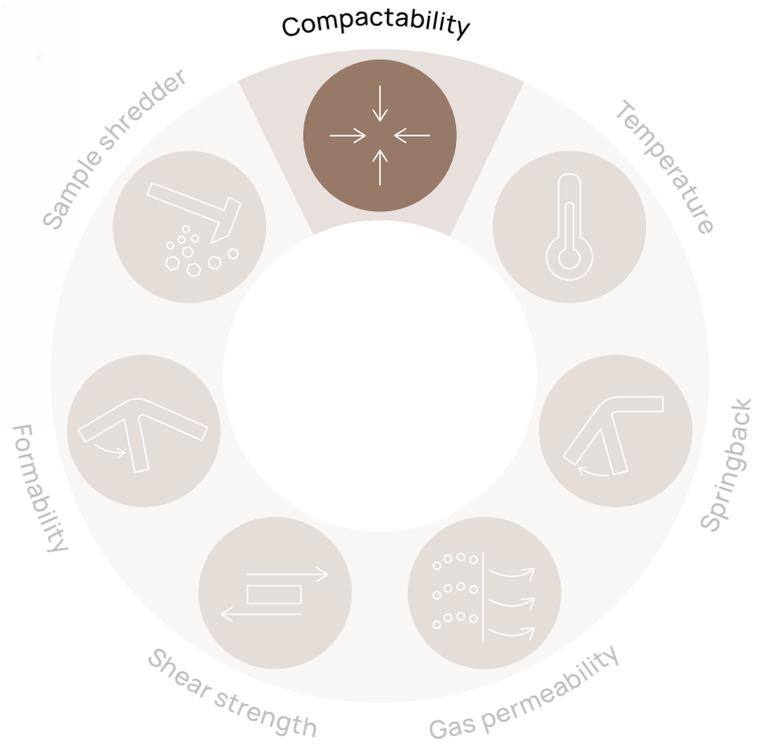


No system in place yet for measuring moisture or temperature?

- Simply retrofit an Eirich moisture/temperature sensor to your Eirich intensive mixer.
- We are also happy to equip mixers from other manufacturers with a moisture and temperature measurement system. The data is analyzed using Eirich software.
- Our QualiMaster moisture correction system AC1 is not only perfect for new systems, but also excellent for retrofitting in existing systems.

Please get in touch.

We have the perfect solution for you as well.



QualiMaster AT1 Eco

– Measurement of compactability

The Eirich quality system QualiMaster AT1 Eco is equipped with a measuring system for compactability. Up to three samples are taken from each batch.

Since samples are taken from every batch, you can respond quickly and take action either manually or automatically directly for the next batch.

QualiMaster AT1 can also be used as a standalone unit.





AT1 Eco is also available as a standalone unit

The measurement data is saved as a CSV file and can be made available for download throughout the entire company network.

The modular layout of the QualiMaster AT1 quality system will open up new opportunities to take your molding material preparation system step-by-step to the next level. The measured process parameters are made available via suitable interfaces in the machine/line control system. They can be used to automatically correct the compactibility of the material.

In order to meet rising quality demands, you can simply retrofit upgrades to your QualiMaster AT1 Eco and add additional test devices for temperature, springback, gas permeability, shear strength, and deformability.

The inline test device QualiMaster AT1 removes samples immediately downstream of the mixer from above the conveyor. As an option, a sample crusher can be incorporated in the basic version AT1 Eco.

Measuring compactibility. Our entry-level solution.

Our QualiMaster AT1 Eco system comes with a **web interface** and the innovative **process data visualization system ProView**.

Even if the moisture levels in your preparation system are not being recorded, our entry-level model will measure and log up to three values for the compactibility of the molding material for each batch.

This enables you to quickly identify trends in terms of the development of the compactibility of the material. Moisture levels are controlled manually.

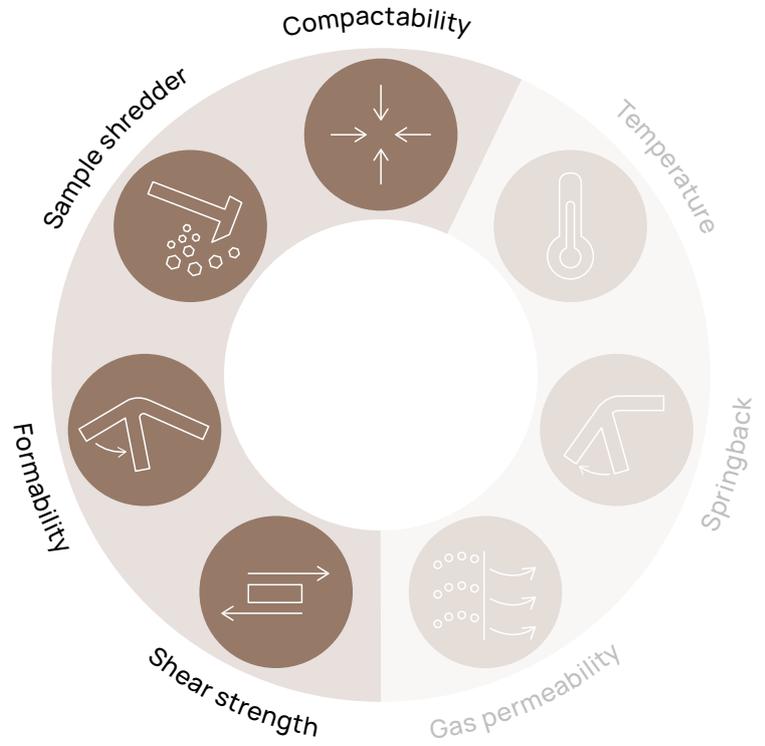
Would you like to hire the QualiMaster AT1 as a standalone unit?

No problem – **we can make it happen.**

Level

QualiMaster AT1 Profi

- Measurement of compactibility and shear strength

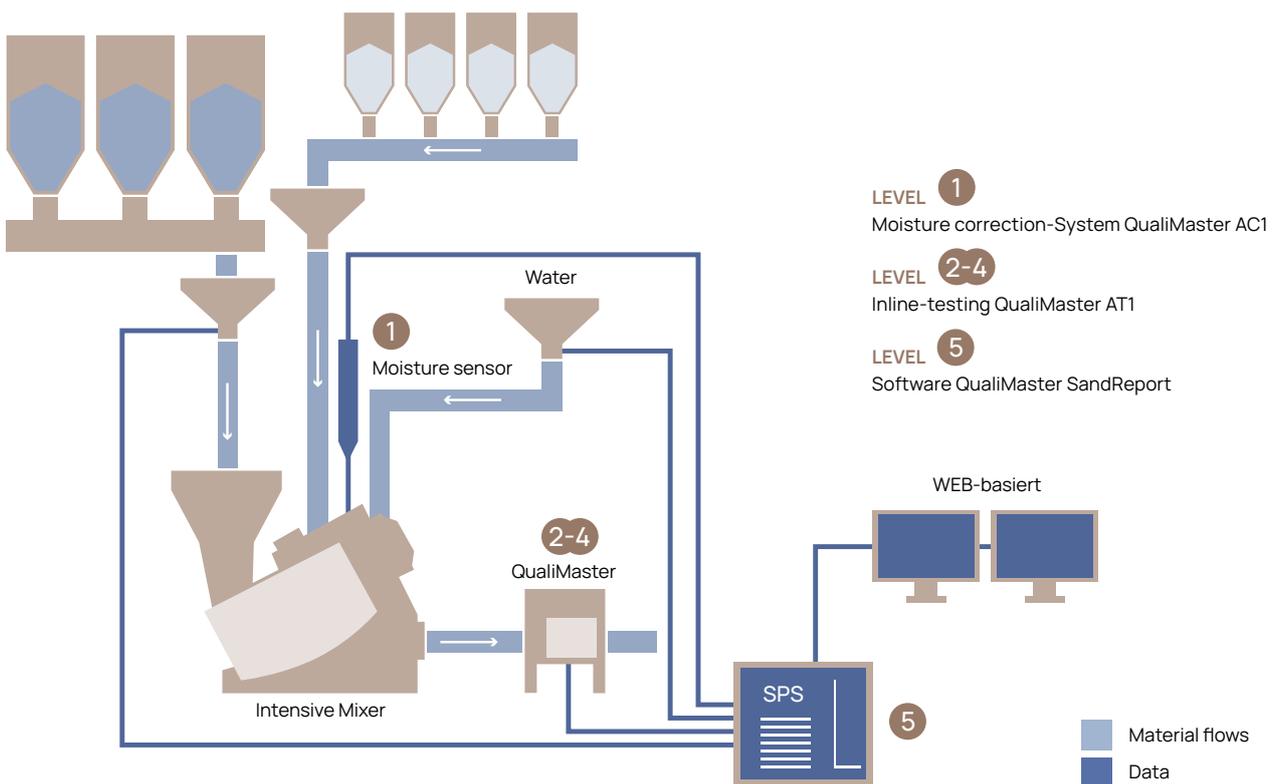


QualiMaster AT1 Profi offers measurement options for **compactibility** and **shear strength**, which are the central performance characteristics for comprehensive quality assurance in molding material preparation.

The measured percentage values are made available via suitable interfaces in the machine/line control system.

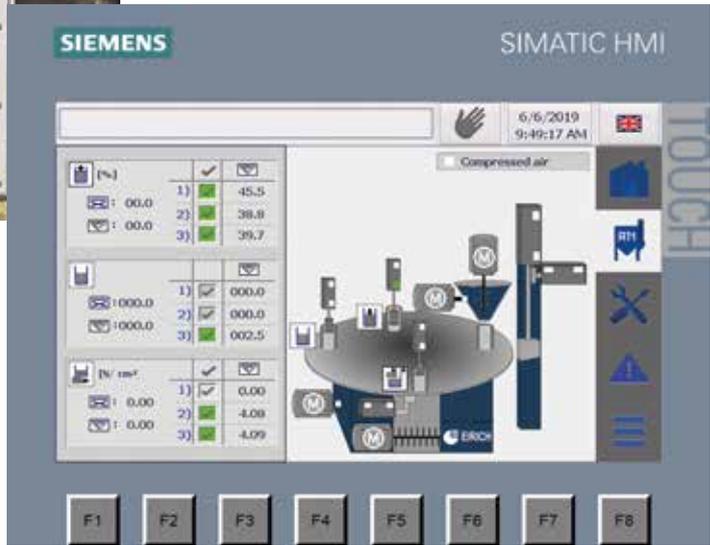
The values are then used for automatic correction of the water content and therefore the compactibility and bentonite content of the material. The latter has a direct impact on the strength of the mold.

Thanks to the advantageous control technology offered by Eirich, all of the processes in the molding material cycle are perfectly coordinated with each other.





QualiMaster AT1 Profi is the standard solution from Eirich for new systems



HMI panel with touchscreen on the AT1

Level

3

Want to keep your options open?

Our solution for new systems and refurbishments: QualiMaster AT1 Profi

Whether you are interested in a new Eirich molding material preparation line with the QualiMaster quality assurance system or you wish to replace your existing inline test unit, we recommend choosing the options that will allow you to measure not only compactibility, but also at least the shear strength.

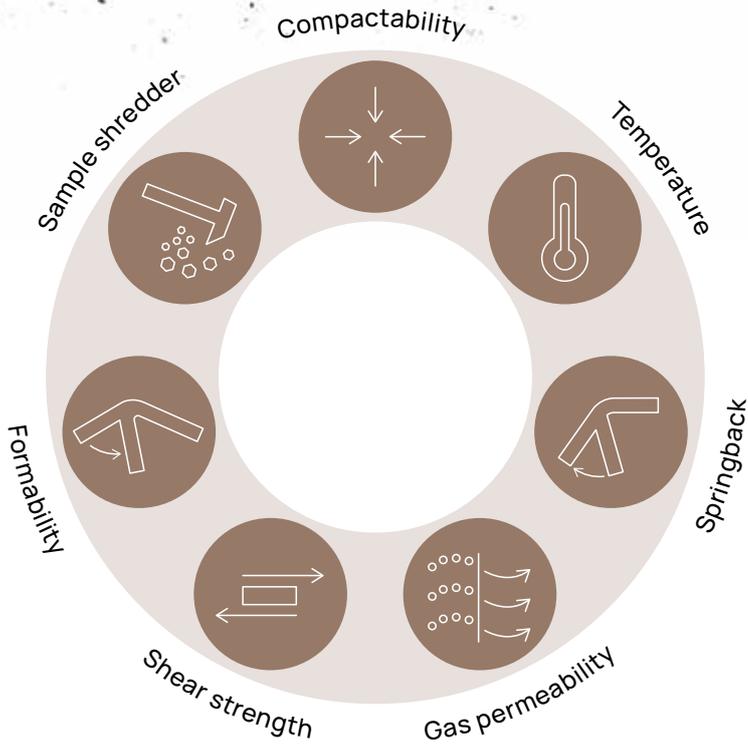
Thanks to the web interface provided, you can keep a close eye on your process parameters at all times and from any mobile terminal device.

Would you like to add additional measurement options?

Take the next step with Eirich.

Level

4



- Reduced waste/rejects
- Reproducible quality
- Stable processes
- Dimensionally accurate castings
- Reduced reworking
- Consistent production

QualiMaster AT1 ProfiPlus

In the full version as **QualiMaster AT1 ProfiPlus**, the quality system also offers additional options on top of measurement and control of compactability and shear strength. Increased reliability in terms of the correction factor for evaporation is achieved with the aid of a second temperature measurement in the inline tester. In addition, the springback effect is measured in tenths of a percent (‰). The measured value provides information about springback during the molding process. As a control value, **AT1 ProfiPlus** also measures gas permeability.



A look at a QualiMaster AT1 ProfiPlus system

It goes without saying that you can also operate our QualiMaster AT1 ProfiPlus quality system as a standalone unit.

But it takes all the Eirich control modules working together to achieve perfect management and control of molding material quality and to document the process accordingly. The outcome: maximized system productivity combined with tangible improvements in terms of casting quality.



Visualization of measurement results from QualiMaster AT1 ProfiPlus in the web app

Keep a clear overview at all times – with us, everything is possible.

If you value the highest quality standards then our QualiMaster AT1 ProfiPlus system is the right choice for you – a high-end solution that will leave you perfectly equipped to face any new challenges. Perfect your processes. Get ready for autonomous molding material preparation.

Please get in touch.

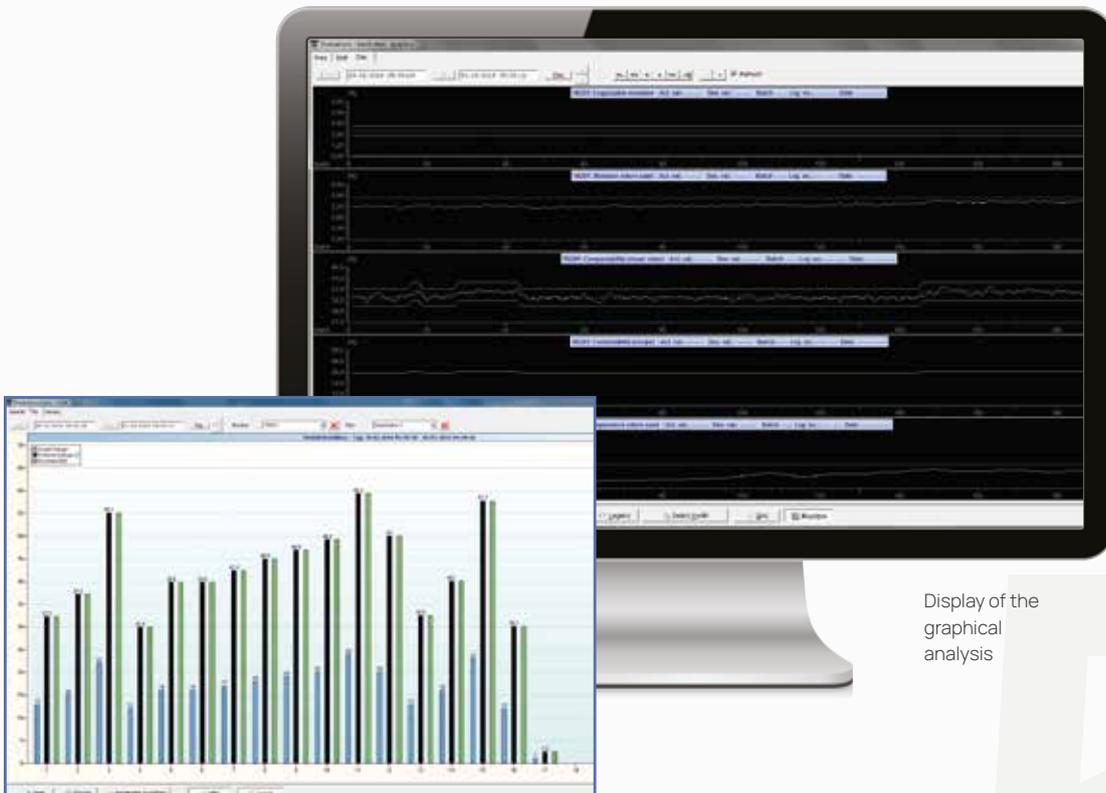


QualiMaster SandReport

The SandReport software tool provides you with production analysis tools for the entire molding material preparation system.

The process data visualization system ProView provides you with insight into current or previous measured values. The SandReport software tool collects all the relevant batch data – such as dosing data and molding material parameters – from the molding material system, the moisture correction system AC1, and the inline tester AT1.

The recording of measurement data, entry of laboratory data, and the graphical and statistical analysis options enable comprehensive analysis of the entire production process and ensure optimum traceability. With all of these features, SandReport provides vital support for quality assurance.



Display of a production breakdown

Display of the graphical analysis

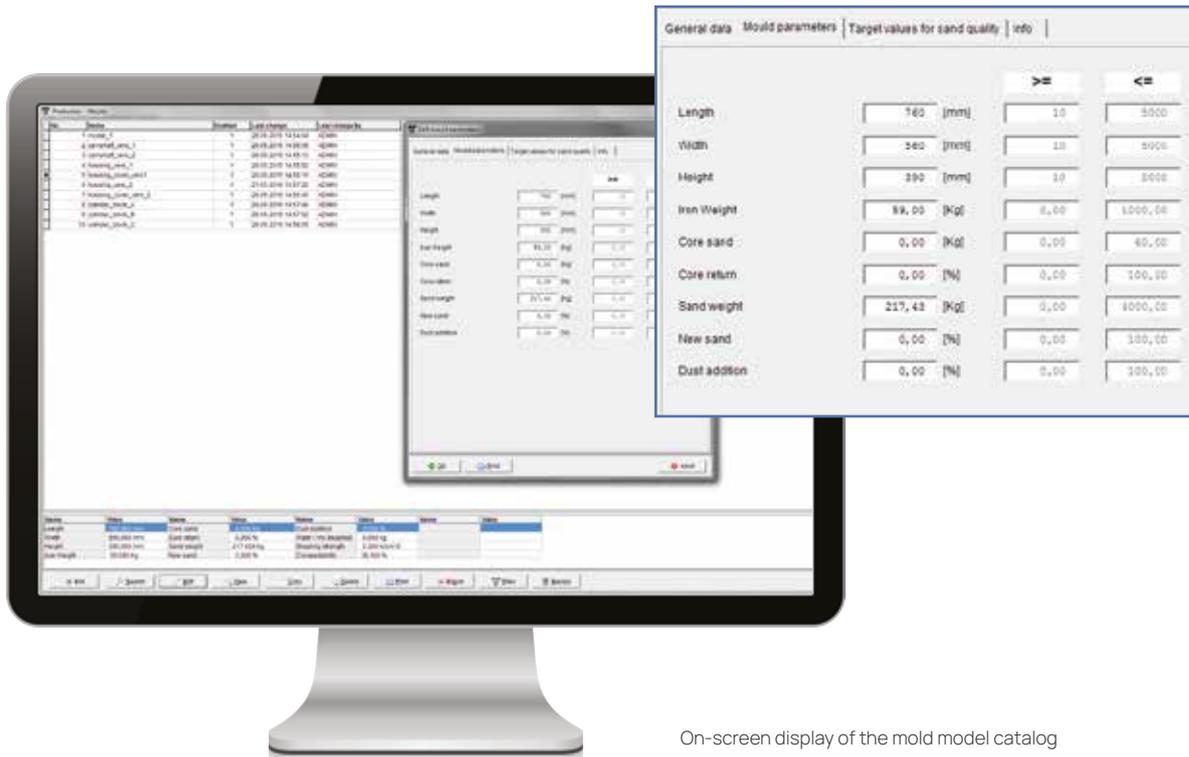


QualiMaster SandExpert



Stable processes and reduced consumption of energy and resources

The SandExpert software is your tool for preventive molding material control.



On-screen display of the mold model catalog

Target: homogeneous return material

Compactibility and shear strength are saved as target values for every model group.

The expected quality of the return material is used as the basis for calculating the recipe for the next batch. The molding material is thus actively controlled to compensate for losses encountered in the production cycle.

Comprehensive networking of processes

DSO that your molding material is always available in exactly the right quality to ensure optimum casting results, the inline tester QualiMaster AT1 Profi or ProfiPlus returns measured values via a suitable interface to your machine/line controller. The data

can thus be used for automated optimization of subsequent batches.

Ideal for frequent mold model changes

Running molding material preparation as an autonomous process pays off. Mold model changes can be implemented quickly and easily thanks to the online connection of the molding line. The composition of the molding material is automatically calculated in advance with the aid of the SandExpert software. As a result, your molding line always has exactly the right molding material available – perfect for the next mold model. This saves resources and guarantees stable processes.



The Eirich Group, with Maschinenfabrik Gustav Eirich as its strategic center in Hardheim/Germany, is a supplier of machinery, systems, and services for industrial mixing, granulating/pelletizing, drying, and fine grinding. Our core expertise is in the field of processes and techniques used in the preparation of pourable materials, slurries, and sludges. We are a family-run company that operates from 16 sites around the world.

For more information please visit:

www.eirich.com