



# Digital production of tomorrow

**MES solution cronetwork**  
**360° manufacturing platform croneworld**

scheduling board :: plant data  
machine data :: process data  
business intelligence :: time & attendance

# Your partner for digitalization What makes the difference?

Industrial enterprises need strong partners to make their production as efficient as possible in the sense of Industry 4.0, the smart factory. For more than 30 years as a producer of standard software, Industrie Informatik has been involved in the optimization and digitalization of production processes in discrete production. To further establish our status as a technology leader, we continuously invest in the further development of our Manufacturing Execution System (MES) cronetwork, in our Manufacturing Execution Platform croneworld and in training our staff.

#### Why digital production

The use of a digital production system proves to be an important strategic success factor for our customers. Via scalable use of the software modules, they can monitor, analyze and control all relevant production processes. The complete production becomes transparent, understandable and traceable. Thereby responsible staff achieves a new level of decision making and cause/effect principles become directly visible.

This improves the utilization of resources while reducing risks and costs and has helped many of our customers to achieve Best in Class awards in their branch.

*„With cronetwork we profit from an integrated system that enables utilization of shared master data and highly stable continuous operation. Our users praise the quick and competent service of Industrie Informatik.“ Klaus Locher, department head, Dentaurum GmbH & Co. KG*

Satisfied customers are our greatest success factor. We have realized more than 500 successful installations with renowned enterprises in all branches. We vest particular value in long-range partnerships across the years. At our offices in Germany, Austria and China, about 130 committed staff members work in close, direct contact with our customers. Naturally this includes on-site service worldwide.

We have often proven that we keep our promises. Let our well designed solutions provide the basis for the successful future of your enterprise and accompany us on the evolutionary road to Industry 4.0.



## A promise is a promise.



You can profit from the highest expectation that we set for ourselves. Your one-time investment decision ensures that you will remain up-to-date in functionality, usability and technology.

- :: We concentrate on core competencies and customer benefits.
- :: We deliver software solutions with assured consistent high quality.
- :: We have 30 years of experience with implementation know-how in international projects.
- :: Worldwide customer service is provided by our competent staff with years of experience.
- :: Continuous functional and technological further development of our release-ready standard solution
- :: Your investment security is assured due to our solid financial base (Creditreform credit index ratings of 165, "very good") and healthy organic growth.

# Solutions

Benefits of MES

cronetwork product portfolio

A Manufacturing Execution System (MES) establishes a uniform system from which your entire enterprise profits – from management, controlling and quality management, to production planning, and down to the individual production worker. MES supports you in efficient planning of all production orders.

An MES provides a clear picture of your scheduled production: What orders need to be completed in the near future? What capacities are available (machines, personnel, material)? Which delivery dates can be met?

In the same way, an MES visualizes your current production processes, e.g.: machine status, order status and progress, and current order-related personnel and machine allocation. Furthermore, an MES enables systematic evaluation and analysis of the collected data, so that you have a focused foundation for your process control.

*“Creating new, customised services and solutions using no-code technology has opened many doors for us. We are now building cockpits that replicate and digitalise day-to-day operations on the shop floor and beyond.”*

*Wolfgang Kranz, Expert MES and Analytics,*

*BHS Corrugated Maschinen- und Anlagenbau GmbH*

collected data, so that you have a focused foundation for your process control.

cronetwork –  
Industrie Informatik's MES – has a modular structure. The functional

modules can be used independently and deliver particular added value in combination. All modules access a joint database. Thus with every functional module, you use up-to-date values, and interfaces between modules are unnecessary.

As a cronetwork user, you also benefit from cutting-edge communication technologies, enabling customized integration of our products into your system landscape. Two-sided information and process integration provides you with a central view of production-related data across systems and, what is more, flexible, user-oriented information supply, individualization and process configuration.

We provide our customers with 100 % releasable standard software. The latest developments from our product management are available to you along with customer-specific customization that is integrated in each annual release. This ensures your automatic technological progress and real investment security.



## scheduling board

advanced planning & scheduling (APS)  
order network formation :: optimizer

## PDC

plant data collection :: traceability  
in-process quality control :: transport

## MDC

machine data collection  
process data collection

## T&A

time and attendance  
personnel scheduling

## BI

reports :: PIDO & portal  
KPI :: predictive analytics

## croneworld

360° manufacturing platform  
realtime integration

## Some of your benefits



One important criterion for distinguishing the market is that, due to 100 % releasability, Industrie Informatik ensures that every customer with a maintenance agreement enjoys continuous and easy-to-use technological and functional progress.

- :: MES visualization gives you a clear picture of your planning and current production processes.
- :: High acceptance is assured in your company, as every user group profits from MES.
- :: Seamlessly integrated processes based on the latest communication technologies.
- :: Collected data enable precise evaluation, analysis and corresponding reaction.
- :: Modular software structure means that function blocks can be used independently or combined to meet your needs (even with existing systems).
- :: All functions access a shared database, eliminating redundant data maintenance.
- :: Your data base is always up-to-date and ensures high availability.
- :: With the large cronetwork user group, you profit directly from developments in other firms and branches.

# scheduling

advanced planning & scheduling (APS) :: optimizer  
order network formation

The market environment for manufacturing enterprises and the requirements put on production planners change dynamically and rise in complexity. The demand situation varies rapidly, the market for suppliers and personnel changes in short cycles, rush orders require immediate action, etc. Successful enterprises must master these challenges to secure their market positions. A professional scheduling board helps you do so efficiently.

cronetwork scheduling board is a flexible tool that lets you import production orders from your ERP system and schedule them on your available capacities. In its functionality, scheduling board extends far beyond ERP, incorporating capacity limits for personnel, machines and tools as well as information such

as setup times, qualifications and multiple machine operation. This includes optimization specifications such as setting the priority on utilization or

*„Scheduling Board APS reliably plans and controls our daily business, taking into account the availability of capacity and material.“*

*Robert Lankhart, Proxy Controlling, Finance and Personnel, KRONEN GmbH*

throughput time. The computed scheduling scenario is displayed visually so that interconnections and effects on other orders are immediately visible. You achieve high transparency regarding the feasibility of orders and meeting of delivery dates, which means realistic guidelines for production. You can take targeted action, and simulations help you decide among alternative scenarios.

You improve your conformity to deadlines, reduce throughput times, decrease idle times, and minimize stock levels. Even in critical phases, your production runs with optimized costs.

Moreover, the Optimizer offers you next generation scheduling algorithms, enabling you to detect and capture even more optimization potential within your production.

Scheduling board APS additionally incorporates the availability of parts produced in-house and outsourced orders into scheduling. Innovative order network formation within MES provides you with the most up-to-date view of the feasibility of scheduling at all times, even during dynamic scheduling.

*Visualization of interdependencies and simulations reduces the complexity of production*



## Some of your benefits



In cronetwork scheduling board, you determine your mix of manual scheduling, automatisms and next generation optimization algorithms (KI), thus maintaining full flexibility.

- :: It is easier to react to dynamic markets and changing requirements.
- :: Capacity limits and optimization specifications are incorporated in scheduling.
- :: Scheduled production orders are depicted graphically and enable a quick overview.
- :: Production staff receives realistic guidelines.
- :: Conformity to deadlines is improved, throughput times are reduced and stock levels are minimized.
- :: Simulations enable targeted decisions among various scenarios.
- :: Integration creates added value:
  - ... with plant data collection: real-time feedback automatically updates scheduling,
  - ... with personnel allocation: availability and qualification are incorporated in scheduling.

# PDC

plant data :: in-process quality control :: traceability :: transport

Where do you begin in order to make your production processes more efficient and use resources optimally? The most important prerequisite is transparency of production processes. Here everything depends on the data: Only if your data are collected in near real-time, correctly, completely and uniformly can they provide the best information for index systems, enable quick and correct decisions, minimize idle time and improve efficiency.

*„Thanks to information on order progress, follow-up orders, hourly output, and target and actual quantities, our employees can better prepare for set-up work and material procurement, which results in shorter set-up times, among other things.“* DI (FH) Harald Ganster, Department Consultant, Shop Floor IT, STIHL Tiroil GmbH

The module cronetwork plant data collection (PDC) gives you real-time data and enables you to see the current status of your production at a glance. In addition, you can record

quality-related information using in-process quality control. Apart from the traceability of materials, products and parts, the traceability and transport solutions also target the ongoing optimization of production processes and intralogistics. At terminals in production or via mobile end devices, you enter data relative to orders, independently of hardware. Many aspects can be configured to your individual requirements, from the front-end interface to parameterizable feedback sequences to different language versions. The MES transfers the collected data to your ERP. This enables post-calculation of completed orders. Further, realistic default times can be derived from the actual values from PDC and used for planning future orders.

A professional PDC solution lets you track and trace production orders in detail, and information transfer times on alarms or disruptions are drastically reduced, enabling near real-time reaction. You also achieve a solid basis for targeted evaluations and analyses. Production staff can invoke a neutral evaluation of their performance and so can better optimize their own processes.

*For order progress, machine status and disruptions, cronetwork plant data collection displays production in real time.*



## Some of your benefits



The simpler and more ergonomic the operation of software is, the greater is its acceptance and benefit: cronetwork plant data collection sets new benchmarks for usability and customer-specific configuration.

- :: Transparent, real-time view is provided of the current situation in your production.
- :: Reduced reporting effort and paperless production are enabled.
- :: Reliable base data are available for reporting, calculation in ERP, scheduling, etc.
- :: User-friendly operation and individual parameterization ensure high acceptance.
- :: Information time after an alarm or disruption is reduced to a minimum to enable quick reaction.
- :: Employees get direct feedback about performance and can optimize their work.
- :: Data collection is order-related, uniform, hardware-independent and (if required) mobile.
- :: Digital map of your products and the associated processes.
- :: The platform enables integration with other systems (QM, CNC, CAD).

# MDC

## machine data collection process data collection

cronetwork machine data collection (MDC) ensures precise and unambiguous real-time data collection for machine states such as production, idle and disruption. Machine status is automatically detected and a feedback is generated. Piece counts, scrap quantities and disruption reasons are also automatically recorded. This enables a reduction of personnel time and costs.

Erroneous, missing or late feedbacks are largely prevented and there is no influence on collected data; instead, you receive data of utmost quality as the basis for further evaluation and analysis. Early idle information and transparency of disruption reasons let you reduce down times and increase efficiency in production.

Regardless of whether automatic signals come from a machine or from sensors on a conveyor belt, whether you use a fieldbus module or communicate with SCADA levels at the machine via OPC

UA, webservice or SQL interfaces, our modern, standardized connection technology lets you connect any production machine, regardless of manufacturer and year

of manufacture. System-specific isolated solutions are a thing of the past with a uniform MES layer between ERP and your machinery.

If required, cronetwork machine data collection can be extended to collect process data. Data such as temperature, pressure and density can be collected relative to orders, processed, and aggregated for long-range archiving. This gives you evaluation and traceability across system boundaries.

Moreover, functions in the areas of energy management, time series, setting data and DNC provide further, customized usage options.

*„Now the system or machine directly displays machine status and, due to hall monitoring, we have an overview of the complete department.“*

*Dipl.-Ing. (FH) Markus Misof, MES project leader, Neumayer Tekfor GmbH*



*The collection of process data makes production processes transparent and supports you in detecting optimization potential.*



## Some of your benefits



Automatic feedback from cronetwork MDC reduces the number of required manual entries to a fraction, which saves personnel costs and largely prevents errors.

- :: Machine states are recorded in real time.
- :: Automatic, unambiguous data collection avoids missing, erroneous or late feedbacks.
- :: Utmost data quality is available for subsequent evaluations and analyses.
- :: Productive time for personnel and machines is increased, improving efficiency in production.
- :: Modern standardized connection technology ensures connection of any production machine, regardless of manufacturer or year of manufacture.
- :: A uniform MES layer between machinery and ERP replaces system-specific isolated solutions.
- :: Integration with cronetwork process data collection enables more precise analyses and traceability of production orders.

# T&A

## time and attendance personnel scheduling

cronetwork time & attendance encompasses much more than the name reveals. This user-friendly tool enables you to generate payroll-ready data directly from the system, enabling automation of a large share of payroll work. cronetwork collects data once and directly. This reduces time and effort for data entry and maintenance and enables you to quickly react to production events.

The decentralized tool immediately provides up-to-date information for every user (depending on authorization). An employee can use cronetwork time & attendance to see an overview of his work times, balances, leave situation, etc. In addition to collecting attendance and absence times, the system also evaluates these times. Absence times, overtime, computation of prime key figures, etc. are evaluated so that they can be automatically transferred to payroll via interfaces. In addition, it is easy to manage employees as well as individual time and shift

models with little effort.

cronetwork time & attendance contains a scheduling function at

the shift level, i.e., which employee works when and with which daily schedule. The additional function personnel assignment lets you schedule in detail at the work center level, where employee qualifications are considered.

The following additional functionality is available:

- :: **employee portal (employee self service):** paper-less personnel time management platform, including digital request and change management
- :: **mobile app:** T&A functions with online and offline capability in an intuitively operable app
- :: **project time:** assignment of work time to customers/ projects, travel expenses, evaluations and target/ performance comparison
- :: **access:** management of authorizations and access models

*„Industrie Informatik is by far the best software vendor for our company.“*

*Ing. Erich Baumgartner, Production Planning and Logistics, Umdasch AG*



*Personnel scheduling is simplified. You always have a current overview of your personnel and can react flexibly.*



## Some of your benefits



All data in one system means less effort and high transparency.

Existing data collection terminals and card or chip systems can be integrated.

- :: Payroll-ready data are generated directly from the system.
- :: Time and effort for data entry and maintenance are reduced.
- :: This helps you to quickly react to production events such as large orders or rush orders.
- :: Collected data are available immediately for any employee with authorization.
- :: Acceptance by employees is assured due to direct benefits for users (balance information, leave situation, etc.).
- :: Integrated personnel scheduling at the shift level is user-friendly and graphical.
- :: Integration creates added value: Information about personnel resources is available in the scheduling board module; combination with the modules PDC and MDC enables a joint view of attendance and work times.

# BI

## reports :: PIDO & portal KPI :: predictive analytics

Crucial success factors on the path to a smart factory comprise focused data analyses and reliable real-time key figures as valid decision criteria for continuous improvement processes. Cronetwork offers you flexible options for performing systematic and user-specific analyses and evaluations, for example, to identify and visualize cause-effect relationships and to derive appropriate measures.

Cronetwork and all systems integrated via interfaces continuously generate data which are stored in a central database. Cronetwork

BI-Tools master the balancing act between huge data volumes and customized processing, resulting in a crucial information head start, from management to worker. However,

we will also happily support you in the integration of your MES data into your existing BI landscape or big data solution.

*„Our cooperation with Industrie Informatik is impressive. It is partnership on an equal basis. We have high transparency in our production and can act instead of reacting.“* Dipl.-Ing. (FH)

*Andreas Bauer, Head of production, Machinery Division, Haver & Boecker OHG*

The integrated BI-Tool PIDO (Production Info Data Objects) provides a view of the time horizon relevant for the shop floor, thus offering a source of context-oriented information processing. Furthermore, Cronetwork portal presents an innovative user interface: Similar to a building block system, customized portals can be compiled from a number of networked modules, e.g. lists, tachographs, drawings, images, hall monitors, diagrams and target-actual behaviors in flexible portal views – very simply via drag-and-drop.

The easy to use tool for monitoring KPIs (e.g. availability, performance, quality, energy, productivity) allows you to react promptly to any deviations. In addition, Predictive Analytics enables the utilization of the immense treasure trove of production data generated by sensors and uncovers hidden savings potential.

*Simplify internal reporting!  
Current data are presented graphically and clearly in dynamic and contextual analysis as well as in classic reports.*



## Some of your benefits



You can click through your production in real time. From a broad range of modules, you can configure your own production cockpit. With web-compatibility, you can always keep an eye on production even from remote locations.

- :: All evaluation and analysis tools access the same up-to-date data.
- :: Graphical display of data facilitates an overview and supports decision-making.
- :: Each Cronetwork module includes standard reports.
- :: Access and evaluations can be configured per user.
- :: Each target group, from management to the shop floor, receives customized information.
- :: Tools can be configured without programming effort by Industrie Informatik.
- :: Integration of MES functions in Reports
- :: Consistent KPIs based on definition standards such as VDI and VDMA

# Technology

connectors :: cloud capacity  
release-ready

Just as the functionality of an MES, the underlying technology is an important quality criterion. A well designed MES solution must be flexibly connectable to an existing system landscape and dynamically adaptable to future changes.

cronetwork has standardized, parameterizable connectors which enable linking to any ERP system. This keeps you independent in your choice of an ERP and you remain free over time. Furthermore, you can connect applications from the areas of quality assurance, CAD, DNC, etc. and open documents such as parts drawings or inspection instructions in PDF directly in cronetwork.

*„The flexibility of cronetwork and Industrie Informatik in regard to our requirements and the adaptive possibilities during implementation were decisive factors for the successful introduction and realization of the solution.“* **Thomas Nolz**, IT coordinator / MES project leader, voestalpine Automotive Components Linz GmbH

You can do much parameterization in cronetwork yourself. Directly from the user interface you navigate through a guided, self-explanatory workflow. Likewise, documentation and help are at your fingertips

in cronetwork: at any time you can invoke the latest documentation at the click of the mouse.

cronetwork sysadmin is by your side, in all phases of software application of the entire cronetwork environment, from installation, configuration, ongoing monitoring and data backup to regular updates at the touch of a button.

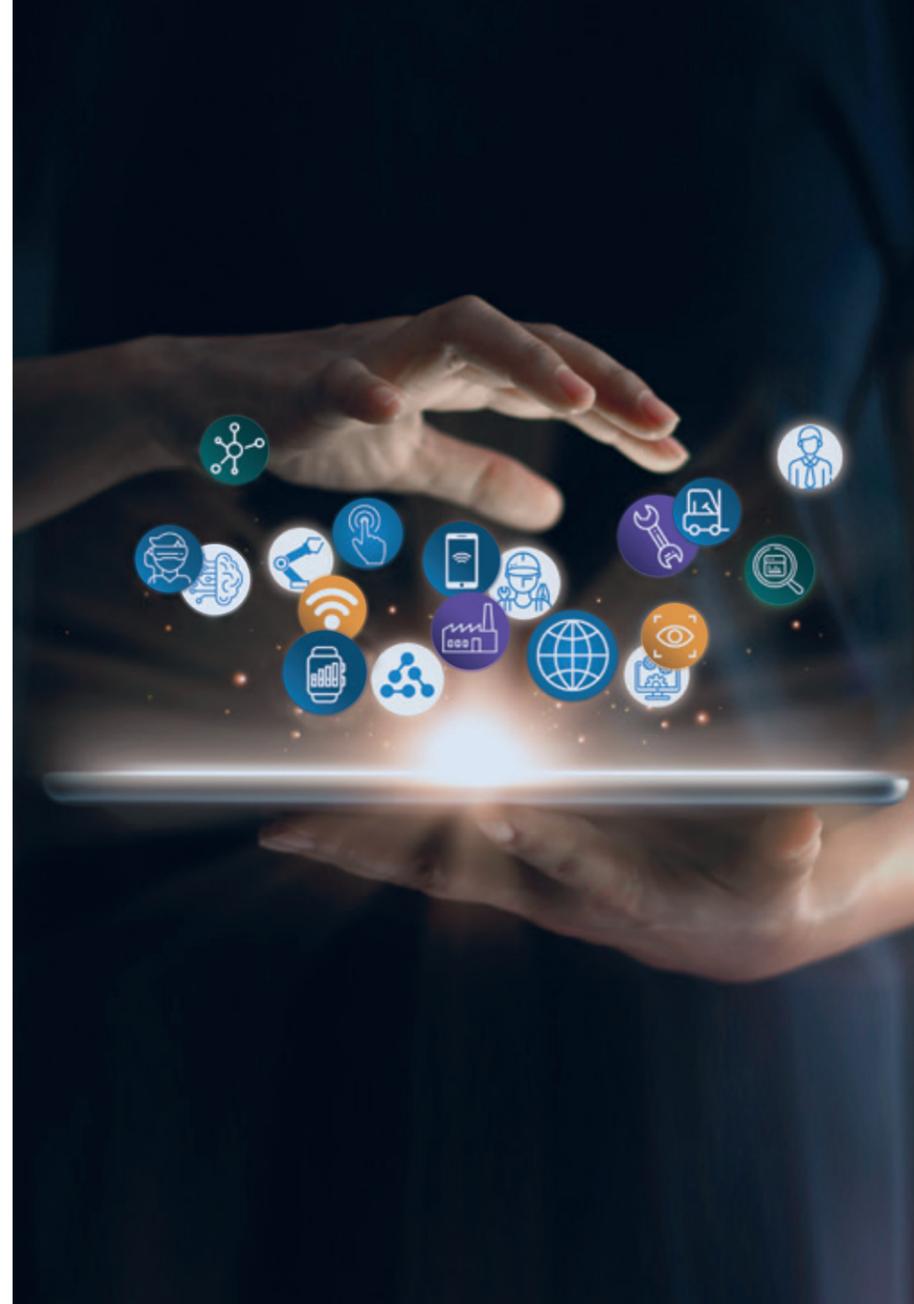
Our high-performance technology enables flexible system architectures (from on-premise solutions to complex Cloud/Edge concepts), tailored to the requirements and strategic orientation of the customer.

**SAP® Certified**  
Powered by SAP NetWeaver®

**ORACLE®**

**SAP Certified**  
Integration with RISE with SAP S/4HANA Cloud

*Our powerful partnerships and certifications ensure perfect functionality and continuous further development.*



## Connecting Industry

As a production enterprise, you face the challenge of merging employees, shop floor and new technological possibilities and transforming these to a functioning digital image of your production. In collaboration with you, we implement your digital ecosystem that is tuned to your individual requirements.

Today's decisions impact on your future success. Our modern economy is shaped by digitalization and its accompanying global networking. Highly dynamic markets and continuously changing demands on industry confront production enterprises with new challenges. Here the new possibilities & technologies of IIoT must be applied profitably and the right steps must be taken toward future-safe production.

This Manufacturing Execution Platform provides you with real time integration and orchestration of all (production-) relevant software systems, technologies, applications, etc. to a 360° manufacturing platform.

*„Only the right approach and competent implementation partners can we achieve the merging of industrial and digital worlds and so ensure and enhance a long-range competitive edge.“*

**Dipl.-Ing. Bernhard Falkner**, Chief Technology Officer  
Industrie Informatik GmbH

The basis is an open interface and communication level that enables problem-free connection of peripheral and external systems. In addition, croneworld gives you the necessary flexibility that you need to align your production flexibly and quickly with the dynamic digital world and secure your competitive edge.

Important modules of croneworld:

- :: **Gateway:** cronetwork Gateway provides MES data and business logic through standard technologies.
- :: **Realtime integration:** Real time integration of external data and functions with high-performance manufacturing service bus
- :: **No-code / low-code:** In the future, you can quickly and independently meet new demands upon your system landscape via low-code platform without high-effort hard programming.
- :: **Solution store:** We are implementing a solution store for your Manufacturing Execution Platform, like the one you know for smartphones. You will be able to download applications, microservices and complete workflows from our Solution Store.



cronetwork user interfaces are user friendly and can be individually configured. You determine how data collection occurs: via keyboard, mouse, barcode scanner, chip or touchscreen; on a PC, terminal or mobile end device.



croneworld joins all your systems to a 360 degree manufacturing platform and guarantees you maximum interoperability, integration safety, extensive customizing options, and reduced Time2Solution.

# References

An excerpt

We pursue one primary objective: We seek to convey to all interest groups in your enterprise and to each individual employee the benefits of introducing an MES and to create direct added value – from production workers to decision-makers in IT and production, from controllers to the workers' council. This

ensures the success of joint projects with our customers.

With increased market dynamics, our customers' requirements change, so that internal change processes are a matter of course. Flexible systems,

such as cronetwork and croneworld, are prepared for changing framework conditions and provide immediate market benefits.

Our system is in use in discrete production in enterprises of various branches, from SMEs to multinational concerns. It meets specific requirements without additional programming. Because all our customers use exactly the same software and cronetwork serves such a large user group, each user profits from a broad exchange of experience, from branch-internal and -external knowledge and innovation. Further development is conducted over the complete product portfolio at a fast rate with consistent high quality. With the help of cronetwork many of our customers have been able to assert, maintain or extend their market leadership.

Service and competent customer relationship management are our strengths. We do not differentiate large and small customers. We have been maintaining many of our customer partnerships for over 25 years. International implementation, training and on-site customer service are perfectly natural for us.

*„Industrie Informatik has enabled Hawle to introduce an MES solution which provides us with the necessary transparency on the shopfloor to continuously reduce waste in our processes and make prompt, appropriate decisions in the Continuous Improvement Process.“*

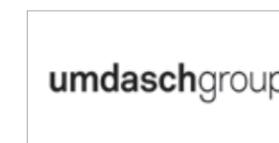
*Siegfried Mrschtik-*

*Gebetsroither, Head of SCM and Logistics,*

*E. Hawle Armaturenwerke GmbH*



*Our long-term staff members are directly accessible for you. We do not maintain an anonymous call center.*



## Some of your benefits



We will be happy to show you our reference projects in detail.

Request our success stories or contact us about a consultation at your site.

- ⌘ cronetwork enhances the competitiveness of manufacturing enterprises on the international market.
- ⌘ The system equips enterprises for changing conditions and simplifies change processes.
- ⌘ All cronetwork customers use the same software and profit from every further development and the broad exchange of experience of a large user group.
- ⌘ cronetwork is in use in various branches and handles specific requirements flexibly.
- ⌘ Industrie Informatik maintains long-range partnerships both with its customers and with its own staff.



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**T&A** :: time and attendance :: personnel scheduling

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**cronetworld** :: 360° manufacturing platform :: realtime integration



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