

# NEWS



July 2014

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# MPDV: experts in MES

## IMPRINT

Publisher: MPDV Mikrolab GmbH  
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Doku-Ident: NEWS International/2014  
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## Future-oriented MES for a perfect production

MES' worldwide reputation is constantly on the rise. MES is no longer only a burning issue in western industrialized countries where production costs are at a high level, but also in countries with moderate cost trends. Production efficiency is an increasingly important subject, especially in Southeast Asia and China.

MPDV opened up important markets at an early stage. The increasing number of systems installed by our subsidiaries and partners worldwide indicates the decision to be right and the importance for the entire MES market. This edition focuses on the role of the HYDRA Users Group and additional features

and modules provided by the efficiency of MES HYDRA.

"HYDRA for Metals" also demonstrates MPDV's expertise in important industrial sectors. Project reports about special installations highlight MPDV's international expansion and role in the worldwide MES market.

Prof. Dr. Jürgen Kletti  
Founder and Director of MPDV



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### Creating the Future

## MES 4.0 Next Steps

The longer Industry 4.0 is debated, the more versatile and fragmented the issue becomes. To counteract this trend, MPDV specifies the requirements for the Manufacturing Execution System (MES) of the future.

What is known in Germany under the heading, "Industry 4.0" is used internationally as "Integrated Industry". Based on Industry 4.0 MPDV already developed in 2013, the future concept of MES 4.0 as MES, experts are certain that the MES-system will play a central role in future.

MPDV shows with the future concept of MES 4.0 the operational fields close to production IT which are unfolding with a view to integrated industry. The familiar issues are going to be explored in detail and activated:

- Flexibility: configuration instead of elaborate programming
- Unified Shop Floor Connectivity: standardized connection to machinery
- Mobility: utilization of mobile applications for smart processing
- Decentralization: flexible handling of intelligent and autonomous systems
- Interoperability: standardized synchronization with other systems

- Online Capability: interaction in real-time and secure bridging of communication failures
- Interactive Data Management: central and interdisciplinary archiving of data
- Horizontal Integration: avoidance of interfaces and non-integrated solutions
- Management Support: decisions based on reliable KPIs



Elements of the future concept of MES 4.0

## Strategy & Vision

MPDV shows results in creating the first fields of action while others are still researching and developing under enormous pressure:

### Flexibility

Especially in times of high market expectation one production barely resembles the other, even though they show similar process markers, suggesting the use of standardized software. But almost all businesses require individual adaption of the system. The determining factor is how flexible an MES solution is in its software design. A service-oriented architecture (SOA) is the advantage in addition to the modular structure of MES. Therefore, functions can be easily added, changed or removed without compromising the integrity of the whole system.

Possible ways of customizing MES are configuration, user fields and extended user settings,

scripting (user exits) together with utilized development tools by the user. Therefore, modern MES solutions provide a multitude of options to gear the system towards the requirements without programming or intervention of the producer.

For example, experienced and trained HYDRA key users are able to directly influence basic processes in the system by means of extended parameter settings. Additionally, HYDRA comes with easily manageable development tools to individually design evaluations, reports and charts. So-called "user exits" make it possible to add individual required functions with user-friendly scripting. Ideally, experienced MES administrators can carry out the adaption themselves or consult an MES expert from MPDV. You may choose the version, but the basic idea of a future-proofed standardized software remains.



*MES 4.0 Next Steps: The first step of MPDV realizes fields of activity like mobility, flexibility, and unified shop floor connectivity and therefore lays the foundations for further developments towards "Integrated Industry".*

### Unified Shop Floor Connectivity

Standardization of machine interfaces is especially important in "Integrated Industry" – after all, the future objective is to connect all machinery, tools and components, and to have them communicate locally. Apart from common and standardized scripting, an information hub just like the MES system is indispensable. As many machines supply more data than required, an additional task of an MES like HYDRA is to filter relevant information, condense it if necessary and file or process data in a suitable format.

The integrated MES solution HYDRA communicates with machinery, sites, measuring equipment, scales and other devices via the Process Communication Controller (PCC), which is a kind of library of standardized interfaces. Depending on requirement and configuration, HYDRA enters the applicable database at the machine and transfers the data in a central production database.

The data for further processing is retrieved from that database for individual software modules and for further review. OPC represents a first step into the direction of standardization of interfaces but is restricted to the transport layer. For this reason, MPDV has developed all-purpose machine connectivity UMCM (Universal Machine Connectivity for MES). This



is a compact interface not only comprised of a transport layer (on the basis of OPC and other standards) but adding the application layer. Standard data transfer information such as the status of machines, quantities, meter readings or process data including clock-in times of the MES system. The goal of this development is a Plug & Play standard to easily connect machinery and sites to the MES system. Currently, UMCM is introduced to the market by the MES Association for Manufacturers of Tooling and Controlling Devices. If this approach does not prove sufficient, PCC disposes of, apart from data and standard interfaces, complex data protocols for specific industry sectors like Euromap 63 for injection molding or the Weihenstephaner Standard for the food industry.

### Mobility

The mobility of staff becomes more and more important as the production processes are more flexible and with the increasing complexity of production sites. If supervisors and operators are not bound to PCs or terminals anymore they gain mobility using the MES system on smartphones and tablet PCs. Additional interfaces must be avoided, which would increase maintenance.



UMCM: Universal machine connectivity by Plug & Work



Mobile access to manufacturing data with Smart MES Applications (SMA)

With smart MES applications (SMA), MPDV upgrades the MES solution HYDRA to collect and evaluate data with the aid of smartphones or tablet PCs. The apps operate in the same way as localized HYDRA clients in the office or on the shop floor. Display and dialogues can be customized to meet the requirements of the user and the capabilities of the end device. Simply stated, displayed data is based on the user's permission and the available resolution. The mobile user can manage routine tasks in production more efficiently as required data is always on hand.

For instance, a claim can be detected with as SMA app during a process run when the faulty item is produced in a previous operational step or due to faulty supplies. Using a tablet PC, the gathering of claims takes place locally at

**Quote by Prof. Jürgen Kletti, Doctor of Engineering and Managing Director of MPDV Microlab GmbH**

"MES systems will play a central role in production in the future – no matter how decentralized the organization is. Our future concept MES 4.0 will be the driving force as well as a light in the fog of innovation called "Integrated Industry."

the machine as well as action taken and the tracing and controlling. SMA guarantees additional flexibility, simplifies QS processes and makes them more transparent and secure.

### Future

Some software and hardware suppliers offer components 100% compliant to "Integrated Industry" but it is still a long way off using these innovations. Simply put, an integrated concept is missing. It is also not advisable to hastily invest in "Integrated Industry", which in a few years may turn out to be incompatible. Manufacturers should concentrate on current issues and not lose sight of future trends. MES experts from MDPV recommend extending MES solutions or introducing an integrated Manufacturing Execution System like HYDRA in accordance with VDI Standard 5600. In the future, MES systems will play a central role in production no matter how decentralized its organization is. The future concept of MES 4.0 is used as a driving force or as a light in the fog of innovation called "Integrated Industry".

### MES 4.0 Introduction Hannover Trade Fair 2014



MPDV presented the future concept of MES 4.0 as well as actual applications and products at the Hannover Trade Fair.

- Universal Machine Interface UMCM
- Mobile MES application SMA
- Flexible customizing of the MES solution HYDRA
- Many new HYDRA functions, such as eKanban and intralogistic

MPDV in China

### Rising HYDRA in the Far East

Ongoing globalization results in equal opportunities for China and other emerging markets. Therefore, the demand for useful manufacturing IT tools is growing. In cooperation with MPDV Software and Technology Services (Shanghai) Co., Ltd., a delegation of 20 Chinese CEOs and decision makers visited the Hannover Trade Fair and several HYDRA MES users in Germany.

“Many Chinese manufacturers do not have an ERP running and have no production work plans yet. HYDRA, with its scheduling and work plan design functions, is filling this niche very nicely”, says Dr. Cao Haiyong, Sales Director of MPDV Shanghai.

In April 2014, MPDV arranged a trip for a Chinese delegation to come to Germany to attend an MES focused training, visit HYDRA customers and attend the Hannover Trade Fair. This trip was part of an MES training seminar together with the Chinese sales partner e-Works. On April 18<sup>th</sup>, 2014 more than 300 participants attended an MES seminar, lead by MPDV.

MPDV's strategy in China is strong and dedicated towards growing the Chinese local MES market in a sustainable way as well as supporting multinational customers when deploying HYDRA in China. MPDV now has a HYDRA competence team in close proximity to key customers and partners in Shanghai, which gives them the competitive advantage in this growing market. MPDV will strongly support



this office in order for the customer to benefit in key sectors like automotive, metal processing, electronics, medical devices, pharmaceutical and food industries.

“MPDV is ideally positioned to capitalize on the opportunities presented by the expanding international manufacturing community in China”, said Prof. Jürgen Kletti, Doctor of Engineering and founder and CEO of MPDV. “Our product is proving itself in China every day. Now we have the infrastructure in place to continue to build on our success.”

“The HYDRA Competency Center in Shanghai is a strong demonstration of commitment by MPDV to the success of their customers and partners in the growing market in China,” said Karl Schneebeauer, Head of MPDV Partner Management and board member of MESA International. “The delegation visit to Hannover was an essential milestone in growing our subsidiary.” Hand in hand with HYDRA customers, MPDV is systematically growing its business in China to further establish a global reach.



### Planned Deployment of MES HYDRA in Chinese Think Tank Cooperation with Shanghai University

Tongji is one of the biggest and most renowned universities in Shanghai, targeting a broad range of scientific and technical subjects. During a visit by Prof. Dr. Kletti, Sascha Gräf and Dr. Cao Haiyong at Prof. Dr. (Doctor of Engineering) Zhang Weimin's Institute of Production Engineering, a

cooperation with MPDV was arranged. An ever-increasing number of HYDRA projects in China has sparked interest in implementing HYDRA. Local Chinese manufacturers are increasingly forced to innovate and react to higher quality standards and cost pressures, just like their international or western counterparts. Hence the MES concept is gaining considerable significance with leading chairmen in Product Engineering and Logistics. MPDV is considered a very suitable and dependable partner due to their worldwide success. First of all, the university has planned to use the MES solution in a Think Tank. The university will be supported in a cooperation of lectures, trainings and seminars by local MES expert knowledge of MPDV Software & Technology Services (Shanghai) Co. Ltd. This is an important step for MPDV Singapore and MPDV Shanghai to strengthen the HYDRA brand in Asia.



Signing the cooperation contract (left to right): Dr. Cao Haiyong, Director of Sales, MPDV Shanghai; Prof. Dr. Zhang Weimin, Chair of Manufacturing Technology; Prof. Dr. Jürgen Kletti, Managing Director, MPDV Group; and Sascha Gräf, Managing Director, MPDV Asia & MPDV Shanghai.

### MPDV and Atos Network of the Best

**MPDV signs a global cooperation agreement with Atos, the largest international IT service provider.**

Atos enhances their professional portfolio with an important field of operation. Especially in times of increasing competition, manufacturers require both effective software solutions and diversified partners. MPDV and Atos go

hand-in-hand to create expert knowledge and to reach out globally. The newly set-up HYDRA Competence Center at Atos supports global manufacturers implementing more efficient MES technologies.

# Atos



Looking forward to the partnership: Ulrich Ahle, Sales Director Discrete Germany of Atos SE; and Karl Schneebauer, Liaison for all MPDV Partners MPDV Mikrolab GmbH

### Lucrative Cooperation

For Karl Schneebauer, Liaison Manager for all of MPDV's Partners, the cooperation is "a key cornerstone of our expansion plan." After receiving the Product Excellence Award from Frost & Sullivan in 2011, the cooperation with Atos expresses MPDV's claim to global success. Mr. Schneebauer adds, "The cooperation with Atos will give HYDRA a worldwide push." Both companies expect a positive market response, especially among multi-national manufacturers.

## TOP 100 Company

### MPDV synonymous with Innovation

MPDV's power of innovation has been honored specially this year.



This year, a jury consisting of reputable experts from the world of science and business awarded MPDV the much sought-after "TOP 100 Certificate" ([www.top100.de](http://www.top100.de)). This award recognizes the medium-size company and its spirit of innovation.

For MPDV's employees, innovation takes absolute priority in order to optimize processes and show hidden potential, with the aid of a holistic Manufacturing Execution System (MES) HYDRA. The following characteristics

demonstrating MPDV's power of innovation were highlighted:

- Practical relevance and user proximity with the HYDRA Users Group.
- Close to the market and promoting standardization cooperating with different umbrella organizations.
- Promotion of the next technical generation.
- Cooperation with many research organizations.
- Intensive, internal communication and inter-departmental project work.
- International cooperation with subsidiaries and partners.

Therefore, MPDV remains an outstanding pioneer in the field of Manufacturing Execution Systems (MES).



## MPDV Recertified to ISO 9001:2008

### All Processes under Control

MES HYDRA is not only synonymous with efficient processes, but also for all internal processes in MPDV. The successful recertification as per DIN EN ISO 9001:2008 this year shows that everything is under control.

Documented processes and regulated procedures guarantee consistent quality levels. ISO 9001:2008 defines minimum requirements to a quality management system of an organization, with the focus on the customer and a continuously improved process. MPDV has been running as a documented organization system for more than 25 years and was certified in 1997 for the first time according to DIN EN ISO 9001. Beginning in January 2013, the certification

for DIN EN ISO 9001:2008 was extended for an additional three years. Only a few software providers have been certified for ISO9001 for such a long time. Roland Zanella, Lead Auditor of LRQA GmbH (Lloyd's Register Quality Assurance), summarized his visit to MPDV: "The implementation of defined processes could be proven to conformity in the workplace. No discrepancies occurred during the audit." Hans Götz, Managing Director MPDV Mikrolab GmbH is also satisfied: "The recertification indicates that we have our processes under control. In addition, we implemented a basis for further growth and development by restructuring the organization in the beginning of 2013."



On the right track to universal machine connectivity

### UMCM – an Interface for all

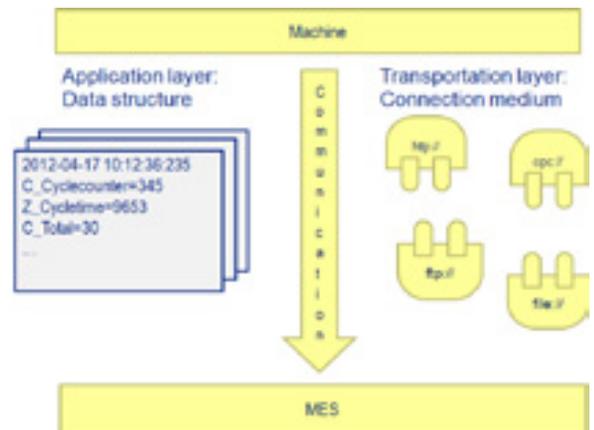
We are on the home strait completing Machine connectivity UMCM (Universal-Machine-Connectivity for MES).

#### Current Status

The universal interface is now being used in various science projects after UMCM triggered significant progress in LUPO (“Leistungsfähigkeitsbeurteilung unabhängiger Produktionsobjekte”). At the Hannover Fair MPDV informed regarding “Unified Shopfloor Connectivity” about the universal interface as a central point of the future concept MES 4.0. Additional information is given in article “MES 4.0 Next Steps” on page 4.



A large number of supporters is the premise to obtain support from the MES umbrella organization. The MES umbrella organization, as a consortium of MES suppliers in the European region, has proven to be a reliable platform. To further speed up implementing the interface, a joint session is planned midyear in 2014 (the exact date was not known at the time of the editorial deadline). On this occasion suppliers of MES and machine control systems are invited to test the compatibility of their products. Only a wide acceptance of UMCM can ensure success in the market.



But UMCM is not only preparing for the technical challenge in the market. Under the slogan “Connect”, the MES umbrella organization has been promoting the propagation of UMCM for more than a year. The MES umbrella organization presented UMCM at their booth during the Hannover Messe [Trade Fair] with a flyer and a detailed brochure.

#### What is UMCM?

Via simple data transmission, machines can communicate important data to an MES system. These consist of:

- time stamp
- production progress
- meter readings
- machine status
- process values
- material information

Standards like OPC UA serve as transport layers. UMCM is based on the VDI standard 5600 sheet 3 and is in most cases sufficient to connect machines via “Plug & Play” to an MES system.

### Mobile Solution for the New Generation HYDRA Smart MES Applications



Mobile devices are the future. Smart phones have replaced old-fashioned cell phones. Smart phones have also triumphed in day-to-day business life. MPDV enters the app market with new mobile MES components.

A survey conducted by market researcher EITO documents a ratio of cell phone/smart phones of 93% for smart phones with additional functions. The market for tablet PCs has risen to over 50% in 2012. This is a key indicator to the increasing significance of mobile devices in the market.

Mobile devices provide up-to-date information from any location in manufacturing sites. This means always being informed regarding production events. In addition, it reduces reaction time. The supervisor receives a notification about a malfunction via tablet PC or smart phone and can directly go to the relevant machine. The production site is "on hand".

MPDV is a pioneer, introducing innovations across the Manufacturing Execution Systems

(MES). The mobile trend demands exploring new avenues. We differentiate the options between an office PC with extensive processing power and a large screen and mobile devices to collect and display data. Using mobile devices intelligently, business processes can be displayed "smartly". Here, smart phones and tablet PCs need to be handled intuitively at the right time in a few easy steps. If supervisors are at a machine, they require relevant information regarding running orders of the produced articles and the reason why the machine is malfunctioning. A large selection screen and a call-off system for all machines on site are laborious and time-consuming on mobile devices. Therefore, the applications must lead to the required data in quick succession.





The first step to overcoming these issues was the realization that development has to steer away from function-based software to the use of different roles; from "What has to be done?" to "Who must take action?" We have to think "smarter" when it comes to mobile devices. Role specifications must be extended into the job description of the mobile user.

This task-orientated mode of thought takes the user of mobile devices to their destination. The course of action is decisive. A maintenance engineer calls off a list of malfunctions, selects the longest duration of a malfunction, registers at the machine, changes the machine status and carries out repair work. Then he adds comments to the malfunction and logs off. Currently, a list of malfunctions of the complete site can be called off on the HYDRA-Office-Client (MOC). Then it must be registered on the shop floor terminal (AIP) in order to clear the problem. Now, the whole process runs on a mobile app on a smart phone or tablet PC. The user achieves a certain independence of the hardware using any device available. MOC and the AIP form a symbiosis. MPDV offered at the Hannover Trade Fair the opportunity to immerse into the world of Smart MES Applications (SMA). On that occasion, we showed smart displays of business processes in production using mobile devices; e.g. a KPI app shows the different figures. Via drilldown, OEEs can be displayed from different sites down to machine levels over a certain period of time (e.g.

final shift). In the future, linking to other apps is feasible. If an OEE downward trend is located, the responsible contact partner is found via a "contact app". With the functionality of a smart phone, the stored number can be dialed instantly.

Smart MES Application is not replacing MOC and AIP; they add to the portfolio of the MES solution HYDRA by being useful to call off data. The user benefits from being more flexible regardless of location. In doing so, the office PC and the mobile device are using the same procedures. Smart MES Applications are significant components for the future concept MES 4.0 and set us up for the challenges of tomorrow.



## MES Solution (not only) for the Metal Industry HYDRA for Metals

During the EMO 2013, MPDV presented for the first time a HYDRA solution for the metal industry. This solution is based on the seasoned HYDRA standard used productively by more than 850 customers. The new version "HYDRA for Metals" complies with specific requirements of the metal industry.

The leading market position and many implemented projects in most sectors prove that MPDV's HYDRA can be used in distinct production processes. To better understand specific requirements for the metal industry, metallurgists of the RWTH Aachen University were consulted. MPDV is also a member of a metal round table where contact was established to the Clausthal University of Technology. They completed a study called "MES4Steel" (see info box). This study suggested new requirements for HYDRA, e.g. campaign manufacturing (planning of deadlines and capacities), maximum temporal distances between process steps or functions to manage batches.

"HYDRA for Metals" supports metal processing along the complete value chain from melting to



the finished product. The MES tasks to comply with the VDI standard 5600 are also binding for the metal industry.

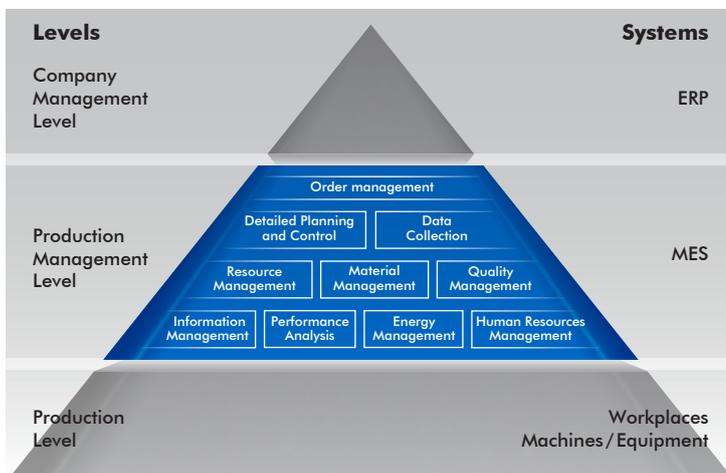
### Support by TU Clausthal

"HYDRA for Metals" is the result of discussion held at the Metal Roundtable and the science project "MES4Steel" supported by MPDV. University of Clausthal established with the support of the Deutsche Edelstahlwerke where an MES as per VDI 5600 can be used



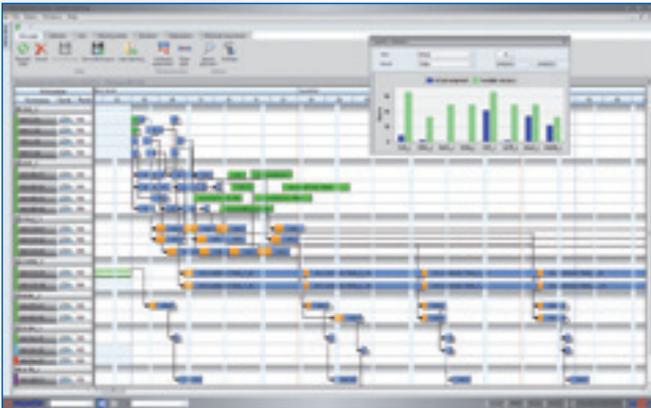
TU Clausthal

in the metal industry and identified there the required MES functions. Significantly involved were the Institute for IT supervised by Prof. Dr. Jörg P. Müller in cooperation with the department for production and logistics (Prof. Dr. Christoph Schwind). Additional info to "MES4Steel" MPDV News 32 (page 21).

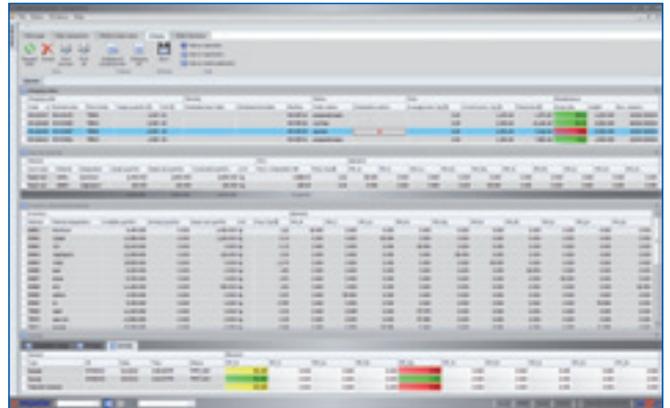


The MES fields of operation of VDI

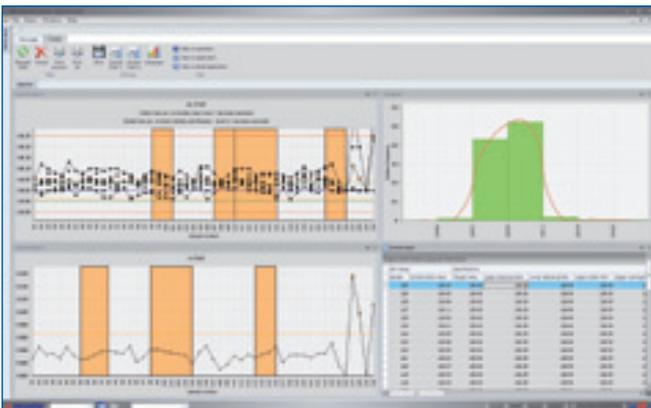
## Examples for MES applications in metal industry:



Detailed planning and controlling in the HYDRA planning board incl. of campaign planning and networked orders.



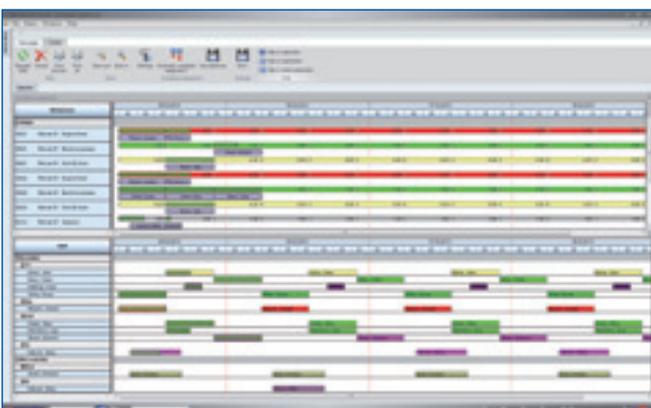
Cost orientated material management incl. composition function for mills and overall traceability.



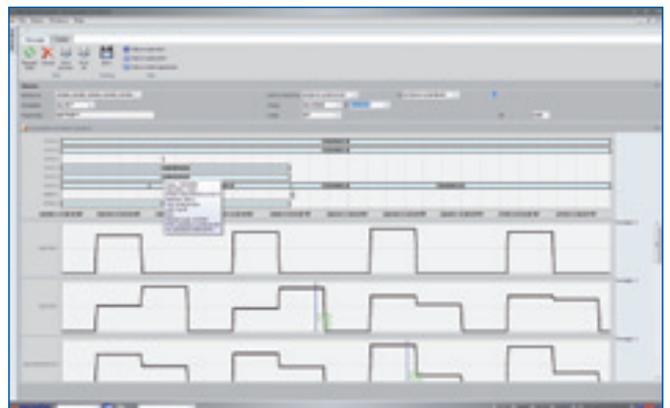
Integrated quality management to reduce scrap through inspection planning without additional efforts.



Innovative IT management in order to make crucial information available where required.



Workforce requirement planning based on qualifications to efficiently make use of this valuable resource.



Incorporate energy intensive processes into energy management for optimization purposes.

### Process Specific Functions

“HYDRA for Metals” also offers new functions which were added to the standard functions. These new functions are relevant to individual process methods.

**Primary shaping** is a method in which a shapeless form is transformed into a solid shape. “HYDRA for Metals” supports functions for the composition to achieve optimum metal properties for the melt. This means defining raw material as well as the tolerances (type of composition) and finally charging. Determining the actual characteristics of the melt (taking samples), the type of composition can be measured against the actual result. By replenishing (adding raw material and therefore changing the composition) the melt is being processed until the optimum quality is achieved. It is of the utmost importance for the metal industry to use materials cost effectively in order to avoid unnecessary stocks.

The next important step after melting is to **form the metal** using methods like rolling or forging. The rolling process in particular is pushing manufacturing IT to its limits. “HYDRA for Metals” collects process parameters in real-time and deduces optimization opportunities. The shelf life of rollers is increased by processing orders with the same width of roller. Thereby, wear and tear of the rollers is regulated. Another advantage is that maintenance planning can be improved. Managing expensive parts (rollers, frames, etc.) is also covered by “HYDRA for Metals” using the module Tooling and Resource Management (WRM).

Heat treatment **changes material properties** and ensures improvement of material. Depending on volumes and quality of the

furnace, several orders with the same heat treatment code are registered simultaneously, taking into account the heating and cooling periods during heat treatment. “HYDRA for Metals” monitors process values, such as temperatures, and documents failures when threshold values are exceeded and forwards them immediately to the responsible persons using the integrated Escalation Management module. The DNC module also contributes to smooth operation by automatically transferring appropriate setting data for articles and machines.

**Coating** means refining of surfaces by spraying, galvanizing and powder coating. Different articles can be planned in for an identical processing step by composing batches. Collecting



“HYDRA for Metals”: The MES solution along

process data with "HYDRA for Metals" sustains quality by controlling pressure, temperature etc.. The surface is often a distinguishing mark of quality regardless of visual appearance or corrosion protection.

Displaying of mechanical processes is a standard of an MES system. A special feature is the complex **production center** preceded by a pallet station. Here items await further processing belonging to different but simultaneously registered orders. Automatically switching to "HYDRA for Metals" times, quantities and further information are only booked into an active order. Complete processing in the production center takes place with the aid of HYDRA in order to make quality checks (CAQ) and traceability transparent.

### Cost Management "HYDRA for Metals"

The new MES solution optimizes production and therefore reduces costs. Measurement to optimize costs: Increasing resource efficiencies (materials, machines, energy ...).

- Increasing efficiencies of resources (material, machines, energy etc.).
- Reduction of stocks and WIP.
- Decreasing maintenance.
- Improvement of machine and facility utilization.
- Shorter lead times.
- Reduction of scrap.
- Complete documentation of product development (traceability).

### "HYDRA for Metals" (not only) for the Metal Industry

Rainer Deisenroth, Vice President Sales & Marketing MPDV, concludes: "With 'HYDRA for Metals' we have covered special requirements for the metal industry. But still this special solution is not that different to the standard MES HYDRA solution. It is just a specific version where a lot of special know-how is incorporated. In addition, target groups are not restricted to metal manufacturers. Generally, functions in 'HYDRA for Metals' are relevant to every type of production using metal in their value chain, including die cutting of small metal parts, molding of screws or coiling of springs. The modular structure of our MES solution ensures selection of required functions during individual process steps in production."



the complete value chain in metal processing.

### MES Solution "HYDRA for Metals" "Why and for Whom"

During the EMO 2013, MPDV presented MES solution for the metal industry. Mr. Rainer Deisenroth, Vice President of Sales & Marketing MPDV, explains the background.

#### What is the difference between "HYDRA" and "HYDRA for Metals"?

"HYDRA for Metals" is a specific version of HYDRA. We have created an MES to be used in the metal industry deploying specifically configured standard applications and added new functions for this sector. Having gained substantial experience from numerous HYDRA projects in the metal industry, we were able to tailor the new solution to meet the needs of this sector and the MES user.



#### What makes "HYDRA for Metals" unique?

The difference between "HYDRA for Metals" and an exclusive solution for this sector is, that apart from specific requirements for metal processing, this system can also support other manufacturing processes in the same company, e.g. tooling or maintenance. An exclusive "metal solution" could not handle such a variety of processes and would require additional systems and interfaces. But even if only metal is processed, "HYDRA for Metals" can offer considerably more than a specific solution for a mill.

#### Is "HYDRA for Metals" a specific solution for the metal industry?

Yes and no. Yes, with "HYDRA for Metals", we are covering specific requirements for the metal industry. If we take a closer look, this solution for the metal sector is our standard MES HYDRA, but also a specific version incorporating a lot of know-how. In addition, metal processing companies are not the only target group

for this solution. Basically, functions in "HYDRA for Metals" are of interest to any company which processes metal in the value chain; even if they only cut small metal parts, molding screws, or coiling



springs. The modular structure of our MES solution enables an individual selection of required function for part of the process. Therefore, we can implement a tailor-made version of HYDRA for every customer and still offer a standard system.

#### Have you received any feedback about "HYDRA for Metals" so far?

Yes, we presented the solution at the EMO in Hannover in September and received many positive reactions. Both, our existing customers and new prospects, welcomed the new strategy. Now we have to see what kind of projects we can generate from numerous leads.

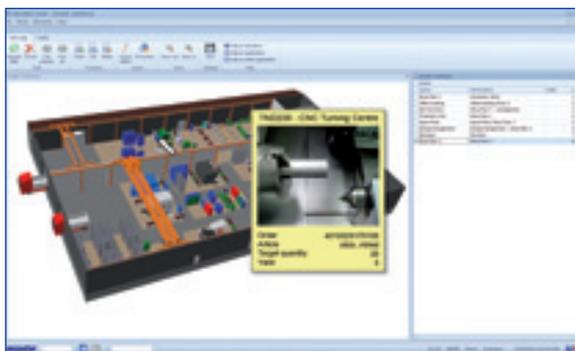
**Thank you very much for the interview.**

## A Window into Production Shopfloor Monitor

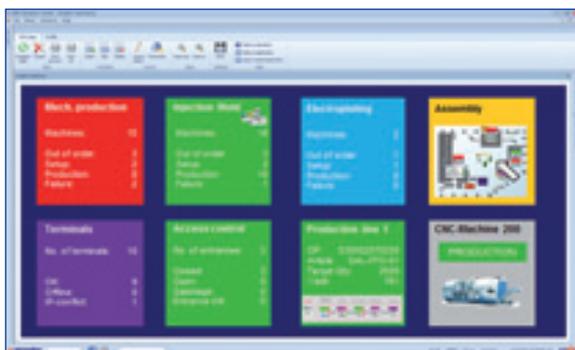
In conjunction with ongoing development of the MES solution HYDRA, the shopfloor monitor has been updated with a new feature: 3D illustration and video streaming. This enables the MES application to display the actual production environment.

With the aid of shopfloor monitor in HYDRA, the machines are visualized almost in real time. Graphic machinery can be individually customized and therefore can be adapted easily into every type of production environment. All requested areas can be displayed in shopfloor monitor whether single work stations, groups of workstations or complete factory halls are used. The overview of devices is being supported with an actual status of facilities; e.g. display of device status or actual process values or meter readings.

After the completion of the development of graphic machinery, two new functions specifically provide a window into production:



3D graphic and live video streaming in graphic machinery



Clearly arranged information structure with the aid of dashlets



Realistic display of production halls with machine status

### 3D Display

The spatial structure in production is now displayed even more realistically using 3D graphics. The 3D display allows the location to be better simulated. Apart from the complete factory layout, chosen processes of specific parts of the production can also be animated.

### Video Streaming

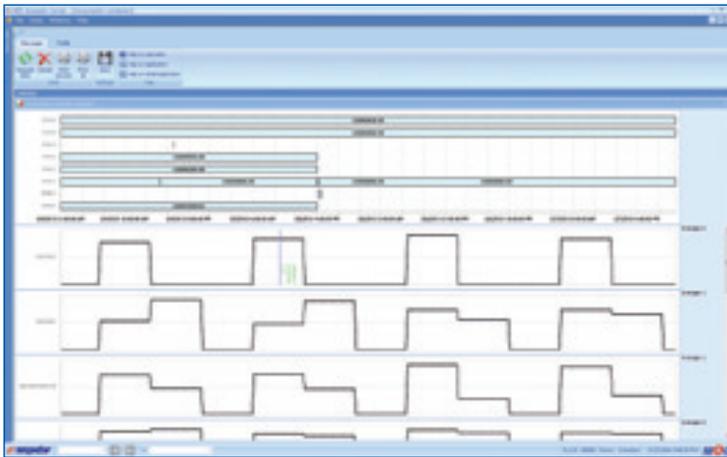
Cameras installed at production facilities allow for an up-to-date view into production operations, which can simplify keeping track of events. If a malfunction occurs at the other end of the production floor, video streaming allows staff to check into why it happened. They can react immediately, which saves time.

### New Functions and Future Prospects Focus on Energy Management

HYDRA-Module Energy Management (EMG) stands out with functions such as the collection of energy data, data evaluation and consumption billing. Now MPDV has increased the range of functions.

#### Energy Consumption per Working Day/Item

With the new function "correlation of consumption" it is now possible to evaluate energy consumption linked to a specific operation and duration of time. At the same time, various operations can be selected (multiple selections). If an item is produced on several machines, the energy consumption can be compared from one machine to another. Individual items can be selected. If an item passes through different manufacturing stages, energy consumption can be examined for each and every step and in the end for the whole manufacturing process and finished product. Therefore, energy intensive operations during the process can be viewed specifically.

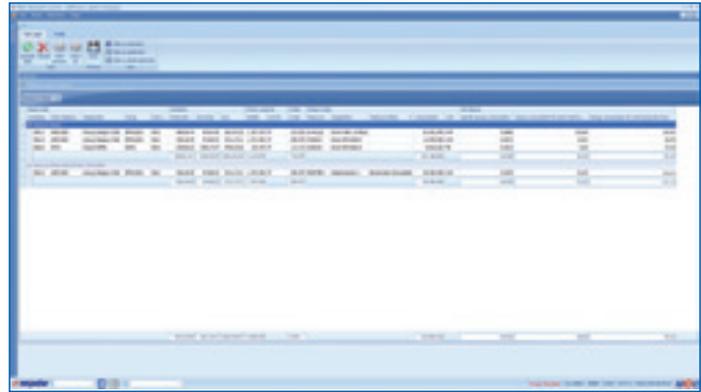


*Basis for the crucial 360 degree view correlated illustration of energy data in HYDRA.*

Alternatively, previous consumption of energy (e.g. meter reading) can be visualized independently of individual operation steps. Therefore, the user obtains information on the course of the consumption for selected meters during a specific period of time.

#### Energy KPIs

In order to evaluate energy KPIs, the function "Performance Report" has been developed further. This function has at its disposal an evaluation tool giving information as to specific energy consumption, energy consumption per piece, energy consumption per machine hour or produced hour. Up to six different customizations can be added if extra KPIs are required. Thereby, data can be accessed available in the "Performance Report".



*Energy efficiency report in HYDRA.*

With the introduction of limits exceeding absolute values for energy resources as a KPI, the user is creating an "energy budget" for resources. If an absolute value has been exceeded, an escalation can be triggered. This function allows the user to control energy consumption and react immediately in case of elevated levels.

Bearing in mind the necessity to use resources efficiently and the increase in the cost of energy in many countries, Energy Management is gaining a significant role in manufacturing.

### Future Prospects: Optimized Planning of Energy with HYDRA

If production is planned via HYDRA shop floor management (HLS), energy consumption can be also be referred to. At the same time, data is collected as to how much energy is used in the production of one particular item. Pre-defined consumption data is shown as a chart for various orders consisting of different items if they are planned simultaneously. Therefore, peaks in consumption become apparent. If pre-defined limits are exceeded, the HLS (shop floor management) shows a conflict. Peaks can be minimized using preplanning and thus, users can react to fluctuation.

New functions as well as newly determined requirements show the increasing use of the module Energy Management. This is achieved by permanently improving the product.



*Apart from electricity data, other sources of energy, such as gas, steam or compressed air, can be collected and evaluated in HYDRA.*



*In the future, HYDRA users can plan production orders saving energy.*

### Energy Management in Real Life

The module EMG is already in use in different applications. A selection of different application is as shown:

The module Energy Management (EMG) was developed for HYDRA 8. With the aid of an adaptor, the module can be linked to HYDRA 7 (see MPDV News 34). Energy data can also be supplied from external data collection systems. HYDRA collects measurements of a third party via an interface and processes the data as if it was collected within its own periphery. All evaluations in EMG are also available when data is collected externally. Apart from electricity consumption, HYDRA also works with other sources of energy, such as compressed air or steam, already collected and evaluated by the user.

### Additional Functions for HYDRA Shop Floor Scheduling (HLS) Material Availability Check in Detailed Planning

Until recently, the availability of production resources (e.g. tools, NC programs) in HYDRA shop floor scheduling (HLS) could only be checked via “detailed planning”. Now, the new function “material availability check” is added to the application.

Planned inventory levels give the planner a graphical detailed application. This illustrates how inventory levels change during planning. Material availability is also checked for planned processes. Process steps, where material is not available on time, are highlighted in different colors on the planning board. The planner identifies the reason for conflict instantly and can react rapidly. With this function, the planner maintains an overview regarding material availability.



### Transparent Self-regulating Material Flow eKanban with HYDRA

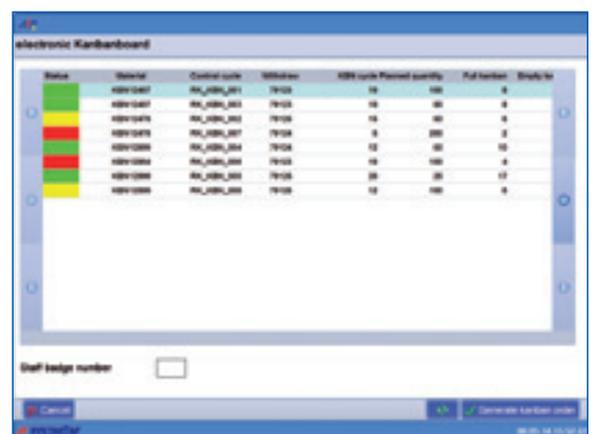
The Kanban principle guarantees a reduction in work-in-progress and a simplification of production control. The MES system HYDRA now supports an IT-based version of “eKanban”, which was derived from one of the HUG working groups.

Sufficient supplies without excessive stock piling: Kanban is based on actual demands and is based on the “pulling principle”. The system is comparable to the management of a supermarket. The customer removes items from the shelf. If inventory decreases to a pre-defined minimum quantity, inventory is replenished. Supplies are always available, but not excessively. A regulated material cycle is guaranteed.

#### eKanban in HYDRA Guarantees Transparency

Electronic Kanban boards in HYDRA show the actual stock levels and the status of all buffer stock. If inventory decreases to minimum, a Kanban order is generated and registered to replenish supplies. All material bookings in the buffer stock are updated on Kanban boards. This provides for greater transparency in a self-regulated Kanban system.

Additional order lists in the HYDRA BDE terminal, specific evaluations in the HYDRA office client (MOC) and scheduling of orders (HLS) complete the eKanban functions. You will find additional information about HYDRA Users Group (HUG) on page 26.

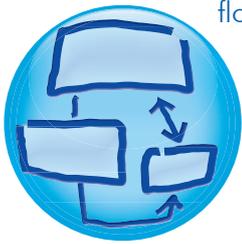


Electronic Kanban board in HYDRA

## The New Dream Team

### Workflow and Escalation Management

Process thinking has been reinforced in many companies and also in production. With the new combination of integrated workflow and escalation management, HYDRA allows production staff to react to events with defined workflow and escalation management.

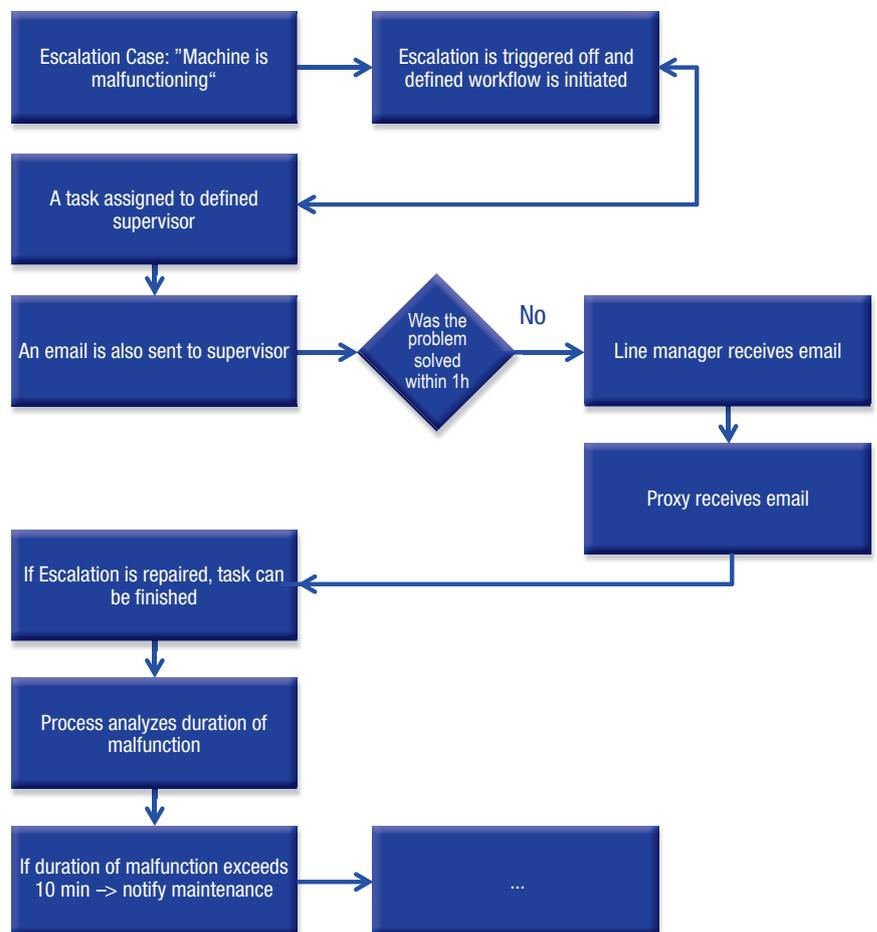


Originally, workflows were developed for claims management (see NEWS 32). As of now, workflow management can generally be used for escalations. It covers generating workflow processes in dependency on different areas of functions; like automatically triggering off a workflow with defined standard events and also defined tasks within a workflow stage containing a deadline and active information flow (e.g. email). In order to do so, all escalations in the HYDRA-module can be used.

then maintenance and production control will be notified; maintenance in order to service the machine promptly, and production control to react instantly to a delay – and perhaps to reschedule orders in the HYDRA-terminal. The defined workflow instructs which action to take and informs of a proxy if the responsible person does not react to a task. The following processing steps are automatically activated depending on the configuration. Therefore, a standardized process is guaranteed. Additionally, down times are reduced and short reaction times to interruptions are arranged.

#### Work Examples

When an escalation is triggered off in case of a malfunction of a machine or a tool breakage, it can be defined via a workflow to the management responsible for it and who will decide what measures to take. The task of checking the situation is assigned to the supervisor. If the supervisor does not react to the information within a certain time (sent by email) the line-manager is informed. If the supervisor can solve the problem directly on the machine, HYDRA documents the time required to fix it. If resolving the problem takes longer than the time listed or it cannot be clarified,



Interview with WIKA

## Upgrade to HYDRA 8

Talking to Lars Hartwich, Project Leader of the HYDRA upgrade at WIKA Alexander Wiegand SE & Co KG.



**You have recently successfully completed an upgrade to HYDRA 8. Did the upgrade make an impact already?**

I think the user interface in the new HYDRA-Office Client MOC is arranged much better now. Also,



Lars Hartwich,  
Project leader of the HYDRA  
upgrade at WIKA

we can use our licenses more flexibly. Where before we could not open the HYDRA console as all licenses had been used up, we now can continue with other functions. Finally, the change has forced us to review our processes and to realize new ideas. Some of the improvements, especially in the DNC module, MPDV will implement in the HYDRA standard.

**What was the biggest challenge upgrading to HYDRA 8**

We had an enormous amount of dates and activities to coordinate production with departments in order to find a suitable moment to go live. Within a delta analysis and in conjunction with MPDV, we established which HYDRA 7 adaption should be transferred into the new system and where HYDRA 8 offers standard

functions. The change-over in production went very smoothly as we were already running the



new HYDRA shop floor client AIP and therefore use the machine interface. The interface to the ERP system also remained unchanged.

**How did users in production and in the office cope with the change? What supporting measurements have you taken?**

Like I said, as we did not have to change the HYDRA shop floor client, the operators were not affected by the change. With the office staff, initial doubts were great. After getting used to the new user interface, we noticed a growing enthusiasm, as operating the system is much simpler and the information is structured in a logical fashion. The new HYDRA-Office Client MOC feels like a standard Windows program. That makes things much easier. Additionally, we have introduced an MOC roundtable. This is comprised of a weekly meeting on Friday where all MOC users participate exchanging experiences and ideas. Using Best Practice measurements everybody is informed on a constant level and the general acceptance increases.

**Of course, with such an immense software project, not all is running according to plan. Could you give other users suggestions for planning an upgrade to HYDRA 8?**

In general, we suggest deploying a project leader as a contact partner for MPDV; the leader will liaise with all concerned departments and executes the upgrade.

Also, the introduction of a test system is wise. This system should be fed with data parallel to the production system. It is used to test new functions in depth before going live. The documentation of the upgrade and the new configuration has to be complete. The workshop "Upgrade

## HYDRA Success Story

HYDRA 8" offered by MPDV has prepared us well for the change.

Another hint: if you get stuck during the change, open a separate call for every error. It makes tracking easier – for both sides.

Many thanks for the interview.



### Interim Report after two Years

## Over 150 Installations of HYDRA 8

All developers of software systems are confronted with the same challenge. The slogan "never change a running system" slows down innovation. The current MES solution HYDRA 8 shines, having already been installed 150 times.

### Successful Market Introduction

HYDRA 8 was introduced at the Hannover Messe [Trade Fair] in 2011 as the new generation MES, and has now been established as a broad standard. HYDRA 8 is currently being used productively by more than 150 customers. It is quite an achievement, considering the long innovation cycles in the production sector. In our latest News we have reported about one of our most famous HYDRA 8 user, Geobra Brandstätter (generally known under the Playmobil brand). Geobra implemented HYDRA in less than four months, which proves the system is fully functioning.

### Matured Software

It is a striking fact that the introduction of HYDRA 8 has not taken a toll on the number of support calls. This is, in turn, a sure sign of the system having matured at an early stage and that all the efforts undertaking quality tests are producing successful results. By now, all problems experienced in the early stages of

development have been corrected, and we can say that HYDRA 8 is the preferred choice when looking for a comprehensive MES system.

### HYDRA 8 Comes Into Fruition

Many customers consider upgrading to HYDRA 8, as many new functions have been developed for MES applications and the first migrations have been completed. New developments, also in conjunction with the HYDRA Users Group (HUG), make MPDV proud of having a product which is rightly called "the new generation".

Prof. Dr. Ing. Jürgen Kletti, Managing Director of MPDV Mikrolab GmbH, stated: "We have created an MES solution which not only fulfills market requirements but is also equipped for the future. Our customers confirm that and the reception of interested clients is impressive."



### Together We are Strong HYDRA Users Group

A year ahead of the 10th anniversary of the HYDRA Users Group (HUG) it is evident that founding this group has been an essential part of the history of the Manufacturing Execution System HYDRA.

An ever-increasing number of members and many new products inspired by HYDRA users

illustrates that a complex application like HYDRA thrives on its users. The list of HUG members is like the Who-is-Who of German industries and displays an interesting cross-section through all lines of businesses.



#### HUG Meeting in April 2013

The last HUG meeting took place in April 2013. For the first time everybody gathered under one roof in Darmstadt with the goal of speaking about general matters and specific issues. After welcoming the participants, a brief summary was given by the chair. Next, the different working groups were set up. Initially, a working group titled "Production" was formed and then the group was split into IT and Quality. At the end of the day the Think Tank of the University of Darmstadt was visited in order to see HYDRA being applied outside a production facility.

#### HUG-Forum 2013

The user conference, now called the HUG-Forum, took once again place in Hockenheim. An official report from the HUG advisory council, members and the MPDV management board was given. Participants also attended two sessions concerning eKanban and KPIs recommended by HUG. Following the MES-Forums, MPDV introduced innovations and further developments of the MES solution HYDRA.

So far, the HUG is only active in German-speaking regions. An international expansion is currently being considered.



Bruno Hildebrand, Chairman of the HUG Executive Committee talks about the HYDRA Users Group:

### How is HUG functioning?

The concept of the HUG is straight forward: Every HYDRA user can become a member free of charge and may get involved in different working groups.



Resulting ideas and improvements are forwarded centrally to MPDV. MPDV mentors are ready to share advice. Users meet up annually at the HUG Forum to personally exchange experiences.

### What benefits can users draw from HUG?

Committed HYDRA users swap information and benefit from Best Practice know-how of other companies. HUG also offers an open communication channel to MPDV to pass on requests and new requirements.



### How does MPDV benefit from the HUG?

Consolidating user experiences and their pragmatic approach gives MPDV important feedback directly from the industry. Therefore, the MES solution HYDRA can be specifically improved. This, in turn, means that the user benefits and it leads to new innovations.

### How does HUG work?

Apart from the annual user conference, several meetings of the working groups take place. The last one took place at the Think Tank in Darmstadt, where all five working groups met for an exchange. Results are published in a HUG newsletter.

### What kind of HUG working groups are there?

There are three HUG working groups, each dealing with one of the three main issues, the first being production, human resources and quality; the second one being IT, and the last one being strategy. Each of these working groups is assigned an MPDV mentor, who coordinates the communication internally.

Apart from the nominated working groups, additional teams are established when special issues arise from one of the sessions. For example the KPIs and eKanban are based on one of the working sessions.

You will find further information about the HYDRA Users Group (HUG) on our website [www.hydra-users.group.de](http://www.hydra-users.group.de).



## MES in Egypt – Land of the Pharaohs HYDRA in exotic environment



The MES solution HYDRA in action at El Araby in Egypt shows that mingling with different cultures does not present an obstacle for the MES experts at MPDV.

For an international company like MPDV, utilization of their own technology across different cultures and countries is a driving force. The multi-lingual MES solution HYDRA sets international standards and is sufficiently equipped for worldwide expansion.

### Production in Egypt – things are done differently

The conglomerate El Araby, with a majority of Muslim staff, produces electrical and electronic goods for Toshiba just north of Cairo. Islamic beliefs are widely incorporated into everyday life, and at El Araby, daily prayers are stipulated as shifts breaks in the system to allow for the operators to visit the mosque on site.

**EL ARABY**  
Since 1964

With increasing competition, El Araby required a solution to boost productivity. During a visit to the Hannover Fair in 2010, Mohamed Negmeldin, Production Engineering Manager and grandchild of the founder of the company, decided to implement the MES solution HYDRA. Fairly rapidly and with a minimum

of external support from MPDV, El Araby introduced the modules Production Data (BDE) and Machine Data (MDE). More than 200 injection molding machines were connected via machine interfaces to the MES system. After participating in an introduction workshop and training with MPDV, El Araby was ready to install and implement HYDRA largely internally.



### Making a Contribution versus Providing a Service

El Araby asserted that enhancing the know-how of installation and running HYDRA is absolutely essential. For this reason, Mohamed Negmeldin's team attended regularly HYDRA training courses in Mosbach and is considering completing certified qualifications like "MES HYDRA Project Manager" or "MES HYDRA Solution Designer" at the MES Academy. The goal is to introduce HYDRA specifically and in line with actual requirements. In addition, the company should be able to service and implement the system internally.

### Maximum Flexibility

Successful introduction of HYDRA at El Araby is proof of the flexibility of the MES solution by MPDV. Simple installation and complete documentation require a high degree of in-



house efforts. Due to comprehensive standards HYDRA can be used without modifying the software. Basic settings are largely carried out automatically. However, HYDRA can be customized to meet the specific requirements of a particular production process.

The modular structure allows customers to arrange a gradual introduction of the solution. El Araby started with the HYDRA modules BDE and MDE. The HYDRA Shop Floor Scheduling (HLS) is to follow. Therefore, El Araby has covered the main functions: collection of data in production and detailed planning of production orders. The implementation of further modules is anticipated. Overall, HYDRA offers maximum flexibility during the roll-out phase and while running the system. This means that HYDRA is suitable for use in almost every industry and sector.

### Language Support and Foreign Characters

HYDRA supplies additional support with various language packages and a Unicode compati-

bility. HYDRA can be used across multi-lingual fields and with the additional purchase of the MPDV language package, which can be applied to nearly every linguistic area. The support of Unicode character settings makes the deployment of the system feasible in Arabic and Asian companies.

### International MPDV Subsidiaries & Partners

Rising demand with respect to MES solutions outside of Germany and Europe lead to the expansion of the MPDV Group – namely, the founding of a subsidiary in Shanghai in 2012. International MPDV offices service global customers with European headquarters as well as local prospects. This network is supported by partners supporting the global presence of MES solutions by MPDV.

Apart from El Araby, MPDV has many other international customers in the Arabic region (e.g. Bahrain, Abu Dhabi and Dubai) and all around the world.



### Maximum Range

MPDV covers all requirements with the holistic MES solution HYDRA for a world-wide use.

- Modular Structure
- Scalability
- Configurability
- Multi-lingual
- Unicode Support
- Simple Implementation
- Complete Documentation
- Huge Range of Standard Functions
- Training and Certification for MES-Know-how



[www.grohe.de](http://www.grohe.de)

Marketed under the trademark Grohe, the Grohe Group, leading manufacturer of fittings, focuses on quality, technology and sustainability to provide "Sheer Enjoyment of Water". The Grohe Group employs about 9.000 employees worldwide, with approximately 2.300 located at sites in Hemer, Lahr and Porta Westfalica in Germany. The company has nine different production sites in Germany, Portugal, Thailand, Canada and China.

Producing fittings and fixtures consists simply of the following steps: casting of a blank, machining, surface finishing and final assembly. Data should be collected over the complete process chain. Also, processes should be planned and controlled efficiently. Perfect utilization of tools and machinery are the main focus. In order to fulfill these tasks, Grohe relies on the Manufacturing Execution System HYDRA by MPDV at all three of their sites in Germany. The areas tooling, core molding, casting, machining, electroplating, injection molding and installation are connected to the MES system. A special feature

is the interface to the Arburg control system as a sub-system in the injection molding process. To evaluate and illustrate collected data, Grohe uses HYDRA functions and their own applications. Machines and tools are perfectly utilized using detailed planning and controlling integrated in HYDRA without building up nonessential stocks of work-in progress. Available capacities are identified in time and can be used for replanning.

Overall, the HYDRA MES solution increases transparency and efficiency in their production by collecting and evaluating hard data in real-time. Additionally, Grohe uses the HYDRA modules "Time and Attendance" and "Access Control".



### Quote by Jürgen Durhack, Applications-/Consulting-Production:

"We decided to make MPDV a strategic partner by obtaining standard MES software, which could be adapted to our requirements. Using HYDRA ensures transparency in all production areas. We employed standardized interfaces by MPDV to connect to our machinery, facilities and to the SAP system." "



[www.phoenixcontact.com](http://www.phoenixcontact.com)

Phoenix is a worldwide market leader for components, systems and solutions in the field of electrical engineering, electronics and automation. Phoenix employs 12.800 employees. The company's head office is located in Blomberg and there are various other production sites and sales offices. With a high level of vertical manufacturing, Phoenix Contact produces, along with screws, polymer and metal parts, a large range of products, such as components and system solutions for the energy supply sector.

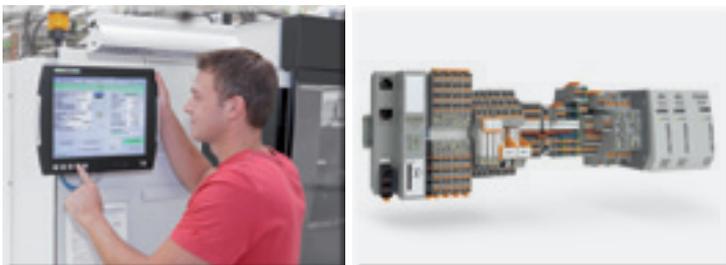
The integrated MES HYDRA supports personnel to manage large data volumes derived from complex manufacturing techniques and multi-staged processes, and therefore control production efficiently in various production sites in Germany and Poland. Additionally, tests or pilot projects take place in China and in the USA. After a short while, using the MES solution resulted in a much higher level of transparency in production and improved productivity. Also the quality of data in the SAP system is considerably better, as HYDRA supports actual data and monitoring possibilities with detailed feedback. Based on detecting standstills of machin-

ery and the resulting statistics, measurements could be implemented to optimize machinery and tooling availability. A three-day production plan is generated combining the HYDRA terminal with the aid of the module for tooling and resource management. This guarantees availability of all required resources at the start of production. The use of the DNC modules simplifies the transmission of configuration data to injection molding machines. Secondly, important processing parameters are continually recorded and monitored.

HYDRA also serves as a CAQ subsystem to collect control and measuring values for further processing in SAP QM. Based on KPIs identified in HYDRA, responsible personnel can use these for targeted monitoring of processes and to initiate improvements. Furthermore, costs can be detected proportionally among the departments and reduced.

**Quote by Harm Hübert, MES Manager Phoenix:**

"The HYDRA terminal gives us a significant point of information directly at the work station. This point of information is currently used increasingly multifaced to improve our processes continuously. Documents, order of material, production progress and quality statistics are now triggered or displayed at the terminal. A big step towards paperless production."





In our "Project Ticker" we briefly report on various projects and companies having chosen the MES solution by MPDV:

### **Miele & Cie. KG**

The world leader for high quality appliances, Miele has chosen HYDRA to increase their overview and transparency in production. Miele introduced the HYDRA modules at their site in Warendorf for shop floor scheduling, shop floor data collection, tool and resource management and time and attendance.

### **Sulzer Mixpac Shanghai**

Part of the Sulzer Group, the Chinese plant in Shanghai decided to use the following HYDRA modules: BDE (shop floor data collection), MDE (machine data collection), HLS (shop floor scheduling) and WRM (tool and resource management).

### **MMI Holdings Ltd.**

MMI Holdings Ltd, manufacturer of precision components, introduced MES HYDRA to their facilities in Wuxi, China. They will use the functions BDE (shop floor data collection), Tracking & Tracing as well as Material and Production Logistics.

### **Kostal Kontakt Systeme GmbH**

In the future, superior electronic, electromechanical/mechatronic products will be produced at their headquarters in Lüdenscheid with the aid of the following applications: BDE (shop floor data collection), MDE (machine data collection), HLS (shop floor scheduling), PDV (process data collection) as well as TRT (tracking & tracing).

### **TRW Automotive**

Engine valves are produced at their site in Blumberg supported by MES HYDRA. The following HYDRA functions are used: shop floor data collection, shop floor scheduling as well as tool and resource management.

### **Johnson Controls Inc.**

In the future, the American market leader will produce their polymer parts for the automotive industry with the aid of the following HYDRA applications: BDE (shop floor data collection), MDE (machine data collection), HLS (shop floor scheduling) and WRM (tool and resource management).

### **VARTA Microbattery GmbH**

The renowned producer of batteries uses the MES system HYDRA, serving SAP as a central tool for detailed planning at three sites.

### **MORApplast, s.r.o.**

The Czech subsidiary of the long-term HYDRA user RUCH NOVAPLAST GmbH + Co. KG now also uses MPDV's MES to manufacture plastics molding and packaging. The following functions are used: Shop Floor Data Collection, Machine Data Collection, Material and Production Logistic, Quality Management, Time & Attendance, Personnel Time Management and Access Control.

### **Amcor Flexibles Singen GmbH**

A long-standing HYDRA user is extending their MES solution and will in future use the module EMG (energy management) in the sector of aluminum and blister packaging.

### **Royal Mosa**

In their headquarters in Maastricht, Netherlands, the innovative company produces high quality tiles. In future HYDRA will support them with supplying shop floor data (BDE) and CAQ (quality management).

### **PT ESCO BINTAN INDONESIA**

The Indonesian manufacturer is part of the ESCO Group from Singapore and manufactures lab equipment and medical and pharmaceutical devices. In the future they will do so with the aid of the following HYDRA functions: BDE (shop floor data collection), MDE (machine data collection), HLS (shop floor scheduling) and CAQ (quality management).

### **Becker Mining Systems AG**

After the successful installation of HYDRA 8 at two German sites and one French site, the MES system has now also been rolled-out to further companies of the group in Huntington, West Virginia, USA. The HYDRA functions Shop Floor Data Collection (BDE), Time & Attendance (PZE) and Personnel Time Management (PZW) are in use.

### **Ningbo Xingye Shengtai Group Co., Ltd.**

One of the leading Chinese manufacturers of copper plates and strips decided to use the MES solution for different sectors, "HYDRA for Metals". HYDRA is supporting all processes in the value-added chain from making charges and casting, hot rolling and heat treatment to cutting coils. The following modules are being used: BDE (shop floor data collection), MDE (machine data collection), HLS (shop floor scheduling), TR (tracking & tracing), WRM (tool & resource management), EMG (energy management), PDV (process data collection), FEP (in-production inspection), CAQ (quality management) and ESK (escalation management). Further sites will be equipped with MES solutions in future.

### **AMTEK Engineering Ltd.**

The AMTEK Group, headquartered in Singapore and employing over 10.000 employees worldwide, decided to implement the MES solution HYDRA. The initial implementation will take place at their site in Shanghai, China. They will use the functions BDE (shop floor data collection), TRT (tracking & tracing), MPL (material and production logistics), HLS (shop floor scheduling) and CAQ (quality management). The next step will be the roll-out at four additional sites.

### **Sandvik AB**

The Sandvik Group is currently introducing HYDRA to two additional sites in Brazil and Sweden. Previously, HYDRA was used in various subsidiaries, at their prototype production site and by Günther & Co. They are using the modules BDE (shop floor data collection), MDE (machine data collection) and PCC (process communication controller) to connect complex machinery. A further roll-out is being planned.

### **IPEX Management Inc.**

The Canadian company IPEX uses HYDRA as a comprehensive MES solution for the production of plastic pipes, applying the functions Shop Floor Scheduling, Shop Floor Data and Machine Data Collection, In-Production Inspection, Material and Production Logistic, Tool and Resource Management and DNC.

### **BSH Bosch Siemens Hausgeräte GmbH**

BSH, known for manufacturing high quality appliances, is using the integrated MES solution HYDRA at their sites in Dillingen and Traunreuth, where the company manufactures dishwashers and ovens. At both sites HYDRA is used as a subsystem of SAP for planning and controlling activities in the tooling section. BSH is using the following HYDRA applications: BDE (shop floor data collection), HLS (shop floor scheduling) and PZE (time and attendance).

### **HI-P International Ltd.**

HI-P implemented the complete MES solution in their factory in Shanghai, producing polymer casings and parts. They are working with the following functions: BDE (shop floor data collection), MDE (machine data collection), HLS (shop floor scheduling), MPL (material production logistics), TRT (tracking & tracing), WEP (goods receipt inspection), FEP (in-production inspection) and WRM (tool and resource management). Roll-out for five more sites is planned.

### **Mycron Steel Berhad**

Mycron Steel Berhad is another steel manufacturer headquartered in Malaysia that has implemented MES HYDRA. The following functions are in use: Shop Floor Data Collection (BDE), Machine Data Collection (MDE), Shop Floor Scheduling (HLS), Material and Production Logistics (MPL), Tracking & Tracing (TRT), Goods Receipt Inspection (WEP), In-Production Inspection (FEP), Complaint Management (REK) and Escalation Management (ESK).

### **Eichenauer spol. + Eichenauer Int.**

The long-time HYDRA user and manufacturer of heating elements rolled-out its MES system internationally. The HYDRA system, including the functions Shop Floor Data Collection (BDE), Machine Data Collection (MDE), Material and Production Logistics (MPL), Quality Management (CAQ), Access Control (ZKS), Time & Attendance (PZE) and Personnel Time Management (PZW) are used at their headquarters in Hatzenbuehl and were rolled-out at sites in Trnávka, Czech Republic and Newport, USA.

### **Hella KGaA Hueck & Co.**

With the aim of optimizing their processes for injection molding, automatic assembly machines and metallization line, Hella, a manufacturer of automotive light systems in Lippstadt, implemented MES HYDRA. Hella is using the modules BDE (shop floor data collection), MDE (machine data collection), HLS (shop floor scheduling), DNC (direct numeric control), PDV (process data collection) and the MES-Cockpit. Further roll-outs are planned.

### **RMA Russia**

After successfully introducing HYDRA in Bahrain, RMA is rolling-out the MES system to the Russian site in Yelabuga. The following HYDRA functions are used in the production of fixtures and fittings and along with measurement and control technology: BDE (shop floor data collection), PDV (process data collection), MDE (machine data collection), PZE (time and attendance), PZW (personnel time management) and ZKS (access control).

# The MES Experts



Worldwide next to our customers



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