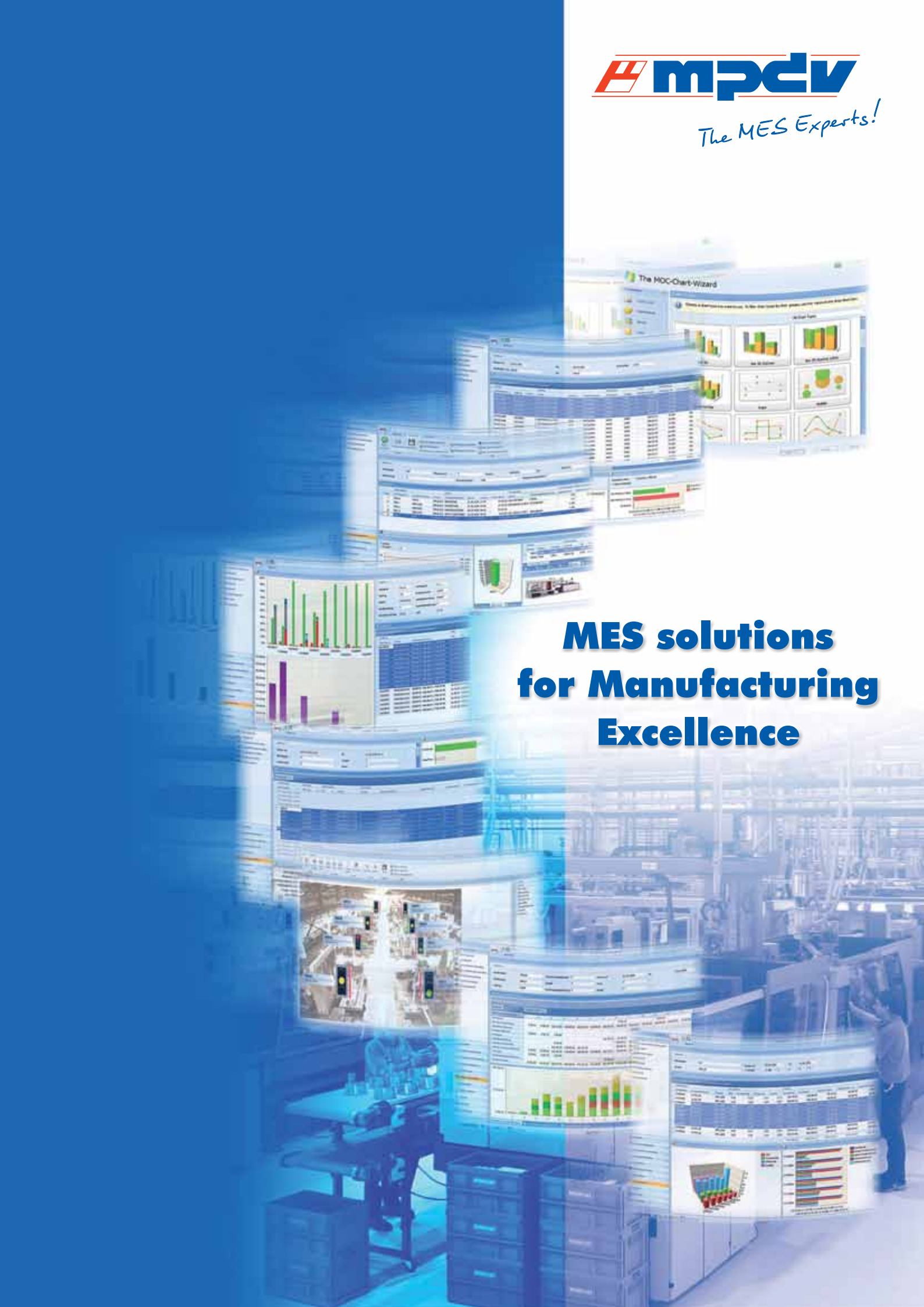




The MES Experts!

MES solutions for Manufacturing Excellence



ABOUT MPDV

MPDV: The MES Experts

MPDV Mikrolab GmbH is one of the leading solution providers of Manufacturing Execution Systems (MES). We have been developing MES solutions for more than 35 years. These solutions are based on innovative software products complemented by services such as consulting, project management, implementation, customizing, software modifications, training and support.



MPDV has eleven subsidiaries worldwide in: Germany, France, Switzerland, Singapore, China and the USA. More than 850 production companies use our MES solutions. They come from a variety of industry sectors ranging from small and medium sized businesses to major enterprises.

MPDV is considered a pioneer in the development of the MES concept and supports organizations such as VDI (The Association of German Engineers), VDMA (German Engineering Federation), MES D.A.CH-Verband and MESA.

Our Philosophy

Customer satisfaction is one of our most important priorities. Customer requirements and needs are always at the forefront of MPDV's thinking, resulting in the development of new markets and ongoing product innovation. Pride and uncompromising standards of German engineering result in our planning, developing and providing state-of-the-art, trend-setting system solutions.



As a system provider, we are specialists in core business processes and possess superior organizational resources to guarantee consistent and continuous quality in all areas. Our quality management system is certified to the DIN EN ISO 9001:2008 international standard.



Milestone Developments at MPDV

- 1977 Company founded as an engineering firm developing customer specific hardware and software
- 1988 Standard software developed: Production Management System HYDRA
- 1994 First SAP certification
- 1996 Certification to European Quality Standard DIN EN ISO 9001:2000
- 2004 Foundation of the MPDV Campus and the MPDV Development Fund (MDF) – Innovation through close collaboration with research institutions and universities
- 2006 Foundation of MPDV Asia Pte Ltd in Singapore, serving as the Asia Pacific Headquarters
Development of an ROI-Analyzer for MES solutions
Leading role of MPDV in founding MESA Europe
- 2007 Foundation of MPDV USA, Inc. in Chicago, serving as Headquarters for the Americas
Further SAP certifications (QM-IDI interface and xMII applications)
- 2008 Launch of new product line xMES as an integrated SAP application
- 2010 Frost & Sullivan Best Practices Award,
European Discrete Manufacturing Execution – Product Excellence Award
- 2011 Launch of HYDRA 8, the New Generation MES
Frost & Sullivan Global MES Award
- 2012 Foundation of MPDV Shanghai Co Ltd, serving as the China sales & support hub
- 2012 Launch of Future Concept MES 4.0
Integrated Industry: Smart MES Applications (SMA) – mobile MES clients
Launch of new MES industry solutions HYDRA for Metals
TOP 100 Award – MPDV belongs to the most innovative SMEs



MANUFACTURING EXECUTION SYSTEM

HYDRA as MES

As a Manufacturing Execution System (MES), the name HYDRA is synonymous with vertical integration between manufacturing and management levels. HYDRA closes the gap between the technically oriented shop floor layer with all its machines, workplaces, materials movements, labor activities and the commercially oriented business layer with its ERP- and management systems.

As an integrated, modular system solution for production, human resources and quality management, HYDRA provides a smooth flow of information. It also performs important functions in the areas of recording, evaluation and planning – making information available to line managers and production schedulers at the push of a button.

HYDRA Benefit through Value-add

As with every strategic investment, the benefits of an MES implementation must be measurable by company management. The value-add generated by an MES today is clearly evident: MES supports operational decision-makers in manufacturing companies in their daily effort to improve productivity, efficiency and quality. Energy costs have also become increasingly important and as a result, are more likely to be a part of daily MES monitoring activities. The wide range of available HYDRA standard functions enables customers to differentiate between crucial functions and those that are “nice-to-have” - which can be easily added at a later stage.

Take advantage of HYDRA's numerous benefits to streamline your tasks:

- Interfaces with common ERP, HR and TQM systems
- Interfaces with machines, equipment and measuring devices
- Simple configuration and functional customization
- Online recording and processing of your data
- Industry independent standard solutions
- Integrated system concept
- Modular structure



MANUFACTURING EXECUTION SYSTEM

Integration in the Business Environment

Information Hub in the Company

Our MES solutions provide a 360° view of all manufacturing and business processes. At the push of a button you get current overviews or reports relating to the past on all data collected from the production, HR and quality sector.

Integration into Existing Infrastructures

Our MES systems provide for a consistent flow of information between the shop floor and management level using interfaces to common ERP/PPS, HR and QM systems as well as to machinery.

Data Collection

Efficiency and acceptance of MES systems is mainly achieved by a seamless integration into the production environment. Our MES solutions provide numerous possibilities for manual or automatic data collection:

- **Manual Data Input**

Using stationary (PCs or IPCs) and mobile terminals (tablets or smart phones) via touchscreen or keyboard

- **Automatic Data Transfer**

From ID readers for RFID tags, barcodes, Legic or Mifare badges as well as from test and measurement equipment.

Besides data collection, MES also supports “paperless” production. At the push of a button, tool setters and operators may view important information, such as BOM, inspection plans, work instructions, drawings, etc. directly on the terminal.

Machine Interfaces

MPDV has created the Process Communication Controller (PCC), which is an all-round talent and integral part of the MES solution. PCC provides many possibilities for connecting machines and thus to automatically transfer machine, process and measurement data as well as to transfer NC programs, machine/setting parameters and recipes.

- **Digital and Analogous Interface Modules**

To record quantities, machine cycles, operating and status signals and analogous process values.

- **Data Interfaces**

Directly communicating with machine controls of NC machines, machining centers, packing stations, measuring machines, analytical equipment or injection molding machines; not only receiving data but also transferring NC programs or setting parameters to PLCs.

- **Functional Modules**

To integrate industrial communication systems, such as Profibus, Modbus, Euromap, OPC, XML or Web services.

- **Universal Machine Connection by UMCM**

‘Universal Machine Connectivity for MES’ has been designed to connect the majority of machines to MES – virtually by ‘Plug&Work’.

- **Production Data Manager**

For communication with data collection systems of different manufacturers or existing isolated solutions.



HYDRA – Solutions for all discrete Manufacturing Industries

HYDRA has a vast range of functions and capabilities for configuration that can be used by all industries. HYDRA is adaptable for use with standard software (proven in hundreds of installations worldwide), and dovetails with the tailor-made functionality of industry solutions. With companies today using multiple production processes, the industry independent character of HYDRA is especially advantageous.

Currently, HYDRA is used in the following industries:

- Plastics / vulcanized rubber
- Metals industry
- Automotive manufacturers and suppliers
- Food and beverage
- Pharmaceutical & medical products
(compliance support for FDA guideline 21 CFR Part 11)
- Plant and machine engineering
- Furniture and wood products industry
- Printing and packaging
- Precision mechanics and optics
- Electrical engineering and electronics
- Semiconductor Services



Some MPDV Customers (Excerpts)



Today, companies of all sizes and in a wide range of industries benefit from HYDRA. It is used worldwide by medium-sized manufacturing companies as well as large industrial groups operating internationally.

CUSTOMER STATEMENTS

"Using HYDRA we have managed to postpone our orders up to the latest start date and still have increased our on-time delivery performance to more than 93%. Despite a growth in shipments, we have considerably reduced our stocks and work in progress, which in turn positively affects capital tie-up."



Marco Valsecchi
Production Manager, Fritz Schiess AG



"HYDRA provides us with real-time KPIs about labor and machine utilization. Additionally, we get current status and quantity feedback from the machine, which enables us to plan resources in the best possible way. Due to HYDRA, controlling and manufacturing now represent an efficient cycle."

Volker Perk
Prefabrication Manager, Maschinenfabrik
Bernard Krone GmbH

"Using MPDV's MES solution HYDRA, manufacturing efficiency is no longer a black box. Today our manufacturing processes are transparent by using the efficient tools for data collection and data analysis. Therefore, we are now in the position to make daily decisions based on facts and thus to constantly improve our processes at the appropriate point."



Christian Kubens
Manager Production Engineering,
Flowserve Flow Control GmbH



"With its MES solution HYDRA, MPDV has provided us with an efficient data acquisition system meeting specific requirements of an SME. Due to its user-friendliness, HYDRA is widely accepted amongst operators and foremen. Compared to the old system, Time & Attendance processes could be optimized considerably. In addition, MES has simplified the supply of components for production orders and has increased process reliability. The connection to SAP was done very quickly using standard interfaces, so even the SAP consultants were amazed."

Tobias Käser
IT Manager, Stanzwerk AG

"HYDRA has helped us to achieve a high degree of transparency in our production processes. Production progress as well as all relevant order and machine data are available online at any time. Therefore, we can react quickly and strategically."



Alexander Rettinger
MES Project Manager, Sigel GmbH



"Time and effort to determine reliable production data has been reduced considerably since the implementation of MES HYDRA. This transparency enables us to introduce improvements which in turn increase the acceptance of employees. Consequently, this also results in faster response times and improved processes."

Engelbert Kraller
Process Management,
Rosenberger Hochfrequenztechnik GmbH & Co. KG

MES HYDRA FOR PRODUCTION

HYDRA for Production

Use the versatile functions of HYDRA to optimize your manufacturing processes if you:

- Want to reduce stock and work in progress (WIP)
- Need to reduce setup costs and interruption periods
- Would like to increase capacity, utilization and effectiveness

Increase Transparency of Your Production Orders

Trace and monitor orders, including all operations, completely and logically. Precise details of the status of an order and its progress are available for objective analysis and cost control. Increase Transparency of Machine Interruption and Efficiency. Automatically monitor machines - completely and continuously. Current information is displayed, reporting the latest status (e.g. a machine that is close to completion).

Improve Shop Floor Scheduling

Plan orders with knowledge about the resources required and available (machines, people, material and tools). Immediately know the impact of modifications on planning, machine disturbances and missing resources.

Improve Material and Production Logistics

Supervise and control the flow of material beyond production, intermediate storage and all material buffers. You can document the origin of your products via integrated batch tracing (traceability) and receive complete verification of your products.

Enhance Tool and Resource Management

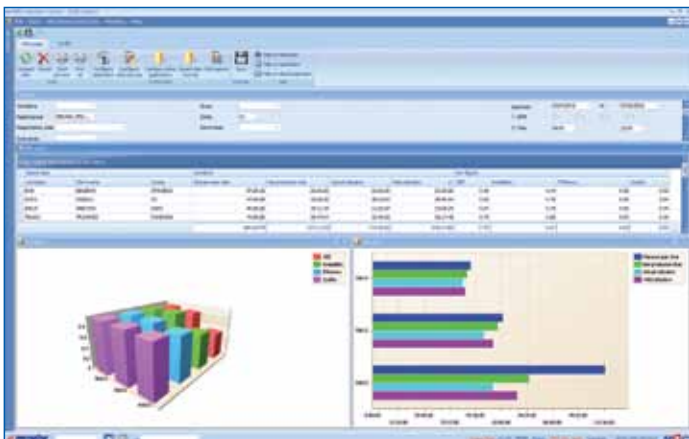
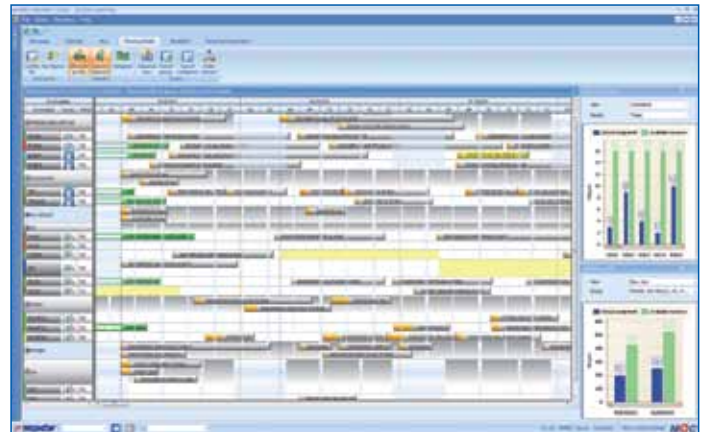
Manage and plan tools and resources quickly, efficiently and comprehensively. HYDRA provides a historical maintenance record of your tools and schedules their future maintenance.

Improve DNC Operation

Transfer your NC programs via the existing infrastructure of plant data collection. Thus, the correct setting data is available on the machine at setup.

Get firm control of your Energy Costs

Capture, view and manage the energy usage costs of your machines as well as from your background support equipment such as compressors, air conditioners, etc.



MES HYDRA FOR PERSONNEL

HYDRA and Human Resources

Flextime and performance related compensation is now common in many companies. Employees expect increased benefits and employers expect increased profits. However, efficient systems for personnel resource planning, time recording, time management and incentive wage determination are essential to effectively realize the potential of improved flexibility.

HYDRA provides support on a daily basis through:

- Effective planning, management of work schedules and compensation
- Recording and calculating performance related wage data
- Controlling access to doors and entrances to your company

Improve Personnel Time Collection

HYDRA records your employees' times of attendance and absences. If requested, integrated time management computes the wage types of each employee based on your individual compensation models.

Improve Personnel Resource Planning

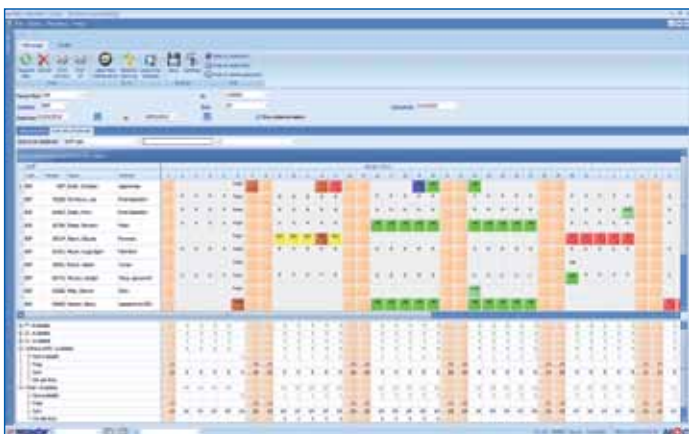
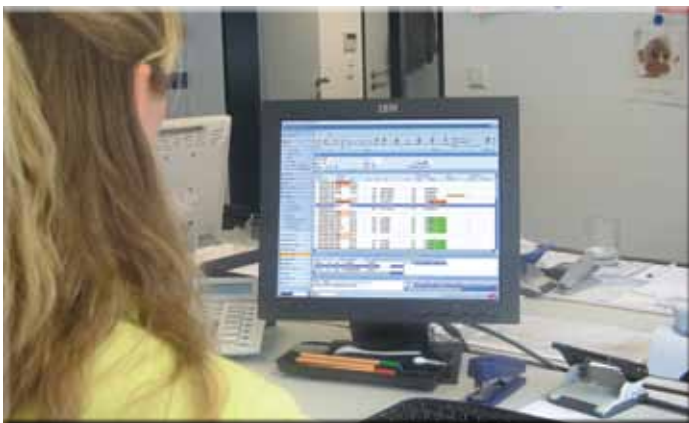
With HYDRA, you plan your personnel capacities based on order requirements, consideration of employee qualifications and availability.

Improve Incentive Wage Determination

Using HYDRA, you obtain objective, reliable and consistent data needed for determining performance related compensation of your employees. This can be accomplished with data that is automatically made available via HYDRA order data management and personnel time collection.

Increase Access Control

With HYDRA, you manage access authorizations of your employees and visitors.



MES HYDRA FOR QUALITY

HYDRA for Quality

The true importance of quality becomes apparent when it is missing. Lack of quality rapidly leads to dramatic consequences; dissatisfied customers, sales shortfalls and a damaged reputation, which in most cases cannot be restored. HYDRA-CAQ helps to monitor and maintain your quality. HYDRA-CAQ is future-oriented software that excels through its modularity, user-friendliness and numerous evaluation options. You can use HYDRA-CAQ as an isolated application for the sole purpose of quality assurance or it can be used as an integrated solution along with other modules of HYDRA.

Improve Inspection Planning

With HYDRA and production planning, you establish the conditions for efficient manufacturing and inspection of products to meet given requirements.

Improve Inspection Data Collection

By using HYDRA, inspection data collection is simple, quick and efficient. If HYDRA CAQ runs concurrently with HYDRA Production Data Management, the shop floor operator can log on and maintain the work order and CAQ inspection order at the same terminal. This eliminates the need for multiple patched terminal stations on the shop floor and considerably

reduces paperwork and increases the availability of real-time information.

Improve Complaint Management

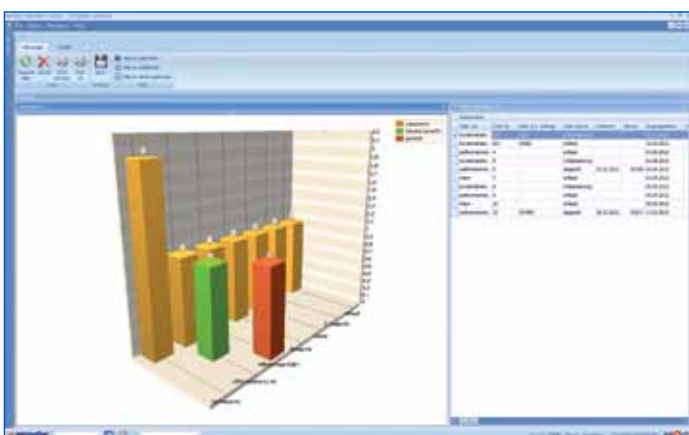
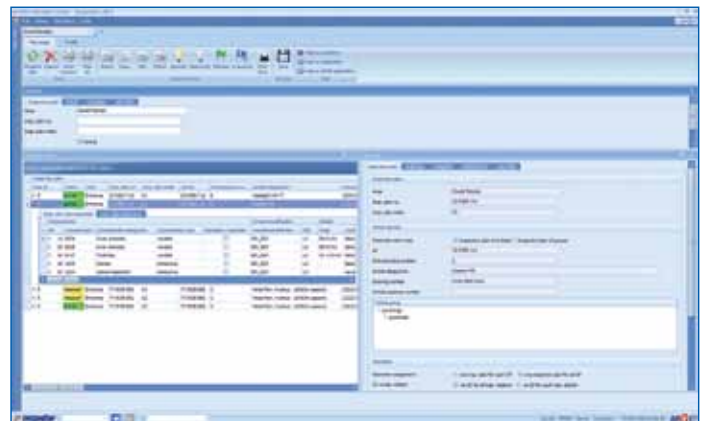
Your complaints are registered, assessed and analyzed by HYDRA. By following a defined workflow, you monitor the complaint procedure and the assignment of tasks, measures and actions. The escalation manager supervises adherence to time limits and deadlines.

Improve Supplier Evaluation

The ability to choose and maintain a business relationship with the "right" supplier becomes a decisive competitive advantage with HYDRA. It starts with the identification of potential suppliers and comprises basic analysis of the most important decision criteria and processing of edited data.

Improve Gage Management

Compliance with quality requirements can only be achieved with proper gauges. Numerous opportunities for cost reduction result from using HYDRA in your company, and can be realized by structured recording and supervision of test equipment.



The MES Experts



Worldwide next to our customers



Head office

MPDV Mikrolab GmbH

Römerring 1
74821 Mosbach, Germany
Phone +49 6261 9209-0
info@mpdv.de
www.mpdv.de

MPDV Schweiz AG

Zürcherstrasse 83
8500 Frauenfeld
Switzerland
Phone +41 52 246 0126
info@mpdv.ch
www.mpdv.ch

MPDV S.A.R.L.

11 Bis, Rue de la Fourmillière
37530 Chargé
France
Phone +33 24757 5745
info@mpdv.fr
www.mpdv.fr

MPDV USA, Inc.

Headquarters – Chicago
10730 W. 143rd St., Ste. 32
Orland Park, IL 60462
USA
Phone +1 708 966.4290
info.usa@mpdv.com
www.mpdv-usa.com

MPDV Asia Pte Ltd

5 Tank Road,
#03-02 Nagarathar Building
238061 Singapur
Singapore
Phone +65 6836 7790
info@mpdv.com.sg
www.mpdv.com.sg

MPDV Software & Technology Services (Shanghai) Co., Ltd.

425 Yishan Road
Pole Tower, Unit 1607
XuHui District, Shanghai 200235
China
Phone +86 21 5632 1032
info@mpdv-china.cn
www.mpdv-china.cn