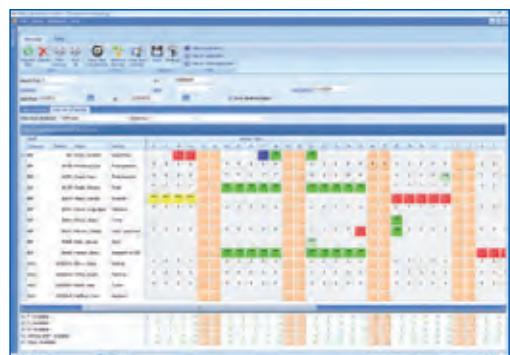
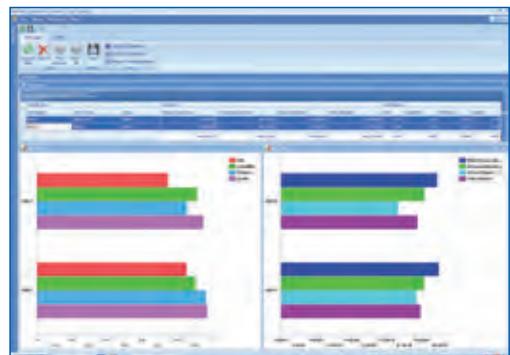
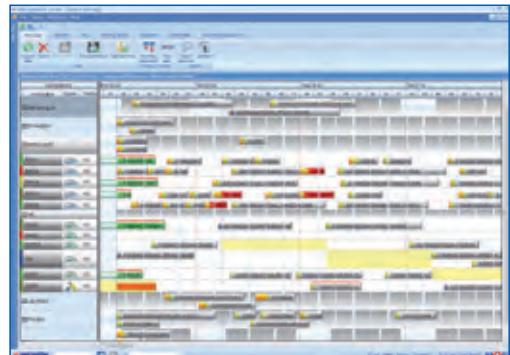


MES Solutions for Plastics Manufacturing

... to ensure more efficient and transparent production processes!



MES Solutions for Plastics Manufacturing

The key factors of the plastics-processing industry are the production of high-quality products at fair market prices, keeping up with constantly decreasing delivery times and smaller batch sizes. New requirements regarding materials, tools, machines and processes have to be met while customers demand complete documentation of product manufacturing. Modern plastics-processing businesses can only cope with these complex tasks if they use efficient Manufacturing Execution Systems (MES).

Modern MES solutions

For more than 30 years, MPDV has been developing and implementing systems tailored to the requirements of the plastics-processing industry. Initially, MPDV focused on functions for shop floor and machine data collection (BDE, MDE). Today, solutions provided by MPDV encompass the whole range of MES functions in addition to the collection and evaluation of data from production, quality and HR, and including modules supporting optimized production planning concerning orders, material, tools, energy management, and personnel.

The modular MES HYDRA system is the core element of MPDV's product range. It is used as a business solution by many plastics-processing companies, and can be customized to the specific requirements of different production processes (injection molding, extrusion, printing, assembly etc.).

In contrast to isolated applications, HYDRA considers the whole production process, links data from all resources involved in the product creation process and, as a result, allows for a "360° overview" of all data pertaining to manufacturing, HR, and quality. Moreover, in terms of vertical integration, MES enables a smooth, bi-directional data transfer between ERP and the shop floor.

To optimize and properly control production processes, including numerous factors such as costs, adherence to schedules and quality standards, foremen, work schedulers, the QA department, maintenance department or management is kept informed about the current production status and existing problems at all times using relevant key figures. For this purpose, HYDRA provides numerous functions included in different application packages:

- Graphic Planning Board / Shop Floor Scheduling
- Shop Floor and Machine Data
- Tool and Resource Management
- Quality Management (CAQ)
- Process Data and Setting Parameters
- Tracking & Tracing
- Material and Production Logistics
- Human Resource Management
- Energy Management
- Escalation Management

Data is collected by way of user-friendly terminal displays or standardized device interfaces.

For businesses relying on economic solutions provided by SAP and as a counterpart to HYDRA, MPDV provides MES applications, summarized under the product family xMES, that can be fully integrated into the SAP environment.



Graphic Planning Board / Shop Floor Scheduling

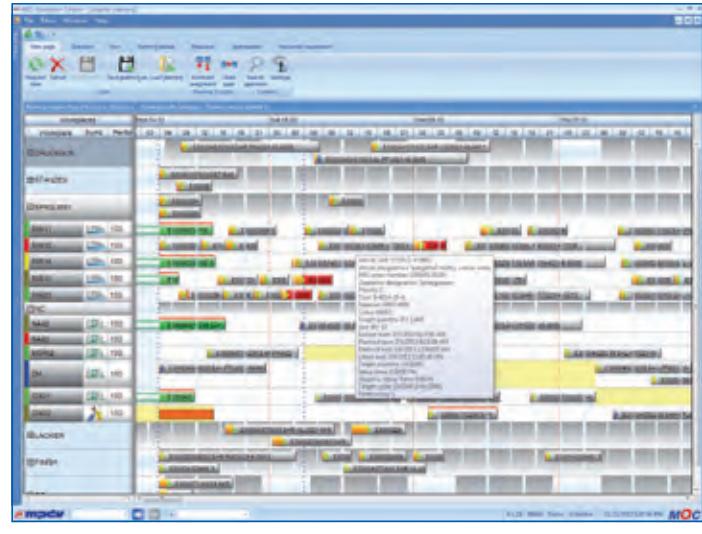
Optimum support for production control

HYDRA Shop Floor Scheduling is a detailed planning tool that can respond more realistically and efficiently to updated planning data and varying situations at machinery and workplaces than centrally organized ERP systems. When assigning orders and processes, users establish criteria by which orders are to be dispatched and note any restrictions that need to be taken into account. This may affect the retooling and cleaning processes if colors and products are changed as well as the availability of tools, material and personnel.

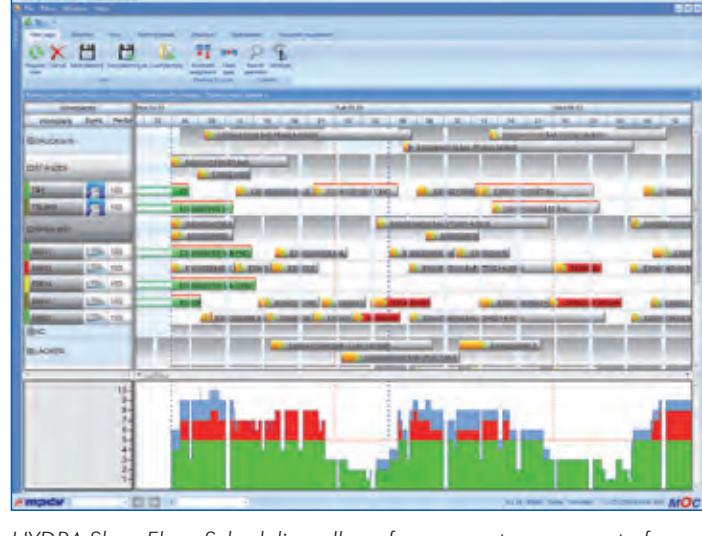
Realistic completion dates are determined based on shift models and tool data (e.g. cavity). Planning is updated periodically and malfunctions are taken into account based on uploads from the BDE module. Provided that an order is to be added on short notice (i.e. rush orders), the Shop Floor Scheduling module immediately shows consequences that might result from this.

Examples of additional functions of HYDRA Shop Floor Scheduling:

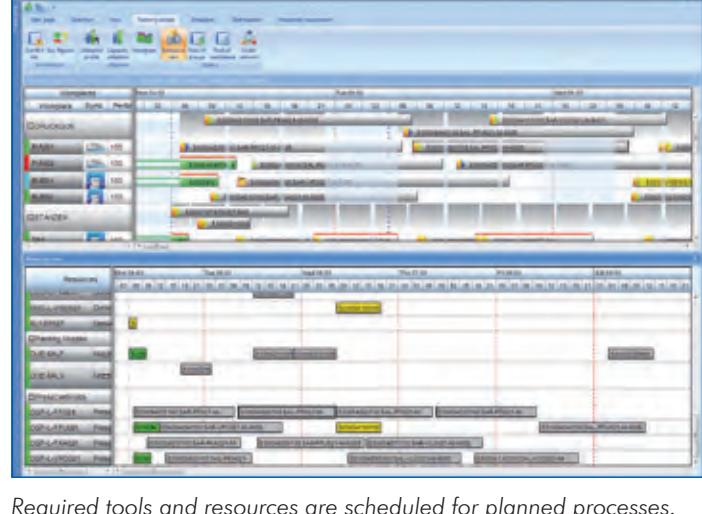
- Automatic and manual dispatching of operations
- Closing of gaps in the assignment
- Setup change and planning, taking into account setup and retooling times
- Simulation and optimization
- Modification of shift calendars to adjust capacities
- Modification functions for target data (quantities, times, cavity)
- Splitting of processes
- Production planning, taking into account the optimum use of resources
- Resource availability at a glance



The planning board shows all information relevant to planning. When it comes to multi-level orders, injection molding operations can be planned together with other operation sequences using the order network.



HYDRA Shop Floor Scheduling allows for an exact assessment of planning results. The capacity graphic shows when free production capacities are available and where re-planning is required due to multiple assignments.



Required tools and resources are scheduled for planned processes. Conflicts resulting from tools that are not available or assigned to existing processes are shown immediately.

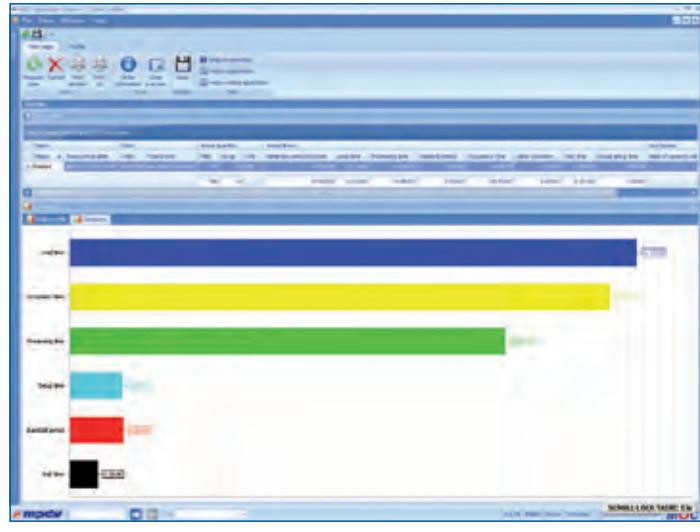
Shop Floor Data and Machine Data

Tracking problems in the production process

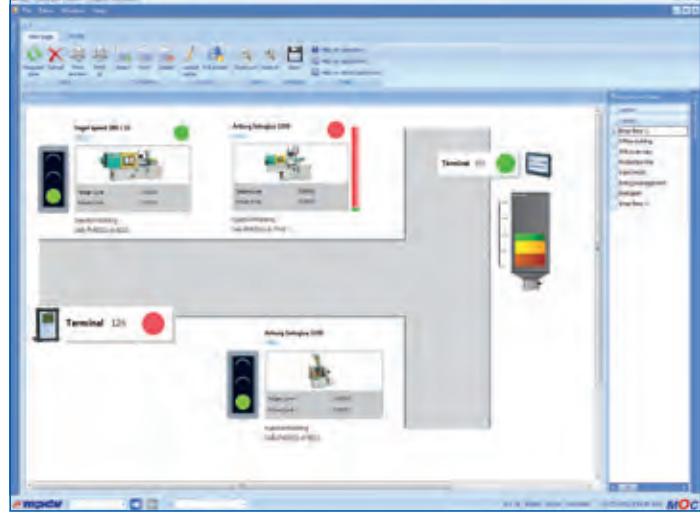
HYDRA Shop Floor Data Collection and Machine Data Collection modules allow users to directly access all necessary information about the current production status. Machinery malfunctions or delays in order processing are displayed at once. Consequently, counter-measures can be taken immediately. If cavities need to be closed within a tool, the completion date of the order will be recalculated. Technical and organizational vulnerabilities can be identified and removed by means of reports, statistics, and the calculation of key figures.

Examples of additional functions relating to the shop floor and machinery:

- Order overview and progress
- Online order controlling
- Finished orders, schedule violations
- Shift and personnel reports
- Scrap statistics
- Order and article statistics
- Pool of orders and sequencing lists
- Material consumption
- Retooling and supply lists
- Printing of shop floor documents, time tickets, labels
- Batch, material and storage postings
- Machine monitoring
- Machine cycle overview
- Statistics on downtimes and malfunction statistics
- Utilization recorder, time profiles
- Long-term reports and archiving functions
- Electronic maintenance calendar
- Key figure systems (OEE, rate of capacity utilization, quality rate, process rate, machinery capability, etc.)



User-friendly order controlling: At the push of a button, the bar chart shows what time periods (production time, downtime, setup and idle times) have accumulated while processing an order.



The “graphic machinery” provides a quick overview of the current statuses of the injection molding machines and their orders. Each user can select the machinery to be displayed on his personalized screen.



Especially for controlling, HYDRA provides diverse reports on different key figures using different calculation methods.

Tool and Resource Management

Optimum support for tool management

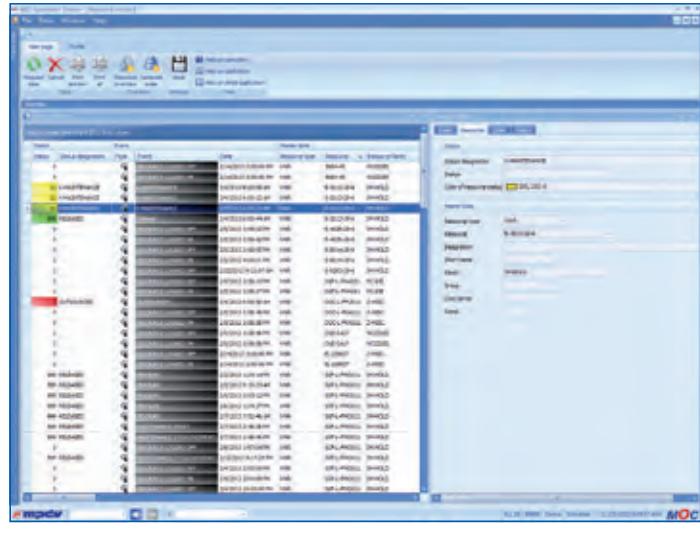
Tools and other resources are of great importance to many plastic-processing businesses as they are the crucial factor for failure-free production and the quality of the manufactured items. At the push of a button, HYDRA-WRM provides information on the current technical status and availabilities of tools. Individual parameters, such as service life, degree of wear, maintenance intervals, and utilization history, are recorded and presented in the electronic tool log over the entire life cycle of tools and even molds. Functions for preventive maintenance complement this range of services and effectively help avoid downtimes and quality losses.

A special highlight: during the detailed planning of manufacturing orders, HYDRA Shop Floor Scheduling can check online whether the required tools are available.

Examples of additional HYDRA-WRM functions:

- Master data management of tools and resources, including tool families, storage locations, etc.
- Definition of availability or reservations (release, block, and block until ...)
- Automatic posting of cycles and times onto tools and resources
- Tool lists and management of molds, including blocking functions
- Current resource overview
- Evaluations of tool logs
- Long-term archiving of tool and resource data

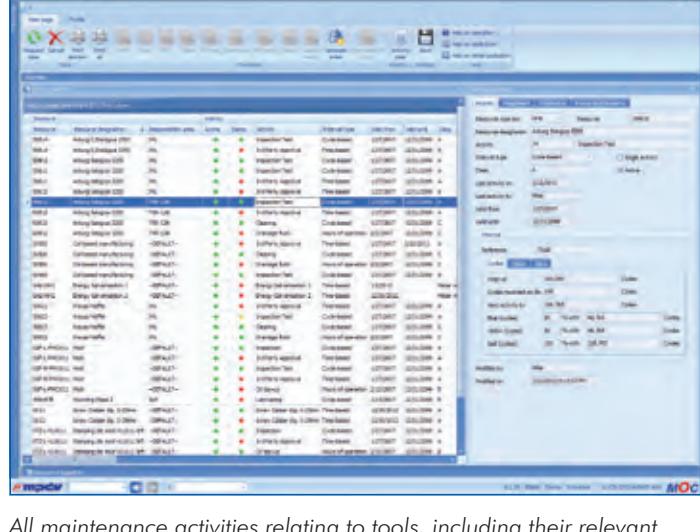
Besides tools, it is also possible to manage other resources, such as transport racks or crates in HYDRA-WRM. For high-quality resources especially, monitoring storage locations or leasing locations is essential. The different resource types in HYDRA allow for data to be processed individually for each resource.



The function "resource history" clearly shows a tool's entire life cycle. Manual notes are no longer required as data can be printed in the form of a tool log.



Extensive tool information on each tool can be stored in the resource configuration. This feature allows for considerations not only from a technical point of view, but from an economic one as well.



All maintenance activities relating to tools, including their relevant maintenance intervals, can be defined and monitored via the maintenance calendar.

Quality Management / CAQ

Avoiding quality problems and reducing scrap

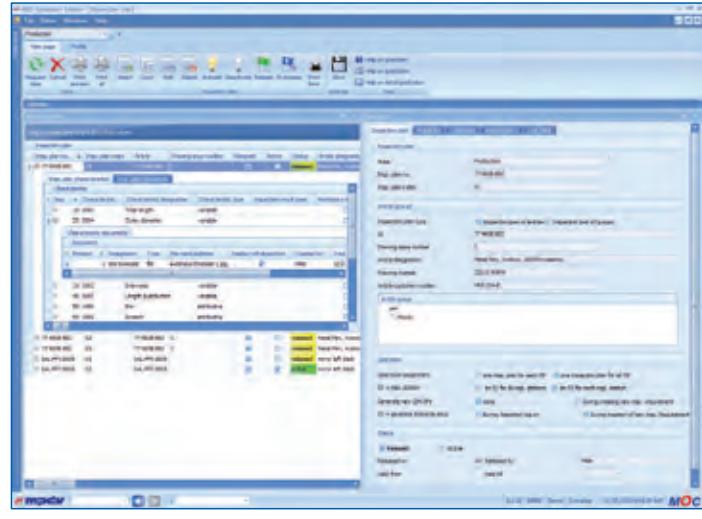
All plastic-processing businesses aim to ensure product quality with the least effort possible. An important prerequisite for this objective is to enter inspection data in an uncomplicated and efficient way. Data analyses available at the push of a button show systematic interference and help to correct processes to maintain quality standards. Specific measures to improve and maintain processes can be taken and efficiency can be monitored.

HYDRA provides the complete portfolio of quality management:

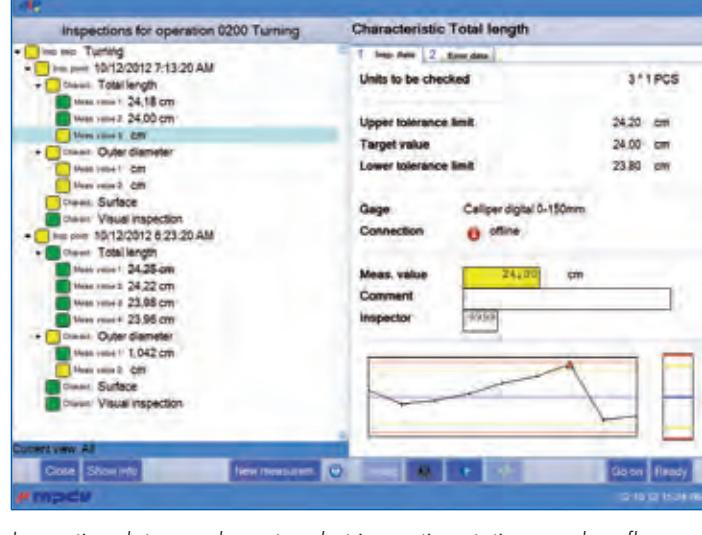
- In-production inspection, including initial manufacturing sample inspection, production control plan, and incoming goods inspection
- Incoming goods inspections, including supplier evaluations
- Complaint management
- Test medium management

The benefits resulting from integrated MES solutions are particularly true for HYDRA-CAQ. Automatically transferred process data is monitored and interpreted. Inspection characteristics, quantities, and times determined by HYDRA-BDE show upcoming inspection intervals. Quality data and data pertaining to tools is saved for registered batches to provide for complete process documentation.

Therefore, HYDRA supports you in meeting common quality standards such as QS 9000 or TS 16949.



Flexible inspection plans that can be managed in different versions represent the most important function of HYDRA-CAQ. All inspection rules relevant to quality, including rules for dynamic modification, are defined in relation to items and customers.



Inspection data may be entered at inspection stations or shop floor terminals. Automatic navigation through the relevant inspection plan combine with the possibility to link measurement or test equipment, simplify inspection processes, and avoid faulty inputs.



The failure mode analysis shows a classified overview of quality problems that have occurred. The presentation type can be chosen individually (e.g. Pareto analysis, line chart, pie, or bar chart).

Process Data and Setting Parameters

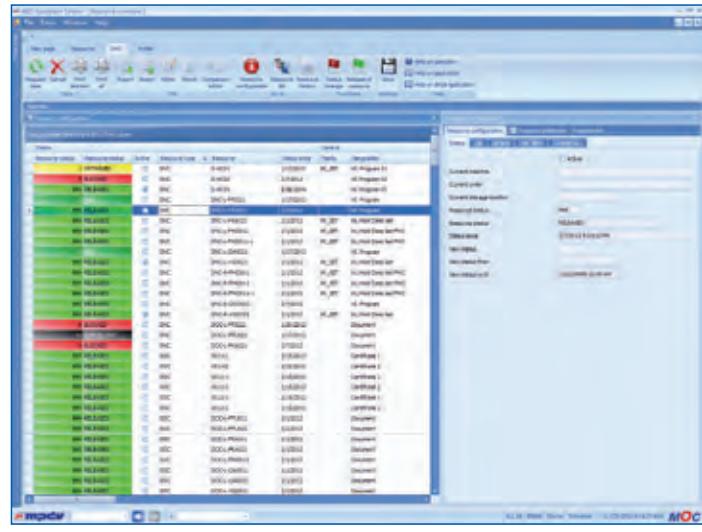
Direct data exchange with machines and equipment

The HYDRA Process Data (PDV) module transfers production and process data directly from the controls of machinery and equipment. Consequently, the production process can be monitored online as to whether action and tolerance limits specific to the different items are maintained (i.e. cycle times, melt cushions, melting temperature or hydraulic pressure). If there is a discrepancy between actual and target values, counter-measures can be taken immediately to prevent scrap items from being produced. Data is archived and thus available for process analyses or documentation purposes over any period of time.

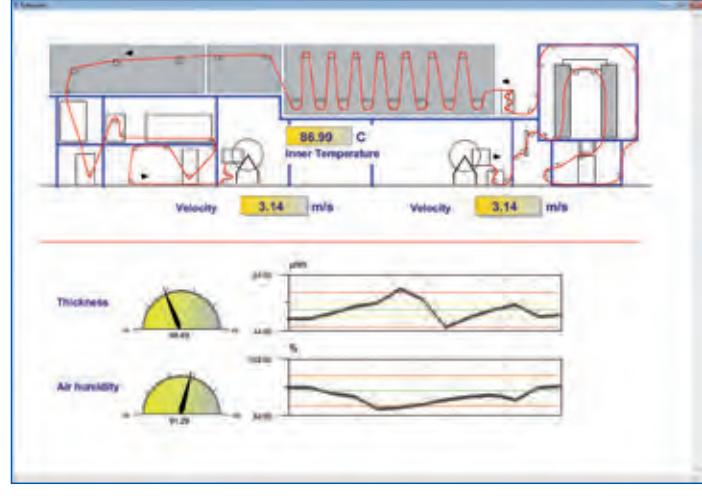
The application package HYDRA-DNC uses the same interface to transfer setting data records to injection molding machines. If machinery parameters are optimized, HYDRA saves the new data records and makes them available after they have been released if the same item is produced later on.

Examples of additional PDV and DNC functions:

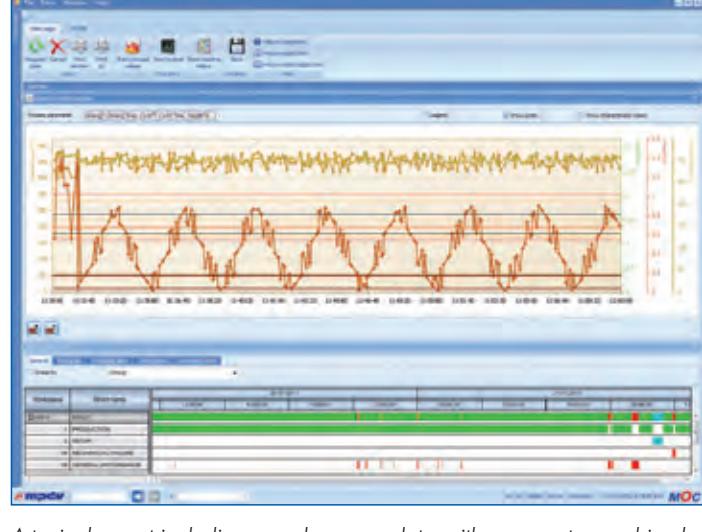
- Interfaces to machinery by leading manufacturers (Arburg, Engel, Ferromatik, Krauss-Maffei, Netstal, Battenfeld, Demag, Fanuc, etc.)
- Online process monitor
- Saving and recording of process malfunctions
- Correlative process analyses
- Long-term archiving
- Management of setting data, including automatic download
- Comparison and editing functions for setting data records



Setting data records are managed as resources in HYDRA. The overview shows available NC programs. The relevant program can be sent directly to the shop floor terminal once the order has been logged on.



The transferred process data can be visualized in different ways. The example shows a diagram of the equipment, including current process data and its progress.



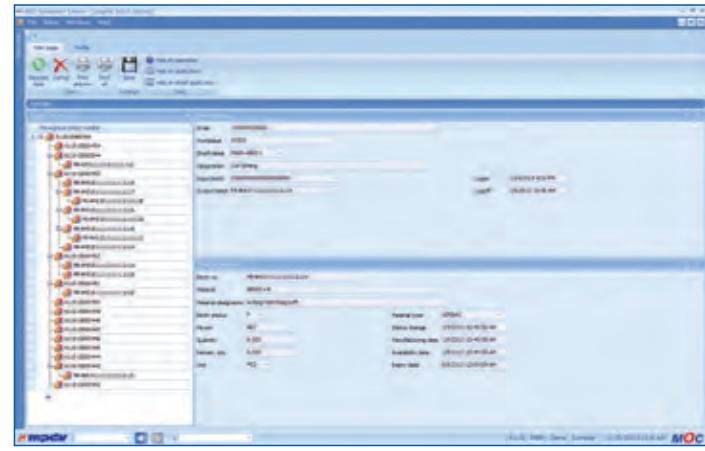
A typical report including saved process data: either current or archived values of the selected measurement channels are displayed along with their action and tolerance limits.

Tracking & Tracing / Material and Production Logistic

Traceability and material flow management

Comprehensive product documentation

The HYDRA Tracking & Tracing (TRT) module meets complex system requirements for batch tracing (traceability). The system can even be used in especially sensitive areas (e.g. medical technology) and complies with strict FDA rules and GMP guidelines.



Material flow optimization

In addition, the HYDRA Material and Production Logistic (MPL) module manages and monitors work in progress (WIP) in plastics manufacturing. Whether pellets, reclaimed material, master batch or intermediate product, you will always know which quantities are included in which material buffers as they are updated automatically by BDE displays.

HYDRA helps reduce capital commitment by reducing stock and provides for comprehensive product documentation in accordance with statutory requirements.

Some examples of additional HYDRA-MPL and TRT functions:

- Automatic collection of input and output batches
- Collection of quantities and times relating to batches
- Entry of incoming goods batches
- Printing of individual batch labels
- Batch data and stock overview
- Batch history, including archiving functions
- Graphic batch tracing
- Management of material buffers
- Requirements overview for pellets, master batch and reclaimed material
- Calculation of material availability and ranges of coverage
- Expiry statistics and alerts

The graphic batch tracing provides an especially good overview by visualizing the complete batch tree. In cases of complaints, all components and production levels that include the used raw material can be traced back.



A descriptive example of how material flow information can be presented in HYDRA. The contents of material buffers are updated automatically via BDE displays. Users can create individual layouts for the single production areas.

A screenshot of the HYDRA software interface showing a detailed table of material requirements overview data. The table has many columns, including 'Order number', 'Order of time', 'Description', 'MPC order number', 'Current', 'Planned', 'Last change', 'Last update', 'Last check', 'Last check date', 'Order', 'Planned for', 'Target quantity (Q)', 'Current', and 'Order number'. The table is filled with numerous rows of data, representing different orders and their requirements. The bottom of the screen shows the standard Windows taskbar with icons for Start, Task View, File Explorer, and others.

The function "material requirements overview" efficiently supports work scheduling and material requirements planning. Based on the master data of the orders to be manufactured, HYDRA calculates which machinery and which components are required and at what point in time.

Human Resources Management

Focusing on the importance of human resources

Many years ago, MPDV recognized the significance of human resources and implemented efficient functions for Time & Attendance (PZE), Time Management (PZW), Personnel Scheduling (PEP), Incentive Wages (LLE) and Access Control (ZTK) into their MES solutions. This emphasizes how an integrated approach has many advantages: all HYDRA modules use a standardized HR master roster. Detailed planning in HYDRA Shop Floor Scheduling verifies whether staff with the required qualifications is available, while shift information and absence times stored in HYDRA-PZE are available. The Incentive Pay module uses attendance information from HYDRA-PZE, parameters relating to orders from HYDRA-BDE as well as data from Machine Data Collection, to compute complex incentive wages. All this can be realized without complex interfaces.

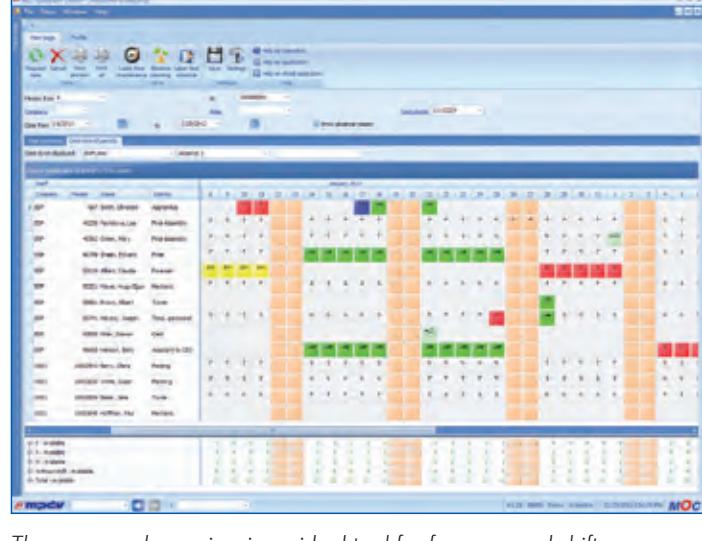
Some examples of additional HYDRA functions for HR information:

- Personnel time management, including models for flextime, shifts and wage types
- Accounts for overtime, flextime, flexible time and leave, including functions for approval
- Daily, weekly, and monthly reports about time management accounts and wage types
- Shift/absence planning and staff availability
- Current attendance/absence overviews
- Determination of workforce requirements subject to orders and qualifications
- Representation of rules for incentive pay
- Access control
- Configurable evaluations, reports, and printable lists

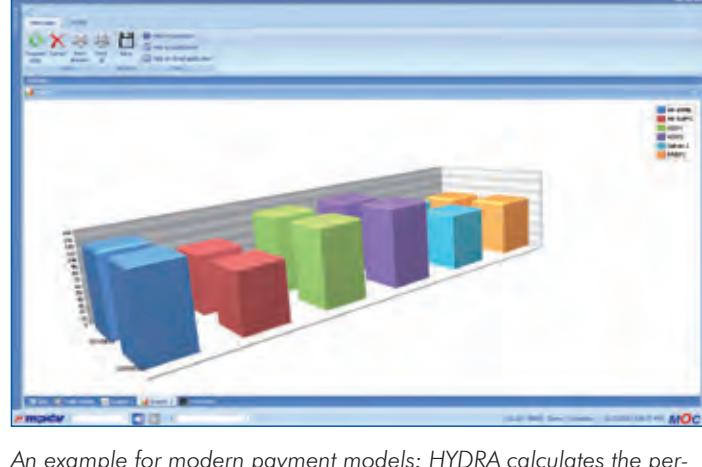
Access control requirements prescribed by customs law can be met by HYDRA-ZTK. The creation and management of staff badges as well as efficient management of visitor badges support you in achieving AEO (Authorized Economic Operators) certifications.



An ideal combination of Shop Floor Scheduling and Workforce Requirements Planning: Shop Floor Scheduling determines workforce requirements based on orders to be produced and PEP makes sure that personnel can be assigned automatically or manually.



The personnel overview is an ideal tool for foremen and shift supervisors. This overview shows at a glance which employees are present during various shifts, if absences are anticipated, and how many employees are available during each shift.



An example for modern payment models: HYDRA calculates the performance efficiency rates of different premium groups and provides an overview of their development within the selected period of time.

Energy Management

Significant reduction of energy consumption by using MES

Many companies might be able to lower their production costs significantly if they manage to reduce their energy consumption, among other things. In addition, as of 2013, energy management systems certified by ISO 50001 have to be used in order to receive tax benefits in connection with renewable energy sources. The HYDRA Energy Management (EMG) module can be used to identify where energy is wasted and which savings potential might be available.

Energy consumption of individual machinery and equipment can be measured and evaluated directly. Therefore, it is not only possible to detect power guzzlers at the push of a button, but collecting further data enables manufacturers to establish correlations between energy consumption and manufactured items, used materials, and/or tools. By analyzing the development of energy consumption, HYDRA also provides an important basis for preventive maintenance. If a device consumes significantly more energy than in a previous reference period, this might indicate worn-out machinery parts.

Specific MES reports also show when and how long machines are in stand-by mode and consume energy without being productive. This reveals indirect waste of energy.

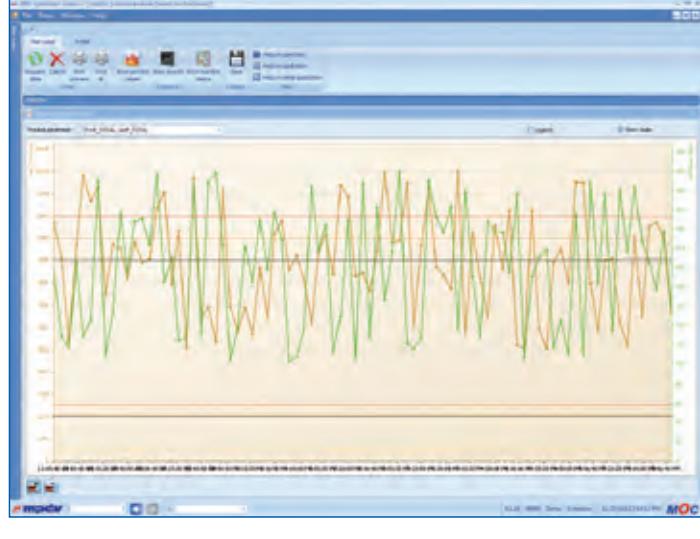
Examples of EMG functions:

- Management of energy counters and mapping of hierachic counter structures
- Collection, visualization, and monitoring of energy consumption
- Automatic alert system when target values are exceeded
- Consumption analysis in correlation with other production parameters
- Consumption profiles to identify temporary peak loads
- Energy key figures and planning strategies to improve the energy balance

Last but not least, lead times and idle times are also reduced by improved planning and manufacturing processes. As a welcome side effect, general energy costs are reduced overall, e.g. energy costs for heating and lighting of shop floors. In addition, MES functions also provide for more transparency with regard to the generation of scrap and, as a result, are the basis for reducing the scrap rate. Therefore, less energy is consumed as fewer pellets are used and reworking measures may be avoided.



The graphic machinery screen displays energy consumption values which can be directly compared to the devices that are consuming energy. Single values can be selected and arranged individually.



Graphic reports help to determine energy consumption or other expensive media consumption trends which have developed over longer periods and indicate which situations led to the exceeding of target values.



Energy data is evaluated in the consumption analysis and used as a basis for making decisions about energy-reducing measures.

Escalation Management and Workflow

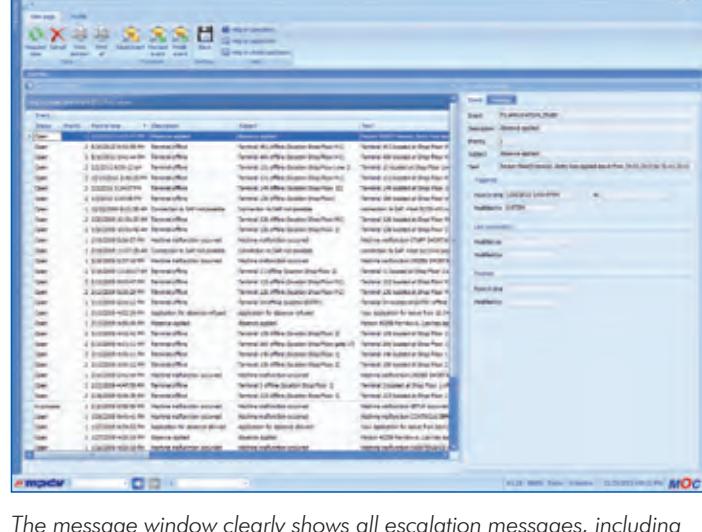
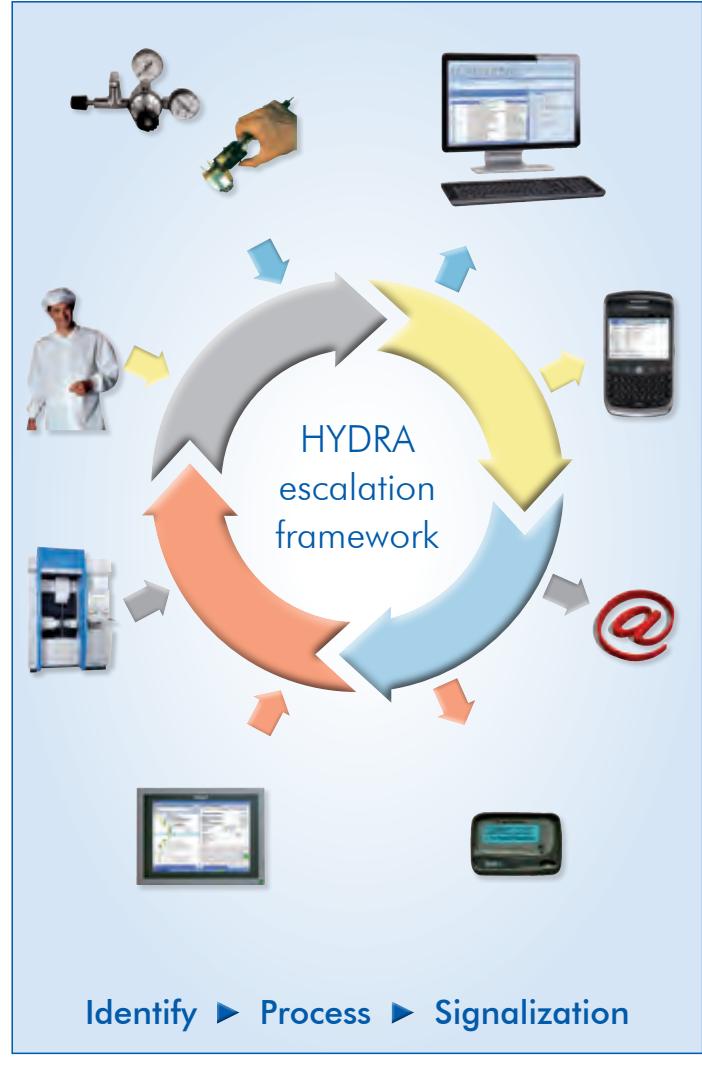
A prerequisite for being able to react quickly to important events

A basic prerequisite for fast and efficient business processes is that authorized persons are immediately informed about important events. HYDRA Escalation Management provides a framework of functions for comparing individually defined target values with current actual values. If deviations occur, HYDRA Escalation Management automatically sends messages to specified persons or assigned groups.

Common communication technologies, such as email, SMS, or pagers, can be used for sending messages. The messages may be displayed directly in a message window on workplace PCs or shop floor terminals. Once the message has been sent, HYDRA verifies whether the recipient responds to it and confirms the message. If this is not the case, the message will be forwarded to a substitute. A workflow process may be defined for each escalation, defining next steps (e.g. approval by a responsible person, acknowledging receipt, forwarding and documentation of the solution). Each individual step is recorded and is therefore available for relevant reports and analyses.

- Target quantity of the order has been reached

- Operation has been interrupted
 - Machine malfunction has occurred
 - Maintenance due for machine or tool
 - Batch has been posted as incoming goods
 - Batch has been reposted to another material buffer
 - Operation has been re-assigned or removed from the planning board
 - The status of a tool has been changed (from released to blocked)
 - Tolerance limits of process values have been exceeded / not reached
 - Action limits of process values have been exceeded / not reached
 - Inspection results outside of the tolerance range
 - QM measure has been recorded
 - Employee has sent an absence request (e.g. leave)
 - Absence request has been approved



their respective statuses (open, in process, forwarded, completed) and important details.

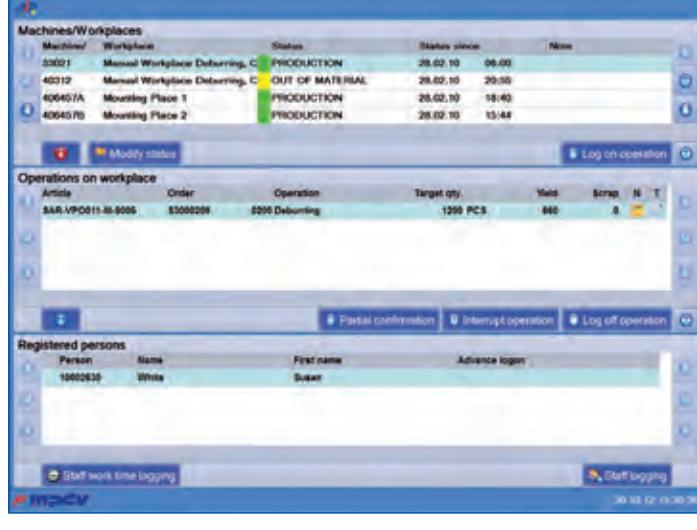
Data Collection / Machine Interfacing

User-friendly operation and smooth information flow

Special conditions and requirements have to be considered and met for data collection:

- Utilization of ergonomic and user-friendly shop floor devices
- Integration of existing production facilities
- Mapping of requirements specific to the plastics industry
- Adaptation to environmental conditions (humidity, dust, etc.)
- High reliability and security

Graphical user interfaces have to meet the requirements of the shop floor, need to be user-friendly and clearly structured to encourage employee acceptance and motivation. HYDRA provides appropriate input dialogs for each task as they can be configured individually. Keyboards suitable for industrial purposes or devices with touch screen technology are the basis for efficient operability.



Standard user interface of the shop floor terminal to enter data relating to orders.

If required, mobile terminals or smart phones enabling flexible and location-independent utilization may be used in addition to stationary devices. The fields of application include applications in maintenance as well as material and stock postings.

MES solutions are designed to meet modern aspects and provide a positive side effect, if used along with the customer's existing or new infrastructure. Accompanying information, material lists, work plans, inspection requirements or drawings as well as NC data and setting parameters may be forwarded directly to the shop floor as a paperless data transfer from the ERP system to machinery and equipment. If data is directly transferred from the controls of machines and equipment, time and material spent for manual data entry can be reduced significantly. Hence, time is saved and reliability is increased. HYDRA uses configurable data interfaces to communicate with different types of devices from multiple manufacturers and

exchanges data in both directions. The benefits are obvious: machinery and process data are directly collected at machinery and equipment or transferred from the controls before it is processed, visualized, and archived in HYDRA in real-time. Setting parameters and data records can also be transferred directly to the controls.

HYDRA provides an extensive library of proprietary and/or standardized interfaces and protocol modules. As an example, this includes the Euromap-E15 or E63 protocols commonly used in the plastics industry, modern OPC interfaces as well as common industrial bus systems such as Arcnet, Modbus and Profibus. If older machines without data interfaces are to be integrated into MES, they can be connected to HYDRA by using reasonably priced and easy to install peripheral assembly groups, including digital inputs/outputs. The new UMCN standard (Universal Machine Connectivity for MES) defined by MPDV enables user-friendly connection of modern machinery.

Some examples of implemented interfaces:

Injection molding machines

- Krauss-Maffei
- Ferromatik Milacron
- Netstal
- Battenfeld
- Engel
- Demag
- Arburg
- Fanuc
- Sandretto
- Negri Bossi



Scales and scaling systems

- Mettler Toledo
- Bizerba
- Sartorius
- Systec
- EHP



Machinery controls and peripheral assembly groups

- PHOENIX CONTACT
- BOSCH
- Fanuc
- PHILIPS
- SIEMENS
- Panasonic
- Beckhoff
- WAGO
- Mitsubishi



Integration in the Business Environment

All company levels benefit from MES

In addition to a comprehensive overview on all resources involved in manufacturing and production process support, HYDRA provides another important function: With respect to vertical integration, MES connects the technical production level with the higher-level, commercial ERP, TQM, and HR systems. HYDRA has standardized, configurable interfaces that

not only provide for interfacing to existing machinery controls, but also for smooth integration into existing IT environments. Moreover, HYDRA is based on IT standards and uses IT components such as networks, office PCs and PC-based shop floor devices to allow for a modern MES infrastructure.



Interfaces to superordinate ERP systems

(some examples):

- SAP PP, CO, PM, PS
- Microsoft Dynamics NAV
- Microsoft Dynamics AX
- Oracle E-Business Suite
- proALPHA
- Infor ERP
- MAPICS
- bärer b2
- JD Edwards EnterpriseOne
- PSI Penta
- Baan IV, Baan ERP
- SoftM (M-Suite)
- Abas EKS
- ifax.OPEN
- QAD MFG/Pro
- Concorde XAL etc.

Interfaces to HR systems:

- SAP HR
- KHK
- PAISY
- P&I, LOGA
- Lohn XL, XXL
- Hansalog
- DATEV
- Varial etc.

SAP® Certified
Powered by SAP NetWeaver®

SAP® Certified
Integration with SAP Applications

MPDV: The MES Experts

Benefits provided by integrated MES solutions

All HYDRA modules rely on an integrated database. Thereby, HYDRA provides a seamless presentation of interrelated processes, taking all resources into account. A benefit proven by many examples:

- Consideration of operational progress messages from HYDRA-BDE as well as transfer of machinery statuses from HYDRA-MDE for permanent synchronization of planned / actual scenarios and planning with respect to available capacities in HYDRA Shop Floor Scheduling (HLS)
- Automatic quantity and downtime postings for tools and resources as well as availability, checking of resources in HYDRA Shop Floor Scheduling
- Synchronization of production and inspection planning (HYDRA-CAQ)
- Ensuring the utilization of released setting data and documentation of process data for tracking and tracing as well as evaluations and reports
- Complete documentation of the manufacturing process, including data about quality, processes, machinery and HR
- Comprehensive workforce requirements planning and access control
- Collection of energy consumption data and reports in correlation with orders and produced items

In addition to a broad range of services and products for plastics-processing companies, MPDV also provides comprehensive expertise in the implementation of MES systems for other industries. HYDRA benefits from utilization across industries and meets the requirements of corporate solutions, as manufacturing processes, such as tool making, assembly, metals processing, electroplating or painting, are also applicable to the plastics industry.

MPDV: The MES experts

MPDV Mikrolab GmbH is one of the leading solution providers in the field 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 11 locations worldwide: Germany, France, Switzerland, Singapore, China and the USA. More than 800 production companies from a variety of industry sectors, ranging from small and medium-sized companies to international corporations, use our MES solutions.

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.

MPDV worldwide



Head office

MPDV Mikrolab GmbH

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



MPDV Schweiz AG

Flugplatzstrasse 5
8404 Winterthur
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.
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 Singapore
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