



# WAREHOUSE MANAGEMENT SYSTEM

complex processes  
– easily operated





The **iFD GmbH** plans, develops and realizes software systems worldwide for automated and manual fields of intralogistics. The range of products and services consists of the following:

- › **Warehouse Management**
- › **Material Flow Control Systems**
- › **Forklift Control Systems**
- › **Commissioning Solutions (e.g. Pick by Light)**
- › **Simulations**
- › **Individual Software Solutions**
- › **Service and Support**

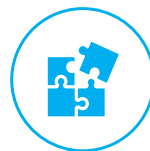
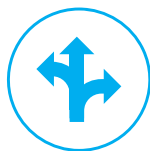
iFD GmbH is owning an independent research and development department. This is an important requirement to be able to guarantee a permanent innovation and advancement process in all software systems and add-on components.

Since the founding of the company in 1990 iFD realized over 300 cross-industry projects.

A steady development and active research, as well as a targeted improvement of concepts and products are a guarantee for success for adapted software systems. These software systems represent the ideal logistic solution for a multitude of national and international customers.

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# MODULAR WAREHOUSE MANAGEMENT

## RECEIPT OF GOODS

- › goods delivery
- › collection against delivery note and payment advice
- › management of empties incl. account management
- › automatic warehousing incl. goods identification and labeling
- › loading unit formation
- › QA check
- › dock & yard management
- › crossdocking
- › returns handling
- › supplier portal

## WAREHOUSE MANAGEMENT

- › client and multi stock handling
- › consignment
- › permanent warehouse reorganisation
- › relocation according to general criteria:
  - access times, ABC, route optimisation, slotting, article clustering, seasonal stock control
- › consolidation
- › VAS control and billing, storage charges
- › serial number handling
- › multilevel, automatic replenishment
- › repacking and stock reorganisation
- › proven inventory procedures
- › dangerous goods storage

## TRANSPORTATION MANAGEMENT

- › paperless transport management with priority control in real time
- › resource-optimised vehicle and employee control
- › optimised transports through
  - forklift control system, tigger train control system, automatic conveyor systems and AGVs
- › alternative calculation with provision time forecast





## CONSIGNMENT

- › daily requirements forecast
- › capacitive parallelisation calculation
- › two-stage picking, sort & pack, pick2pack
- › demand-driven dynamic picking zones
- › route-optimised order calculation
- › consolidation & multi-circle picking
- › package and shipping optimization

## PRODUCTION MANAGEMENT

- › sequencing for JIT & JIS
- › production supply according to multi-level part lists
- › kit creation
- › utilization forecast
- › electronic kanban control

## GOODS ISSUE & DISTRIBUTION

- › charge optimised and tour accurate shipping preparation
- › digital KEP connection (for example via web service) with label retrieval and notification
- › packing
- › packing instructions & loading monitoring
- › freight costs calculation
- › customs connection

## PERFORMANCE & OPERATING FIGURES

- › digital control station
- › graphic dashboards for order control, resource management, shipping provisioning, receipt of goods and urgent goods
- › resource cockpit for transport control
- › warehouse visualization
- › comprehensive journalization
- › KPI measurement



# FLEXIBLE PROCESS DESIGN

- › modular system with industry-specific components for (e.g.) the automotive industry - with JIT and JIS planning logics or for the handling of dangerous goods
- › Integrated set of regulations - like warehouse or picking regulations - enable permanent system adjustments without additional programming effort
- › variable WMS frontend or individual design of masks and dialogues
- › WMS availability: cloud or SaaS solution and on-site hosting

## Intuitive user guidance

The WMS provides a comprehensive feature set and depth. iFD customers can choose from a wide range of direct influence on the design of the processes. From the simple system for inventory management up to complex warehouse management including powerful control for highly complex logistical requirements – the iFD-WMS offers for every company the right solution. Each warehousing technique can be done directly or via a WMS integrated material flow control system (MFCS).

## Customised interfaces

In addition to standard market systems, there is a large number of industry-specific systems and in-house developments. For this reason, iFD has focused on customer-specific interface adaptation of HOST and subsystems. The WMS offers standard interfaces to a variety of ERP systems, shipping companies, online shops or even shipping and customs software.

## Flexible hardware concept

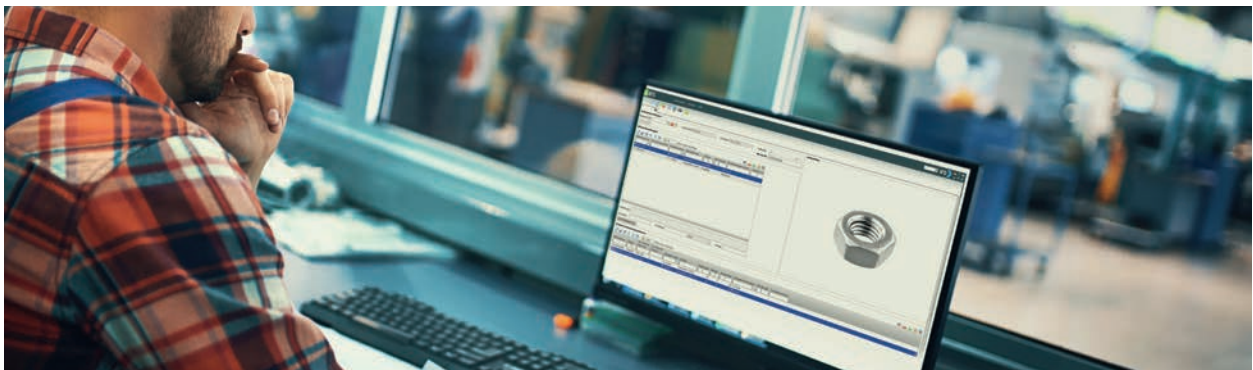
The WMS can be either embedded into the customer's IT landscape directly - mostly on a virtual machine (VM) or as highly available cluster solution - or the system will be provided as a cloud solution from the iFD network. Together with the customer the iFD will find the optimal operating concept. The WMS impresses with database and operating system independence, which is an optimal basis for a growing system.





# TRANSPARENCY WITH REPORTS & STATISTICS

- › Validated KPI system for the evaluation of internal processes and targeted control of the entire intralogistics
- › Complete monitoring through a personalised dashboard, with access to archive and history data
- › Powerful warehouse visualisation enables direct adjustments during operations



The license-independent **warehouse visualization** creates a central overview of the entire warehouse. The complete overview can be divided into separate areas right down to the detail screen for separate warehouse aisles with detailed information about the places. Troubles will be reported by coloured pop-ups. This enables immediate trouble-shooting. The complete integration into the WMS allows direct process interventions directly from the visualization template.

**The motivator** is an excellent instrument for performance increases and serves as an incentive to achieve goals. It can be placed directly in warehouse or production areas to inform workers about current achievements. Data and display options can be set individually. Large journals provide a complete transparency of processes. The entire process chain can be tracked on user or process level.

**The dashboard** shows all the important information about the current state and the utilisation of the entire warehouse. Quick adjustments can be made through colour changing state displays in critical moments.





# PROCESS OPTIMISED HANDLING

- Easy and intuitive operation guarantees fast orientation and high user-friendliness
- Integrability of images into detail masks and linking to further information
- Detection and prevention of input errors through special plausibility check

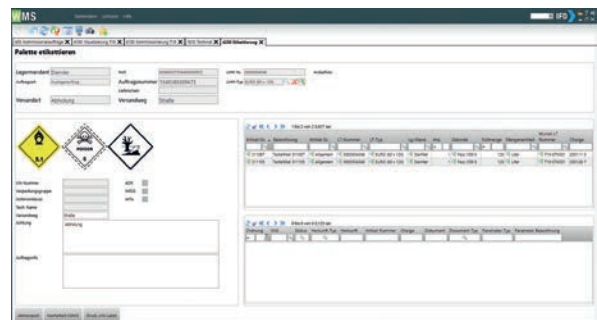


## Excellent user friendliness

Easy and intuitive user guidance is a basic requirement for accurate and efficient work. The WMS has adaptive masks. Frequently used terms, destinations and transports will be automatically saved and displayed to the operator as a quick selection option for future inputs. The frontend is specially designed to make quick and well-founded decisions. It presents all important information at a glance and links via icons to detailed information.

## Clearly arranged operating dialogues

The content and structure of the dialogues will be discussed with the customer according to their process and can be precisely adapted. In order to secure the acceptance of the operators, the workflows and company-specific vocabulary will be integrated into the operating dialogs. The user is supported by clear instructions through the process. Inputs can be made via scan or touch. Input times will be reduced to a minimum through smart consolidation.







## MODULES AND ADD ONS

- › Connection of AutoStore, EHB/EBB (electric hanging & ground conveyor), conveyor and storage technology – WMS meets the highest automation requirements
- › Optimal transport control with the forklift control system for: forklifts, trucks, tractors, tugger trains and driverless transport systems
- › Order picking via voice, light and vision technology



### Picking with the WMS

For fast, error-free and paperless picking the WMS provides the following modules:

- › Pick-by-Vision
  - visual order picking via data glasses
- › Pick-by-Light
  - order picking via eye-catchers at the shelf
- › Pick-by-Voice
  - voice controlled order picking via headset
- › Pick-by-Scan
  - order picking via mobile equipment

All modules are compatible with any hardware technology, completely paperless and with the scalable structure permanently expandable. The communication with end devices happens via UMTS or WLAN. Following the hands-free approach the worker concentrates on his core activity.

### Compact warehousing with AutoStore and WMS

Product safety and stock accuracy are factors to speed up order processing and reduce the time required with a lower error frequency. The compact goods-to-man warehouse solution optimises routes and storage volumes. Significant cost advantages can be achieved with that. Other functionalities such as weight recording and quantity control at the port or integrated article images facilitate handling for the order picker.

### Automation in WMS

The WMS contains the mapping of different sequencing strategies for the highly complex JIS- and JIT requirements. An integrated vehicle control system connects driverless transport systems and electrified monorail systems coupled to a powerful plant visualization system and allows direct intervention possibilities into the process control.



# CUSTOMER-ORIENTED PROJECT REALIZATION

- › Many years of project experience and comprehensive logistics know-how guarantee a competent conception and preliminary planning. Project-related emulations ensure functionalities and target performance
- › Simulation incl. 3D visualization for system and performance dimensioning as well as real-time simulation for permanent process optimization
- › Modernisation and retrofitting with the help of proven migration concepts including return on investment analysis



**Robert Hertel**  
Division Manager WMS

## **Logistics modernization**

Tried and tested migration concepts and the longstanding co-operation with automation companies make the iFD a strong partner when it comes to the replacement of legacy systems and their technology. Perfectly coordinated step concepts make it possible to use operation-free times for the conversion to the new system while keeping the entire time a possible return to the old system open as a back-up option.

## **Safety through simulation**

Based on a logistics concept as well as a defined target performance it is already before the realization of the project possible to use a 3D simulation of storage and conveying strategies to define and dimension plants and bottlenecks. Unique key figures provide the basis for investment decisions.

## **Security consulting and conception**

### **– IT basic protection**

The iFD provides deliberate and secure IT concepts and handles procurement, configuration and the installation of matching hardware components. The conception and software development fulfills the highest safety requirements according to BSI standards.

## **Emulation**

The implemented processes and interfaces are reproduced with tested emulation tools and detailed iFD test procedures. The test procedures guarantee that the WMS is stable and can be integrated into the system without any problems. After go-live the emulators provide support for the validation of future process adaptations.



# TESTIMONIALS

„The iFD contributed innovative solutions und realized the project entirely in time and costs agreed upon. Siginificantly for this cooperation were espacially the high resilience and flexibility of iFD employees. We could achieve a reduction of about 50% in personnel costs while increasing the picking quantity by 15%. The solution's biggest advantages are a high ergonomics degree, a better utilised capacity for our employees, shorter throughput times as well as a reduction of picking and loading / shipping mistakes. For our company this means securing a high service level for our customers with growth at the same time and a reduction of overall logistics costs.“

## **Stefan Ostertag**

EMEA Network Director, Friatec GmbH

“With the iFD as our partner, we have modernized S5 control of the conveyor system as well as two stacker cranes with its crane bridge. Moreover, we have migrated our material flow control system. The trusting cooperation of Exide Technologies Operations GmbH & Co. KG and iFD GmbH has been acknowledged and successfully continued by this project. As a result, we have accomplished a throughput increase by over 6% with a simultaneous elimination of extra work. Our improvement is accompanied by lots of advantages, namely: 24hrs availability, excellent usability because of the new material flow calculators, a performance increase and a future proof spare parts supply.”

## **Jan Zimmermann**

Warehouse Manager, Exide Technologies Operations GmbH & Co. KG

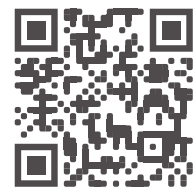
„Together with iFD we could upgrade and migrate our aged logistics system with two AS/RSs based on S5 control to a modern and up to date MWCS system. The know-how of organizers and developers was outstanding. Through goal-oriented and tireless efforts of the entire iFD project team our migration project could be delivered on time with all our special requirements.

The good user training completed the package with no wishes left to satisfy. The good and trustful cooperation with iFD employees has beeing existing until today with their support.“

## **Joachim Dümmler**

Senior Consultant local Apps, Werk Nürnberg, Nexans Deutschland GmbH

You will find references of the WMS here:





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