

PRESS RELEASE

Industry 4.0 – The human being in the center of a cross-linked world of systems

- No industrial revolution happens without logistics
- New iBin®WP allows for a direct and connected supply to the workstation

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Industrie 4.0 was the central subject at the LogiMAT 2014 trade show in Stuttgart and is likely to turn the industries of intralogistics, logistics and materials management upside down in the years to come. "Essentially, this can be traced to the fact that in logistics we are still dealing with relatively simple processes but with more and more complex and dynamic systems and networks", said Prof. Dr. Michael ten Hompel, Managing Director of Fraunhofer Institute for Material Flow and Logistics (IML) Dortmund.

The change has already begun

Digitalization has already started to change today's production flows and material supply. In the factory of the future, this environment will continue to fundamentally change and to link up modern IT technology with traditional production processes. Flexibility, efficient processes, maximum supply security, narrow focus on the core business – today, a lean C-Parts management has become an integral part of the manufacturing industry. In future, however, lean processes will not be enough and more individual solutions capable of networking with the overall system and with human beings will be sought.

Hence, the requirements for partners of industry – and this includes logistics – will become even more complex in future. Prof. Dr. Michael ten Hompel used some examples to underline this current development: "'Intelligent boxes' such as Würth Industrie Service's iBin® and independent warehouse vehicles as part of a new, 'cellular' conveying technology, or cloud-based solutions such as the Logistics Mall are appropriate examples of this fundamental change in both the operational and organizational field."

Würth Industrie Service GmbH & Co. KG already responded to that development with the introduction of the iBin®, the first optical order system, in 2013. Networked, harmonized logistics processes are the basis of this fourth industrial revolution.

From traditional C-Parts management to a connected workstation supply

But let's go back a little further: A broad range of C-Parts such as screws, nuts and washers for production requires storage fit for production, a perfectly fine-tuned interaction between all processes of the supply chain and convenient handling at the workstation. The modular supply and logistics systems offered as part of Würth Industrie Service's CPS® C-Parts Solutions are globally used and known to facilitate exactly that.

All of this is always based on the Kanban principle; a rolling two-bin system which, unlike conventional supply methods, delivers C-Parts "just-in-time" directly to the place of production while offering high adaptability in case of demand changes as well as the highest possible delivery and supply security for reduced inventories and the lowest possible capital lockup. The Kanban bins constitute the fundamental element for storage, retrieval and transport. At Würth Industrie Service, we have been using our own development of Würth small-load carriers of the second generation, also known as W-KLT®2.0, since 2009. They are especially geared to the needs of the manufacturing industry. The front flap of these bins based on VDA standards can be opened in two steps to an almost horizontal position, thus allowing for easy, flexible access to the small items inside. The two-position front flap allows for a reduction of the shelf distance in the Kanban rack and a more efficient use of the location space. In the past, the material flow had been controlled using Kanban index cards or Kanban labels. Since the end of 2011, Würth Industrie Service have been offering RFID-based Kanban systems to their customers and have been attaching a standard RFID tag to every W-KLT®2.0 bin for highly-flexible demand control, permanent data transmission via radio and for automated replenishment orders. RFID technology is a broadly-known technology and has been used in many other fields for years, which is why its benefits are obvious: demand fluctuations and peaks are quickly recognized, orders and data are transmitted permanently and easily and any manual data entry has been rendered superfluous. With this method, an RFID request for restocking is made by placing the empty bin on a shelf, into a box or inside a dropbox. The new iBin® jointly developed by Würth Industrie Service and Würth Elektronik ICS sets a completely new standard. The intelligent module independently monitors the filling level of the bin and triggers orders fully automatically. Thanks to regular optical checks and an integrated counting function, inventories can be precisely determined at any time and as soon as individual items can be identified their exact number is counted. With an integrated camera, the item

filling level, count rate and order information of each bin is automatically transmitted to the enterprise resource planning system of Würth Industrie Service. This way, a consumption-driven supply of small parts for production is not only possible just-in-time, but the C-Parts supply is done via an intelligent real-time transmission with picture. In addition, the W-KLT®Clip was developed to allow for a more flexible use of the bin. This clip is simply attached to the back of the Würth W-KLT®2.0 bin and, if used together with the special clip-on system CLIP-O-FLEX®, the bin can now not only be used on a rack but also attached flexibly at any production workstation or to a trolley. Hence, supply is not only just-in-time but also just-in-place.

iBin®WP – the direct and connected supply to the workstation

The new iBin®WP heralds an industrial revolution in C-Parts management: Industry 4.0, where human beings are in the center of a cross-linked world of systems. Würth small-load carrier W-KLT®2.0, flexible W-KLT®Clip and the intelligent iBin® camera module make up the basis of this. Together, they stand for the iBin®WP (workplace) and make up a fully networked workstation. Thanks to the W-KLT®Clip, the Kanban bin turns into a mobile unit, C-Parts are available flexibly at different places of the production site and can either be used at their point of storage, at the production line, in assembly or at any other workstation. The iBin® camera module gathers data on item inventory and for reordering directly from the bin and sends it independently to the enterprise resource planning system of Würth Industrie Service regardless where the bin is placed.

The target is to link up and automate C-Parts management and the direct supply to the workstation. The iBin® as the main component of the iBin®WP and one of the first functioning cyber physical systems will turn into the central element of the system world of industry and logistics. No matter whether the bin is placed on a rack or at the production line, seamless C-Parts management and automatic replenishment is guaranteed at any time - independently from the point-of-use. "However, iBin®WP is so much more than a simple bin with a clip and a camera module", said Christian Schorndorfer, General management at Würth Industrie Service. "It offers an intelligent workplace able to think." Using the CLIP-O-FLEX® clip-on system, the workplace can be flexibly extended. The hard foam insert system OPT-I-STORE® facilitates order and structure at the workstation with regard to, for instance, tools or personal protection equipment. The web-based information system CPS®ONLINE helps customers to keep an eye on consumption and bin movement directly at the workstation, thus

ensuring end-to-end transparency of the C-Parts system.

The sum of all these systems, interlinked and networked, form the basis for any human activities in production. We are looking at the factory of tomorrow where all individual systems communicate with each other in a fully automatic manner. Würth Industrie Service had this factory of tomorrow in mind when developing the iBin®WP; they recognized the interplay of people in a system world networking with them and all preparations for putting this into practice have been made. The tracks are even set for the day after tomorrow as further intelligent systems for materials management are worked on at full speed.

"As with any revolution, there will be winners and losers. To my mind, companies like Würth, who have recognized that it is about transforming business models in the long term on the one hand, and allowing for a migration towards new technological solutions on the other, belong to the winners. The iBin®WP connects seamlessly to the existing system world, while new, pioneering solutions are being developed in the 'Würth Enterprise Lab' at Fraunhofer IML in Dortmund", Prof. Dr. Michael ten Hompel said about this development.