When the snow flies

A »Wireless Kanban« system based on remote control switchgear gets to work in Salzburg's renowned ski production.

In Altenmarkt in Pongau, sports goods manufacturer Atomic produces 400,000 pairs of skis per year – in 1,100 different variations. A special innovation recently implemented in the factory replenishes assembly lines with components via a mobile »Wireless Kanban« system. True to the motto of the »Industry of Things«, it is closely integrated in the company-wide flow of information. Wireless position switches from steute assume an essential role in the process.

Up to 30 different individual parts are prepared and supplied for the construction of skis. The main components of modern skis are the top sheet, wood core, side walls, tip walls, edges, fibreglass composite layers and polyethylene base, as well as diverse small components. Extensive assembly steps are followed by carefully coordinated sharpening. This complex process, together with the steadily growing array of variants, poses true challenges for Atomic's in-house logistics: different models are available for slalom and giant slalom, deep powder snow and groomed slopes, for relaxed cruising or

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Small components needed for the production of skis are provided in mobile Kanban shelves.

top speeds during world championships, as well as for all-mountain skiing and free-riders. Ski manufacturer Atomic is driving this diversity forward and at the same time adapting its production and logistics processes to suit. In order to manage the high number of variants, the young production team in Altenmarkt has recently reorganised and restructured its manufacturing processes – in line with »lean production« and »Industry of Things« principles. This includes considerable improvements in the replenishment of small parts at the workstations in the pressing section, where the individual composite layers of the skis are combined and then pressed together.

Automatic replenishment of small components

In the past, the materials required in the pressing section were stored right there and when workers needed more, they fetched them. Since the path to the central storage area was long, this took a lot of

time. This is why a new Kanban system – so the basic idea – should ensure the continual flow of information and materials. Now mobile flow racks containing plastic boxes with correctly sorted small components have been installed in the pressing section. Production workers take a container of the components they require. The individual storage lanes within the mobile racks are fitted with steute »RF D SW 868« wireless position switches. When a lane is full, the weight of the container at the front depresses the actuator of the switch. When the last container is removed from a lane, the actuator is released and the switch automatically sends a signal by remote control to an »RF Rx SW 868 TCP/IP« receiver unit. Here an exceptionally stable and yet low-energy wireless protocol on the universally available 868/915-MHz waveband is used, reaching the receiver unit in question extremely reliably and with high transmission quality.
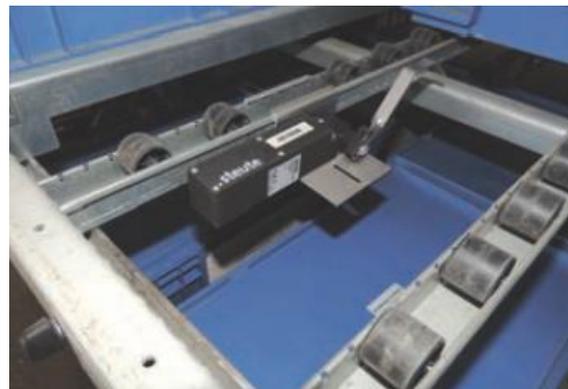
Wireless position switches from steute send a signal when a container is removed from a shelf.

Connecting the wireless switch to the ERP system

The receiver then sends the signal to an IP address, where it is processed by the

Information from the field is passed on by wireless receiver via a TCP/IP connection.

machine data acquisition system »Zenon« from Copa Data. »Zenon« is in turn linked to the central ERP system »SAP«, meaning that the message »container X removed from Kanban shelf Y« is displayed in the company-wide IT. At the logistics or »Zenon« level, replenishment of that particular Kanban shelf is then triggered in the central storage area. At the same time, the stock of that particular article is updated at the »SAP« level and, if necessary, re-ordered. »Zenon« visualises the empty shelf as an »order request«

Commissioning staff are informed by mobile tablet and a central digital display when containers in the Kanban shelves require replenishment.

appearing on a screen in the central storage area, as well as on the tablets of the commissioning staff. As a consequence, the corresponding container is supplied and deposited by tugger train in the Kanban shelf. Confirmation is sent by the shelf switch and again via a tablet used by the tugger train driver.
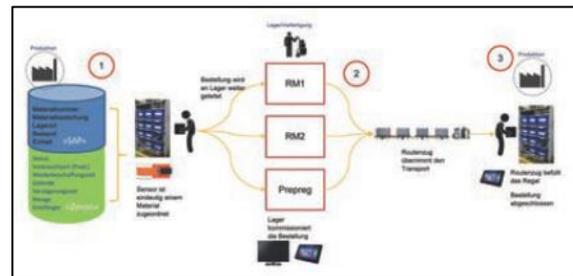
The functional principle behind the »Wireless Kanban« system at Atomic.

Transparent flow of materials and information

This new »Wireless Kanban« system has been tried and tested at Atomic and found to be excellent. It ensures trouble-free replenishment of small components in the pressing section and total transparency in the flow of information – from the shop floor to production planning and purchasing. The system thus guarantees optimised levels of stock, as well as reliable planning in conjunction with the replenishment of materials. Project management was in the hands of Atomic Austria, as were the installation and initial operation, performed by their in-house electrical engineering department.

From special-purpose solution to wireless network

The interface between wireless switchgear and superordinate IT systems can be realised in different ways. At Atomic, a TCP/IP connection is used. Alternatively,

steute has recently developed a new »sWave.NET« platform, where signals from the wireless switchgear are first received via access points, then bundled and sent to one or more application servers via e.g. Ethernet or Wi-Fi. This platform also includes a database which collects all field level information and passes it on, either directly or via a middleware, to the customer's IT platform, which might be multi-site. A complete solution for uninterrupted communication from the individual switching device to the top level of the company IT is thus available.

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