

Manual Production Systems from Rexroth – Economization for All Branches of Industry



The Drive & Control Company



Increase in efficiency thanks to Manual Production Systems from Rexroth

Terms such as lean production, JIT, Kanban, etc., which are used in modern organization models, can be found more and more in industrial production. Unfortunately, they are often only used in theory and in a limited scope. Implementation in production and assembly processes requires production systems that make it possible to consistently implement lean and efficient processes. The new “Manual Production Systems (MPS)” from Rexroth, which have been developed in strict keeping with the aspects of lean production, make it unbelievably easy to quickly plan and implement such production installations.

Supermarket shelves with stock information, using colored Kanban roller conveyors.



Nowadays, change is the only constant in production and assembly processes. The causes of this include quick innovation cycles and uncertain product service lives with a simultaneous increase in variants. Lot sizes and the overall number of units are almost impossible to predict and thus make automation measures more difficult. Often, automation is only used in areas with so-called non-variable parts, although everything variant-specific here also has to be fed in or completed by hand. Before this backdrop, manual production systems form the basis for modern, industrial production with a high level of flexibility.

The quality of such systems is not reflected solely by characteristics such as versatility, assembly effort, or even the number of components. More emphasis is placed on the possibilities to increase efficiency in production processes or a focus on added value. Many companies attempt to attain “lean production” using modern organization models, such as Kanban for just-in-time production, production according to customer cycles, the pull principle, one-piece flow and many others. With the new modules for Manual Production Systems (MPS) and the MPS*Calc* software from Rexroth, workstations, and even entire production and assembly lines, can be quickly adapted to the work contents and efficiently designed by avoiding waste, making the system more “lean”.

Avoiding waste is the central factor for lean production, i.e. to reduce everything that does not add value. This covers waiting times, inefficient processes, faults or unnecessary movements, as well as overproduction, high levels of stocks or unnecessary transport. Work processes are comprised of activities that add value, as well as those that contain obvious or hidden waste. The objective of production planning is to create a lean production system by continually minimizing inefficient processes and converting them into value-added processes. A typical example of this is the ergonomic design of workstations, whose layout directly influences all grab movements and walking distances. Standard solutions from the catalog are universally applicable, but almost always require a certain degree of compromise. This, in turn, leads to longer routes or more complicated movements than are really necessary. The same applies to all of the equipment used for work, be it shelves, grab containers, material shuttles, or linking components. However, the standard has been completely redefined with MPS from Rexroth. These new Manual Production Systems allow each user to create his or her own standards by exactly configuring the size, form, construction, and arrangement of all the system components to the respective work contents and the needs of the employee.

The standard has been redefined.

MPS is based on the aluminum modular profile system from Rexroth. Development was carried out in accordance with strict ergonomic and logistical factors and included decades of experience attained at more than 200 Bosch plants worldwide. In comparison to the previous modular assembly sys-



The components for the Manual Production Systems cover material supply, workstations, and workstation equipment, as well as linking elements. Users can easily configure a lean production system themselves and get everything from a single source.

tems, MPS is not comprised of individual components, but complete function modules with plug and play capabilities. Characteristics such as dimensions, material, or construction are defined in parameters and each function module contains all the individual components that correspond to the parameters in size, form, and quantity. For example, to configure a work table, all you have to do is enter the dimensions and select functions, such as material shelves or ESD capability, and you will immediately get a work table that is best-suited for your own, individual production.

Extended product portfolio for complete lines.

MPS not only includes workstations with accessories, but also modules for material supply (flow rack systems, material shuttles, or grab containers), as well as components for material flow and linking. In addition to variable dimensions, the new Basic (Lean) flow rack system offers a wide selection of different conveyor media, for a flexible material supply design. It can be used as a supermarket shelf and also to supply containers directly at the workstation. The central idea here is the Kanban principle to avoid having too much material in the production flow. Multi-colored rollers (red, yellow, green) are also used with the conveyor tracks, so that information on the material stock is immediately visible throughout the entire process with traffic light colors. The Economic (XLean) system is an alternative to this and consists of a steel profile and rollers with or without roller flanges. The flow of material between the workstations, as well as in the warehouse and consignment areas can be implemented using EcoFlow components. A basic profile is all that is needed to construct a range of track widths. Curves and points make it possible to adapt the conveyor sections to the arrangement of the workstations and flow of materials. Using the workstations, versatile flow rack system, EcoFlow components, and the extensive range of MPS accessories, complete production and assembly lines can be constructed according to your own standards and the principles for lean production.

A surprisingly simple custom configuration.

Lean production with MPS can be implemented early on with the *MPScalc* software for planning manufacturing equipment for manual production. It runs on any Windows computer, does not require any CAD software or knowledge and helps you to configure individually designed worksta-

tions or material supply systems simply by entering a few specified parameters. Design efforts that used to take hours or even days are done within just a few minutes. The configured objects are displayed on the screen in 3-D and immediately updated with each entered parameter. Reconfigurations only require additional entries or modifications to the appropriate parameters. Thus, professional designs and constructions, including an automatic price calculation and drawing generation, can be efficiently implemented for the Manual Production Systems. A press of a button is all you need to generate the corresponding ordering documents. Plus, to plan entire production lines, there is also an option to transfer 3-D drawings and part lists into practically any common CAD system.

Above all, *MPScalc* enables a reduction in inefficient processes and planning and design efforts, but also helps you to avoid errors, as the software automatically selects and adapts the appropriate function modules and all the associated components in accordance with the entered parameters. This unique planning instrument is a fundamental part of the MPS system and makes an essential contribution to lowering the total cost of ownership. It provides the user with a level of flexibility that was previously unheard of. Development times from the initial idea to implementation are significantly shortened, and modifications to existing lines or step-by-step investments, such as those necessary for expansions to quantities, can be carried out quickly and easily. Even simultaneous engineering as early as the product development phase is simplified.

MPScalc is available free-of-charge with the product catalog. The online version of the software can also be found in the Internet at www.boschrexroth.com/mps. As new function modules, such as material shelves, additional flow rack systems, or complete shuttles, are continually added, you can find software updates online that are virtually up to the minute.

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