



A STEP TO A PERFECT GARMENTS FACTORY [REVIEW]

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Abstract: *In this paper was exposed the tendencies of the most important designers and producers of integrated transportation systems. The transportation system is one of the most important problem in the garments fabrication economy. Beginning from unprocessed goods, cutting area, process management, finishing area, quality check to the warehouse, distribution and dispatch zone the basic idea was the same: unlimited raiting from centrally-suspended rail servicing all kinds of work stations with application specific trolleys. Ergonomic work station design, linking work stations and areas, manual, semi-automatic and automatic, modular set ups lead to intralogistic systems for the entire factory. The articles are transported from a post to another post by a suspended trolley. The system for apparel industries is a flexible material handling system designed to eliminate manual transportation and minimise handling. It increases productivity radically, ensures an optimal working flow and provides time for adding value to your products. Technically the system consists of overhead conveyors with individually addressable product carriers, automatically finding its way to the correct operation. It is monitored by a computer providing all necessary data for measuring and managing the process optimally. Furthermore, the system is highly flexible and can rapidly be modified to changes in the production line or the need for expansion. In the same time introduce foreign technology, research and develop independently from hardware to software, customize the special need of the customers and upgrade and expand the function easily,*

Key words: *automated transportation, hanged transportation, clothing hanging production system*

1. INTRODUCTION

Garments producers all over the world are confronted with reducing costs for labor. That's why the automated hanging transport in apparel is one of the most important ways to obtain major results. We realize that any successful production or manufacturing process relies heavily on ergonomics and usability. The Eton system transports all the pieces of one complete product through the manufacturing process. An addressable product carrier takes all the pieces of one entire unit (i.e. for trousers – backs, fronts, pockets etc.) through the different steps of production. Operations are performed at individual workstations. The end result is a cost-efficient product, processed from pieces to completion.

2. CLOTHING HANGING TRANSPORTATION

2.1. Storage for materials

Orderliness and cleanliness are the main principles here where a variety of unprocessed materials is stored: from fabric rolls, yarns and cones to cardboard cores and boxes. The advantage: no need to put your hands on or piling of materials. Every item is handled with care and stays clean. The storage is airy and easy to keep clean.[1]



Fig. 1: Unprocessed materials [1]

2.2. Cutting room



Fig. 2: Smart work flow [2]

The fabric rolls are taken in hanging mode on special gondolas from storage to the spreading machines. The cut pieces are spread onto tray carriers and taken to assembly - quick and easy with minimal effort. The tray carriers' support ergonomically working, they can be turned easily for quick loading and unloading. Markings on the carriers help to survey the entire cutting area. A scrap trolley takes the leftovers from cutting directly to a waste container and - to save space - empty carriers can be fold when not being in use.

2.3. Assembly-sewing



Fig. 3: Sewing flow[2]

In pre-assembly and assembly the right bundle size matters a lot. Bundles can for example be arranged by colour. Customized and single orders are also easy to arrange. For every product (jacket, trousers long or short, elegant gowns) and any workstep there are specific trolleys for transport and

ergonomic hanging assembly, thus supporting desired quality. Another plus factor: bottlenecks are detected on the spot and can be countersteered. A reduction of up to 40% in handling time can be achieved. Up on completion the product arrives to an unloading station. The empty product carrier returns to the loading station. Decreased work in process (WIP), improved space utilization, and increased productivity are but a few of the systems benefits.[4]

2.4. Finishing-Quality control



Fig. 4: Ironning [2]

Trolleys allow spacing; garments can be transported on single or trained trolleys. Trapeze bars for lower hanging facilitate handling and provide clear view over the finishing area.[5]

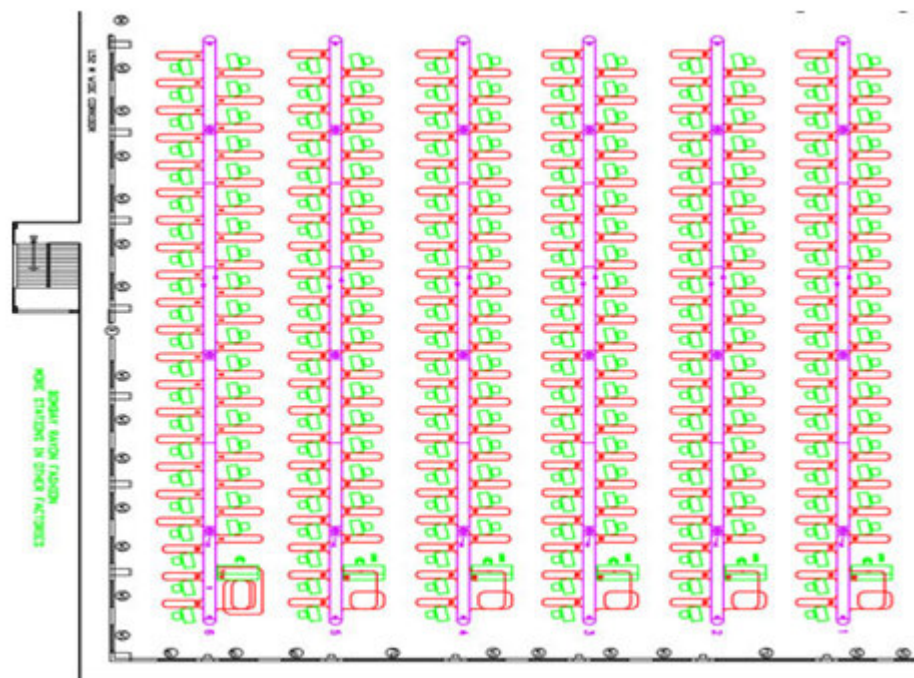


Fig. 5: Stations overview [1]

2.5 Warehouse and dispatch

During the short rest in the finished goods wearhouse - while waiting for their "take off" to the shops -the garments get another number of handling operations: From unpacking, putting garments on and off hangers, finishing and ticketing and/or bagging until in- and outputthe motto is: optimize workflow and save time .Think and plan 3-dimensional! Multi level warehouses.[2],[3]

This is response to demands for maximum storage capacity. The usual but awkward situation: garments are taken to the truck on roller trolleys. To load a truck like this is rather tiring and it takes

about 6 men to do this job. Time consuming and labor intensive. Moreover, the quality of the garments is affected as they get squeezed and can fall down during this process. Loading loops - manual and automatic, rigid and extendable - provide a seamless transit from the warehouse onto the truck. Trolley trains go directly up to the truck - on the shortest possible track and with minimum personnel effort. 2-3 people can load or unload a truck within 2 hours.



Fig. 6: Warehouse system [2]



Fig. 7: Loading truck [2]

3.CONCLUSIONS

Reduced work in process, fewer soiled garments, better quality control, larger customer base due to shorter lead times on orders, garments are better handled with the system and handling time reduces to 25% of bundle handlings. To reduce direct labor costs and reduce work-in-process times. Better visibility. Quick Changeover. The warehouse capacity shall be optimized with an unchanged number of operators. Today we transport everything hanging and have a thorough overview.

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