# Logistics Seven-League Boots For LLOYD – TGW Makes It Happen

**A red stripe on the heels hints at the origin of the shoe – since 1968, this stripe has been the distinguishing mark of LLOYD shoes. But the company begun its tradition much earlier. Since the company was founded in 1888 – back then as H.F. Meyer Schuhfabrik – LLOYD Shoes has turned into an internationally successful shoe manufacturer with a distinctive design. Not only the shoes are distinctive in "LLOYD's World", the logistics system which supplies the stores is unique, too. TGW installed a material handling system in Sulingen, Germany, which measures up to the company's high quality standards with an increase in productivity of 15 %.**

Unmistakable and visible from afar, LLOYD's new warehouse building is located in Sulingen, Northern Germany. Especially at night, the well-lit building with a red stripe can be seen from quite a distance. The design is right. And as much impressive is the interior.

For more than 125 years, LLOYD has been producing quality shoes and is currently exporting them to more than 60 countries worldwide – the company follows an expansion course. Even in Australia and Hong Kong, the company enjoys great success. About 6,900 pairs of shoes are produced every day, 1,900 of them in Germany alone. With more than 1,350 employees, LLOYD generated a sales revenue of about 134 million Euros (182 million US Dollars) in 2013. LLOYD shoe collections are sold in the company's own concept stores all around the world as well as by partner companies who distribute the brand with the distinctive red stripe. "The e-commerce sector plays an important role in our business, too. We sell our shoes online via partner companies and have experienced a rapid growth in this sector, which requires a particularly fast and high delivery capability of us. The order size and the delivery date considerably differ from traditional retail supplies. But we want to handle all our distribution channels smoothly in the logistics centre", explains Manfred Buschmeier, Head of Process Management at LLOYD in Sulingen.

The time had come to invest in a new material handling system – TGW offered LLOYD the tailor-made logistics solution the company had been looking for, and within one year, implemented a distribution centre with extensive storage and conveyor equipment including a sophisticated conveyor loop solution with a complex system performance for seasonal fluctuations. Thus, the shoe manufacturer is walking in his own seven-league boots – logistically speaking.

In order to handle the increasing demands on the company, LLOYD opted for extending the existing building at the headquarters for the new warehouse, since "this is where the competency is located", knows Manfred Buschmeier. Besides the production of the 1,900 pairs of shoes per day, the headquarters organises and handles the distribution logistics for the replenishment of the points of sale. The material handling system had to be adapted to handle the strong seasonal fluctuations of the shoe business. In the course of the company's logistics concept 2015+, LLOYD intended to optimise their capacities. Therefore, the existing central warehouse was enlarged and extended by a fully automatic conveyor system with integrated warehouse.

**One size too small – more capacity for the shoe manufacturer**

"One goal of the project was to reorganise the logistics operations, ranging from storage, quality assurance, replenishment over order picking to dispatch", says Project Manager Klaus Neudorfer of TGW Systems Integration. "In addition, the storage capacities should be extended due to the sales growth, and external storage areas should be incorporated. This also involved an increase in the employees' productivity in the logistics processes as another goal of LLOYD", adds Manfred Buschmeier. The company also planned to combine the material flow processes to increase the productivity through automation. "It was important to LLOYD to be able to access all products in the warehouse at short notice. For that reason, we designed a multi-functional solution to meet the complex requirements, both with respect to the conveyor loop – which assumes a central function within the new installation – and to the automatic mini-load warehouse", adds Stefan Stadlhuber, Project Manager at TGW Mechanics. The concept was clear on the part of LLOYD, as knows Manfred Buschmeier: "Any type of wastefulness shall be avoided! Be it for the handling times of the goods, the walking distance of the workers or the packaging."

Apart from the growing stock, the business strategy has changed to the effect that the retail business was extended. At the same time, the company wanted to ensure faster supplies of the specialist stores. "The specialist retailers pay high rents for their high-street locations in the city centres and do not have the space for large storage areas. Therefore, fast replenishment is the optimum support for our customers", explains Manfred Buschmeier. The storage capacity had become too scarce for the growing stock. "It was a huge effort for our entire staff during the construction of the new warehouse. Before, we worked with two external warehouses from where the goods were transported to us daily up to 30 kilometres. Thus our demand was: Every pair of shoes must be available at any time."

**So far the soles are spared – shoes are handled in the warehouse**

The shoes do not have to travel the long distances in the warehouse on their soles yet. A sophisticated TGW conveyor concept takes care of that. A complex conveyor loop is able to handle all required processes. And so the shoes move through the logistics centre without their soles ever touching the ground.

Their way through the distribution centre starts in two goods receiving areas equipped with three workstations and a handover station from the production area where the goods are received from different channels: one receiving area leads the finished shoes from production to the storage system, the other area receives goods from LLOYD's production facility in Romania and from suppliers. "In particular in the ladies' shoes sector, which is still relatively small, we buy goods from third parties. Certain shoes such as sandals or moccasins, which have a special making and which we are not able to make here, are also delivered by suppliers. To sum it up: approximately 30% come from our own production in Sulingen, 60 % are manufactured in Romania, which are delivered on pallets, and about 10% are third-party products which arrive at our site either via air freight or in containers", says Manfred Buschmeier.

From the goods receiving area, all cartons are conveyed through a volume measuring tunnel equipped with a scale, where the cartons are checked for correct dimensions and weight. This tunnel, which was individually adapted to the throughput required by LLOYD, checks the cartons before they are stored in the warehouse. Via the 12 quality assurance workstations, which are multi-functionally used in the Value Added Services, for example for special customer equipment such as the application of price labels or security tags or as rejects station for clarification, the cartons proceed to the main conveyor loop where they are distributed to different destinations.

**A multi-functional loop supplies all system areas**

"2015 was considered a magic number in our logistics planning," says Manfred Buschmeier with a smile. Therefore, the requirements of the new installation was calculated based on that year, including a buffer. "A flexible system with the possibility to access the assortment even at short notice. That was our top priority." And the new system can handle that.

At a rate of approximately 800 cartons per hour, the cartons are stored in the automatic mini-load warehouse by TGW which is used to supply all areas of the logistics centre. As soon as they are retrieved from the warehouse, they return to the loop from where they are forwarded to one of the eight stations arranged on two levels, each with a different function. Storage as well as order picking operations are carried out on both levels. Finally, the goods are packed at ten workstations and either sent back into the mini-load warehouse for temporary storage until their shipment, or directly conveyed to the dispatch area. The solution is principally designed for the punctual supply of the retail sector and of the LLOYD stores, which is why the design also considered that single pairs as well as large orders can be handled by the system.

"In order picking, there are so-called A, B or C items which may be stored with optimised routes. The A-class items are positioned at the front, the others at the back. As you can imagine, a shoe size 5 or 15 is not sold as often as others. Every planner would say, 'put them way back into the warehouse'. But retailers order an assortment of all sizes for every shoe and want to get them all in one shipment of course. Nevertheless it is one item, which is why we always store all sizes of one item together in our picking racks. This is a very effective process, particularly when it comes to packing first orders. Resorting works in parallel with the initial sorting. The system has to handle both processes. Thus I am able to refill the missing size at once. And for that reason, we kept manual picking processes, too, since this is the most effective way and we would otherwise have about ten times the technical expenditure," explains Manfred Buschmeier the particularities of shoe sorting.

For dispatch, the products finally proceed back to the bottom level on the TGW conveyor system. There, all required goods are conveyed on nine shipping lines and placed onto pallets to be finally transported to the assigned shops.

TGW supplied about 800 metres of conveyor equipment for this order and installed a loop which delivers multi-functional operations from the storage to the dispatch process. All workstations alongside the loop have an ergonomic design. They provide for a pleasant and energy-saving work environment – the height of the packing tables can be individually adjusted to the body height of the worker.

**Automatic carton warehouse with dual function**

Thomas Wübbeling, Head of Logistics at LLOYD Shoes, is convinced by the new warehouse: "The carton warehouse is simple, everything is combined in one system. It decides whether the incoming goods shall be stored or directly sent to the packing process." Depending on the needs, the automatic carton warehouse is used as goods receiving warehouse or temporary storage buffer. The five-aisle warehouse is operated by five Mustang storage & retrieval machines with anti-pendulum drive and TGW's latest Twister load handling technology. The Twister technology allows for direct carton handling – in the case of LLOYD, the cartons are stored simultaneously in double or triple depth, depending on the dimensions and weight of the goods. "The challenge consisted in the combined double and triple-deep storage of the cartons, since LLOYD is handling varying carton sizes and widths. This is a complex task for the control system as well as the mechanical system and the material flow controller," explains Stefan Stadlhuber from TGW. "We entirely relied on TGW's competency," says Manfred Buschmeier. "The Twister system proved to be the optimum system, especially due to the different carton types we use. So far I haven't been able to find something that could have been done better. It works perfectly for us."

The 69 meter long aisles accommodate about 50,000 cartons of different dimensions. With a 100% filling level, for LLOYD this would mean a quantity of 500,000 pairs of shoes. "One special aspect of the warehouse function is the conventional storage of shoe cartons after they arrive in the goods receiving area and the simultaneous use as a temporary buffer. This way, orders can easily be buffered for shop replenishment. All required cartons are finally sent via the conveyor loop to the packing stations so that there are no time gaps in between. The truck can deliver the goods directly to the shops without any delay," explains Klaus Neudorfer from TGW. "The new warehouse function combines some of our processes. It permits us to approach our peak times in a more relaxed manner. The teams can be sure that the system knows what to do. Thanks to the new cartons warehouse we made a huge step ahead from goods receiving to distribution! We have an even capacity utilisation, which helps us save time," adds Thomas Wübbeling.

**A huge step ahead: LLOYD is happy with the solution**

"TGW already has good references in the fashion industry and also implemented similar concepts already. Therefore, we could rely on the competency of TGW's material handling experts," Manfred Buschmeier from LLOYD is pleased. "We believed in TGW, which is really necessary for such an important project. In the end, you do not build a new material handling system every day! It was a good decision."

If you plan to build a new distribution centre, the sales and distribution sector is significantly involved in the project, too. "As logistics responsible I can proudly say that we do not have any problem at all with sales and distribution. We are able to deliver what we promise. Therefore, it was important to us to involve our own IT," explains the Head of Logistics. The many particularities of the shoe industry had to be understood and taken into consideration by all people involved right from the beginning. "If you don't understand these particularities, you won't be able to design a good logistics system for us," says Manfred Buschmeier. Therefore, LLOYD attached great importance to the interfaces which were well engineered in collaboration with TGW, and the system works well. "The collaboration between all partners was very good. You simply must be able to rely on the experts."

Thomas Wübbeling is pleased with the new logistics centre: "To put in in figures, we have experienced an increase in productivity and efficiency of at least 15%. We calculated everything quite well and have a good cost-performance ratio. Thanks to the high service level we have the system will have amortised already in the next couple of years. We are entirely happy with our new logistics solution".

**Individual solution with energy saving mode**

The new warehouse for LLOYD's high-quality shoes combines all storage, buffering and transport operations on two levels. An individual customer calls for an individual system which takes the seasonal fluctuations of the fashion industry into consideration. Therefore, the conveyor system incorporates an automatic energy saving mode: If a conveyor line is not used for a certain period of time, the system will automatically switch to stand-by mode. This allows the operator to save energy costs at times with lower capacity utilisation. "Sustainability and energy efficiency are very important aspects for LLOYD. We try to eliminate all wasteful processes through the new system. We also save energy for lighting by automatically turning off the lights in the picking aisles. As long as the sustainability approach goes hand in hand with our quality, we try to prepare for the future as sustainably as possible," says Manfred Buschmeier.

**Safe and sound growth for the future**

How will LLOYD's story continue? "We stand for sound growth which shall not go all too fast. The shoe market is highly competitive and the pressure on prices is huge. LLOYD will continue to operate in the high-level business segment. The trees will surely not reach the sky. But we always intend to grow and want to enter new markets, be it Asia or Africa." Thomas Wübbeling and Manfred Buschmeier sum it up: "We also hope to increase the stock rotation by means of better and better planning and warehousing systems so that we are still able to be successful in the years to come with today's potential."

With the solution implemented at their headquarters in Sulingen, LLOYD Shoes is well prepared for the future and able to successfully pursue their strategy 2015+. It's a sustainable, ergonomic and efficient material handling system, from consolidated shop replenishment orders to a single shoe carton. The success of the red stripe continues, with logistical seven-league boots.

www.tgw-group.com

**About TGW Logistics Group:**

TGW Logistics Group is a global leading systems provider of highly dynamic, automated and turn-key logistics solutions. Since 1969 the company has been successfully implementing different internal logistics solutions, from small material handling applications to complex logistics centres worldwide.

With about 2,000 employees worldwide by now, the Group implements logistics solutions for leading companies in various industries, such as Adidas, H&M, Esprit, Jack Wolfskin, Bentley, Amazon or Kärcher for instance. In the business year 2013/14, the TGW Logistics Group generated sales revenues of 371 million Euros.

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