

Case Study



Productivity increases with 20% thanks to new assembly in-floor chain conveyor

De Dietrich Thermique / Merzwiller, France

Early 2010, the management of De Dietrich Thermique launched their master plan. One of the objectives was to save 30% of the space in the production halls. Production space costs money, so you should make maximum use of the space you have. Another objective was to increase productivity in order to be able to guarantee delivery of the desired quantity to the client within the agreed time limit.

And the third objective is for the production line to be easily adapted to assemble new products. New heating and condensing boiler models are coming out all of the time. We would prefer not to lose any valuable production time having to adapt the line.

“The concept was new for us, but we could see the benefits immediately” he said. “Our employees no longer have to carry heavy loads and their physical efforts are therefore minimised.”

Pascal Schlichter,
De Dietrich Thermique

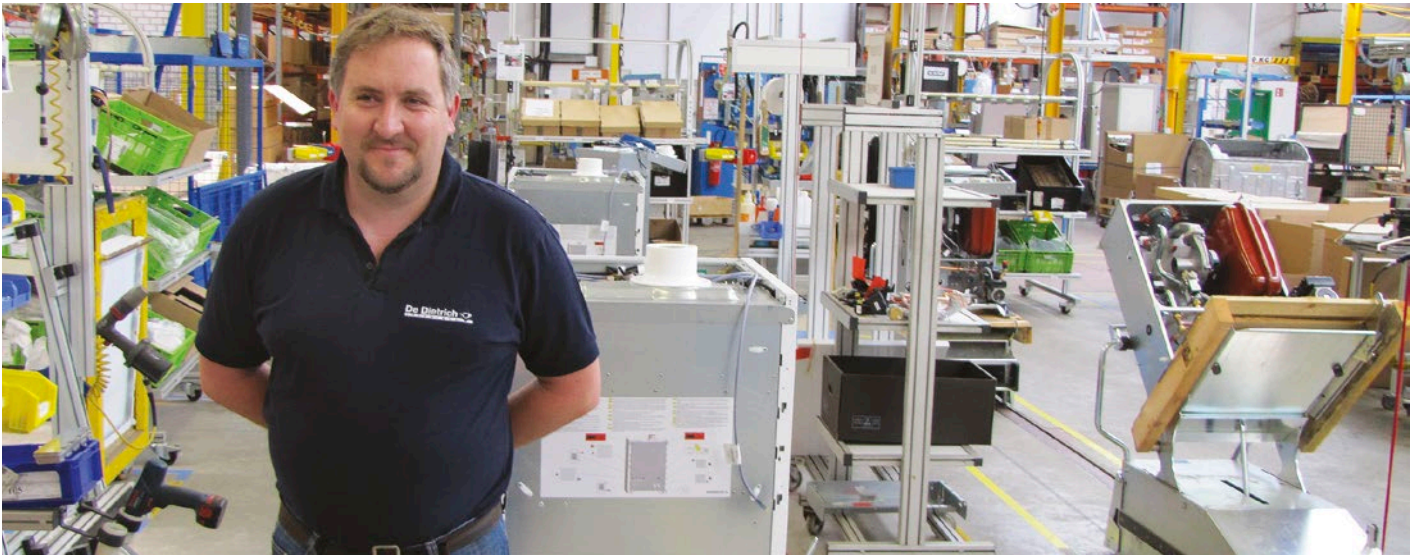
Faster and safer working conditions

Pascal Schlichter, responsible for industrialisation at De Dietrich Thermique, sat together with Dematic at the drawing table. An in-floor chain conveyor was chosen. “The in-floor chain conveyor transports made-to-measure assembly platforms. On top of these platforms our boilers come to life at fourteen workstations. The staff on the assembly line put together all of the components step-by-step, while the platforms move gently forward at a speed of 2 metres per minute.” The assembly line offers more safety as it is integrated in the shop floor. Pascal Schlichter: “Work is more comfortable for the employees as they do not trip over the line and during assembly they can easily walk around the products. A floor-mounted system would have been cheaper, but we deliberately opted for an in-floor chain conveyor. Our employees must be able to work in the best possible conditions.”

High productivity, rapid return on investment

Because the platforms move at a fixed speed, the production rate remains constant. The regular pace of the assembly line is useful for production planning. This means that start times can be calculated exactly in order to complete orders in time. At the speed of 2 metres per minute 80 heating boilers roll along the band per shift. This figure can be increased by raising the speed of the line, for example if there is a large order. So it can go up to 250 boilers per shift. But even at the current speed the productivity of the staff is up 20 % from previously.

On the question of return on investment Pascal Schlichter replies, “Five years if you only take higher productivity into consideration, less than three years if you take everything into account. There are hardly ever any problems with the in-floor chain conveyors, so the line is rarely stopped. The assembly time is shorter and the labour costs have decreased. We now need ten to fifteen per cent less staff to make the same product.”



Facts & Figures

- Construction year: 2011
- In-floor chain conveyor type: Closed loop assembly line
- Number of loops: 2
- Chain components: Drive, straight track, curves, towpin sensor
- Number of metres per loop: Approx. 90 metres
- Speed: Variable crawling speed between 0.5 and 2.5 m/min (0.008 - 0.04 m/s)
- Carriers: Assembly platforms customised with a focus on ergonomics
- Weight per platform: 500 kg (including platform)
- Capacity: 8 platforms per hour (at 0.5 m/min) to 41 platforms per hour (at 2.5 m/min)
- Drive unit: 3 kW
- Pusher dog distance: 406.4 mm

The Process

From three lines to one

Because the concept of the in-floor chain conveyor was completely new for De Dietrich, they decided to use the system first on one line, as a sort of test environment. This was the production line for GFS (Gas Floor Standing) boilers. The production of these boilers used to be carried out on three separate lines; this has now been reduced to just one line. So De Dietrich have won back effective space in their production area.

“The switch from the old way of working to the new didn’t happen by itself,” Schlichter adds. “That’s understandable if you have assembled boilers in the same way for the last 20 years. In addition, we had some teething problems to sort out. Luckily, Dematic solved these quickly. Confidence in the new line grew fast.”

“If you ask people if they want to go back to the previous system, then the answer is a resounding ‘no’. We have also invited them to be involved in the development of new product lines. With their experience, they know best what the issues are. Things that are mere details to us make their work more enjoyable. That’s why we built a prototype of each workstation, which we discussed in detail with our staff. They know best which materials need to be on the assembly line to make work easy, fast and well organised.”

Better quality and service, stronger image

Due to the new system the staff now pay more attention to quality. In the past, because they had a fixed number that they had to reach per day, the staff worked faster to meet their targets. Today they can only operate as fast as the line progresses, and they know that they will always reach their goal. As a result, there is less stress and more time for extra checks. Clients can enjoy not only a higher quality but also a better service.

Orders are guaranteed to be delivered within the agreed time frame. “Do not underestimate the importance of this,” emphasises Schlichter. “For us, this is an important commercial reason to sell more. Most importantly of all, clients receive the correct price as we are able to calculate our costs accurately. For our clients better quality and on-time delivery are crucial.”

Result

Better ergonomics, less staff absences

Everyone will have to work longer, and it’s the same at De Dietrich. That’s why we want to better organise our work space to create a more pleasant working environment. It’s also why De Dietrich pays attention to ergonomics. The line is designed so that the staff barely need to bend over and don’t have to carry any heavy loads.





The level of the platforms is adjustable so that everyone can work at their ideal height. At the beginning of the line the units are placed diagonally, which permits easier assembly of the components. This has consequences for levels of absenteeism, which today are lower. And in order to keep the assembly work varied, the assemblers are regularly swapped between work posts.

The in-floor chain conveyor requires little maintenance and therefore De Dietrich does this itself, although Dematic could offer a maintenance contract if desired. The chain conveyor only needs an extensive inspection once a year. This can be done quickly, which reduces the impact on production.

Inspiration from Dutch flower market

"Quite by chance, whilst on a business trip, I saw a TV programme in my hotel room where a Dutch flower auction demonstrated its chain conveyor," said Pascal Schlichter. "We needed a system like this. After some searching on the Internet I came across Dematic, and we hit it off straight away. I haven't even spoken to any other suppliers. Dematic is situated close by and the staff are French speaking, which is important for technical matters such as this."

A second chain conveyor with extra flexibility

"They also have the necessary experience and product knowledge and are very likeable people. The system that they proposed is easy to use and during the installation we were able to add a couple of things, which Dematic were very flexible about. There was and there still is an extremely good dialogue between us."

Once the first chain conveyor was running smoothly De Dietrich installed a second chain conveyor for the production of a different type of condensing boiler. This line is designed so that its easier to adapt when assembling other boilers. During the test phase of the first line we learnt this lesson, as with respect to adaptation this line is slightly less flexible.

Further additions

According to Pascal Schlichter, the factory of the future won't have a warehouse any more, and that's what he's aiming for in the medium term. In the shorter term, he wants to install a third in-floor chain conveyor and to automate the process of dropping off finished products to the loading dock.

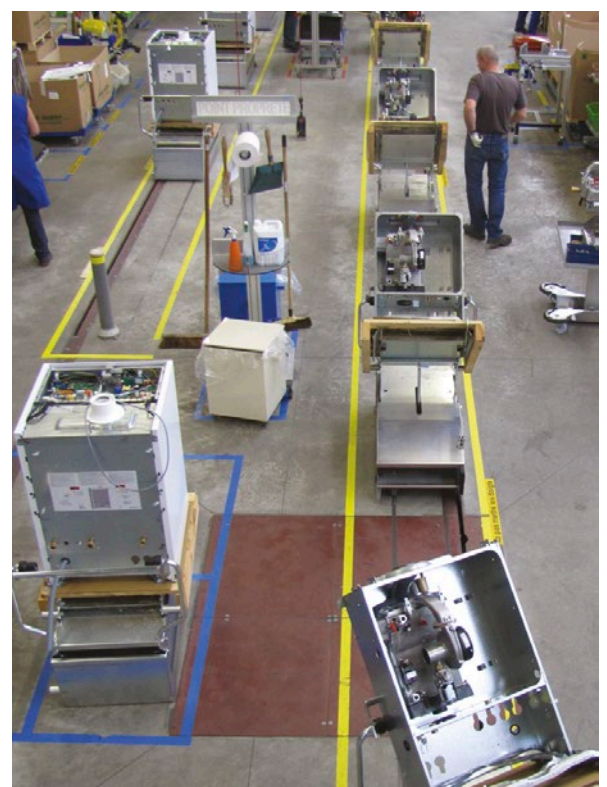
"It is clear that the production site here in Merzwiller is inspiring," says Pascal Schlichter. "Other sites of De Dietrich come to see how we have optimised our assembly lines and consider following our example. Other companies from the local area also come to see how we have increased our productivity and how we have won back space."

Customer benefits

- 20 % increase in productivity
- Return-on-Invest for less than 3 years
- In-floor chain conveyor also functions as shipping buffer
- Less damage to the goods
- Better control and traceability of goods
- Fast on-site service

About De Dietrich Thermique

The originally French company De Dietrich has been active for more than three hundred years in many sectors. Today it belongs to the BDR Thermea Group with seventeen offices and 5,500 employees worldwide. The factory in Merzwiller near Straatsburg produces heating boilers, condensing boilers and heat pumps, and provides employment for 2,000 people. De Dietrich products are distributed and marketed in more than 60 countries.



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