



Solutions for the Thermoforming Industry

Reduce your labour cost



ABOUT DELTA ENGINEERING

HISTORY

Delta Engineering was founded more than 30 years ago, in 1992, by 2 engineers active in the blow moulding industry. Today, we have a team of more than 200 people, including 40+ engineers, spread over 3 sites: our main R&D site in Ophasselt, Belgium, our production facility in Baia Mare, Romania, and our sales & support site in Atlanta, USA. Furthermore, we have several sales representatives spread over different offices worldwide.

EXPERIENCE

Over the last 30 years, we have continuously been developing new solutions for the blow moulding industry and have become an experienced and global player. This has resulted in more than 100 different machines and lots of different solutions, allowing us to cater the market needs. Palletizing, depalletizing, conveying, barrier treatment, packaging & quality control are our core competences.

FACTORY DESIGN

Let us help you design your factory – whether filling, blowing or thermoforming, profit from our experience! Saving labour is not only done with automation, but also with the right layout, which is achieved by optimising the internal flows.

AUTOMATION IN THE THERMOFORMING INDUSTRY

TODAY'S NEEDS & OBSERVATIONS

LOTS OF CHANGEOVERS

The machines are sometimes changed over multiple times a day, which makes automation tempting. However, care should be taken that we do not exchange the operator for an engineer, who would be needed to do the complicated (and more expensive) changeover.

ELEVATED MACHINE OUTPUT

Thermoforming machine outputs are elevated, typically at a height of 1500 to 1800 mm. This is one of the main reasons why platforms are often placed around the output where the operators are installed, to allow them to pack what comes out of the machine into boxes. Due to these platforms, however, the operators cannot easily switch between different machines. This forces them to follow the speed of a single machine, which decreases efficiency. Moreover, the platforms impose safety risks, as the operator can fall off the platform.

LACK OF SPACE

As the machines have an elevated output and there is barely any space to buffer the machine output, the operator is forced to stay in close proximity. There is no time to move back and forth between machines. More and more older machines are replaced by new ones, but the factory depth remains the same. This results in even less space for automation and can sometimes be critical.

UNSTABLE STACKS

The stability of the product stacks exiting the machine is often problematic as well. An important factor in this matter when automating is static energy, which attracts dust and can make stacks fall over.

24/7 OPERATION

Thanks to the 24/7 operation, whatever changes we make will have a relatively high payback.

MARKET

A major segment of the market is food-related, so the design specifications need to be adapted accordingly.

OUR SOLUTIONS

PRODUCT ELEVATOR SYSTEM – DBL302

WHERE USED?

The DBL302 is typically used behind the thermoforming machine. It brings the products down to operator level and buffers them, so operators have more time for packing.

HOW DOES IT WORK?

The layer of stacks exiting the thermoforming machine is fed onto the DBL302's conveyor. This conveyor can move forwards and backwards, ensuring a trouble-free transition of the products between the thermoforming machine's output and the DBL302's exit conveyor at ground level.

LABOUR SAVING

Today, operators often need to stay at one single thermoforming machine, as they are standing on a platform behind the machine. This makes it difficult to switch between different machines, decreasing machine operator efficiency. The DBL302, however, allows you to buffer several layers and brings the products down to operator level. This allows you to save significantly on labour costs. Please speak to our specialists for a detailed analysis.

On slower thermoforming machines, the DBL302 can be a good solution to save labour as a standalone machine, buffering on the machine conveyor, its infeed conveyor and the exit buffer conveyor. For higher output speeds, the DBL302 can be placed in-line with a DVB122 vertical buffer system (see p. 6).



OUR SOLUTIONS

VERTICAL BUFFER SYSTEM – DVB122

WHERE USED?

The DVB122 is typically used behind the DBL302 to enable additional buffering on a compact floorspace (only 2100 x 1500 mm). This is often used to save even more on labour costs, especially on machines with higher output speeds.

HOW DOES IT WORK?

The DVB122 takes the layer of stacks from the DBL302 or directly from the thermoforming machine, depending on the set-up. The stacks are fed onto the DVB122's stackable conveyors. This is an ingenious system of 8 conveyors below the infeed height: the conveyors appear one by one when needed, and move the product stacks upwards to buffer them. The DVB122 can buffer up to 8 layers of 1200 x 1000 mm. The products are automatically fed through when the output conveyor is free. When the output conveyor is not free, the DVB122 will go in buffering mode, moving the products upwards. The products are automatically debuffered when the operator clears the exit conveyor.

LABOUR SAVING

The DVB122 enables additional labour saving and allows operators to go to other machines for packing.



OUR SOLUTIONS

IN-LINE METAL DETECTOR – DMD300

WHERE USED?

Metal detection is necessary in today's food industry to avoid metal particles in food packaging. The DMD300 in-line metal detector can be used either directly behind your thermoforming machine, behind our DBL302, behind our DVB122, or as a standalone machine to double-check your current production.

HOW DOES IT WORK?

The DMD300 pick-up system is an induction coil which creates and detects a magnetic field. As metal parts impact the internal oscillator, the presence of metal can be detected.

WHAT CAN BE DETECTED?

The DMD300 can detect metal parts of the following minimum diameters:

- Ferrous: Ø 3 mm
- Non-Ferrous: Ø 4 mm
- Stainless steel: Ø 4,5 mm

The maximum product height is 300 mm.



CASE STUDY

CASE:

An FC1000 thermoforming line with a DBL302, DVB122 and DMD300.

OPERATOR LOAD BEFORE AUTOMATING:

2 operators

OPERATOR LOAD AFTER AUTOMATING:

1 operator

PAYBACK:

1.2 years

CONCLUSION:

The solution to the current needs of the thermoforming industry is not 100 % automation in most cases, because it would be too expensive to keep up with the many changeovers (see p. 3), except for machines running the same products 24/7. With our buffer system, you can save 50 % on labour costs.





Improve your efficiency

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