

Is smaller better?

IS THE CURRENT TREND TOWARD LARGE, CENTRALIZED SORTING HUBS THE RIGHT MOVE? **SWISSORT** BELIEVES THAT SMALLER, LOCAL SORTING CENTERS CAN BE MORE ENVIRONMENTALLY AND ECONOMICALLY EFFICIENT

The volumes of e-commerce items in the CEP market have risen steadily for several years. The reason for this long-term market growth is clearly to be found in online shopping behavior and it is likely that the trend will continue.

The Covid-19 pandemic intensified this situation and parcel volumes are now already at levels that were only expected to be achieved by 2025.

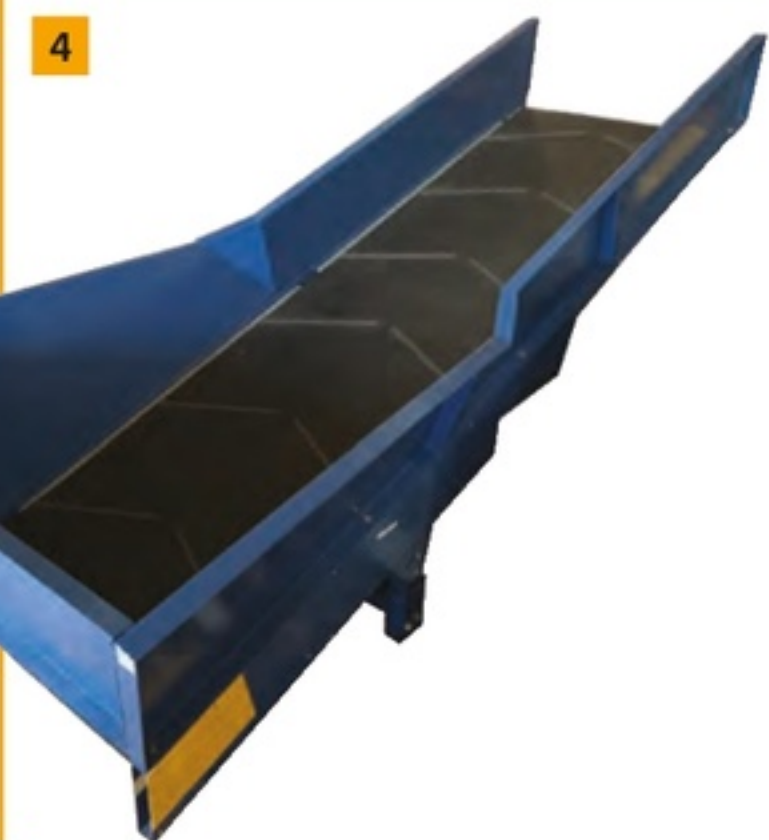
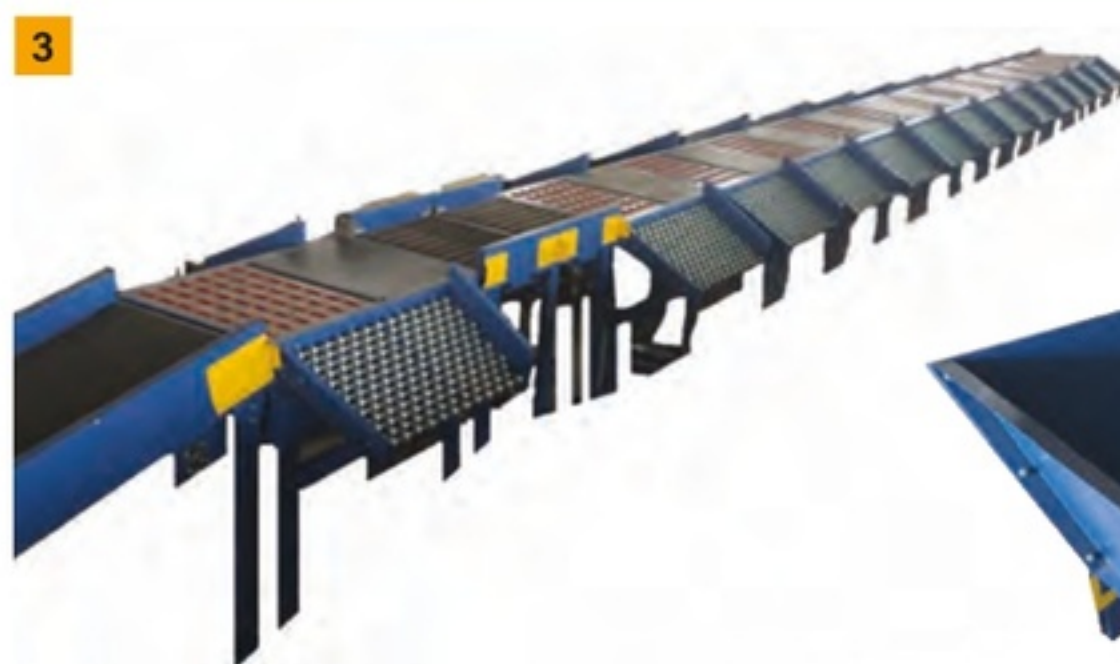
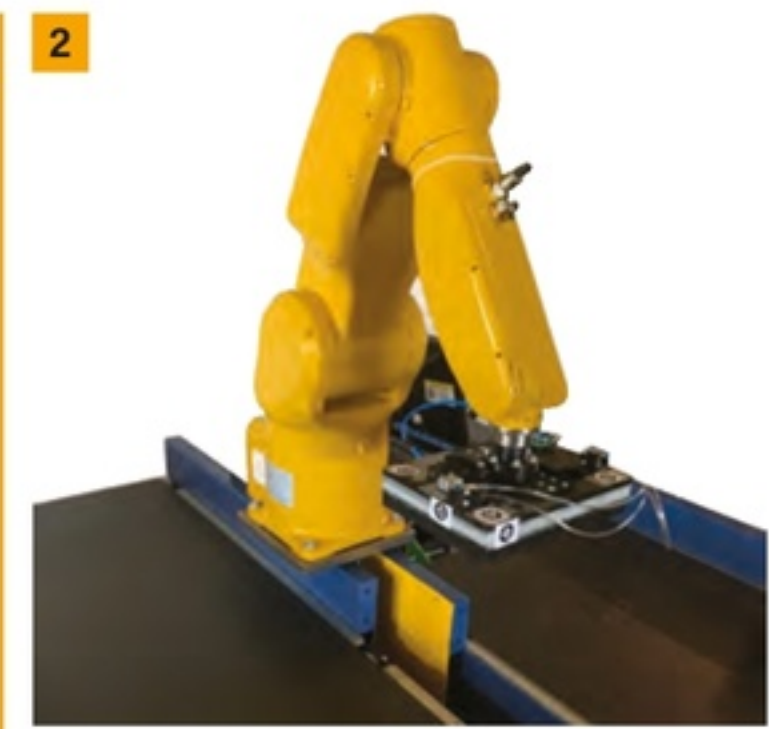
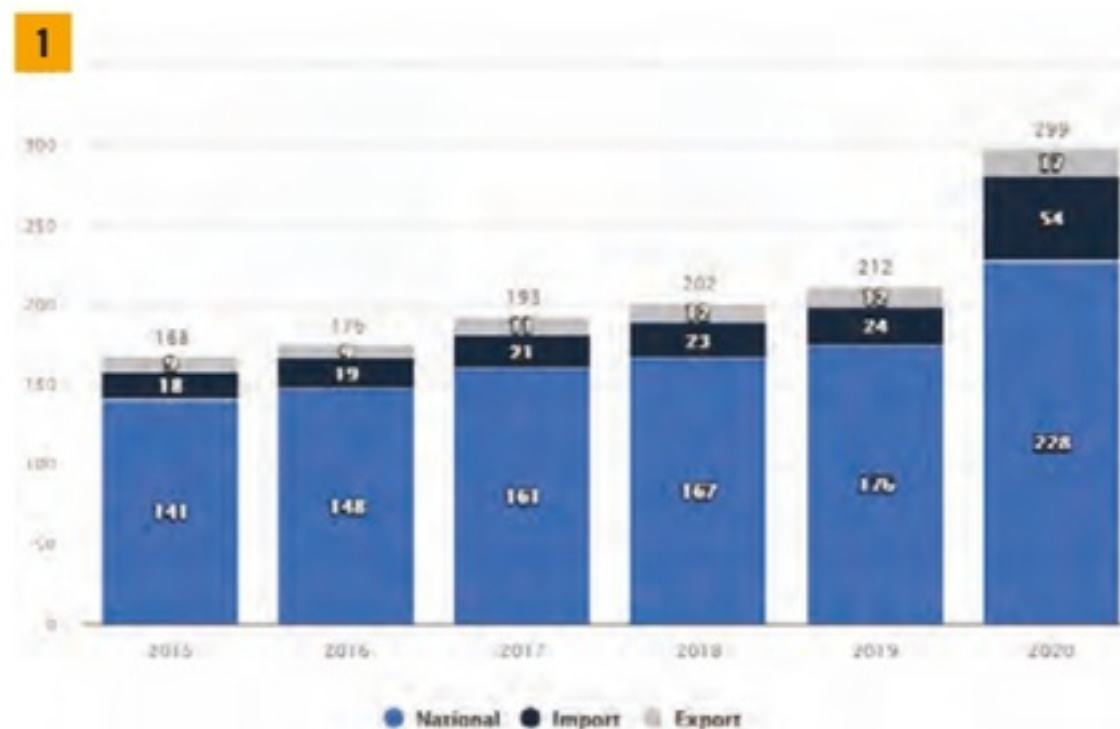
To cope with this growth, we have seen CEP market players invest massively in mostly centrally located large sorting centers. But is this actually the right decision for the long-term future?

Did they take into account the next major trend of the economy and society – the push toward going green? Is it really the most environmentally friendly solution to sort centrally, accepting inefficiently longer transportation routes compared with decentralized and local handling and sorting?

And did they consider that growing markets tend to attract new players? The entire postal letter market, for example, is prepared to do just about anything to enter the growing parcel market to compensate for its losses in the letter business. And most of these companies will be forced to choose a different strategy as their financial background is not that strong. They are fiercely looking for lower-cost investment options.

Such lower-cost technical solutions with a much smaller footprint for local sorting tasks actually have already existed for some years. But only recently has it been possible to combine them with affordable and state-of-the-art peripheral devices and solutions for high-quality data capture. This opens the door into the digital age. The generated data, including timestamp, dimensions, weight, images, OCR, barcodes, etc, is very precious and is used in all processes along the whole supply chain as well as in internal processes. Data is gold in that market – but the price of that gold has just dropped significantly.

So there is a danger in large-scale, complex and above all very expensive centralized parcel sorting solutions, as



ultimately the price/performance ratio of sorting and data capture solutions will be closely compared in the market and the best chosen.

SwissSort offers such a compact, flexible and affordable solution for e-commerce handling – the E-Sorter. Robert Blattmann, founder and CEO of SwissSort, comments, “We have been developing sorting solutions for over 20 years. Coming from letter sorting solutions that can process up to 60,000 letters an hour, our software has long been able to handle large amounts of data in real time. We are well aware of the importance of data quality and software individuality for our customers and that is the reason we develop that software completely ourselves.”

So how does the E-Sorter go about singulation, data capture and sorting,

1: Number of items sent in Switzerland 2015-2020

2: Robot with specially developed gripper controlled by a neural AI network

3: Compact linear switch-wheel sorter

4: Dumper

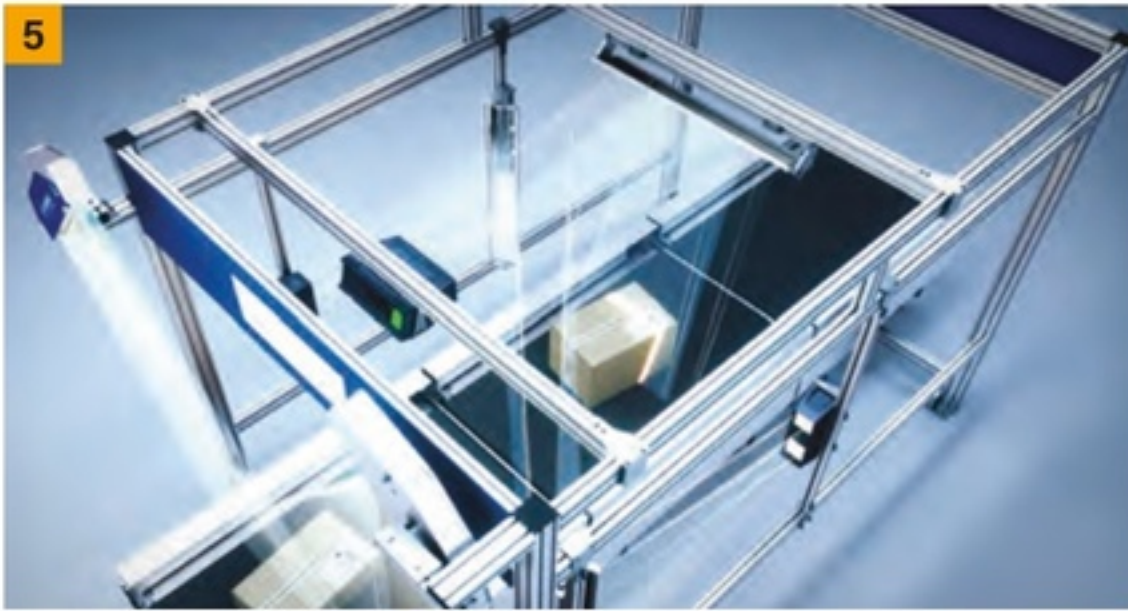
and what does it offer in software and maintenance requirements?

Singulation

Constant singulation is the basic requirement for data quality. Shipments of goods, small packages and parcels must not be mixed when passing a camera or a scale.

There are some pre-steps in the singulation process – forklifts with a rotation fork for bulk unloading, dumpers, centering conveyors and so on – but eventually there will be a bulk flow of items on a moving conveyor.

Using deep learning AI algorithms, these moving bulk flow items are then recorded by 3D cameras. The software locates the items in the pile and recognizes their position and size. A neural network tells the robots which



parcels to pick and how. They are then placed onto a second conveyor, completely aligned and singulated, ready for automatic induction into the data capture and sorting system.

Data capture

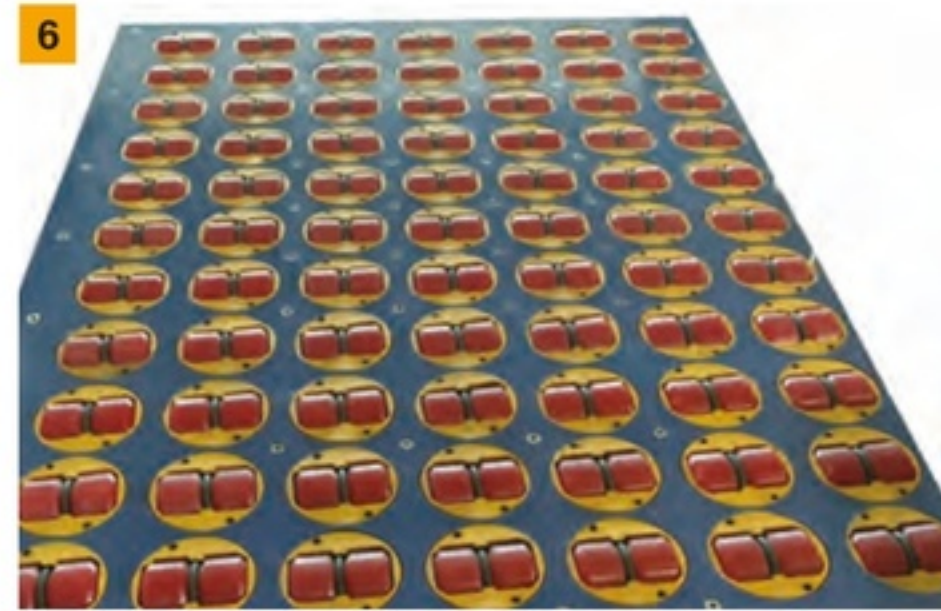
To obtain a sorting decision and process data, the data must be gathered by means of peripheral devices. SwissSort offers six-sided all-around reading (OCR and barcode) together with volume measurement as standard.

Daniel Hauser, CTO of SwissSort, says, "We believe that one shouldn't skimp on reading these days, because every no-read causes running costs, whether because the item has to be processed manually or because it can't be distributed at all. In our opinion, the sum of these running costs is considerably higher than the additional cost of a quality reading system."

A calibratable scale and a bottom-up or top-down labeler round off the configuration options for the E-Sorter.

Sorting

To choose the best option, SwissSort compared all existing sorting techniques – from bomb-bay to AGV, and shoe sorter to drone – and chose the best ones based on volume and throughput. SwissSort believes that for a throughput starting at approximately 5,000 items an hour, switch-wheel technology is best; beyond



that, the crossbelt has distinct advantages. Both techniques can be used individually or in combination.

In a switch-wheel sorter, items are guided to the left or right by individually rotating wheels. They can be turned up to 180° and individual wheel lines can be moved independently of one another, offering a number of options for ideal control. Noise levels are acceptable at below 75db(A).

The technology is tried and tested, it is comparatively inexpensive, requires little maintenance and works without major moving parts. The sorting spectrum is very broad: in tests, various 'Chinaware' shipments could all be handled equally well. The footprint is compact thanks to the two-sided exits. The throughput is not in the high-end range, but at up to 7,200 items an hour it is quite appealing.

A crossbelt sorter consists of several short belt conveyors attached at right angles to the conveying direction. The footprint of such a sorter is usually a lot larger and safety measures for staff are more comprehensive (e.g. overhead installation), which makes the whole solution more expensive. It is also less suitable for very light shipments as they can fly off the belt. However, crossbelt sorters are the right solution if a switch-wheel sorter is insufficient in terms of throughput.

The standard arrangement of a crossbelt sorter is a loop, but it can also be linear. If several infeed stations are distributed around the loop, the throughput will be higher than with

KEY FACTS

- ▶ Throughput of 7,200 items an hour
- ▶ Noise levels below 75db(A)
- ▶ Suitable for Industry 4.0

linear designs. Such systems are also available with multiple levels.

Software

SwissSort develops the software completely itself. In IT there are always many ways that lead to the finish line, but only a few simple, pragmatic and direct ones. The SwissSort software team, with several highly trained specialists, some having PhDs in physics, is working toward programming such direct ways because it later offers decisive advantages in handling the source code.

Dominic Blattmann, SwissSort CIO, says, "Our software has a very modular structure and individual components can be added or removed in a customer-specific manner. Individual software for customer-specific requirements can be easily integrated. Our years of experience guarantee safe and robust solutions even with complex requirements and extensive interfaces. Most of our software is web-based, which enables maximum flexibility. The interfaces are suitable for Industry 4.0 and designed for real-time data exchange."

Maintenance

The E-Sorter solution is rounded off with a full-service care-free maintenance package, enabling customers to focus fully on their core business. SwissSort uses the existing maintenance network of its partner company Prolistic. ■

SwissSort

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