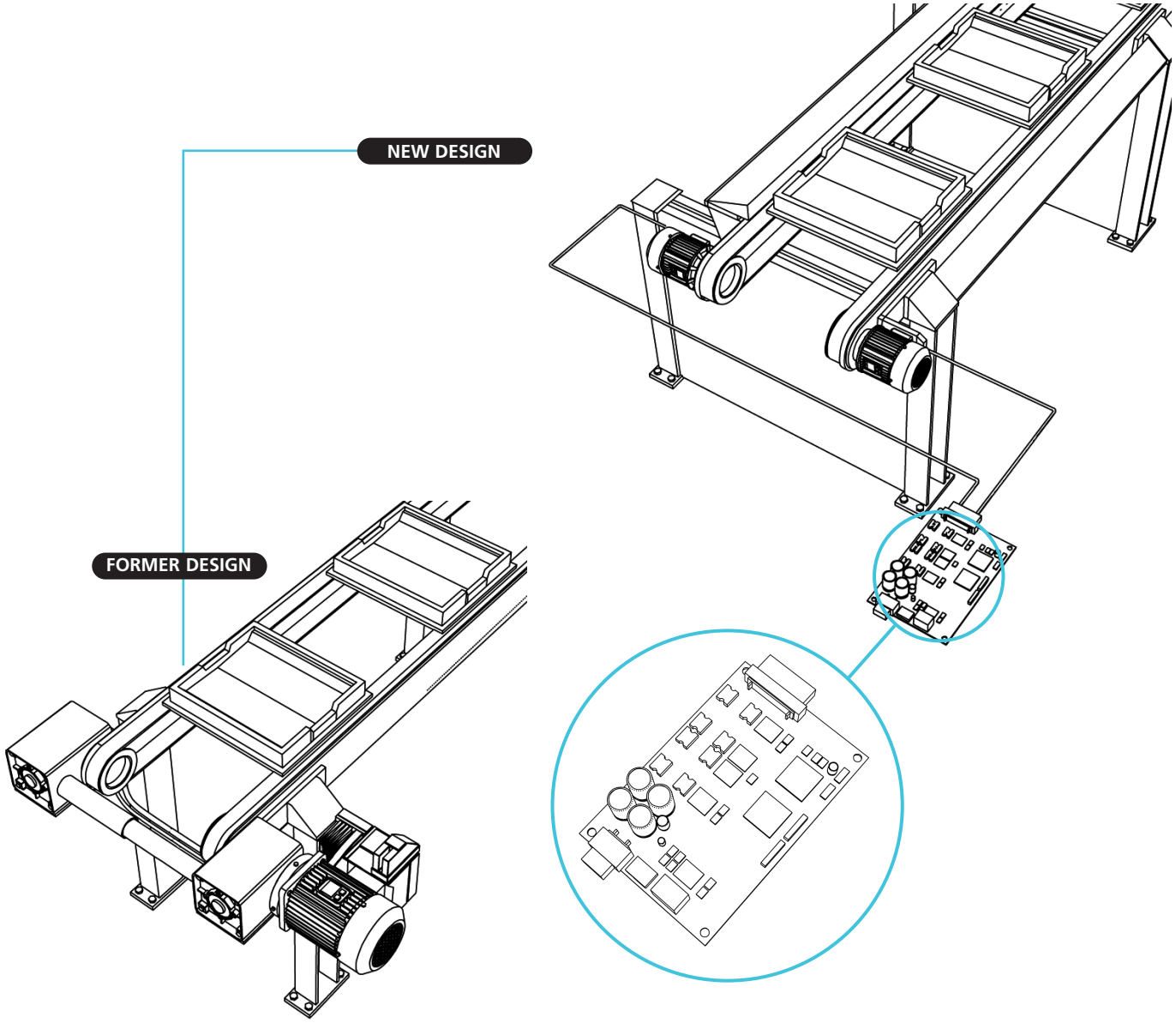
unjo®
electric motor control systems of Sweden

Unjo control boosts efficiency

The conveyor was complex.

We made it simple and efficient.

The starting point was a mechanically connected double-track conveyor used in printed circuit board production. We installed two small motors and an Unjo semistandard control unit reducing the connection between the two conveyor tracks to wiring. Both conveyor speed and track width are continuously variable. A simple, cost-efficient solution.



Our solution
Your profit

Development assignment: Conveyors for PCBs

PRODUCT FUNCTION

In printed circuit board assembly, belt conveyors are typically used for transport between the various stages. Because components can be mounted on both sides of the PCB or even pass through it, the boards can only travel resting on the outermost edge in a lengthwise direction.

The conveyor is therefore designed with two small belts which only extend a few millimetres out from the guide areas that keep the PCBs in place during transport. The distance between the belts has to be infinitely adjustable as the width of the PCBs varies greatly. The belts have to move in complete synchronicity to ensure the PCBs do not jam or lock up (the jammed filing cabinet drawer effect).

Different stages of the production process are performed at different speeds, so the conveyor also has to act as a holder of reserve stock.
The PCB conveyor stops and starts frequently. This has to be done smoothly, without jerking or shaking, to ensure that any still unfixed components on the PCBs don't move.

TECHNICAL COMPARISON

- **Existing solution**
  The connection between the two driving belts on the conveyor is maintained through mechanical transmission. The transmission has to be able to synchronise the belts' movements, even though the distance between the belts varies infinitely.

- **New technical solution**
  An Unjo Tiger semistandard control unit runs two motors, one for each belt. Advanced servo technology enables the belts to run as if linked by a rigid mechanical transmission.

BENEFITS ON COMPLETION

These are the main customer benefits on completing the assignment, in order of importance:

- The belts run in tandem without mechanical transmission. Consequently, only a moving wiring system is affected when adjusting the conveyor width.

- The control unit does the whole job of running the belts and following commands from the overriding system.

PROJECT BACKGROUND AND DEVELOPMENT

The client's original query to Unjo was whether it was possible to eliminate the mechanical transmission as it was expensive and technically complicated. Unjo's semi-standard solution, which entailed a compact, cost-effective control unit, could solve the relatively complex control problem. Unjo was also able to deliver a customised control unit with complete functionality in a very short time.

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