

**Industry:** Packaging  
**Products Used:** Modular PLC /// Drives /// HMI

# Packing of print products: alignment in free fall

The production of printed matter in industrial printing presses and bookbinding shops has long since been automated. Brochures, catalogues and leaflets are manufactured in a wide variety of formats and processed further – all using highly automated processes. At the end of the process chain, too, the finished print products can be packed into boxes for dispatch by palletizing robots. In the middle of this automated workflow, however, brochures have to be packed manually into containers.

To handle this constant, heavy physical work, Dürselen, the global market leader in paper drilling machines, has developed a new innovation. Using its VA.02 machine, piles of print products can now, for the first time, be packed automatically into telescopic containers.



The particular challenge in the technical implementation of the automatic packing machine lies in aligning the print products. In the alignment station of the VA.02, the piles to be packed are accelerated to such a high speed that they are in free fall for three tenths of a second. In this weightless state, no friction forces exist and the pile can be adjusted on four sides using synchronously switched stop motors. In addition to ensuring exact alignment, this process offers particularly gentle product handling, which is essential for high-quality print products.

The high acceleration and exact alignment is realised by means of servo motors and servo amplifiers in the MR-J3 family from Mitsubishi Electric. Their compact size makes it possible to implement the different alignment, drawing and turning stations of the automatic packing machine in the minimum of space. The MR-J3 series is well suited for use with print materials, because the servo motors have an extended vibration suppression capability. These servo systems also have an auto tuning function and are self-configuring, adapting themselves to the various moments of inertia of the different print product piles.

The different movement sequences of the 26 servo motors are coordinated and synchronised in the System Q Motion Controller. Accurate controllability and adjustment of the individual axes and servo motors is also crucial for the completely automatic changeover. As well as saving time, the automatic changeover means that set-up errors are minimised compared with manual changeovers.

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Mitsubishi Electric has always taken us seriously, even as a small family firm. The company has recognised the market potential of automatic packing machines and has lent the project active support with its know-how.

(Hans-Joachim Dürselen)

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The packing machine is attracting considerable interest from industrial printing presses and bookbinding shops. It is also conceivable that consumer goods or food could be packed into telescopic containers in future using the innovative VA.02 automation technology.

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