

**Result : Identical product over the entire die area**

- Quick retooling and quick resetting to different sizes.
- Capable of producing ends with dia. from 50 to 250mm ( 200 to 1000 ).
- Maximum sheet width of 1200 mm ( 47" ).
- High stroke speed up to 250 spm without idle stroke for sheets feeding and 275 spm for coil feeding.
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- Excellent material utilization thanks to minimal web width.
- Sheet length measuring and compensating capability during operation.
- No lubrication above product and die level.
- No special foundation due to drive design which provides for balanced weight.
- Low maintenance.

**END-O-MAT press with 150 t**

- High speed press for stamping of ends and shells.
- Press force 1500 kN.
- Capable for operation two row tooling at up to 250 spm with CNC roller straight sheet feeder.  
Capable for operation two row tooling at up to 275 spm with CNC roller coil feeder.

**Result : Identical product over the entire die area**

- High speed press for stamping of ends and shells.
- Press force 500 kN.
- Capable for operation one row tooling at up to 230 spm with CNC zigzag sheet feeder.

The END-O-MAT stamping press is dened for sheet (zigzag and straight) and coil processing (straight only). The maximum sheet dimensions are 1200 mm x 1200 mm (straight) and 1100 x 1200 mm (zigzag); sizes which cover the entire range defined by today's printing and lacquering lines.

The number of dies depends on the diameter, the available sheet width and the feeding system and can reach between 2 dies (for diameter 153 mm and zigzag feeding and 16 dies (for end diameter 52 mm and straight feeding).

The speed of the stamping press depends on the diameter, too, and can reach up to 250 strokes/minute for end diameter 52, without idle stroke.

As already mentioned, the smallest possible web width to minimize scrap skeleton waste is an essential prerequisite to save material costs.

**Innovative features and advantages of the END-O-MAT stamping press**

Bed and slide are of solid steel construction calculated for minimum deformation in the tooling area, thus guaranteeing uniform product geometry for the entire tooling area.

Unlike conventional stamping presses, the END-O-MAT press is powered from below, this means that the slide is positioned at the bottom and executes its strokes in an upward direction. The main advantage of this den is the absence of lubricating points for guides, gearwheels or bearings in or above the tooling area which prevents any soiling of the

products by mineral oil or grease. In addition, the centre of gravity has been shifted to the bottom area of the machine which results in even smoother running of the stamping press.

Another advantage is the separation of the sheet conveying and product ejection levels. After stamping, the ends are transported downwards together with the tooling and ejected by mechanical kickers.

Another essential innovation is the fact that unlike conventional systems the END-O-MAT does not require mechanical guiding of the ram. The bottom-positioned slide is powered by a synchronous four-point drive system similar to the drives used for high-quality drawing presses in the automotive industry. The accurate parallelism of bed and slide is determined by the precision of component manufacturing and not by adjusting guides as with conventional presses.

Thanks to the absence of guides, which are liable to wear and require frequent maintenance, our machines do not require regular inspection and resetting when in operation at the customer's plant - another fact which sets them apart from conventional presses.

Our system ensures perfect parallelism of bed and slide - even under one-sided load. Despite the high stroke speed, the use of a transverse drive shaft system to power the press guarantees smooth, low-vibration running. The counter-rotating eccentric wheels of this drive system compensate the horizontal dynamic forces.

The 70 mm stroke of the press has been specially optimized for end manufacturing. The automatic stamping press is equipped with hydraulic bed pretensioning to compensate any residual forces that may deform the slide. Nearly identical bending curves of bed and slide result in uniform product geometry for the entire tooling area. The pretensioning force is adjustable. The bed pretensioning device also incorporates the functions of an overload safety device to protect machine and tooling from being damaged. A variable pressure relief valve relieves the bed pretensioning in case of an overload; the controller stops the machine and displays a fault alarm. This device also acts as a quicklift with an additional 60 mm stroke to provide optimum access to the tooling for maintenance purposes, for example for the replacement of individual dies.

Tooling access height in the stamping press is 1400 mm from plant floor. It allows the operator to carry out maintenance work on the tooling without difficulties. It takes only minutes to replace an individual die. They are precentred - no die recentring is required. The stamping press is equipped with monitored oil circulating lubrication. Automatic monitoring of all points of lubrication results in little need for maintenance