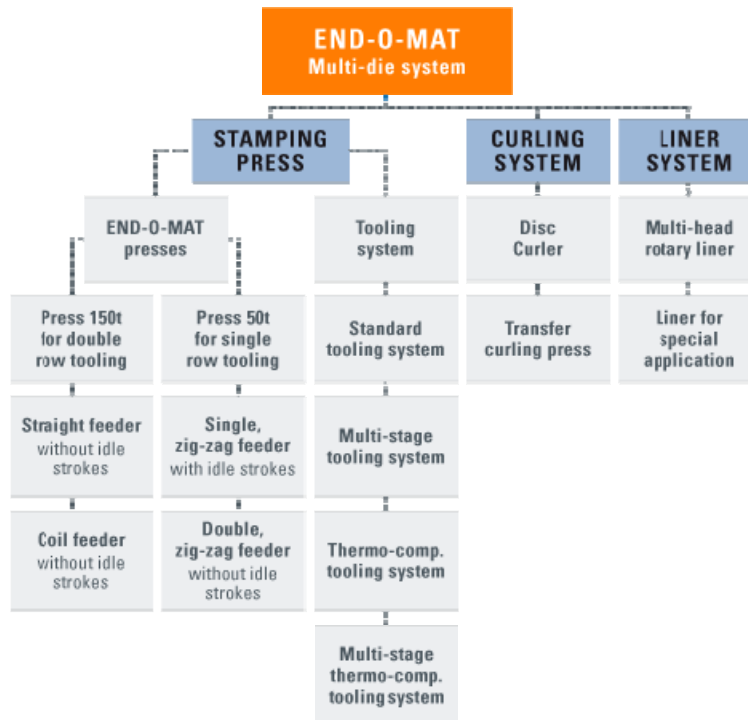


The END-O-MAT system is a combined machine system for medium and high speed end production.



Processes, can/end requirements and machine requirements for thin and low cost cans and ends with high strength:

Process	Can / End requirement	Machine requirement
Die-necking	high axial resistance: axial resistance is mainly determined by the necking angle	<ul style="list-style-type: none"> steep neck angle smaller than 30 degrees neck re-forming by second necking operation
Beading	interdependence of axial and paneling resistance	beading method <ul style="list-style-type: none"> number of rotations and advanced bead depth forming bead geometries optimized by FEA calculation
Seaming of DR ends	adapted seam dimensions (SEFEL) <ul style="list-style-type: none"> m mini-flange mini-curl on the end 	seaming method: <ul style="list-style-type: none"> number of rotations and advance seam forming only minor fluctuation of flange dimensions swing-flanging
Production of DR ends	<ul style="list-style-type: none"> sufficient resistance thanks to optimized geometry and sufficient countersink depth precise curling (mini-curl) 	multi-die stamping press: <ul style="list-style-type: none"> rigid machine design multi-stage or thermo compensating tooling FEA optimized panel design disc curler: number of rotations

END-O-MAT – the multi-die end production system with high capacity

The END-O-MAT is not only a single stamping press for ends, but also an integrated high-performance system for the production of ends including curling, lining, drying, wrapping and palletizing.

High performance means outputs of up to 4,000 ends per minute, depending on diameter, on a single system and with uniformly high quality.

The essential prerequisites for such an endmaking system to obtain the best possible benefit are:

- Processing of all materials available on the market, either single- or double-reduced, tin- or chromium-plated (ECCS), with or without lacquering.
- Smallest possible web width to minimize scrap skeleton waste
- The material to be processed does not need to meet high precision requirements with regard to length, width and angularity.
- To prevent soiling, clip-outs or stopping of the system, the material to be processed is already monitored for faults at the point of infeed.
- High outputs due to high number of strokes and absence of idle strokes.
- Short changeover times for diameter changes to minimize standstill
- Easy-to-operate manufacturing system with small need for maintenance thanks to menu-based operator interface and comprehensive fault display and diagnosis system with screen displays and an additional remote control system by telephone for fault diagnosis and elimination by our specialists.
- Low staff requirements.

The END-O-MAT system fulfills all of these requirements.

The END-O-MAT system for end production comprises the following components:

- A driven roller or chain table where several pallets with sheets are kept in stand-by for pallet change without delay. An automatic pallet changer is available as an option.
- A stack lift with hydraulic pallet alignment. For coil processing these components are replaced by the coil feed mechanism. The sheet infeed can even be converted to coil feeding later on without major expense.
- A sheet feeder with electrically driven linear conveying by means of vacuum suction cups. As an option a lubricating system can be added.
- An alignment table on which the sheets are aligned in accordance with their front scroll or, in the case of straight sheets, with a three-point system. Electronic sensors monitor the alignment process.
- Straight feeder: Two roller-type sheet feeding systems at the infeed and the outfeed of the END-O-MAT.
- Zigzag feeder: One or two zigzag sheet feeding systems. The double feeding system permits production without idle strokes. The linear motors selected to drive the infeed mechanism guarantee practically wear- and maintenance-free production – even at highest traverse speed and accelerations. The x-axes carry a gripper arm with pneumatic grippers. Gripper closure is monitored by sensors. The double feeding system for production without idle strokes has an integrated lifting system so that the gripper arms can pass each other.
- The well-known automatic END-O-MAT stamping press. A double-row multi-die tooling (straight or zigzag feeding) or a one-row multi-die tooling (zigzag feeding only) with column die set, Agathon anti-friction guideways and pneumatic springs for blank holders, etc., which are integrated into the baseplates.

- An end ejection system. Cam-controlled kickers eject the ends from the opened tooling. Each die is reached by a cross conveyor which takes over the end and deposits it on the outfeed belts. An end conveying system for uncurled ends to connect the END-O-MAT to the curlers.
- One (zigzag) or two (straight) high-speed curlers (depending on capacity) with large pitch circle diameter. An end conveying system for curled ends to connect the curlers and the lining machines.
- High-speed 3, 4, 6 or 8-head lining systems. End uprighting and conveying systems to connect liners and drying oven. End inspection systems (optional). A drying oven.
- Conveying systems to packing stations or to the balancer.
- End wrapping und palletising systems or a balancer. An automatic scrap skeleton palletiser for simple disposal of scrap skeletons is also available as an option.