

MULTI-DIE SYSTEMS

END-O-MAT

**MACHINES
FOR STAMPING,
CURLING AND LINING
FOR SHEET FEED
ENDMAKING LINES**



**Combined strength and precision:
the END-O-MAT multi-die
stamping presses**

Technology that keeps you ahead

Cantec
SOUDRONIC GROUP



LINER

High-speed rotary liner for all types of compound for double seam ends

- Capacity between 300 epm and 2000 epm with 3-, 4-, 6-, or 8-fold tooling, diameter range between 46 mm (114) and 153 mm (603)
- Operator-friendly menus with size-dependent parameter memory (accessed when changing to a different size)
 - ▶ reproducible lined ends
- Fine setting of lining guns (nozzle position) separately in radial and axial direction: In radial direction (diameter setting) by means of a threaded spindle, in axial direction (gun height) by means of a threaded spindle
 - ▶ better compound placement position



High-speed rotary liner



Circular compound distribution system

END-O-MAT ROTARY LINER

FOR WATER BASED COMPOUND

	ENDS / SHELLS		CAPACITY (EPM)			
	MM / INCH		3 SPINDLES	4 SPINDLES	6 SPINDLES	8 SPINDLES
up to dia	52 / 202		750	1000	1500	2000
up to dia	65 / 211		675	900	1350	1800
up to dia	73 / 300		600	800	1200	1600
up to dia	83 / 307		550	750	1150	1500
up to dia	99 / 401		525	700	1050	1400
up to dia	127 / 502		400	550	800	n/a
up to dia	153 / 603		300	400	600	n/a

END-O-MAT SYSTEM

Combined machine system for medium and high-speed end production



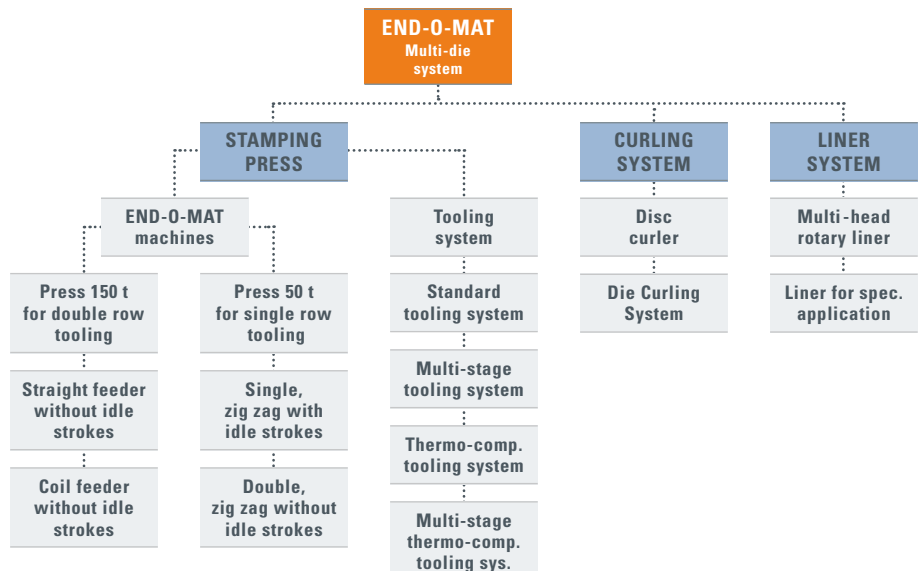
Downgauging with SR and with DR material – the key to stay competitive

Since two thirds of the can costs are material costs, cost reduction has to be achieved mainly by reducing the material consumption: Downgauging of the tinplate for the ends and reducing the cut edge diameter of ends by using miniseams for thin and hard material, but not falling short of required end resistance values! (Buckle resistance, panel distension, pullback vacuum value)

PARAMETERS INVOLVED IN THE STABILITY OF ENDS

- Material strength and thickness
- End geometry and method of production
- Seam type and quality

Using the right end design, processed with multi-stage or thermo-compensating tooling system and choosing the right seam type, material and cost savings are the result.



MULTI-DIE PRESSES

END-O-MAT – THE INNOVATIVE ENDMAKING SYSTEM

Minimal deformation of less than 0.01 mm (0.0004"): No parallelism errors, achieved by mechanically synchronised 4-point drive combined with hydraulically pretensioned press table (not welded into position) to maintain parallel alignment of the die set.

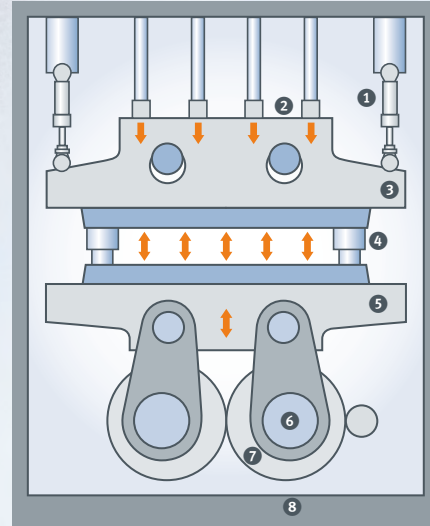
- ▶ Identical product over the entire die area
 - Advanced 4-point drive system dispenses with need for slide guiding system
 - Quick retooling and quick resetting to different sizes
 - Capable of producing ends with dia. from 50 to 189 mm (200 to 705)
 - Maximum sheet width of 1200 mm (47")
 - Excellent material utilisation 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

END-O-MAT PRESS WITH 50 T

- 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



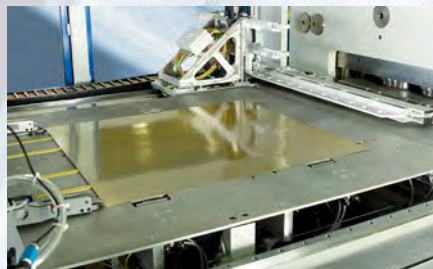
- ❶ Quicklift
- ❷ Hydraulic pretension and overload
- ❸ Table (stationary)
- ❹ Multi-die tool set
- ❺ Slide
- ❻ Eccentric wheels
- ❼ Gear drive
- ❽ Frame



END-O-MAT press



Straight sheet feeder



Zig zag sheet feeder



End discharge

SHEET FEEDERS

STRAIGHT SHEET OR COIL FEEDER

Servodrive roll feed mechanism

- The roller feed mechanism is controlled by servo motors which generate highly precise advance movements with an accurate, non-cumulative positioning
- A digital servo controller ensures feed profiles with optimised acceleration – thin material can thus be accelerated smoothly and without slipping

ZIG ZAG SHEET FEEDER

Linear motor driven two/four axle drive

- The coordinated traverse movements along the x and y axes is controlled by linear motors which generate highly precise advance movements
- The sheet is clamped only once after sheet alignment and is not released until the whole stamping process has been completed
- The second x/y axis infeed system of the double zig zag feeding system works alternately to the first x/y axis, so that no idle stroke is required

TOOLING SYSTEMS

KICKER EJECTION

- The ends are ejected from the tools by kickers and fed out of the die area by belts to ensure a reliable production process for the various end designs
- Constant spacing of the ejected ends for safe entering of the curler
- End ejection monitoring with light sensors

END DISCHARGE

Discharge belts connect the END-O-MAT stamping press to the curlers or following production units. Depending on the configuration of the following machines, ends, shells or caps can be discharged

- In 1 lane per tooling row
- In up to 4 lanes per tooling row

TOOL ACCESS AND DIE SET CHANGE

- The quicklift function provides comfortable and fast access to the die area at the convenient height of 1400 mm (55")
- Spring-loaded rollers, which lift the tooling from the slide plate once the fixing screws have been loosened, allow the tooling to be changed easily and fast



ADVANCED TOOLING SYSTEM

STANDARD TOOLING SYSTEM

for all common and non critical ends and shells

- The end is drawn in one step
- Suitable for SR and DR material
- Suitable for easy profile geometry's
- No mechanical springs for ejector blank holder and stripper ring
- Tool operated by compressed air pressure
- Limited down gauging possible
- Thinning less than 10 %

MULTI-STAGE TOOLING SYSTEM

special for critical sanitary ends

- Cutting the blank
- Drawing the inner pannel
- Forming the countersink
- Suitable for SR and DR material
- Minimal thinning, less than 4%
- Maximal end performance also for SR material
- Minimize twisting on DR material
- Minimize stress for the tin and the lacquer application

THERMO-COMPENSATED TOOLING SYSTEM

special for critical shells

- Cutting the blank
- Drawing the inner panel and countersink forming
- The end is finally formed before the press stroke is completed
- Mainly used for easy open shells
- Very close tolerance for the countersink and panel offset
- End dimensions not effected by changing the temperature off the press and tool system
- Constant product for the conversion press
- More even opening forces for the easy open end
- Suitable also for DR material

MULTI-STAGE THERMO-COMPENSATED TOOLING SYSTEM

special for critical sanitary ends and shells

- Cutting the blank
- Forming the inner panel
- Drawing the countersink
- The end is finally formed before the press stroke is completed
- Suitable for SR and DR material
- Minimal thinning, less than 4%
- Maximal end performance
- Very close tolerance for the countersink and inner panel
- End dimension not effected by changing the working temperature off the press and tool system
- Maximize end performance also for SR material



Tool changing carriage

OPTIONAL EXTRAS

TOOL CHANGING CARRIAGE

Using a special tooling carriage allows tooling changeover to be done by one operator in a very short time.

OIL TEMPERATURE CONTROL

System for heating up and cooling down the oil for constant oil and machine temperature in rugged climates.

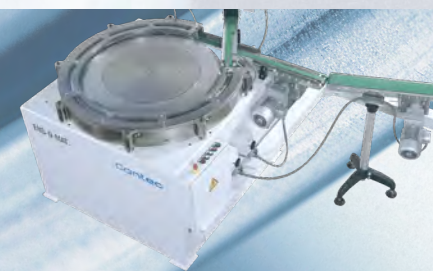
SHEET LUBRICATING SYSTEM

Spraying or rolling system for lubricating the sheets in special cases.

CURLER

DISC CURLER FOR ROUND ENDS

The stamped ends with initial curl are processed in a special disc curler between a fixed curling segment and a rotating curling disc. Its large diameter of approx. 1085 mm for steel ends (approx. 850 mm for aluminium shells for beverage EOE) provides the curler with a sufficiently long line of contact to allow even ultra-thin end material (DR) to be curled accurately at high-speeds of up to 2000 epm. The curler is designed for fast changeover.



Disc Curler

END-O-MAT DISC CURLER

FOR STEEL ENDS AND SHELLS

	NOMINAL DIAMETER	MAX. CAPACITY
	MM / INCH	EPM
up to	153 / 603	600
up to	99 / 401	1500
up to	65 / 211	2000

END-O-MAT DOUBLE DISC CURLER

FOR ALUMINIUM ENDS AND SHELLS

	NOMINAL DIAMETER	MAX. CAPACITY
	MM / INCH	EPM
up to	73 / 300	2 x 600
up to	65 / 211	2 x 750



Advanced tooling system

TECHNICAL DATAS OF THE PRESSES

END-O-MAT PRESS WITH 150 T

MATERIAL SIZES	STRAIGHT SHEET FEEDING
Max. size	1200 x 1200 mm / 47 x 47"
Min. size	700 x 700 mm / 28 x 28"

MATERIAL SIZES	COIL FEEDING
Max. size	1200 mm / 47"
Min. size	700 mm / 28"

TOOLING FOR ONE DIAMETER (DOUBLE ROW TOOLING)

NOMINAL DIAMETER		MAX. NO. OF DIES	MAX. NO. OF STROKES/MIN.	
MM	INCH		SHEET FEEDING	COIL FEEDING
99	401	11	220	230
96	315	12	220	230
83	307	13	240	250
80	305	13	240	250
73	300	14	240	275
70	214	15	240	275
65	211	16	250	275
63	209	16	250	275
52	202	18	250	275
50	200	20	250	275

COMBINED TOOLING FOR TWO DIAMETERS

NOMINAL DIAMETER		MAX. NO. OF DIES	MAX. NO. OF STROKES/MIN.	
MM	INCH		SHEET FEEDING	COIL FEEDING
99 / 96	401 / 315	10	220	230
83 / 80	307 / 305	12	240	250
73 / 70	300 / 214	14	240	275
65 / 63	211 / 209	16	250	275
52 / 50	202 / 200	20	250	275

END-O-MAT PRESS WITH 50 T

MATERIAL SIZES	ZIG ZAG SHEET FEEDING
Max. size	1100 x 1100 mm / 43 x 43"
Min. size	500 x 500 mm / 20 x 20"

TOOLING FOR ONE DIAMETER (SINGLE ROW TOOLING)

NOMINAL DIAMETER		MAX. NO. OF DIES	MAX. NO. OF STROKES/MIN.
MM	INCH		
153	603	3	180
127	502	4	190
105	404	4	200
99	401	5	200
96	315	5	200
83	307	5	200
80	305	5	200
73	300	6	220
70	214	6	230
65	211	7	230
63	209	7	230
52	202	7	230
50	200	7	230