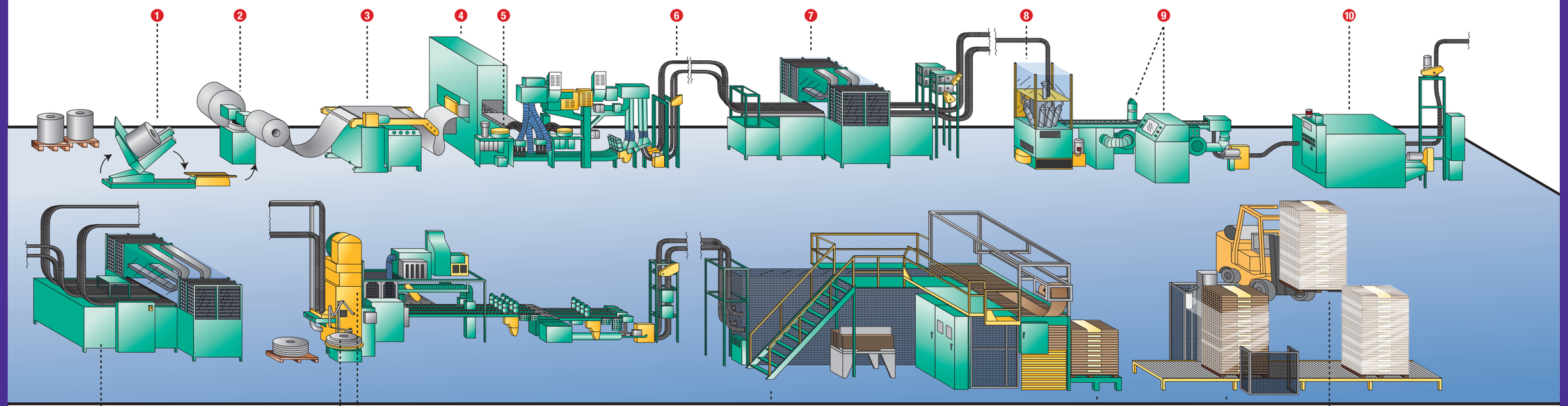
How Ball Makes Beverage Ends



1 COIL STAGING AREA
Aluminum coils are positioned by forklift on the upender and transferred to the coil car. The coil car moves the coil into position on the uncoiler.

2 UNCOILER
Unwinds the aluminum coil stock and feeds it into the pinch roll stand. Ball uses pre-coated, pre-lubricated coil stock.

3 PINCH ROLL STAND
Straightens the coil stock and controls the coil "loop" as coil stock enters the shell press.

4 SHELL PRESS
In a two-step operation, the shell press punches out circular blanks and then forms them into "uncurled shells." Shells exit the shell press and go to the curlers.

5 CURLERS
The curler reforms the lip around the edge of the shell, curving it inward to form a channel for the sealing compound, which is applied at step 8.

6 END CONVEYOR SYSTEM The shells then go into the end conveying system, which feeds the first of two balancers.

7 END BALANCER #1
The balancer is a mechanical "sponge" which controls the flow of shells between the shell press and multiple compound lining machines. The balancer also accumulates excess shells from the shell press to help keep downstream equipment running during momentary stops for coil changes, cleaning, etc. From the balancer, the shells are conveyed to the compound liners.

8 COMPOUND LINERS
The compound liners apply sealing compound into the channel of the shells.

9 VISION INSPECTION SYSTEM
The shells exit the compound liner on a flat-belt conveyor and pass under the camera of the vision inspection system. The shells are being inspected for proper application of the sealing compound.

10 LINER OVEN
The lined shells are briefly exposed to heated air, which cures the water-based lining compound.

11 END BALANCER #2
Balancer #2 helps keep the production flowing smoothly from one process to the next. The lined shells exit the balancer and are conveyed to the conversion press.

12 VERTICAL TAB STOCK UNCOILER
The vertical tab stock uncoiler feeds a narrow strip of plain metal into the conversion press to produce the tabs used during the conversion process.

13 CONVERSION PRESS This press contains multiple "progressive" die sets which raise a "rivet" in the center of the shell (for eventual application of the tab), scores the opening, applies lettering, and forms the tab that is applied to the prepared "rivet".

14 BAGGING STATION
Here the ends are counted and inserted into paper-tube sacks or "bags".

15 PALLETIZER
The bags are loaded onto a pallet and paper wrapping is woven through the bags to secure them.

16 STRETCH WRAPPING STATION where the entire pallet is stretch wrapped with thin plastic film.

17 TRANSFER TO WAREHOUSE Palletized ends are transferred to warehouse by forklift.

From a shell to an end...