

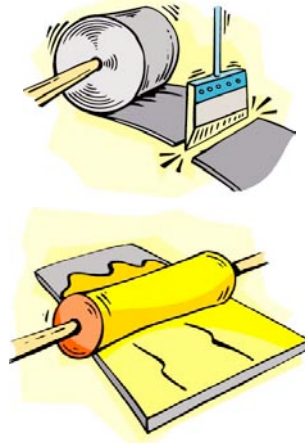
The food can body and end (bottom) is supplied to the customer assembled, with the end (top) supplied in a loose format where our customer seams it onto the can after filling.

Step 1

Steel Coils are received into Food Packaging and cut into the appropriate sheet size (which is dependant on the number of body blanks or end blanks to fit on the sheet).

The structure of the tinplate supplied is:

- a low carbon mild steel base (for strength & rigidity)
- a very thin tin-iron alloy layer
- a thin continuous layer of pure tin (for an inert surface to avoid tainting & excessive corrosion)
- a very thin layer of chrome oxide (to protect from oxidation & corrosion) and
- a mono-layer of edible oil (to protect from scratches during the can-making). As an alternative to tinplate tin-free steel is used for the manufacture of cans for fish.

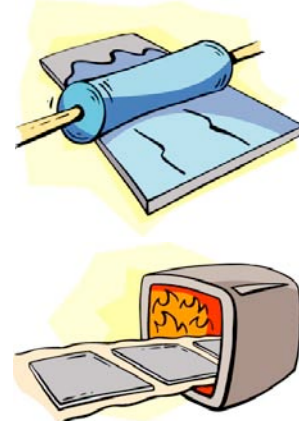


Step 2 Coating

The sheet is applied with an internal protective coating - lacquer.

Lacquer is applied by a roller-coating process. When the lacquer is applied to the sheets to be used for can bodies, clear edge margins will be left so that the tin coating is free of any contamination. This helps to ensure seal integrity during the welding process. The lacquer is cured in an oven at 150°C to 205°C for 10 minutes.

Lacquers are used to; prevent corrosion, sulphide staining and assist in product removal (especially meat).



Step 3 Printing

The tin plate sheet has an exterior lithographic decoration applied.

The metal is coated with one or two base coats and cured in an oven.

Up to 8 colours can be applied through the lithographic print process.

The artwork is received from our client and converted onto a printing plate. Each plate represents one colour, therefore 8 colours represent 8 separate printing plates.

The printing plate receives ink from a duct (a reservoir) via a system of rollers. The dampening system supplies the fountain solution (water) from another set of rollers. Food Packaging prints two colours at a time.

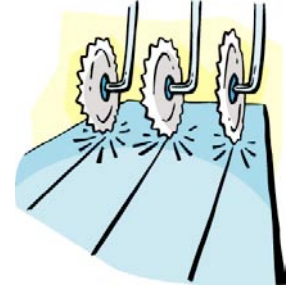
After printing the metal is heated to cure the inks. Finally an overprint varnish is applied then cured.



Step 4 Slitter

The tinplate sheet (printed or plain) is then slit into rectangular body blanks (shape) by the slitter. Each sheet is cut along the vertical and horizontal axis by a set of revolving cutters.

The first cut slits the sheets into strips - the width of the strips corresponds to the length of the body blanks required for the diameter of the can. The second cut slits the strips at right angles to the first cut, into individual body blanks - the width of the blanks corresponding to the height of the can.



Step 4 Welding

The body blank is fed through a roll-forming station which rolls the flat body blank into an open-ended cylinder. The two edges of the curled body blank are held together; slightly overlapping. A thin copper wire is used to generate current which in turn heats and melts the metal to produce a high integrity bond. The copper wire is then discarded to be recycled.



Step 5 Side-stripe Application

After the seam has been welded, a side-stripe (protective lacquer) may be applied for further protection over the welded area. A side stripe may be applied externally/and or internally.

Where the product is less corrosive a liquid stripe is applied. Where the product is corrosive a powder side seam stripe is used. An external liquid stripe is applied where processing or shipping conditions may cause rust along the weld. The side stripe may be sprayed on or rolled on to the seam. The side stripe lacquer is cured in the oven.



Step 6 Necker

The next step is where one end of the cylinder is decreased in diameter by the 'Necker'. The necked-in can becomes easier to stack as the bottom of the can nests inside the can underneath, when placed on pallets or shelves.



Step 7 Flanger

Prior to the fitment of the ends, the edge of the body is curled outwards to form a flange.

An outward curl (flange) on the ends is required for the double seaming process used by Food Packaging. The flange on a round can is created by use of die flanging or spin flanging for light gauge plate.



Step 8 Bearer

Cans are beaded to build strength into the body of the can.

The can is fed into the Bearer which creates horizontal grooves (beads) around the can. A Bearer Mandrel is inserted into the can and the bearer rail is applied to the external surface. As the pressure between the mandrel and rail is increased the can is rolled to form the beads.



Step 9 End Fitment to Body

The end (bottom) is fitted to the body of the can using a process known as 'double seaming'. The cans are doubled seamed making the seals airtight to ensure there are no leaks, therefore minimising spoilage.

Double-seaming is a critical step in the can making process as it creates two points of seal within the seams.

The first seal is formed when the cut edge of the flange (or body hook) is embedded in the lining compound on the end (bottom). The second seal is a result of the compression of the partially formed seam during the second operation. This seam squeezes the lining compound between the body-hook and the end-hook as the two overlap each other in the completed seam. An important function of the second operation is to compress the metal layers and flatten any wrinkles that may have occurred from curling the metal under.



2 Piece ReDraw Can

Visy is the only company in Australia to manufacture a two-piece food can that has no bottom end or body seam. Simply put, the 2 piece can is manufactured comprising of 2 pieces of formed tinplate:

- End (top)
- Body & end in one

The end (top) follows the same manufacturing process as those in the 3 piece can, however the creation of the body & end is somewhat different.

Step 1

Steel coils are received into Food Packaging.



Step 2 Cup Blanking and Drawing

A sheet of coated tin plate has circular pieces (a cup blank) pressed out of it.

The cup blank is placed in a press where it is 'drawn' into a shallow cup shape. The shallowness of the cup is dependent on the size of end can. Cups are produced at a rate of 300 per minute.



Step 3 Redrawing

The cup is then redrawn. Redrawn is the process whereby the original shallow cup is lengthened using a 2-way press which forces the cup into the particular shape and stretched to suit.

As the can is redrawn, typically, the height of the can increases and diameter decreases. After the can is redrawn, the base of the can is reformed with a circular panel that gives the can strength.



Step 4 Trimming

The cup is then trimmed along the flange to discard any excess tinplate.



Step 5 Flanger

The Flanger has rotating heads containing tapered rollers. These rollers are brought in contact with the can and form an outward flange to accept the can ends.

