



## **DIFFERENT CAN TYPES & THEIR MANUFACTURING PROCESSES**

Tanzila Younas, Moiz Akram, Faizan Ur Rahman

Dept. of Mechatronics Engineering, SZABIST. Karachi, Pakistan. [tanzila@szabist.edu.pk](mailto:tanzila@szabist.edu.pk),  
[moizakram@hotmail.co.uk](mailto:moizakram@hotmail.co.uk), [rfaizan12@gmail.com](mailto:rfaizan12@gmail.com)

### **ABSTRACT**

Cans are containers that are widely used in daily life. More or less, every household drink or, in general, fluids are first stored in cans and are then made available for people to buy or use. An estimate of 6700 cans is used per second round the world. Hence to cope up with such high demands, cans are needed to be manufactured in very large amounts using cheapest, finest and efficient manner. As can's material, can be recycled, so a chunk of its recycling process will also be discussed. This report is based on a real industrial observation of manufacturing process and will discuss the process of how cans are being manufactured in masses, passing through variety of steps, till they finally reach their consumers. Cans are either made up of Aluminum or Tin, depending on their use. Different can manufacturing processes will be discussed in this report.

### **INTRODUCTION**

Generally, cans are manufactured using 3 different processes. Use of each can, manufactured in these processes, is based on product's storage and usage requirement. Three types of cans manufactured includes:

- 1) ONE PIECE CAN MANUFACTURING PROCESS
- 2) TWO PIECE CAN MANUFACTURING PROCESS
- 3) THREE PIECE CAN MANUFACTURING PROCESS

More or less, basic process of one piece and two piece can manufacturing is same, except for some obvious differences, whereas three-piece can's manufacturing process is entirely different from above two. Materials used generally in one piece and two piece cans are Aluminum, whereas in three piece can manufacturing Tin is usually used. Each process requires different technique to acquire its final product, which is then utilized depending on environment and nature of material. Mainly in last two cases, different techniques can be used to acquire same product limiting themselves under one of these headings of any last two manufacturing processes.

### **ANALYSIS**

#### **1) ONE PIECE CAN MANUFACTURING PROCESS**

One piece cans are used in aerosols and sprays. Procedure for manufacturing these cans is that first a circular disk shaped part is obtained from Aluminum sheet using punching method. After passing through punching, extrusion is performed. After extrusion, trimming is done to smoothen its rough edges, after which pieces are bathed. After drying them, they are coated and are then forwarded into heat drying and drying, respectively. After completely drying the obtained pieces, they are then passed for printing customer's required design through roller printing process. When printing is done, swaging upto required dimensions is done to obtain

point/conical shaped ends to which exits of cans are connected. After passing through all these processes, finally acquired product is then tested under various conditions and through variety of manners, after passing that, product is either passed to inventory for sales, and in case of faulty piece, each piece is rechecked for whether is it reparable or should be sent of waste and then it will be re used after recycling.

## 2) TWO PIECE CAN MANUFACTURING PROCESS

Cans produced using TWO PIECE CAN MANUFACTURING PROCESS are generally made up of Aluminum and are used in storing variety of house hold use stuff. They are very commonly used. Two-piece cans can be classified into further categories according to their body processing method.

They include;

- i) DRD cans (Draw and redraw cans)
- ii) DWI cans (Draw and wall ironing cans)
- iii) SD cans (Shallow Draw cans)

In DRD cans manufacturing process, firstly a circular disk of required dimensions is obtained from coil roll. That disk is then punched with heavy pressure and a cylindrical, or required bottle shape is drawn of it, if more shaping is required then it's again redrawn with another sized shaping tool, or else it's moved on for trimming. After trimming, its cleaning is done and after which it's moved on to printing and oven respectively. After which lid emplacement and quality inspection is done, after it, product is moved either for sale or repair/recycle if fault is seen in any way.

In DWI cans (Draw and Wall Ironing cans), again, firstly disk is obtained from coil, it's then punched into can shaped object. Here re-punching is not done, instead object moves directly for trimming and wall ironing, after which it passes to printing, then oven, then lid emplacement following with inspection and then finally either to sale or repair/recycling.

SD cans (Shallow Draw cans) are cans that have their diameters bigger than their heights. Their process is same as above two's. Only less pressure punching is done in it.

## 3) THREE PIECE CAN MANUFACTURING PROCESS

In Three Piece, Can Manufacturing, firstly sheet measuring the size of circumference of can is obtained from coil roll. After cutting of sheet, obtained rectangular sheet is then placed for lacquer which is then moved to oven. After heating, slitting into small pieces is done. Obtained sheet is then rolled and is processed to welding/soldering. After this spraying and curling is done. Up till now one cylindrical piece is obtained, flanging of this cylindrical object is done and then seaming is done to smoothen the object from corners. This is one piece. Other two pieces are up side's and down side's lid. These two lids of same diameter as of can's, are extracted from coil and are then placed on cylindrical object (one piece) and finally forms a complete can. Once can is formed, quality tests are performed on these objects. If they pass test, then cans are moved on for selling or else they're moved on either for repairing or recycling depending on fault.

## CONCLUSION

We have discussed 3 processes of can making and have compared the processes with each other. Most of the steel cans are made from Three piece can manufacturing process. Most Aluminium cans are produced from two piece can manufacturing process and mostly cans are made using this process around the world, as Aluminium is light weight as well as printing on Aluminium looks attractive. 2 piece cans can also be designed according to our need using 3 further

processes in 2-piece can manufacturing process. This process is also cheap and is most commonly used in the manufacturing of cans. Hence, we conclude that two piece can manufacturing method is the most reliable and cheap method of can manufacturing.

**REFERENCES**

- [1] <http://www.madehow.com/Volume-2/Aluminum-Beverage-Can.html>
- [2] <http://www.mpma.org.uk/pages/data/3piecedrinksanlores.pdf>
- [3] <https://www.toyo-seikan.co.jp/e/technique/can/kind/>
- [4] <http://www.cancentral.com/can-stats/how-cans-are-madeM>
- [5] <http://www.slideshare.net/DaliaElGhayesh/can-manufacturing>