



Aluminum Canned Craft Beer

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Aluminum Canned Craft Beer

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Introduction

- **Ball Metal Beverage Packaging Division, Americas**
 - **Ball is the worldwide leader in metal beverage cans**
 - **In North America, we produce over 100MM cans/day out of our 16 plants.**
 - **Ball supplies 95% of the craft beer in cans market due to our commitment to:**
 - **Quality**
 - **Sustainability**
 - **Customer Service**
 - **Innovation**

Advantages of Aluminum Cans

- **Light weight, easier work load for filling line personnel. Decreased shipping costs.**
- **Higher line speeds and efficiency. About 30% improvement over steel can lines.**
- **Less tooling wear. About 50MM cans/tooling head before tooling wear.**
- **Worth recycling. Used aluminum beverage cans have enough value to pay for recycling overhead.**

Advantages of Aluminum Cans (continued)

- **No light damage. No metallic off-flavor. Humans cannot taste aluminum!**
- **Tighter double seam, less leakage opportunity with only one seam.**
- **No breakage, no labeling. More volume/space efficiency.**
- **Better light weighting history. From >50 pounds/M in 1960 to <25 pounds/M today.**

Basics on Aluminum Cans

- **Sizes – 5.5 fl. oz. to 32 fl. oz.**
 - **8.4 fl. oz. (250 ml), 200/202 X 503**
 - **2" end/2+2/16" body X 5+3/16" height**
 - **12.0 fl. oz. (355 ml) 202/211 X 413**
 - **16.0 fl. oz. (473 ml) 202/211 X 603**
 - **24.0 fl. oz. (709 ml) 206/300 X 710**

Basics on Aluminum Cans (continued)

- **Nomenclature:**

- **Can – bodywall, neck, flange, bottom dome, chime, double seam.**
- **End – curl, countersink, rivet, scoreline, opening panel, incising, embossing.**
- **Double seam –A hermetic seal formed with a can and end by a two step tooling operation in the closing machine. A good double seam doesn't leak!**

Can Body Manufacture

- **Uncoated coiled stock (0.010" gauge), cupper, drawn and ironed tooling, trimmer, washer, drier oven.**
- **Off-set lithography printing and over-coating (water-born acrylic coatings) and pin oven.**
- **Interior spray coating (FDA approved water-born epoxy coating) and bake oven.**
- **Light testing and optical inspection at up to 2400 cpm.**

Can Body Manufacture (continued)

- **Smooth die necking and flanging.**
- **Palletizing at 389 cans/layer X 21 layers (107" tall), 22-27 pallets/trailer load (up to 204,225 cans).**
- **Monitor critical can dimensions, internal metal exposure, axial load and dome reversal strengths, headspace/volume, abrasion resistance and litho quality.**

Stay-on-Tab End Manufacture

- **Coated end stock (0.0085" gauge), flush panel end press, curl formation, curl compound liner.**
- **Optical inspection, tab formation/end conversion press (incising/embossing, scoreline, and rivet formation & assembly).**
- **Sleeve, palletizer.**
- **Monitor critical dimensions for double seaming, interior metal exposure, buckle resistance, scoreline formation, ease of tab opening.**

Sales Dept. Can Order Requirements

Minimum order: 25 pallets per label

**12oz cans packed at 8,169 cans/pallet,
204,225 cans/truckload**

**16oz cans packed at 6,224 can/pallet,
155,600 cans/truckload**

**We will produce as few as 12 pallets/label
with a minimum run surcharge**

**We will mix and match labels on a truck
for shipment to add up to 25 pallets**

**We will hold inventory at our plant for 6
months**

Graphics Process

Once you have TTB approval on your final artwork file you will need to have your artwork “separated”.

- **Ball can provide a quote to do the separation work or you can work with an outside engraver.**

Once Ball receives your separated 1 bit Tiff file we need ~ 2 weeks to set up our plant for production.

Estimates of Current lead times for production from receipt of PO assuming graphics are complete. (10/13)

- **3-4 weeks for 12oz cans**
- **6 weeks for 16oz cans**

Typical Canned Beer Packaging Line

- **Can depalletizer, cable or flat linked empty can conveying, can coder, can rinser (ionized air or water).**
- **Rotary can filler, transfer table, lubrication, undercover gassing (CO₂), double seamer.**
- **Filled can conveying, primary short fill detector, can inversion twist, either tunnel pasteurizer (140° F, 8-12 min.) or can warmer (warm above dew point).**
- **Filled can conveying, upright can twist, secondary short fill detector, air knife, accumulation table.**
- **Secondary packaging (paperboard multipacks, HiCone, corrugated tray former/packer, shrink-wrap?).**

Typical Canned Beer Packaging Line (continued)

- **Case conveying, case palletizer, pallet stretch-wrap?**
- **Warehousing for empty can and end pallets and filled product inventory.**
- **QA equipment (fill determination, carbonation, dissolved oxygen, specific gravity, double seam evaluation, microbiology).**
- **Adequate utilities –water, water treatment, sewage, electricity, refrigeration, compressed air, steam, sanitation equipment/chemicals, fork trucks, loading/unloading docks, security.**

Beer Can Line Considerations

- **Line speed – 200-500 cpm vs. 500-1200 cpm.**
- **Line personnel – 3 ½ bodies on well designed automated can line vs. more for manual handling.**
- **Tunnel pasteurization vs. can warmer – warming finished product above the dew point for facility.**
- **Warehousing/distribution temperature – ambient vs. refrigerated. Flavor and secondary packaging integrity.**

Beer Can Line Considerations (continued)

- **Line equipment**
 - **New – Conveying, tunnel pasteurizer/warmer, lab equipment.**
 - **Used/Rebuilt – depalletizer/palletizer, filler/seamer, secondary packaging.**
 - **Filler – warranty, fill control ($<\pm 3$ g), can size tooling.**
 - **Double seamer – warranty, on common base with filler, can and end size tooling.**
 - **Equipment size – filler/seamer are slowest, everything else is 10% faster.**

Packaging Facility Personnel Training

- **Most successful facility start-ups require thorough training of personnel involved on location.**
- **General training includes can and end manufacturing, warranty information, aluminum can handling and double seaming general theory.**
- **Specialized training includes QA personnel training and testing, Double seam evaluation/trouble shooting for Maintenance personnel, and Aluminum canned product handling by Warehousing/Shipping personnel.**
- **DVD/VCR video, booklets and posters in English, Spanish and French.**

Packaging Facility Personnel Training (continued)

- **Ball Can School – 2 days in Broomfield, Colorado, annually. Technically oriented.**
 - **Covers can and end manufacture in detail, raw materials used, quality testing, lithography application, Golden Can and End Plant visit, Ball Tech Center visit, Customer Technical and Equipment Services detailed, and custom product development.**
 - **Expenses – Class, training materials, all food and beverages and local transportation are free. Attendees are responsible for transportation to/from Broomfield/Denver and local lodging (Omni Resort).**

Conclusions

- **Aluminum packaging is strongly contributing to the rapid growth of the craft brewing industry.**
- **Both aluminum containers and a modern packaging line have a long history of superior quality.**
- **We at Ball stand ready to technically assist your conversion to aluminum packaging.**

“The Beer Can Revolution”

- In 2002, Oscar Blues became the first micro-brewery to operate its own canning line putting Dale’s Pale Ale in Ball aluminum cans
- Now there are more than 150 craft brewers in cans



Questions?

