

TECHNICAL BULLETIN – DDR03

SUBJECT: CHROME PLATED DRYER DRUMS FOR INFANT CEREAL PRODUCTION

General

Chrome plated double drum dryers used for the production of flaked infant cereal foods require precise specifications for chrome plating and dimensional tolerances for the concentricity, taper, and length of the finished drum surfaces.

Infant cereals of the type produced in the United States have the following characteristics which are controlled in part by the drum drying process.

Mixing Quality

The cereal must be easily reconstituted with liquid (water, milk, juices, mothers milk, etc.), for feeding.

The surface area and thickness of the flake influences the characteristic of the cereal produced. Concentricity of the dryer drums while in operation affects the nip or gap between the drums. The gap will vary during each revolution if the drums are not concentric and produce a sheet which varies in thickness. The variation in sheet thickness varies the mixing qualities of the cereal.

The uniformity of the sheet thickness also affects the bulk density of the final product. The flaking operation, which sizes the cereal flakes and controls the product density affects the packaging operation. The dryer drums must be finished to a close tolerance, for concentricity.

Dough Balls

Leakage of slurry at the end dams can cause a partial strip of wet or damp material at the ends of the dryer drums. This material can affect the final quality of the cereal being produced. If dough balls remain in the cereal during storage prior to filling the high moisture promotes bacterial growth. A significant variation in the length of the drum surfaces will affect the seating and sealing of the end dams to the dryer drums.

Chrome Plating

The chrome plating on the drum surfaces are the responsibility of the plating company. However, certain requirements are a pre-requisite to selecting the company to do the chrome plating.

Primary consideration should be the experience and reputation of the plater. The plater should have experience plating steam heated dryer drums and provide guarantees to meet specifications. The plating should be of uniform thickness when applied and ground to a final finish.

Specifications

The following are guidelines for tolerance and specifications for chrome plated dryer drums:

1. Grind the drums for processing; prepare, chrome plate and finish grind.
2. Residual chrome thickness to be .004 to .006" thick.
3. The final surface finish of the chrome is to be ground to 16 Ra or better.

TECHNICAL BULLETIN – DDR03

4. The concentricity of the drums to the journal bearing surface must not exceed .002" TIR (Total Indicator Reading).
5. The drums must be straight, with no taper.
6. Overall length of the double drum dryer drums must match to within .010".
7. Defects of up to .010" can be repaired by dot welding with stainless steel and polishing.
8. The shoulder chime edge should be 90° and broken to a small radius to remove a knife edge.

Drum Drying Resources supplies new, rebuilt, and retrofitted Double Drum Dryers to the drying industry. Each dryer is configured to specific designs, specifications, and systems to produce your product at maximum quality, sanitation, and productivity levels.

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