

CAD Documentation

Chip Sleeve / Chip Can Insert · DOC-CS-200 Rev F · Model release notes and file manifest

1. Model definition

The model is fully parametric and driven from the canister inside diameter. Changing `can_id` regenerates a valid part for any stacked-chip format; every other dimension is derived. Rev F sets `trough_len` from a measured canister interior depth rather than a published exterior height.

Variable	Value	Meaning
<code>can_id</code>	73.7	Canister inside diameter (mm)
<code>clearance</code>	0.40	Radial running clearance per side (mm)
<code>wall</code>	0.25	Wall thickness; 0.40 mm for paperboard
<code>arc_deg</code>	180	True half-cylinder
<code>trough_len</code>	220.0	Closed lower end to top edge (mm) — 8.66 in
<code>r_out</code>	36.45	Derived: $\text{can_id}/2 - \text{clearance}$ (mm)

Part mass target: ~6 g in food-grade PP/PET and ~5 g in barrier-coated paperboard. Mass values are targets, not certified specifications, and must be validated by the licensee against material and line data.

2. Construction

- The curved wall is a 180° extruded shell, swept the full 220.0 mm trough length.
- The lower end is closed by an integral half-disc at wall thickness, acting as a stop for the chip column.
- The upper end is open; the stack is loaded and unloaded through it.
- The side opening spans the full height of the part — chips bear on both sides of the curved wall.
- There is no grip tab. The upper end is a plain edge sitting ≈ 8.6 mm below the canister lip, engaged by tilting the can and withdrawing.

3. File manifest

File	Format	Use
<code>chip_sleeve.scad</code>	OpenSCAD	Parametric master (Rev F); edit to retarget a format
<code>chip_sleeve_Rev_F_print.scad</code>	OpenSCAD	0.50 mm prototype variant for 3D printing
<code>chip_sleeve_Rev_F_0.25mm.stl</code>	STL mesh	Production-intent geometry, 0.25 mm wall
<code>chip_sleeve_Rev_F_print_0.50mm.stl</code>	STL mesh	Print-ready prototype, 0.50 mm wall
<code>chip_sleeve_profile_180deg.dxf</code>	DXF 2D	180° cross-section profile for tooling / die layout
<code>chip_sleeve_dimensions.csv</code>	CSV	Full dimension schedule and format variants

Chip_Sleeve_Technical_Drawing.png

Drawing

DWG-CS-001 Rev F dimensioned drawing

4. Line integration note

The CAD model and file manifest are geometry-neutral. They do not prescribe a specific filler integration. A proposed co-insertion concept is described in DOC-CS-400 Rev B, but machine timing, tooling, and throughput are engineering hypotheses that must be validated with the OEM line engineer.

5. Tolerancing notes

The controlling fit is the diametral sliding clearance, nominal 0.80 mm with a permissible range of 0.64–0.96 mm across the tolerance stack of can I.D. and sleeve O.D. Below 0.64 mm the sleeve risks binding on an out-of-round tube; above 0.96 mm it rattles in transit. Length is toleranced $+0 / -1.0$ mm: the part must never exceed the measured interior depth, or the lid will not reseal. Straight edges of the half-cylinder should carry a 0.3 mm radius or a rolled lip to avoid scoring chips during withdrawal.

6. Revision history

Rev	Change
A	Initial release — 210° cradle geometry
B	Corrected to 180° true half-cylinder per provisional filing; retargeted to 5.5 oz canister
C	Added mass target note; line integration flagged as a concept requiring OEM validation
D	Corrected construction note: engagement is by tilt-and-withdraw motion
E	Wall reduced 0.50 → 0.25 mm; length shortened after prototype fit failure
F	Length set to 220.0 mm (8.66 in) from measured canister interior depth of 9 in; manifest and tolerancing updated