Liquor Bottle Security Caps

Liquor bottle security caps are aluminum closure caps designed to prevent unauthorized opening or tampering, ensuring package integrity through physical structure or smart technology.

Eliminate secondary filling or counterfeiting through one-time opening design (e.g., break ring, anti-kickback thread) or electronic labeling. Combined with food-grade gasket to prevent oxidization or evaporation of liquor.

Tamper Evident Design of Liquor Bottle Security Caps:

Physical anti-theft design	Anti-theft ring (Tamper Evident Ring)	Structure	A ring-shaped mark is set under the aluminum cap, which breaks off and stays at the mouth of the bottle when it is opened, indicating that the bottle has been opened.
		Material	Aluminum thickness needs to be ≥0.25mm, and the depth of the indentation is precisely controlled (e.g. 0.1mm) to ensure the breaking effect.
	Anti-reverse thread	Reverse thread design, can not be opened in the reverse direction after screwing, need to destroy the bottle cap to open.	
Intelligent anti-theft technology	RFID/NFC chip	Embedded in the bottle cap, scanning code to verify product information and circulation path.	
	Blockchain traceability	the unique code of the cap is bound to the blockchain database, realizing the whole chain anti-counterfeiting.	
	Temperature-sensitive color-changing coating	displays warning signs in case of abnormal temperatures (e.g. high-temperature distillation).	

Performance Test Standards of Liquor Bottle Security Caps:

1. Anti-theft test

- Fracture integrity: 100% fracture of the anti-theft ring after simulated opening (ASTM D5486).

- Anti-kickback force: reverse torque ≥ 2.5N-m after screwing (ISO 9001).

2. Sealing test

- Negative pressure test ≥ 0.8MPa, holding pressure for 1 minute without leakage (GB/T 17876).

3. Durability test

- No corrosion or deformation after high temperature and high humidity cycle (40℃/90%RH, 7 days).

Application of Liquor Bottle Security Caps:

- High-end spirits

Example: Moutai and Hennessy XO adopt anti-theft ring + RFID double anti-counterfeiting, the ring body breaks and the chip fails after the bottle cap is opened.

- Export Liquor

Comply with European and American "Tamper Evident Packaging (TEP)" regulations (e.g. FDA 21 CFR 211.132).

- Ready-to-drink small bottles

50-200ml travel size, anti-theft design prevents transportation leakage and illegal distribution.

Features of Liquor Bottle Security Caps:

- Anti-theft design: aluminum lids usually adopt a special locking mechanism that can only be opened under certain conditions to prevent theft.

- Easy to identify: Anti-theft aluminum caps usually have distinctive markings or labels on them, so that customers can identify this as an anti-theft product at a glance.

- Safety: Aluminum caps are made of sturdy material, which can effectively protect the liquid inside the bottle from leakage and contamination.

- Applicable: can be applied to many types of bottles, whether wine, spirits or other types of drinks.

- Environmentally friendly: many anti-theft aluminum caps are made of recyclable materials, in line with environmental requirements.