

Know Your Bottle Neck – Packaging Guide

1. Why Bottle Neck Knowledge Matters

The bottle neck is the most function-critical area of a rigid package. It directly impacts closure fit, sealing integrity, torque, leakage performance, and filling line efficiency. Many packaging issues originate not from poor closures, but from unclear or incomplete bottle neck specifications.

2. What Is a Bottle Neck?

The bottle neck is the upper portion of the bottle designed to interface with a closure (cap, pump, or dispenser). It includes threads, sealing surfaces, and dimensional features that ensure proper application and product protection.

3. Key Bottle Neck Dimensions

3.1 T Diameter (Thread Diameter)

T diameter refers to the maximum outer diameter of the bottle thread. This dimension controls how the closure initially engages with the bottle. An incorrect T diameter can result in cross-threading or improper cap fit.

3.2 E Diameter (Effective Diameter)

E diameter is measured below the thread crest and is critical for sealing. It determines how the closure liner or sealing surface compresses against the bottle.

3.3 Neck Height

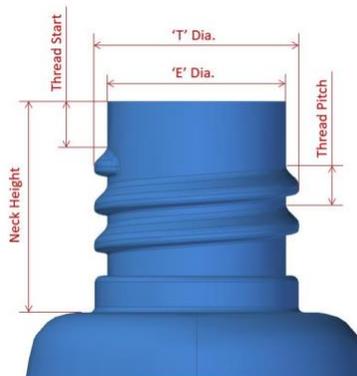
Neck height is the vertical distance from the bottle shoulder to the top sealing surface. Insufficient or excessive neck height can cause sealing failure or torque inconsistency.

3.4 Thread Pitch

Thread pitch is the vertical distance between adjacent threads. It must precisely match the closure design to allow smooth application and removal.

3.5 Thread Start

Thread start defines where the thread begins around the circumference of the neck. This affects closure engagement speed and is especially important for high-speed filling lines.



4. Common Mistakes in Bottle Neck Specifications

- Mentioning only nominal neck size (e.g., 28mm)
- Omitting E diameter or thread pitch
- Missing tolerances
- Assuming closure suppliers will compensate later
- Lack of sectional views in drawings

5. Best Practices for Bottle Neck Drawings

- Clearly specify T and E diameters
- Define neck height, thread pitch, and thread start
- Include sectional and enlarged views
- Reference applicable industry standards where required
- Align bottle and closure drawings early in development

6. Final Takeaway

A well-defined bottle neck drawing reduces trial-and-error, improves supplier communication, and prevents costly leakage or fit issues. Knowing your bottle neck is a foundational skill for anyone involved in packaging design, sourcing, or manufacturing.



PC