Abstract

When surveyed on standard bottle opener use, consumer complaints include the opener slipping and too much effort required for such a simple task. The E-Z Squeeze bottle opener fixes these issues by utilizing lever arms to amplify the user’s force and an anchoring hood to stabilize the bottle. Our SolidWorks model and FEA demonstrate a successful product. Customer convenience paramount, the E-Z Squeeze is a lightweight, robust, and dishwasher safe bottle opener.

Design

The original design transmitted a smaller force to the bottle than the user supplied, which contributed to its failure. The final design solves this problem through the following design features:

**ANCHOR:** Keeps the far side of the bottle cap pinned down and locks the bottle into place.

**LEVER ARMS:** Makes the bottle easier to open by amplifying the user’s force; analysis shown in Figure 3.

**TORSIONAL SPRING:** Separates the lever arms after use, making the product more convenient to use.

**ALUMINUM:** Makes the bottle opener lightweight, dishwasher safe and extremely durable.

**MODULAR PARTS:** Cuts manufacturing costs and allows easy repairs.

### Results and Conclusion

The final design met most performance requirements and passes FEA testing. Through the use of extended lever arms and an anchoring piece, the final design is more stable and requires minimal effort to operate.

### Acknowledgments

Stephen Laguette, Alex Russell, Adam Martinazzi

### References

Benchmark: Flat stainless steel bottle opener


ISO 97.040: Kitchen equipment quality standard