

CERTIFICATE OF PORTFOLIO VERIFICATION



This portfolio has been reviewed by Inkaer for authenticity and quality. It has been checked for plagiarism using Turnitin, with originality confirmed. Industry fit, complexity, and understanding have been evaluated through manual assessment and a recorded interview.



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Summary Snapshot

Originality Check: *Passed*

Industry Relevance: *Verified*

Technical Interview: *Recorded*

Project Date: *February 2024*

Tools Used: *SolidWorks, MATLAB*

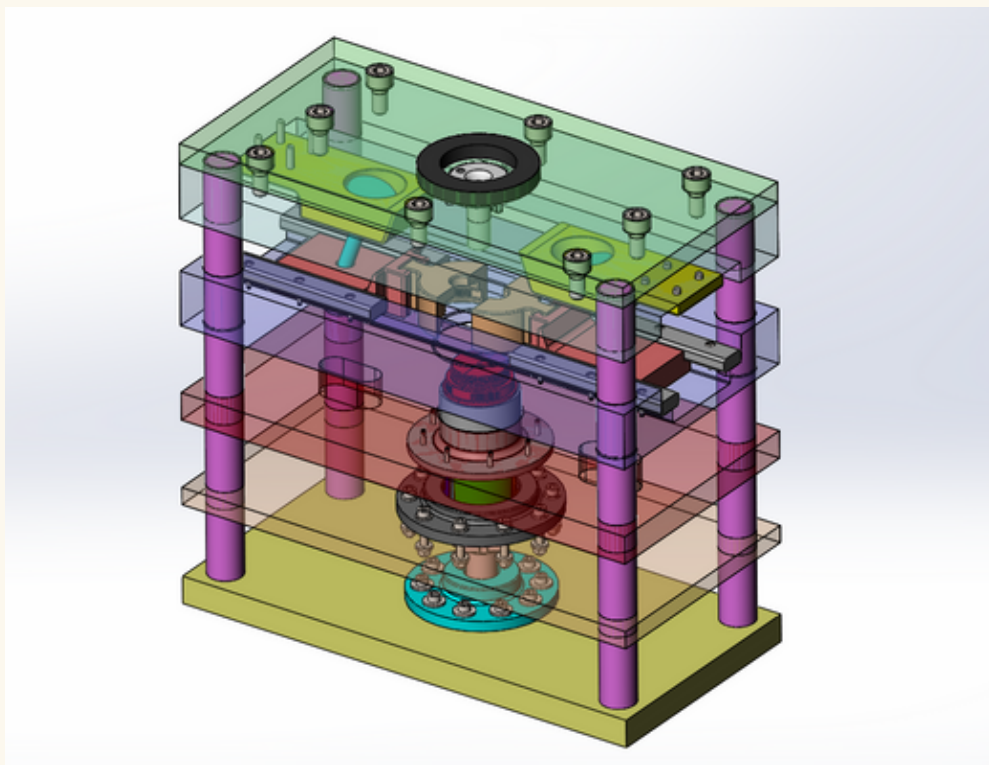


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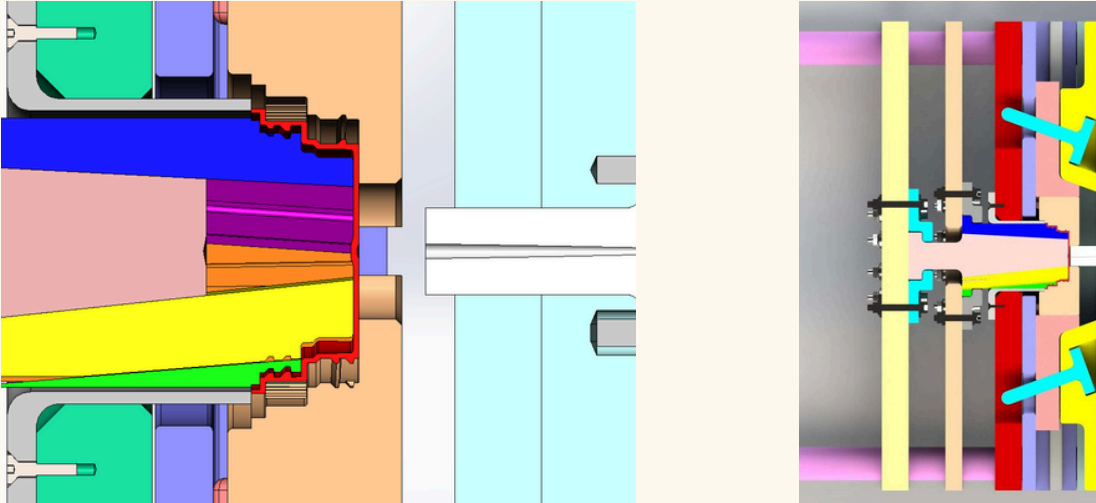
Plastic Injection Mold Design for Medicine Bottle Cap

This project focused on redesigning a medicine bottle cap and its plastic injection mold to overcome the challenges posed by complex internal and external threads. Traditional mold designs could not efficiently handle the undercuts created by these threads, requiring an innovative approach. By implementing a collapsible core design, the project achieved high-quality thread production while optimizing cycle times and reducing manufacturing costs. The solution demonstrated a careful balance between engineering creativity and practical manufacturing constraints.

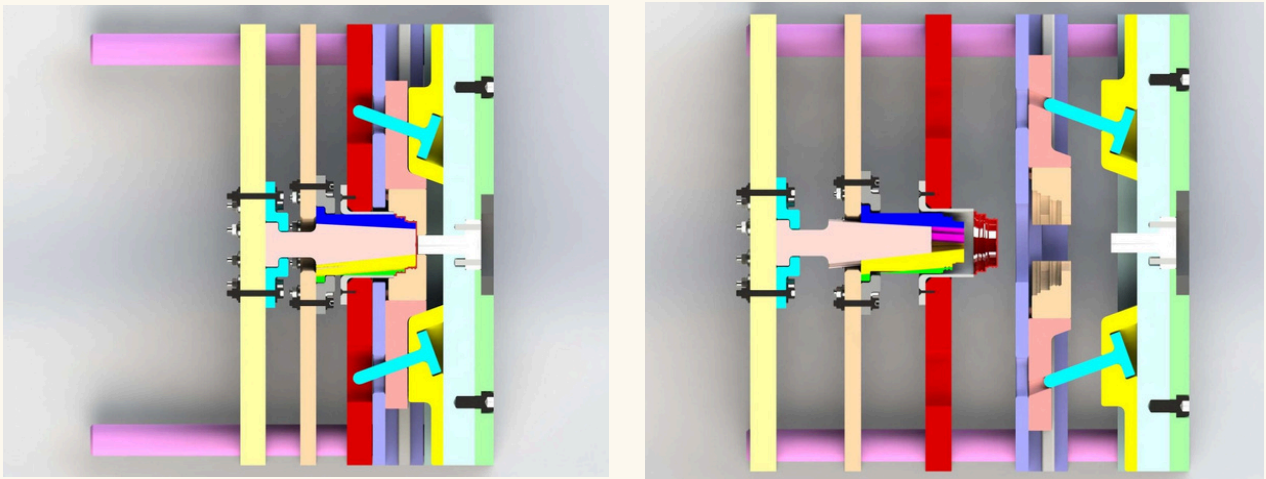


Problem-Solving Steps and Evaluation:

These cams allow the mold to produce external threads by moving side sections during ejection. However, they cannot accommodate internal threads efficiently and were therefore not suitable for this project.

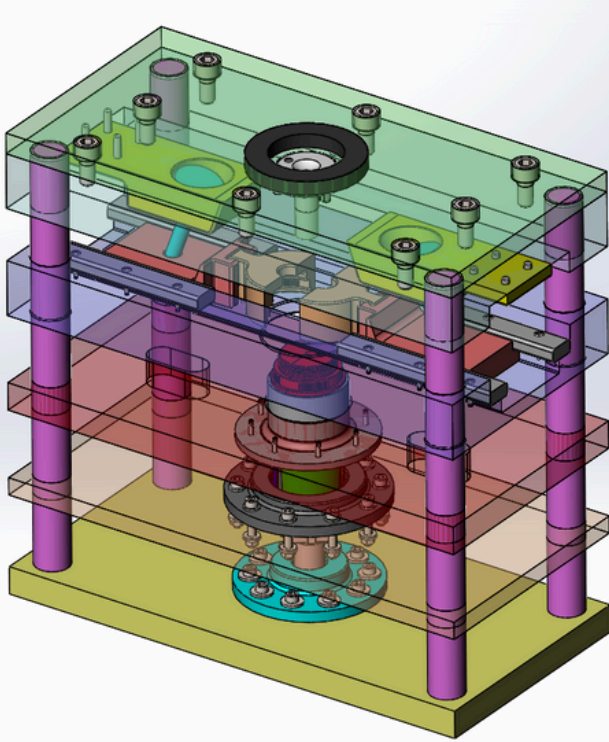


Pre-threaded inserts provide accurate internal and external threads, but their use increases cycle time and production costs due to longer molding processes.



A collapsible core mechanism enables the internal threads to form cleanly during molding while allowing easy ejection. This solution was selected as the optimal approach because it offered the best balance of efficiency, precision, and manufacturability.





- **Mold Type:** Injection mold with collapsible core mechanism
- **Core Mechanism:** Designed to produce precise internal threads while allowing smooth part ejection
- **Parting Line:** Strategically positioned to optimize mold flow and reduce defects
- **Material:** HDPE

- **Cycle Time:** Optimized to balance efficiency with part quality
- **Cooling System:** Integrated channels to ensure uniform part cooling and minimize warping
- **Ejection System:** Core collapse and standard ejector pins designed for safe and consistent part removal
- **Thread Specifications:** Internal and external threads designed to meet required tolerances and functional performance

