Eaton

Use Case – Check Fixture

> “Superior material quality was the primary factor in selecting the Stratasys F170, but equally important were the consistency and reliability of the printed components. These attributes made a significant impact on our production efficiency and quality control”
>
> **Nirmal Nayak**
> Operations and ME Head at Eaton Industries, Pune.

Customer Profile

With a presence in more than 175 countries, Eaton Corporation is a global power management leader specializing in electrical, hydraulic, and mechanical power solutions. Eaton empowers businesses to operate more reliably, efficiently, safely, and sustainably. Eaton’s Pune office in India serves as a strategic hub for both innovation and operations. The Pune facility reflects Eaton’s global presence and offers a comprehensive portfolio of products and services.

Challenge

Every product manufactured at Eaton’s Pune location undergoes rigorous quality checks before being delivered to the end user. In gear manufacturing, one of the key quality control stages is the CARE (Customer Acceptance Review Evaluation) inspection for the machined gear teeth. Performing this inspection requires tooling that verifies the gear teeth conform to specifications. However, because machining these tools would be too costly and time-consuming, particularly when multiple tools are needed for different-sized gears, a more cost- and time-efficient solution was desired.

Solution

To streamline this process, Eaton’s Pune team developed a custom gear tooth template and 3D printed it using a Stratasys F170™ 3D printer, with support from DesignTech Systems, a leading engineering solutions, and additive manufacturing technologies provider. Printed with durable ABS material, these templates are used to inspect both heavy-duty and medium-duty gear wheels, ensuring they meet precise specifications. Once the gear passes the quality check, it is then moved to the packaging and dispatch stage.

Impact

By 3D printing the gear tooth templates in-house, Eaton’s Pune facility achieved a cost savings of $47.20 per component while achieving a significant reduction in lead time, accelerating the quality assurance process, and enhancing overall operational efficiency.

In addition to driving operational efficiency, the F170 printer’s capability for rapid iteration and prototyping has helped the R&D team uncover design issues early, reducing the likelihood of production errors and future accidents. This emphasis on proactive problem-solving has elevated product quality, safety, and reliability.

Two examples of gear teeth check fixtures printed on the F170 3D printer.

Time Savings

30 days

Tool Production Cost Savings

$47.20 per Component

This story was developed and shared by DesignTech Systems, a Stratasys platinum reseller in India.

DesignTech
Technology for designing the future