

Metal Analyzer: Designing for 'X' - A New Product Development Case Study

Product Overview:

Our Online Elemental Analyzer is designed for real-time composition analysis of materials on a conveyor belt, employing a non-contact and non-destructive analysis method.

Challenges Faced:

- Revamping the Metal Analyzer arrangement for enhanced structural strength and simplified assembly.
- Configuring the Product Platform for optimal performance.
- Developing concepts for weight reduction.

Implemented Solutions:

- Conducted a comprehensive Competitor Analysis to enhance product features.
- Formulated a robust structural design without cross-steel members, incorporating FRP to reduce steel fabrications.
- Achieved variable tunnel height configurations to accommodate different belt widths.
- Improved analyzer efficiency, ensuring more accurate results.
- Significantly reduced weight, cost of fabrication, and assembly complexity.

Business Benefits:

- Introduced a configurable bolted design, enabling increased tunnel height and accommodating various belt widths.
- Reduced the overall assembly weight by approximately 25% and minimized the number of steel parts by 60%.
- Enhanced efficiency by eliminating cross-steel members to prevent interference with radiations.
- Implemented a new design with a single assembly configuration, accommodating varying tunnel heights and belt widths, as opposed to the old design with a single assembly and varying tunnel heights.
- Improved aesthetics through the use of light plastic panels, addressing concerns such as thermal expansion, contraction, and color fading.