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Comforsa automates dimensional inspection to improve efficiency and reduce rejection rates



Reduced scrap



Maximised throughput



Background:

Comforsa is a manufacturing group with four production sites in the Ripollès region (Catalonia, Spain). Its number 4 site, Comforsa-4 specialises in crankshaft machining, supported by a fully equipped workshop with CNC machining, grinding and balancing cells, focused on medium and low volume production.



Challenges:

Comforsa set out to optimise the inspection of critical features, combining quality, repeatability and efficiency to reduce rejection rates without compromising production pace.



Solution:

Two Renishaw Equator™ gauging systems, integrated into robot-loaded automated cells on two separate lines, to strengthen in-line dimensional inspection. Using MODUS™ metrology software, Comforsa-4 can share and reuse inspection programs between the Equator™ systems and their CMM.



If there's an issue, however small, the Equator™ gauges alert us and we make corrections in time.



Xavi Serra, Technical Lead,
Comforsa-4



Comforsa (Comercial de la Forja S.A.U.) is a Catalan metallurgical group specialising in components for the industrial vehicle and heavy machinery sectors, such as crankshafts.

The company has supplied brands including Volvo and Liebherr, and around 95% of production is exported. More than 380 employees work across four production sites in Catalonia in the province of Girona, which is historically associated with forging.



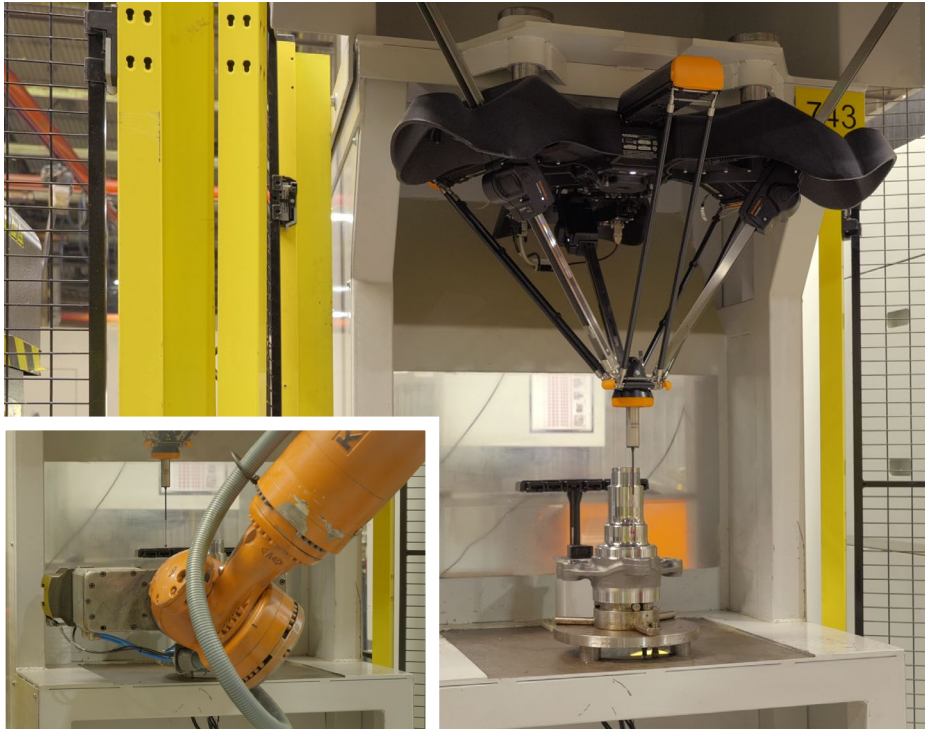


Suppliers to the industrial vehicle and heavy machinery sectors face a relentlessly demanding environment. Cost and margin pressures are intensified by raw-material volatility, rising energy and logistics costs, and the strong bargaining power of major OEMs.

At the same time, requirements for quality, reliability, and traceability are increasing for components that operate in extreme conditions, alongside tighter safety, emissions and production regulations across global markets.

Comforsa's industrial plan focuses on improving overall group performance and maintaining manufacturing leadership through sustainable, efficiency-led growth. The company is prioritising key indicators such as rejection rates, alongside critical processes including part inspection.

Dimensional inspection of critical features has historically relied heavily on manual intervention, which increased variability and cost.



To improve production efficiency, Comforsa deployed two robot-loaded Renishaw Equator™ gauging systems on two separate lines at the Comforsa-4 site.

Renishaw's Equator comparative gauging systems automatically compare production parts against a reference master. Their speed and repeatability make them a robust choice for shop floor inspection.

On one production line, where output varies weekly, programs can be updated quickly to accommodate new parts. The system can switch between different parts in seconds. Changeovers are further simplified by the use of interchangeable fixture plates with repeatable kinematic location, without any impact on throughput. Together, these

capabilities have significantly improved the efficiency and flexibility of this production line.

On a second, more stable production line with longer production runs, the Equator gauge's comparative measurement method delivers high efficiency through fast measurement cycles. Rapid re-mastering also compensates for thermal variation, ensuring consistent process control.

Both systems are integrated with Renishaw's MODUS™ metrology software. This allows Comforsa to share and reuse inspection programs across the Equator™ systems and the co-ordinate measuring machine (CMM). As a result, inspection consistency is maintained and program management on the shop floor is simplified.



Introducing the Equator™ systems has helped Comforsa improve part quality and overall production efficiency.

“We’ve improved the rejection rate and reduced rejection costs because, if there’s an issue, however small, the Equator™ gauges alert us and we stop production in time,” says Xavi Serra, Technical Lead at Comforsa-4.

Serra also highlights the operational impact: “In terms of efficiency, the improvement has been notable. Previously, operators performed the inspections, which meant greater dependence on manual intervention and the risk of errors. With the Equator™ systems, we’ve reduced the need for direct labour while still inspecting 100% of the critical features. This automation helps us optimise costs and increase reliability.”


Over the long term, this move towards automated manufacturing strengthens Comforsa’s reputation with international customers. The ability to guarantee reliable performance for components operating under extreme conditions supports compliance with the most demanding safety and emissions regulations. This level of assurance is critical in highly regulated markets. Overall, Comforsa’s collaboration with Renishaw transforms quality control into a competitive advantage. It supports sustainable growth while improving efficiency in a demanding global market.






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