

Machining excellence in practice

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Stewal and Sirris join forces for a repeatable approach to ‘first-time-right’ production

How can manufacturers ensure burr-free, high-finish components, delivered right the first time, every time? Faced with this pressing question, Stewal partnered with Sirris and received support from VLAIO (Flanders Innovation & Entrepreneurship) to embark on a transformational journey. The goal was to develop a robust and scalable methodology, one that not only improves quality and consistency, but also reduces manual finishing work and captures critical machining knowledge across the teams. The outcome is a forward-looking production model that is smarter, faster, and more cost-efficient, laying the foundation for sustainable growth in a demanding industry.

A pressing need for change

When the project launched in mid-2022, Stewal, like many advanced manufacturers, was facing a perfect storm of challenges:

- Experienced employees were retiring, taking decades of expertise with them
- Ever-increasing customer demands for precision and traceability
- The ongoing pressure of high-mix, low-volume production
- Time-consuming manual processes that drive up costs and complexity

To remain competitive and future-ready, Stewal needed a strategy that would allow it to consistently and efficiently deliver first-time-right quality across a wide variety of parts and setups, while capturing knowledge that endures.

A joint vision: predictable quality through standardisation

Stewal and Sirris defined a bold yet clear goal: develop and implement a standardised, scalable methodology for burr-free and high-finish machining in complex, low-batch production environments.
The project objectives reflected the shared ambition of both companies:

- Significantly reduce or eliminate the need for manual deburring and polishing
- Build a system to retain and reuse knowledge
- Foster a first-time-right culture throughout the organisation, supported by digital tools and structured best practices

These objectives were not solely focused on technical optimisation. The goal was to transform how grammers to



Case-based innovation: learning from real parts

To bridge the gap between know-how and standardised processes, Sirris and Stewal embraced case-based learning. Several representative use cases were drawn directly from the shop floor. These were used to test and refine solutions that could later be applied to a wide range of future parts.
The selected use cases tackled recurring but complex issues, such as:

- Burrs on cylindrical geometries
- Micro-burrs from parting lines
- Surface finish requirements on hardened steels
- Internal burrs in deep or angled holes

Instead of treating each issue as an isolated problem, the teams worked collaboratively to:

- Experiment with new cutting-tool geometries, tool paths, and machining parameters
- Objectively evaluate the results using metrics like surface roughness (Ra) and burr presence
- Document insights and outcomes in a structured digital knowledge base

Beyond tools: a cultural shift in production thinking

While the technical progress achieved was substantial, one of the most important results was cultural. Teams from engineering, production, and quality were encouraged to:

- Collaborate across departments, from design to post-processing
- Identify red flags early by using a preventive checklist
- Embrace a shared first-time-right mindset

By bringing machining knowledge into early design and planning discussions, Stewal laid the foundation for a leaner, more responsive, and scalable production model.
There were several tangible results. Machining speeds increased in multiple operations, without compromising quality. Entire polishing steps could be removed. Most importantly, burrs were significantly reduced, or eliminated altogether.

Embedding the new first-time-right methodology across the company

By the close of the project in 2025, Stewal had fully embedded the new methodology across departments. From CAD/CAM engineering to manual inspection and post-processing, the principles developed in the project became part of the standard operating procedures.
This marked a significant step forward in Stewal’s broader ambition to grow through smart manufacturing, data-driven decision-making, and agile operations, all key aspects of a future-ready, industry 5.0-driven enterprise.

Testimonial: “From challenge to innovation”

An-Sylvie Steenhoudt, CEO, Stewal: “As a supplier of precision mechanics, Stewal is known for its high-quality finish and reliability. But continuing to deliver on that promise, without our own product, with great variety and complexity, and in small batch sizes, is an existential challenge for

us.

At the time we approached Sirris in 2022, we were facing problems rather than having any concrete ideas for innovation. Sirris helped us understand that the innovation would not come from a single technical fix, but from building a complete methodology. Together, we created a clear project framework, explored the right approach via design of experiments, and developed the foundation for a digital knowledge platform that we can continue to grow and use as a decision support tool.

Our special thanks go to Samuel Milton, who expertly guided us through this multi-year journey. We are also very grateful to the other Sirris experts, Peter Ten Haaf, Jan Kempeneers, Filiep Vincent, and Pascal Pollet, for their valuable contributions at key moments."

Ready to tackle your machining challenges?

Would you like to reduce finishing costs, capture critical machining knowledge, or scale precision production? **Sirris is your partner. Let's make first-time-right your new standard.**
Contact us to discuss your challenge and discover how we can support your innovation journey.

Contact us

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