



“Ship and Merge” Enhancing flexibility to meet customer demand

Evatec COO *Patrick Mathys* tells us about Ship and Merge (SaM), just one of the innovative manufacturing initiatives at Evatec supporting our commitment to efficiency and flexibility to meet the needs of our customers.

So, what is “SaM”?

When global demand for electronic components surges and our customers need to react, SaM can step in to help standardize and accelerate assembly, testing, and shipping of the individual core components within the tools we need to deliver. SaM focuses on lead time and cost reduction, space requirements and resources. With SaM, the individual core modules SPM (Single Process Module), VTM (Vacuum Transfer Module) and E-Racks (switch and generator cabinets) of a standard configuration CLUSTERLINE® 200 platform can already be tested and qualified separately with the help of improved and more sophisticated test procedures with enhanced test benches. These can be standard tests for functionality and quality assurance, but also process tests in the case of SPMs. This means that we can dispense with complete assembly of the system in Truebbach. The merging of the entire system then takes place at the end customer's site. The complete shipment as a single consignment from Switzerland means that the customer sees no difference to today's deliveries. Figures 1a and 1b compare a traditional and Ship and Merge approach.

Preparation is key

To ensure the success of our approach, we undertook a comprehensive restructuring of our assembly and testing processes for a CLUSTERLINE® 200 through a series of subprojects.

In the “pull-in” subproject, we streamlined the ordering process by consolidating core modules at a higher bill of material (BOM) level from our suppliers. For instance, a VTM is assembled alongside all Treatment Units (TU) and customized components, while an E-rack comes equipped with generators, including connected cables. This approach aims to significantly reduce assembly time at our facility.

Building upon this foundation, the process testing subproject adds another layer of refinement. Here, the core modules undergo rigorous functional and process tests to ensure they meet predefined standards. For example, the VTM undergoes a marathon test with substrates. In the case of the E-rack, the generators are started, and the power is measured, and single process modules (SPM's) have their gas flow and process parameters recorded. The goal of this thorough testing process is to avoid complete assembly of systems in Truebbach, freeing up space for other customer projects.

Important to note is that the test benches subproject encompasses the development of both hardware and software, as well as the adaptation of existing test benches for pull-in and process tests. Notably, a complete new E-rack test bench was developed as part of the initiative and capabilities of our VTM and SPM test benches were massively improved.

Maintaining control of process know-how

Although our subcontractors excel at manufacturing, including implementing the new test approach for modules like the VTM and E-Rack, the assembly and testing of SPM's, which embody Evatec's core expertise, remain exclusive to our facility in Truebbach. For logistical efficiency, all individual modules of a system will be sent to Evatec in Truebbach before being consolidated and shipped to our customers as a single consignment.



Traditional approach including complete system assembly and test prior to shipment

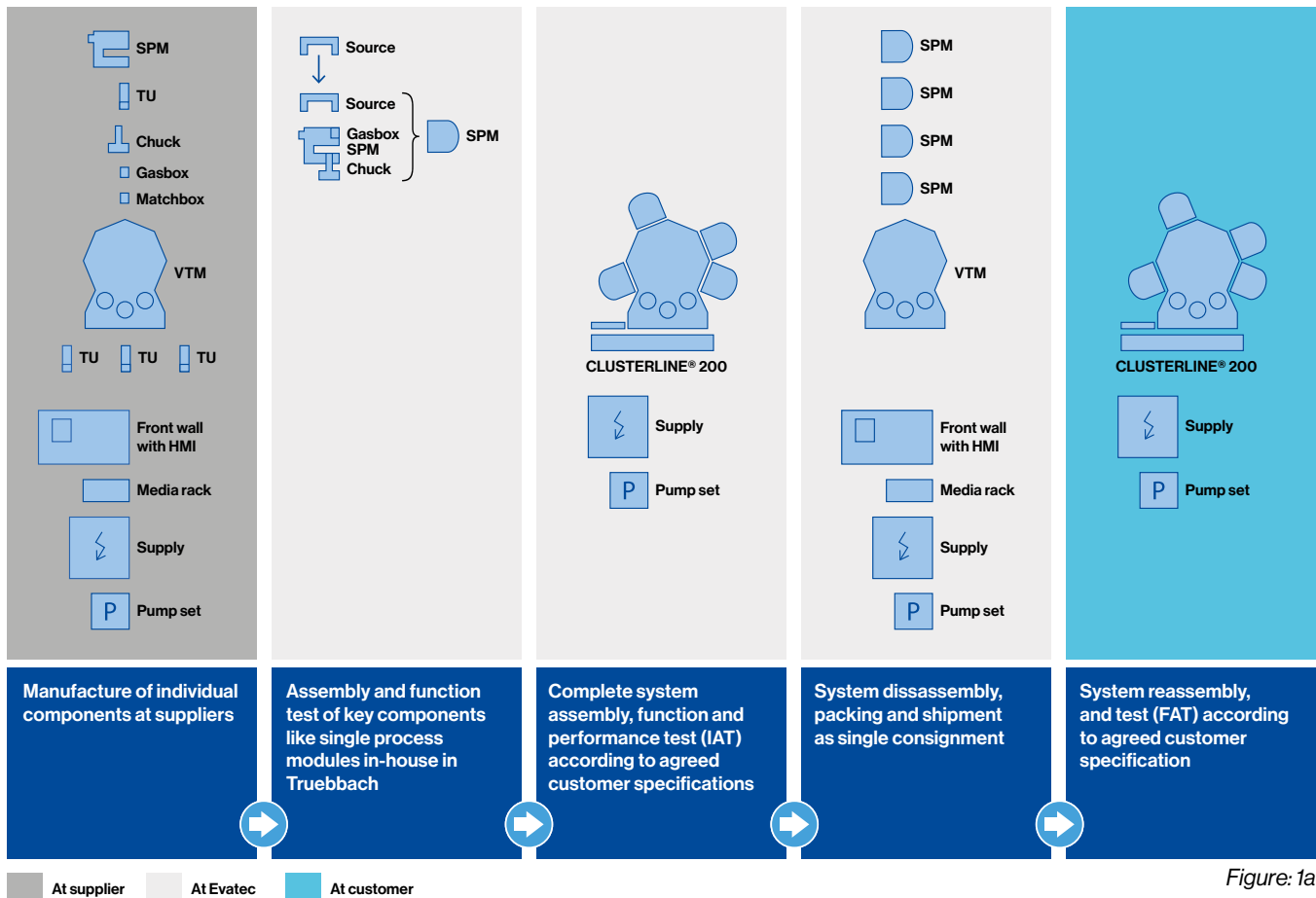


Figure: 1a

Overall benefits for our customers

By implementing SaM, we are not only optimizing our own assembly process but also providing significant benefits to our customers. Here are some advantages:

■ Increased Flexibility

SaM enables us to free up capacity in our own assembly line, allowing us to adapt swiftly to changing market conditions. We can react quickly to accommodate the assembly of other tool types beyond those included in the current project. For instance, we can efficiently handle non-standard tools or prototypes tailored to specific customer requirements without compromising on quality or delivery timelines.

■ Reduction of Lead Times

SaM expedites our operations by optimizing assembly and testing processes, resulting in significant reductions in lead times. This effect is even bigger in capacity constraint times, as the SaM line is independent from the normal assembly line.

■ Quality Assurance and Sustainability

Consistent Quality: With SaM, we standardize test instructions and protocols, guaranteeing top-notch quality across all repeat builds of standard hardware configurations. This ensures that every product meets our high standards, giving our customers “peace of mind” with each purchase.

Shared Insights: Our central database offers valuable insights that benefit everyone involved, from our quality assurance team and purchasing department to our service technicians and, most importantly, our customers. By sharing information and working together, we’re committed to delivering excellence in every aspect of our products and services. SaM is already showing its worth!

Within the last twelve months we already shipped 17 SaM systems which we could not otherwise have shipped because of the high order backlog in our normal assembly. As the concept is ready and proven we are now able to expand it further to additional processes whenever we see the need.

In essence, SaM isn’t just about transforming our assembly process, it’s about putting our customers at the center. By streamlining operations, SaM ensures that we can deliver our solutions and tools faster, with higher quality, and with more efficiency than ever before.

Ship & Merge eliminates the need for complete system assembly prior to delivery

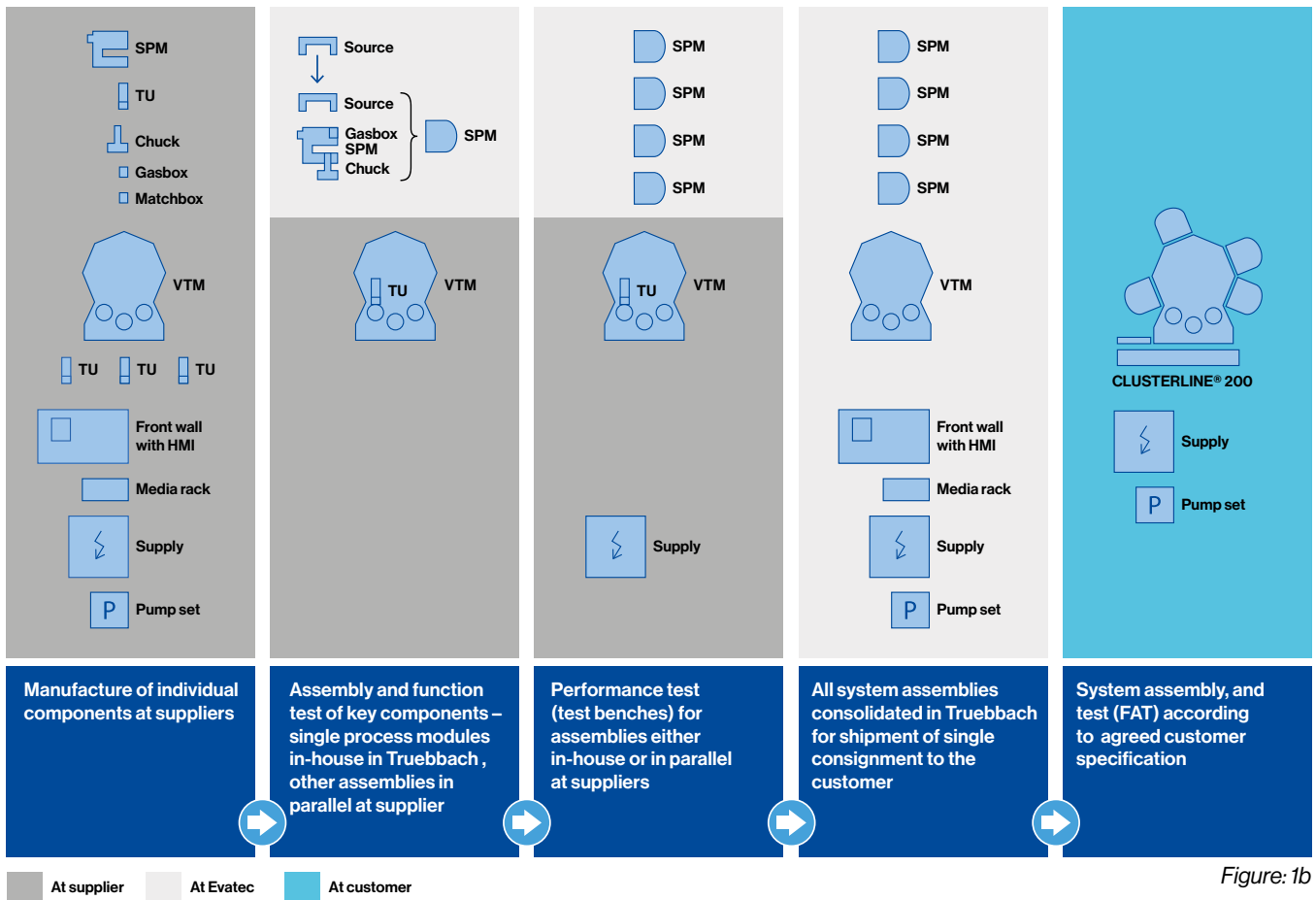
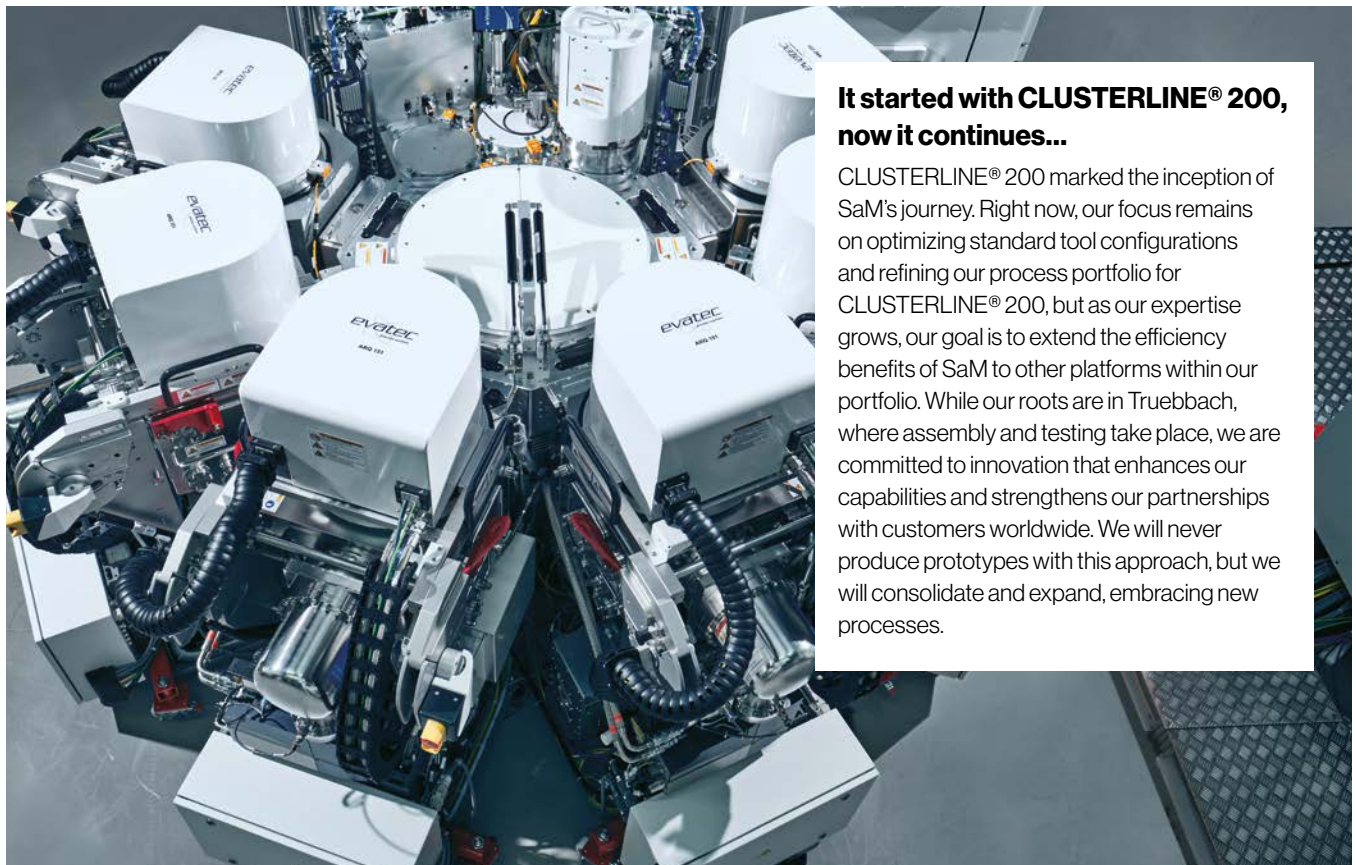


Figure: 1b



It started with CLUSTERLINE® 200, now it continues...

CLUSTERLINE® 200 marked the inception of SaM's journey. Right now, our focus remains on optimizing standard tool configurations and refining our process portfolio for CLUSTERLINE® 200, but as our expertise grows, our goal is to extend the efficiency benefits of SaM to other platforms within our portfolio. While our roots are in Truebbach, where assembly and testing take place, we are committed to innovation that enhances our capabilities and strengthens our partnerships with customers worldwide. We will never produce prototypes with this approach, but we will consolidate and expand, embracing new processes.