

EME reorganises production with an assembly cell for larger batches

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A large order for wind turbine components forced EME to switch rapidly from manual production of small and diverse series to an approach and production environment in which large series can also be assembled quickly, efficiently and at the required quality.

EME - Electro Mechanic Equipment - is specialised in, among other things, the construction of medium-voltage switchgear and custom isolator switches. This SME is characterised by small series production and high variation. This changed at the end of 2022 when an order came in for 500 medium voltage isolators for wind turbines. EME was forced to rethink its usual way of working, in which one operator assembles a particular product. As EME expected that this order would not be the last of its kind, they decided to set up a dedicated production cell or production line for making larger series. The current production approach will nevertheless continue for smaller series.

In-house concept as starting point

To complete the order on time, EME wanted to set up an assembly cell or production line that would allow the large series to be made quickly and efficiently. The company had already worked

out a draft concept for the assembly cell and wanted to see whether the choices made were correct and where useful changes could be made.

EME called on Sirris for advice and evaluation. During the first meeting, the production concept the SME had developed was discussed and several possible improvements were applied and discussed. For example, it was decided to work with a number of assembly stations where each operator would carry out some of the tasks by way of a pass-through system. The ideal number of assembly cells was calculated for the required monthly production, and a way to balance the cells to avoid any of them becoming a bottleneck was worked out. Based on this, EME opted to expand a production line with three assembly cells, each of which finishes a part - or phase - of the product (chassis, active parts, motor). It was decided to use a roller conveyor to move the assemblies between the cells. This way of working is not only more ergonomic (the operators slide the assemblies onto the roller conveyor), it also allows for buffering between the cells so that any problems can be dealt with as they arise.

Optimal production flow

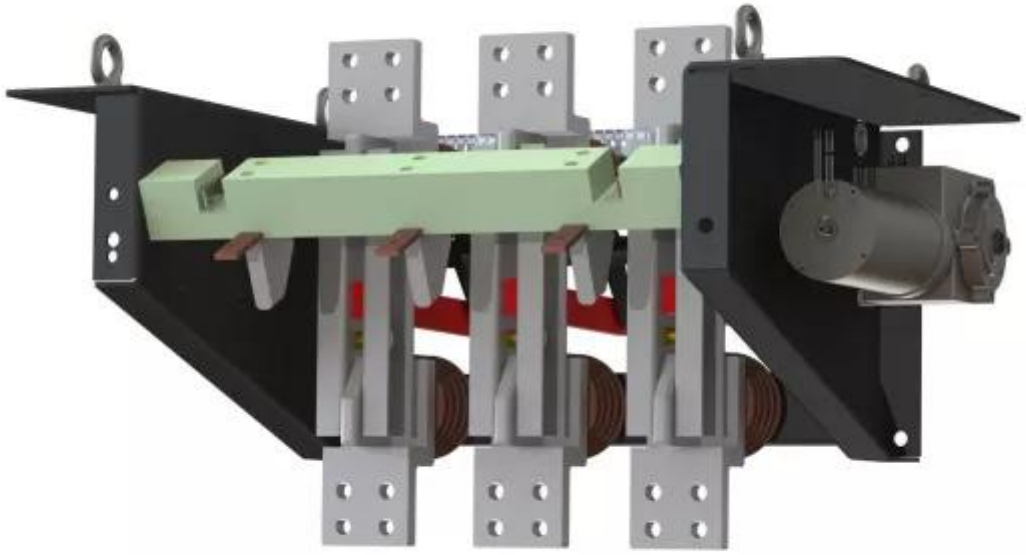
In addition to devising the assembly concept, there was also brainstorming about various practical matters typically involved in setting up an assembly cell or production line, such as the supply and removal of the components, ergonomic aspects (including the use of adjustable and mobile work tables) and removing redundant manipulations. The testing process and quality control were also examined.

EME was able to roll out and test the resulting approach very quickly, and everything turned out to work well in practice: EME constantly succeeded in running ahead of schedule for the assembly of the 500 units. A follow-up visit and feedback session between EME and Sirris revealed some extra options for further optimising and digitising the assembly.

EME can be proud of what it has achieved! The combination of the expertise and enthusiasm at EME and the targeted advice from Sirris allowed EME to successfully transform part of the production so that larger series can be produced efficiently. EME is ready for further upscaling in the future.

On 17 May 2023, EME presented the isolators and the success story of how they were manufactured during the technical seminar 'Reliable AC/DC infrastructures @sea', organised by KBVE-SRBE, Agoria Energy Technology Club and OWI-Lab / Sirris.

The renewable energy sector is gaining momentum: new companies are starting up and existing companies are finding the need to optimise their production processes. Does your company, like EME, also face the challenge of organising - or reorganising - its production? Or would you like to set up an entirely new production process? Sirris has the expertise you need!



Medium voltage isolator for wind turbines
(source: EME)

Authors



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