

Whelen Engineering and AWP Explain their Unique Collaboration

by **Patty Goldman**
I-CONNECT007

If there was a buzz word in the PCB hall at productronica this year, it was probably Whelen, as in Whelen Engineering and Alex Stepinski, VP of Whelen's circuit board division. Numerous pieces of equipment bore "Sold to Whelen" signs, including a few machines in the AWP booth. I had the opportunity to spend a few minutes with Alex and the fellows at AWP, including VP Jochen Zeller, who focuses on wet processing and VP Henk Van der Meij, whose focus is automation.

Patty Goldman: Alex, let's start with you telling me how AWP came to be working with Whelen Engineering.

Alex Stepinski: We selected AWP to do a turn-key project for us in Charlestown, New Hampshire.

Goldman: Henk, can you tell me a little bit more about AWP, and what you do, specifically?

Van der Meij: AWP is a German company, with our headquarters of engineering in Germany. We have the manufacturing side in Poland, where we manufacture all kinds of handling units, recycling units, and horizontal wet process machines. In addition to the factory in Poland, we also have a sales and service office in Suzhou, China, to cover the Asian market, and we work together with an agent network in North America for all our products.

Goldman: Alex, you say you selected them to work with you?

Stepinski: The first phase of our project at Whelen Engineering was a great success for



Alex Stepinski flanked by Jochen Zeller (left) and Henk Van der Meij (right).

our company, so our ownership decided to do a new investment focused on advanced HDI, thin substrates, fine line and space, as well as very dense designs on a thicker scale. We can take very dense features and put them up to 6.2 millimeters thick, for instance. We are putting together an ecological factory, a green factory, for the advanced HDI MSAP/SAP market in the same kind of a way we did our first phase. We are taking the spirit of the first phase to the highest level of technology currently around the world.

To do this, we searched the world. I spent six months traveling overseas. I went to over 50 board shops in 20 countries to learn the best practices, and less than best practices, as to how people make PCBs. We took all the pluses that we found and some of the minuses, and then I went and sat with some key suppliers around the world, including AWP, to develop a next-generation process that incorporated all this cumulative learning and gave us some nice competitive advantages.

Zeller: All the equipment that we are going to supply to Whelen is fully integrated to meet



Equipment in the AWP booth at productronica sold to Whelen.

the challenges on the technology side. There are some nice features in there, but some of it is confidential. We had a couple of new developments in this whole project, but what we can say is that the whole system is integrated with panel tracking. We have all kinds of data transfers, syncing the servers.

Stepinski: We will have true single piece flow. Every substrate, every circuit board, every core has a unique 2D code. There are no batches. It's a batch of one across the whole factory. This is a unique thing that these guys helped with.

Zeller: And that's what we incorporated in this whole setup with all kinds of camera systems, data connections throughout the handling machines as well as the wet process machines to make this happen. Alex was good to work with; he knows what he wants, and I think we helped him a bit and he has a lot of good ideas.

Goldman: Alex, what else can you tell us about this collaboration?

Stepinski: AWP, for us, fills a great niche. They're automating all the equipment in the factory and they're doing a lot of the wet process equipment specifically the etching and the subtractive processes. They did this in a single-piece-flow way. It's a new development that is very special and unique. You don't have to run out the whole etch line to switch between jobs. Most etchers in North America are extremely inefficient because of the switchover [to a different] copper weight, so they've gotten past all this. Even our warehouse is au-

tomated. One of the key features of the inner-layer side is we can take a core from an automated warehouse, check it all along the way, pull the recipes automatically, provide the metrology back to the database and it's finished in about an hour and 20 minutes through AOI.

Goldman: Is this equipment installed now?

Stepinski: The whole factory is about 30-35% installed right now. We've only just started with the AWP equipment. We're in the process of buying off our finished wet process equipment now while we're here in Europe. We have some automation on-site and our last purchase orders just came in recently, so it's going to be going on for another six months. However, we'll be in production in the spring before every piece is here from AWP because some of it is replacing something we already have. Everything that is really unique and critical with the operation we'll have sooner.

Zeller: It was a very challenging project, but it was also nice to do a project like this again after so many years in the industry and having seen something like this, somebody with so much knowledge. To do a project like this was quite exciting for us, because we appreciate very much that we could also add more knowledge to this project and help put all this together. At this table we probably have 70+ years of PCB experience, so it's a good project.

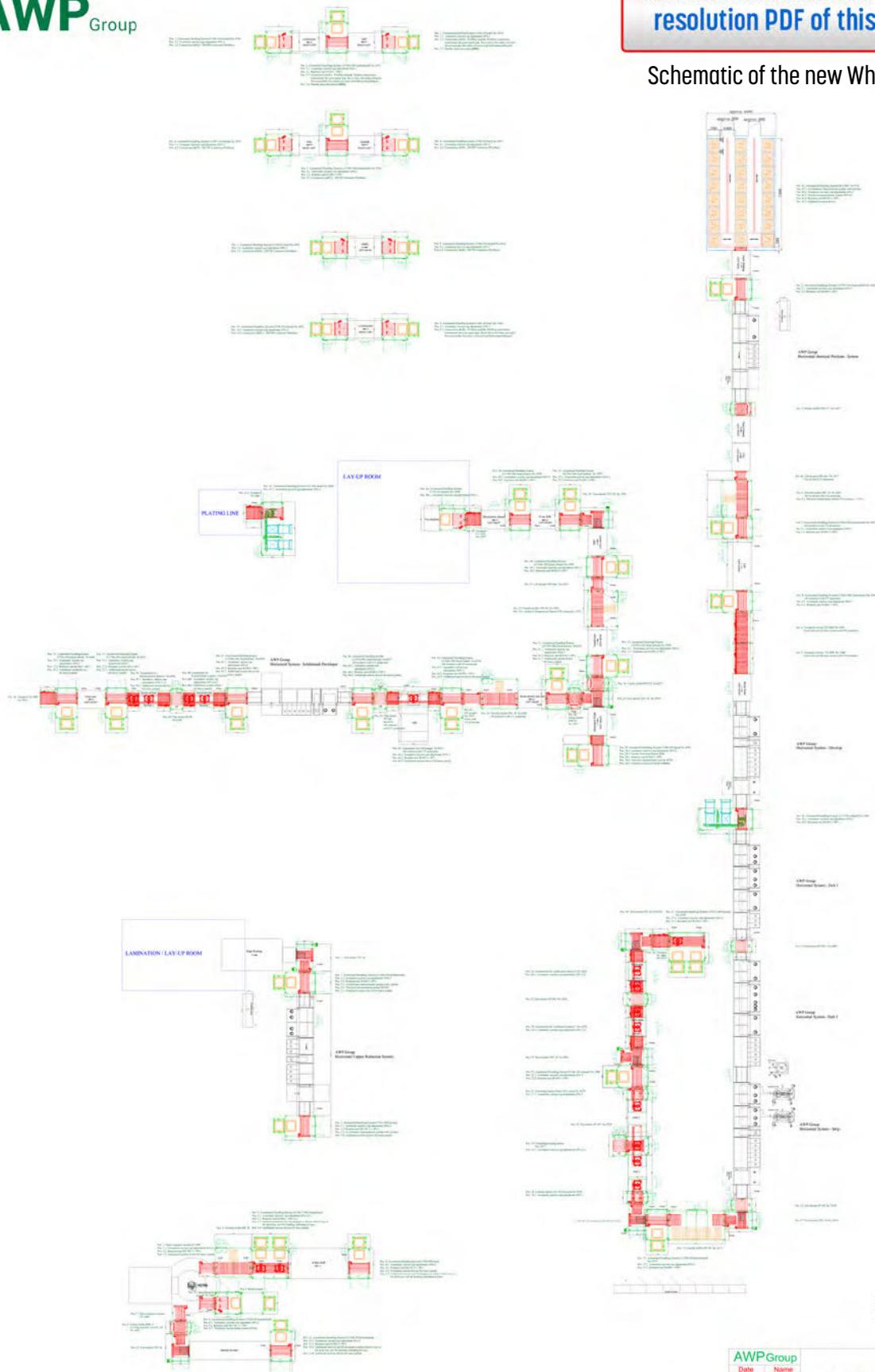
Stepinski: We honestly have very complementary skillsets here. Jochen was in the automation side; he was in a board shop, CTO of Schmid, and now he has his own company. Henk has been all over the place—including managing director and chief engineer at Kuttler. All these skills have come together to make this happen.

Goldman: Gentlemen, I appreciate your time and filling our readers in on this interesting collaboration. Let us know when it's time for an update.

Alex: Thank you, Patty. We do appreciate it. **PCB007**

[Click here to download the full resolution PDF of this chart.](#)

Schematic of the new Whelen line.



AWP Group	
Date	Name
2017.11.08	M. Wawrzon
Factory Automation	
Scale	1:70