

SURPASS THE PLANE:

how Pegas-Agro creates agricultural machinery according to aviation standards



Challenge

Dusting fields with fertilizers from the air using delta-gliders and airplanes is known to be difficult and sometimes risky. To increase cost-efficiency and mitigate risks, Pegas-Agro decided to design a "ground" machine that would be comparable to aviation equipment in terms of speed and quality of processing or even surpass it.

Solution

Pegas-Agro machines are almost entirely created in KOMPAS-3D. The product itself is designed in the CAD system and all documentation around it is stored in the electronic archive assuring seamless production.

Business Values

-  low license cost,
-  fast documentation preparation,
-  wide range of built-in and additional applications,
-  flexible adaptation to design changes.



Company Profile

Pegas-Agro is one of the major manufacturers of agricultural machinery. The company offers an innovative, high-performance Tuman range of fertilizer/crop protection spreaders and sprayers.

Pegas-Agro has independently developed the innovative multi-modular Tuman spreader/sprayer, paving the way for a new business line in fertilizer and crop protection solutions. The Tuman spreader/sprayer is a self-propelled vehicle with interchangeable modules. This concept makes the equipment highly versatile and suitable for use throughout the agricultural season. It can spread mineral fertilizers, deliver liquid complex fertilizers to the roots, spray herbicides, insecticides, and fungicides, control pests such as locusts, and sow small-seeded crops. The lightweight design and unique features help protect the soil. With its high performance, a single Tuman unit can replace up to three tractors equipped with attachments or trailers.

Today, the company offers four self-propelled vehicles of various power and five interchangeable modules.

The Tuman sprayers are very popular among both large agricultural holdings and small farm owners. These units are in operation in the crop fields of Kazakhstan, Uzbekistan, Moldova, Belarus, and Mongolia.

Pegas-Agro is a vertically integrated business, encompassing all stages from design to manufacturing. In the past two years, the company has commissioned over 30,000 square meters of shop floor space. The designed annual capacity is up to 2,500 units.

The designers are working on new and ungraded products using the software solutions from ASCON.



Pegas-Agro Experience with ASCON for Manufacturing

Pegas-Agro personnel exceeds 500; 15 of them are design engineers. Each designer has a specific area of expertise: assemblies, general arrangements, catalogs, etc. We operate successfully with such a low headcount thanks to our long-lasting IT tools. We are also working on the digital transformation of other departments and the shop floor.

For many years we have been using the KOMPAS-3D CAD solution. Back then, we considered other CAD options and finally opted for the ASCON products.

The functionality fully met our needs. The first version of our products did not include any complex surfaces, which greatly simplified the design process. As a small student team, we could not afford expensive licenses for more sophisticated CAD systems.

“KOMPAS-3D is a great entry-level package. Its advantages are affordable license, fast drafting, and a wide range of built-in and plug-in applications.”

For example, we use the Piping application to design hydraulic and pneumatic systems. The analysis modules build gear models in just a few clicks, and APM FEM performs simple structural analysis of parts and assemblies.

The new “manufacturing assembly” file type has significantly simplified our collaboration with the manufacturing engineers. The models can now have identical designations for easier identification.

“Having such a wide range of features in a single software product offers us many advantages.”

Our team members are of different ages and experiences. The experienced designers work on their projects more efficiently, and the novices learn their trade faster. With so many features, we can allocate tasks to the right designer for more consistent and efficient operation.

“Since 2007, we have completely switched to KOMPAS-3D and phased out other tools. We update KOMPAS-3D as soon as a new version is released and try to contribute to the system development.”

We use a mixed-design approach. For example, the top-down approach is the best for the cabin design: we start with specifications, and then design each part. On the other hand, the bottom-up approach is better for the drivetrain design as we adapt purchased components.



Conclusion

Pegas-Agro advances, introduces new technologies, and refines its business processes. We use a wide range of software, including ASCON products, to improve the quality and efficiency of our products. We're passionate about what we do and take great pride in creating equipment that supports farmers in their hard work.

KOMPAS-3D

Intended for creating 3D-models for individual parts and assembly units containing both original and standardized structural elements. Supports modern design methods, such as top-down and bottom-up approach.

- Solid Modeling
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