Success Stories

ap-systems GmbH

Particle-tight, standard-compliant and flexible: clean-room systems for various industries

In hardly any other field of work exist higher demands on air quality and circulation as well as stricter rules of conduct to avoid contamination than in cleanrooms. Cleanroom systems are established in clinics and medical research as well as in electrical and laser technology, aerospace technology, pharmaceuticals, cosmetics and food technology. Since 2008, ap-systems GmbH has dedicated itself to this important market and since 2019, the company has been using the CAD software of the ISD Group from Dortmund - more precisely, the HiCAD Mechanical Engineering Suite Premium - with its 3-D solution element installations, IFC interface, API and HiCAD point cloud.

apsystems reinraumtechnik

REFERENCE REPORT

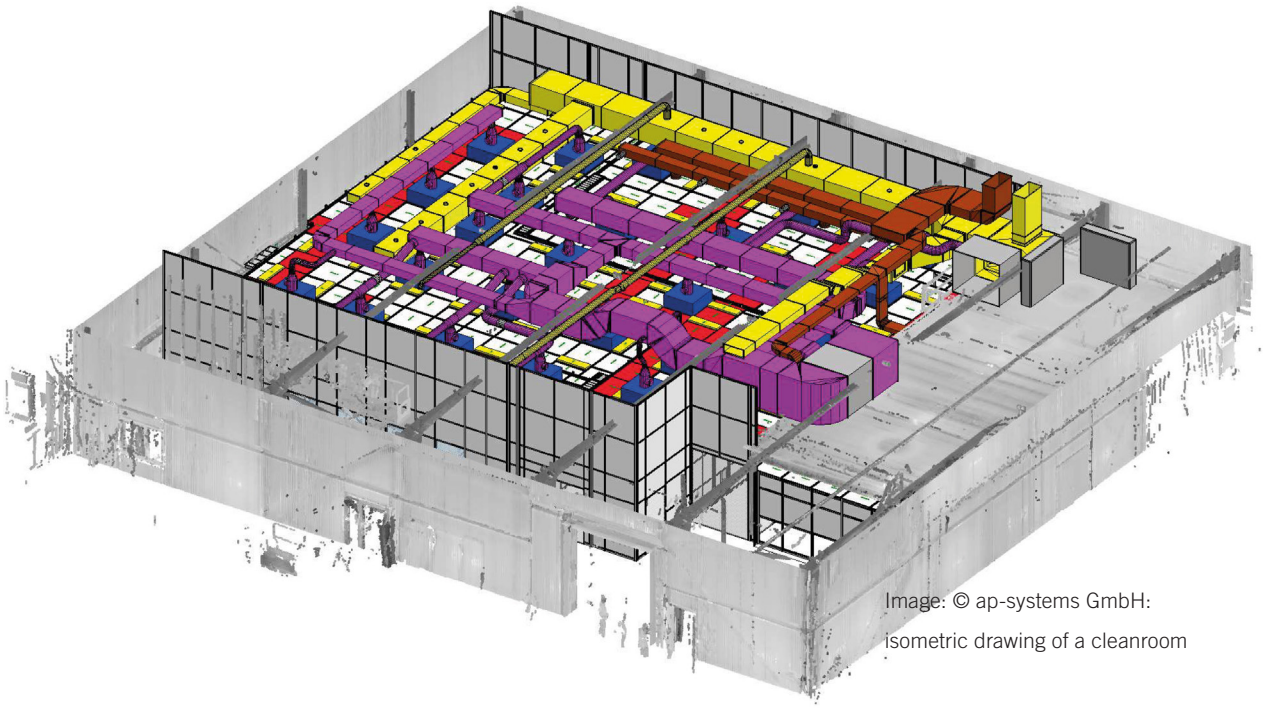

Image: © ap-systems GmbH: isometric drawing of a cleanroom

Why only since 2019? “Before, we worked exclusively with purely parametric CAD software,” says Christian Rach, leading project manager of the company based in Reutlingen. “Change management was a disaster. In search of a drawing software that would allow us to work more flexibly, we came across HiCAD”.

Collisions-free drawing

“After creating and fixing a first 3-D layout, which as much as possible takes into account the customer‘s ideas, the detailed planning of the cleanroom including cleanroom wall and ceiling system is done”, explains Christian Rach.

“In our industry, the challenge is to design a room-in-room solution that both meets the requirements of strict guidelines and is specified to each customer. In the process, our cleanroom constructions and many other technical trades such as air conditioning systems, ducts, electric supplies, sanitary facilities, compressed air, vacuum have to be combined using a highly accurate laser measurement”. In order to avoid collisions in the course of reconstruction planning, ap-systems GmbH relies on the extension module HiCAD point cloud. “With HiCAD, 3-D data from the laser scanner can easily be retrieved”, says the project manager.

“Within short time, we can map highly precise complex structures without leaving the familiar planning environment and converting laser scan data”. What has to be kept in mind is the fact that different trades require a high degree of design flexibility.

Spontaneous change

The qualification of cleanroom technology equipment is complex and requires almost permanent proof of clean production at a constant level. The existence of the companies is often at stake. This makes it all the more important that it is even after production and during assembly possible to replace e.g. panels or beams and to install a door or an additional ventilation grille.

“If parts within an assembly become dependent to one another by entering numerical values, as it is the case

“Fortunately, the free modelling technology in HiCAD‘s coordinate based system enables us to carry out individual post-processing in the running project, without losing touch with the bigger picture. Often with a time saving of 70% compared to the past”.

Christian Rach, Project Manager, ap-systems GmbH

Image: © ap-systems GmbH: finalized cleanroom solution

with parametric design, I am able to immediately change the entire design by making selective adjustments," says Christian Rach. "Fortunately, the free modelling technology in HiCAD's coordinate based system enables us to carry out individual post-processing in the running project, without losing touch with the bigger picture. Often with a time saving of 70% compared to how we worked in the past".

What additionally saves time

It also helps to save a lot of time that in HiCAD you can flexibly work in both 2-D and 3-D . "Thus we do not need to create certain details with another software. This often involves export formats and is therefore more error-prone. In addition, the IFC interface allows us to work with all trades in one program and return consistent data without loss."

For document storage ap-systems uses the PDM system HELiOS. "With HELiOS we can quickly find valuable information again and avoid unnecessary redesigns". The additional logic programming has proven to be another time-saving factor. "This will soon enable our customers to design their partitions directly online. As a result, not so many drawings will have to be created manually in production," says Christian Rach enthusiastically. "The workshop drawing is then created in HiCAD - with the production documents being generated automatically".

All goals achieved

"Since the entire CAD structure was designed on Autodesk and the type of designing as well as the surface completely differs from other systems, we were heavily dependent on the support of the ISD," admits Christian Rach. "The constant and well-structured training measures of the ISD have contributed to the fact that our employees have become more and more accustomed to the more flexible design practice, which they now absolutely do not want to miss."

The cleanroom is a broad field, and thus an update to the HiCAD Steel Engineering Suite Premium is already

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being planned, as the industry functionalities of HiCAD would increasingly be required in this area as well.

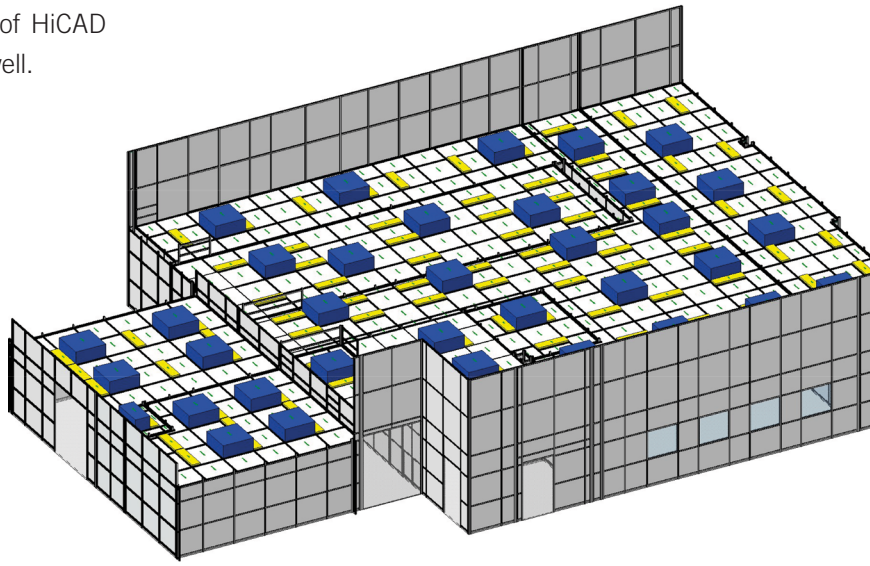

Image: © ap-systems GmbH: 3-D overview of a cleanroom

Short company profile:

- ap-systems GmbH
- Industry: Metal, sheet metal, plant engineering, pipeline construction, equipment construction
- Software: u.a. HiCAD, HELiOS, AutoCAD, Logik
- Services: Cleanroom and cleanroom system with equipment and technology
- www.ap-systems.de

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