

Modern Motion Control Solutions in Practice



The Challenge

The drive control and power system of autonomous robots must be compact, rugged, powerful and energy efficient.

An additional requirement was the flat design of all components in the robot so that the robot can move underneath pallets in high-rack warehouses.

The Solution

SSI Schäfer AG is one of the world's leading suppliers of storage systems and high-rack warehouses. The flat robot unit SSI Orbiter is the solution for pallet handling inside the long storing channels of high-rack warehouses. The Orbiter moves inside the guard rails of the channel underneath the pallets. It can lift 1500 kg pallets and move them in and out of the storage channel. The Orbiter is operated manually by a remote control unit or automatically by a storage and retrieval machine.

An optimized integration of motors, motion control units, power amplifiers, specially designed electronic boards, sensors, and energy storage devices was the key for the flat design of the Orbiter. Moving and lifting of the pallets requires a very accurate control and synchronization of four motors inside the Orbiter. All control units, the power management device and the remote control was developed by zub machine control AG. Two MACS3 motion control units command four servo amplifiers and monitor many sensors. A power management board handles energy storage and controls the power relays of the safety circuit.

Modern servo drive technology and power electronics was the base to solve requirements such as compact dimensions and high energy efficiency. Sophisticated motion control features in combination with free programming offered the flexibility to adapt the system to different kinds of warehouse systems and specific requirements of the end user.

zub machine control AG was able to offer SSI Schäfer AG the required engineering services and industry-proven motion control products. The combination of standard products, specially designed electronics, and software resulted in a highly competitive solution.

The Conclusion

Even complex process tasks seem to be simple in the end if the right product is combined with a highly efficient engineering service that understands the application's demands.

Application videos and further product information:

- Video links showing the SSI Orbiter in action:
[SSI Orbiter operating modes \(German\)](#) / [Commissioning of a palette with the SSI Orbiter](#)
- Links offering further information on zub's products:
Data sheets: [MACS3 control unit](#), [DSA-E2 servo amplifier](#) / Press release: [DSA](#)

Your Partner

zub machine control AG provides highly sophisticated motion control modules and software for drive positioning and synchronization.

The MACS motion control modules are the intelligent link in between the PLC or PC and the drive unit. Standardized hardware and software interfaces combined with free programmability offer maximum compatibility without any limitation for the integration of application-specific features and add-ons.

zub AG offers supplementary consulting and engineering services to assist their customers in a very focused and most efficient way.

Take the opportunity to reduce your time to market, your development costs, and your risks. Count on a partner like zub AG, who provides products and engineering services focused on highly-sophisticated but still cost-optimized motion control solutions.

We are happy to accept your challenge. Please [contact](#) us for an initial discussion.

zub 
www.zub.ch