



IMS.28 Pro

A new Level





Automation / Table Height Adjustment

Ergonomics at the workplace

In recent years, ergonomics at the workplace has become an ever more important topic. When it comes to innovative solutions for the height adjustment of workbenches, kitchens or workplaces, SUSPA GmbH from Altdorf near Nuremberg counts on a planetary gear from IMS Gear. The specialist for adjustment systems thus takes the quick, noiseless and convenient setting of the desired height to a new level.

- Compact installation space
- Low noise development
- High flexibility & wide range of applications

With its modular system, IMS Gear's spectrum ranges from quick quality solutions to customer-specific adaptations and sophisticated special gear configurations. The same applies to our solutions for modern agricultural technology.

“Our idea: What has successfully been realized in the automotive field can certainly be transferred to other applications such as the workplace or the kitchen.”

From Street to Workplace

SUSPA and IMS Gear have been working together successfully for decades. To give an example, our planetary gears can be found in spoiler adjustments of mid-range and luxury cars of various manufacturers. At a defined speed, the downthrust aid is automatically extended. The system is driven by an electric motor whose high rotational speed is transformed to the

required force by a planetary gear from IMS Gear. The solution from the modular system requires little installation space, so the SUSPA engineers came up with this idea: It should be possible to design an electric height adjustment for numerous applications in the home and industrial area. Thought - said - done!

From Rear Spoiler to Table Adjustment

The motor/gear solution of the spoiler adjustment was chosen as the starting point. As the installation space in the so far hydraulically driven Movotec spindle motor system (SMS) is limited to an outer diameter of 35 mm, the gear drive had to be adjusted. “Instead of an axial screw connection radial laser welding was utilized. In this way, the outer diameter could be reduced from 32 to 28 mm”, explains Helmut Brugger, Sales Engineer at IMS Gear.

This is made possible by the variability of the IMS Gear modular system, while the gear geometry remains unaffected. Unlike at the rear of a vehicle

in direct vicinity of a powerful engine at more than 100 km/h, minimizing the noise level is essential level when a workplace is adjusted. “For this reason, both stages of the gear drive feature plastic gear wheels. In view of the high load, the planetary carriers are made of metal”, Brugger explains. The development time, including the complete validation of the new product with such a high power density, should be kept as short as possible. For this reason, it was an advantage to draw on the modular gear kit from IMS Gear. The short time span for a custom-fit gear drive was only possible by using prefabricated gearing components from IMS Gear.

Overcoming the Drawbacks of Conventional Systems Without Loss of Performance

The starting point of the new application was the idea to replace the gas pressure spring systems dominating so far. Their disadvantages include the larger installation space, less precise adjustability and therefore in total a higher integration effort. SUSPA expects that in the long run electrical systems will prevail. For this reason, there is a tendency towards large-scale production.

Yet another project reflecting the role of IMS Gear as a facilitator. The recourse to a modular system opens up many advantages for the user: It has the variability to combine a great variety of metal and plastic parts and so achieve the gear reduction desired. The quality and durability of all these parts were already verified in numerous test runs and series applications.

Thus, IMS Gear provides design and production knowledge from large series also for smaller starts. As can be seen from the example of height adjustment. In the first stage, the high rotational speed directly meets the

gear drive. A noise-reducing plastic helical gearing provides for the first gear reduction there, while the torque is still low. "The exact implementation of the specially designed gearing in this stage is based on decades of experience of IMS Gear in combination with state-of-the-art simulation calculations", Brugger explains. In the second stage, spur-gear plastic wheels transform the rotational speed into the required torque.

Together with the gear technology from IMS Gear, the electromechanic Movotec spindle motor system (SMS) from SUSPA handles high lifting loads of up to 150 kg per lifting column. A DC electric motor with a low-noise gear drive from IMS Gear that turns an interior spindle is integrated into each lifting element with a profile cross-section of just 35 mm. Due to the rotary movement, the non-rotative spindle nut moves in axial direction. In this way, it is directly connected to the guide tube that - depending on the stroke length - can be retracted and extended by 150 to a maximum of 400 mm.

Summary

The modular approach of IMS Gear has consistently contributed to meeting the at times competing requirements of the complex mechatronic overall system. The ability to generate modifications for new solutions from the modular system at short notice was once again proven here. If higher loads have to be handled in the future, this could be

implemented right from the modular kit. For example with stronger metal planetary gears or a different gear reduction. "As a matter of fact, modular system means here: shorter time-to-market and economic benefits because solutions can be adapted to the actual requirements".

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