

Out of the Protective Cover

New trends in hygienic design for more possibilities in machine construction



Servomotors for the food and packaging industry, ready for installation. Thanks to the pearl effect, fluids from the Washdown Food AKM gear motors flow without residue off from the Washdown Food coating. The drive units can be well cleaned, too.

Packaging and food-processing machinery designs in the 21st century are smaller, faster, more efficient and more precise. They are also cleaner and more hygienic, despite the steady elimination of protective covers around sensitive components such as motors, actuation and sensors. These covers can be removed thanks to the increase in robustness of these components. New designs and finishes of these components allow them to handle direct washdown, even with caustic chemicals. Removing these covers also allows for greater heat dissipation, easier cleaning and maintenance.

As the machines still need to be cleaned reliably despite the lack of protective covers and housings, the technology is directly subjected to water and corrosive chemicals. That is why appropriately robust components must be used in this industry. As an integrated automation



Drive solution for a food industry packaging machine, adapted specifically to a customer's needs: Motor-gear combination with Wash-down coating.

FDA-compliant, Washdown coating, for indirect use with a positioning of the drive technology so there is no direct product contact. This solution presents machine builders with the option of really configuring drives in the best possible way, because the standard motors, despite the hygienic design, are not subject to structural restrictions when compared to special stainless steel motors.

Coated servomotors for improved hygiene

As a result of the variety of combination and selection options for the AKM series, system designers can configure their servo motor with Washdown Food coating with virtually no limitations. Finely tuned services and construction sizes, different feedback systems, and connection technology with two or just one cable ensures even greater freedom with high torque density at the same time. All washdown food motors are supplied with foodsafe bearing greases and an FDA-compliant sealing ring. All-aluminum housing, such as the washdown gearmotor shown, may

and drive systems manufacturer, Kollmorgen is supporting this development with adapted [motor and gear motor solutions](#), for example, as well as [decentralized servo inverters](#). They can all be very well cleaned thanks to higher protection classes, special surfaces, and optimized geometries – without a stainless steel cover having to protect it. Stable, smooth, easy to clean: These three characteristics must be met by the design materials in the food, beverage, and pharmaceuticals industries. Cleanliness does not automatically mean stainless steel, and the AKMTM servomotors prove this. Kollmorgen offers world-class performance and re-

liability with its top-of-the-line [AKMH Stainless Steel servo motor](#), able to handle direct-high-pressure spray and caustic chemicals; if this level of protection is not required, then Kollmorgen also offers an

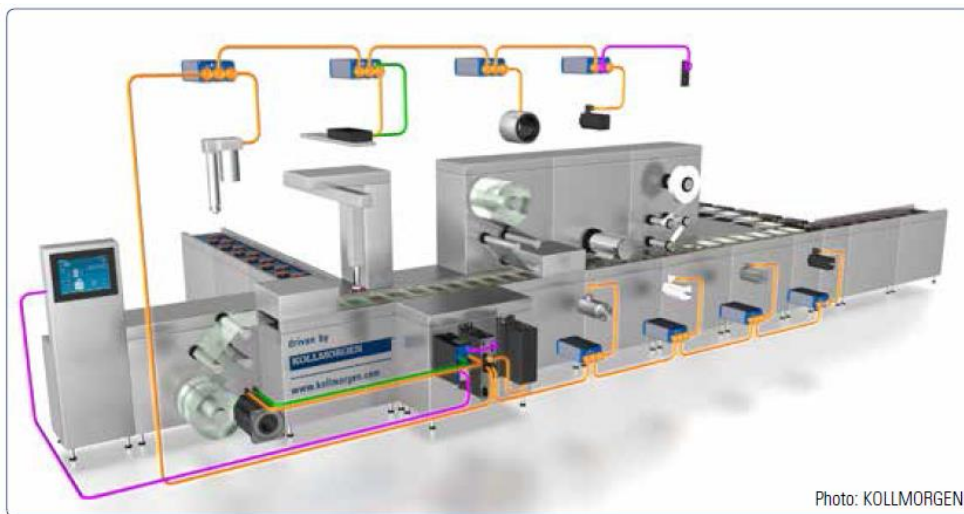


Quick and space-saving. With the decentralized AKD-N servo controllers, the entire connection technology can be looped through very simply with just one cable.

be smaller than a stainless-steel motor due to increased efficiency of heat dissipation. Smaller drives with greater motor power are possible as a direct result. Thanks to their special corrosion-resistant coating, these can also be used without additional protective measures. Furthermore, the smooth surfaces make cleaning easier and ensure that the equipment can be made germ-free more quickly. Another selling point is the connection technology, with just one cable between the controller and the motor. This virtually halves the cabling work for the drive technology and also reduces the risk of dirt accumulating in hygienically sensitive applications. Another benefit of this connection technology is that the size of cable ducts gets smaller, because there are fewer cables to route. This saving of space also opens up possibilities for designing machines in a more sophisticated way without having to think about installation technology. Smaller machines also save on valuable production space.

More design freedom

KOLLMORGEN generates more room for maneuver with connection technology in an ongoing development process by using a 15-millimeter-thin standard cable for connecting motors to both the digital resolver and the Hiperface DSL. Machine builders get significantly greater



Best to do away with protective housings completely: Highly adaptable and easy-to-clean drive solutions with which an open construction design can be achieved are required for the hygienic design of machines in the food and packaging industry.

freedom to make optimizations, even at a later period of development, without having to change the installation technology. For example, in practice this could mean changing the feedback system to increase a drive's precision. Consequently, it is possible for optimizations in an ongoing process of development to be simpler – which ultimately enables quicker development results and a quicker time to market. If operating conditions demand complete fitting with stainless steel, Kollmorgen also offers stainless steel motors within its scaled product portfolio. The freedom of design includes single-cable connection technology here. This is also available for the AKMH range of [stainless steel servomotors](#). The compact units in sizes two to six are used in par-

ticular with their IP69K protection class in machines with direct product contact and aseptic processes. Although both ranges of motors look totally different in the Washdown Food and stainless steel designs, they are based on the same electromagnetic design in terms of their engineering and construction. As KOLLMORGEN uses the technology and standardized components of the AKMTM synchronous servomotors for both areas of application, all the advantages of the platform principle come into effect. Two of these are rapid delivery times within four weeks and the high degree of reliability of large series. The decentralized servo controllers of the AKD-N range are also based on one standard. They follow the principle: Out of the control cabinet and hygienically packed directly onto the machine – thus opening up new possibilities today in the machine design of tomorrow. Decentralized drive systems are also a component of this system. At Kollmorgen, the AKD-N is comprised of a central feed module and robust IP67 controllers that are placed right next to the motor. The patented hybrid cable here, which is only eleven millimeters thick, combines power supply with safety and field bus communication. The regulators cover outputs up to 4 kW. "Safe Torque Off" is included as standard. Typical applications for this also include packaging machines and production plants in the food and beverage industry.

Conclusion

For hygiene zones, functionally and constructionally adapted drive technology can be cleaned more simply and more quickly. Since this reduces downtime, for example, with product and shape changes - it increases overall productivity. The examples mentioned from the Kollmorgen product range show how specific development approaches can be derived from the big issue of reduced cleaning times and improved installation options for hygienic technology. At Kollmorgen, we are motivated to develop standard product solutions applicable for the most demanding applications. We create adapted solutions to suit all particularities of the market, which in turn emanate from a proven set of building blocks.



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About KOLLMORGEN

KOLLMORGEN is a leading provider of integrated automation and drive systems along with corresponding components for machine builders all over the world. With over 70 years of motion control design and application expertise and deep expertise in constructing standard and custom solutions, Kollmorgen always delivers solutions which are characterized by performance, quality, reliability and ease-of-use. Customers can therefore gain an irrefutable marketplace advantage. For further information please contact think@kollmorgen.com or visit our website www.kollmorgen.com