

Success Story

Better Motors Yield More Possibilities

KOLLMORGEN

Because Motion Matters™

Robotics from Demark: Kollmorgen motors drive the lightweight solutions from Universal Robots.

Universal Robots designs and manufactures jointed robotic arms that easily automate and streamline processes for industry. Counter to traditional industrial robots that are too large, noisy, and far too expensive for small and medium size users, Universal Robots models UR5 and UR10 robotic arms are 6-axis lightweight robots designed for small to mid-sized users. These provide viable solutions that can be implemented into any facility wishing to automate repetitive production processes.



The robots are able to handle payloads of 5 kg (11 lbs) and 10kg (22 lbs) at a net mass of 18 kg (40 lbs) and 25kg (55 lbs). The lightweight robots can be easily moved between different work stations within a production facility and ships with easy-to-use software that allows a customer to be up and running in a few hours.

High Modularity



A sophisticated lightweight construction is used to maintain an impressive robot payload-to-weight ratio. A critical design goal was to eliminate any non-value ancillary components such as couplings and mechanical transmissions that add weight and reduce efficiency. It was clear that an embedded motion solution was a good fit whereby frameless motors could integrate directly into the pivot joints to drive the load. The advantages of the direct drive solution include weight savings, smaller envelope, a more rigid construction, higher reliability and lower life cycle costs. In tight collaboration with the Universal Robots engineering design team, Kollmorgen was able to leverage from its standard KBM brushless frameless motor platform to develop 4 low cost custom motors tailored specifically to the UR5 and UR10 demands. The motors were customized to meet critical geometry, weight, and cogging requirements while offering low power consumption and maximized energy density. *"The high quality of these motors was one of the reasons that we have chosen Kollmorgen"* states Esben H. Østergaard, CTO of Universal Robots.

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Robots with High Energy Efficiency

The customized KBM motors greatly contribute to the UR5 and UR10 low noise and high energy efficiency ratings. This helps reduce total cost of ownership and is a major competitive advantage. In fact, the robots have a market leading payback period of as little as 6 months. The high efficiency motors create less heat at rated performance and provide a higher life expectancy. As stated by Esben when referring to testing with long operating times and relatively high loads, *"The motors used in the past have run quite hot in continuous operation. The Kollmorgen motors remain cool due to the lower losses. This is why we can drive our robot in continuous operation without derating"*.

Esben also comments on the availability and wide range of standard and custom motor solutions based on the Kollmorgen KBM motor platform. *"We can order various motor designs when and how we want them. This aspect is particularly important because Universal Robots is growing quickly. This is why we need a motion partner that is a strong fit for us"*. Kollmorgen is committed to supporting fast lead times to Universal Robots by building the motors in region, decreasing logistics costs and shipping time.



Foto: Kollmorgen

Growth

Universal Robots primary focus is to promote the UR5 and UR10 technologies as a tool to use for the simple tasks. *"We do not compete directly with the other large robot manufacturers handling complex tasks. We focus more on replacing tiring, monotonous manual work. However, given the lightweight construction of our robots with minimized oscillations and vibrations, there are new applications such as welding and bonding that can expand our business. This development is accompanied by the fact that UR systems sophisticated ISO approved safety technology means the robots can work right alongside personnel without safety guarding or additional shielding. This is the way for a comfortable and safe blending of technology and personnel"* states Østergaard.

Kollmorgen is proud to be a supplier to Universal Robots. Our motors are making direct contributions that allow the customer to succeed in the marketplace.

Have Similar Challenges and Want to See Real Results?

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