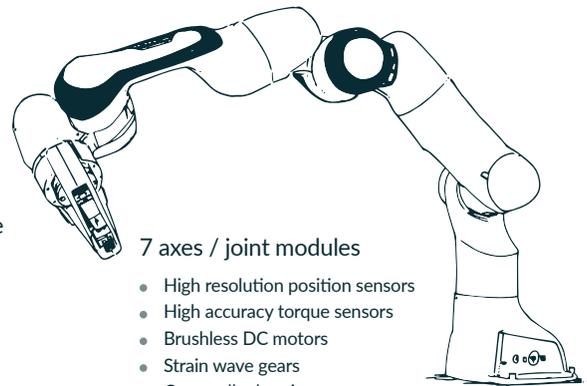


PANDA POWERTOOL

Human-centered design combined with trustworthy German engineering

Panda has been designed to be lightweight and manufactured in large quantities. It incorporates the highest mechatronic integration and is equipped with more than a hundred sensors. Our payload to moving mass ratio of 1 to 4 was achieved by diligent mechanical design and development all the way from system to component level. As a global product with local roots, Bavaria is home to Panda's manufacturing site and our supply chain is nearly 90% European.



Soft-robot performance

MOTION



Panda incorporates the features of a classical stiff industrial robot with a pose repeatability of +/- 0.1 mm and a negligible path deviation even at high velocities of up to 2 m/s. This allows precise, robust and fast execution of manufacturing processes.

FORCE



Sensing

Inspired by the human sense of touch, Panda is equipped with link-side torque sensors in all 7 axes. Outstanding resolution, accuracy and repeatability allow the robot to dynamically sense the surrounding environment, even exceeding the performance of most purpose-made force sensors.



1 kHz Control

Panda can be used to apply forces with a minimum of 0.05N in order to conduct delicate tasks, for instance pressing, insertion, and screwing. Continuous and accurate fine-tuning of forces is also a prerequisite for applications such as contour tracking, polishing and grinding.

INTERACTION



Panda features adjustable guiding modes that compensate gravity and friction to reduce the perceived weight up to a factor of 60, ensuring smooth and elegant physical interaction between human and machine. Our sophisticated sensors, control algorithms and internal model allow prompt detection and reaction upon unwanted collisions within milliseconds. Besides that, Panda's flexible torque-controlled joints can act compliant or stiff in the same way humans contract or relax their muscles to adapt to a task or the environment.