

Product Sustainability Fact Sheet

Servo drive CMMT-AS and CMMT-ST



General Information: Sustainability in Product Development

As an independent family-owned company, Festo has always adopted a long-term perspective and takes responsibility for current and future generations. Sustainability is therefore an integral part of our corporate philosophy and is consistently embedded in the development of all our products. Sustainability criteria have been incorporated into the product development process. Our goal is to minimize environmental impacts across the entire lifecycle, including manufacturing, sourcing, use, and end-of-life cycle of our products. We also place strong emphasis on avoiding critical and environmentally harmful substances.

Products with particularly outstanding sustainability performance are highlighted within Festo's Sustainability Portfolio basket. This designation is based on three categories:

Sustainable in Manufacturing

Products that demonstrate sustainability benefits through compact design, reduced material usage, or the use of alternative materials with a lower carbon footprint, compared with the relevant ISO standard, a predecessor product, or a comparable competitor product.

Sustainable in Operation

Products that reduce energy and resource consumption during use, for example by lowering the demand for electrical energy, compressed air, or valuable operating media such as gases and liquids. In this assessment, Festo considers not only the individual component but also its contribution to the efficiency of the overall application.

Sustainable at End of Life

Products designed to reduce resource consumption by keeping materials, components, and products in the value chain for as long as possible through reuse, repair, refurbishment, and recycling principles.

Product-Specific Sustainability Description

Compact servo drive CMMT-AS and CMMT-ST

Sustainability Category: Sustainable operation thanks to efficient control

The compact servo drives CMMT-AS and CMMT-ST support sustainable operation through highly efficient motor control and intelligent energy management. In addition, the drives support DC bus coupling, enabling recuperated braking energy from one axis to be reused by other axes within the drive system. By utilizing recovered energy instead of dissipating it as heat, overall energy demand and system losses are reduced, contributing to a more sustainable machine operation.

Thanks to CMMT-AS and CMMT-ST energy-efficient control technology, energy consumption can be reduced by up to -25% depending on the application.

For calculations the distribution of braking energy was analyzed. Measurements were performed on a toothed-belt axis under varying loads, speeds, and deceleration profiles. The results demonstrate that between 70% and 85% of the kinetic energy can be recovered and fed back into the DC link during braking, depending on the operating conditions. For applications operating around rated load, using a typical energy recovery efficiency of approximately 75% is recommended. As a result, a significant portion of the energy generated during braking is available for subsequent acceleration phases instead of being dissipated as heat. Our test setup therefore confirms that approximately 75% of the kinetic energy can typically be recovered during braking. In highly dynamic applications with frequent acceleration and deceleration cycles, this can translate into overall application energy savings of up to 25%.