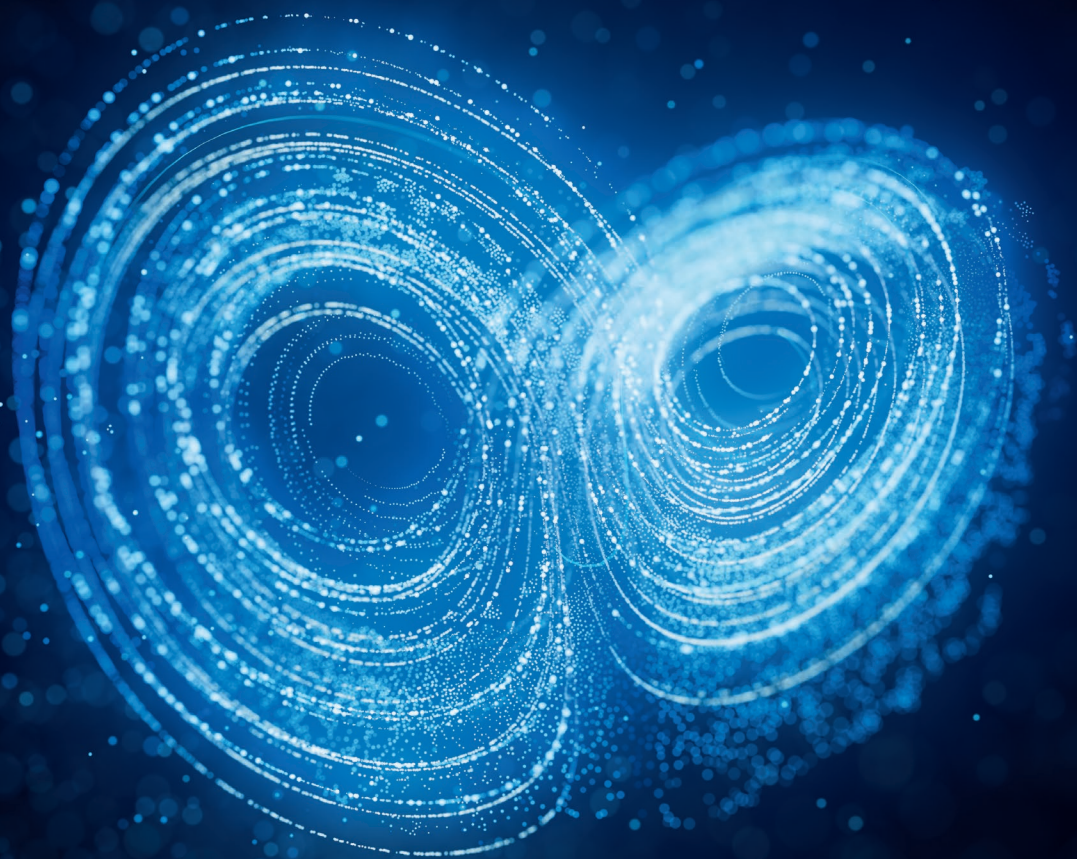


Incredible Machine

FESTO



From
a Small Impulse
to **the Entire World of Motion**

100 years

Automation for a world in motion.

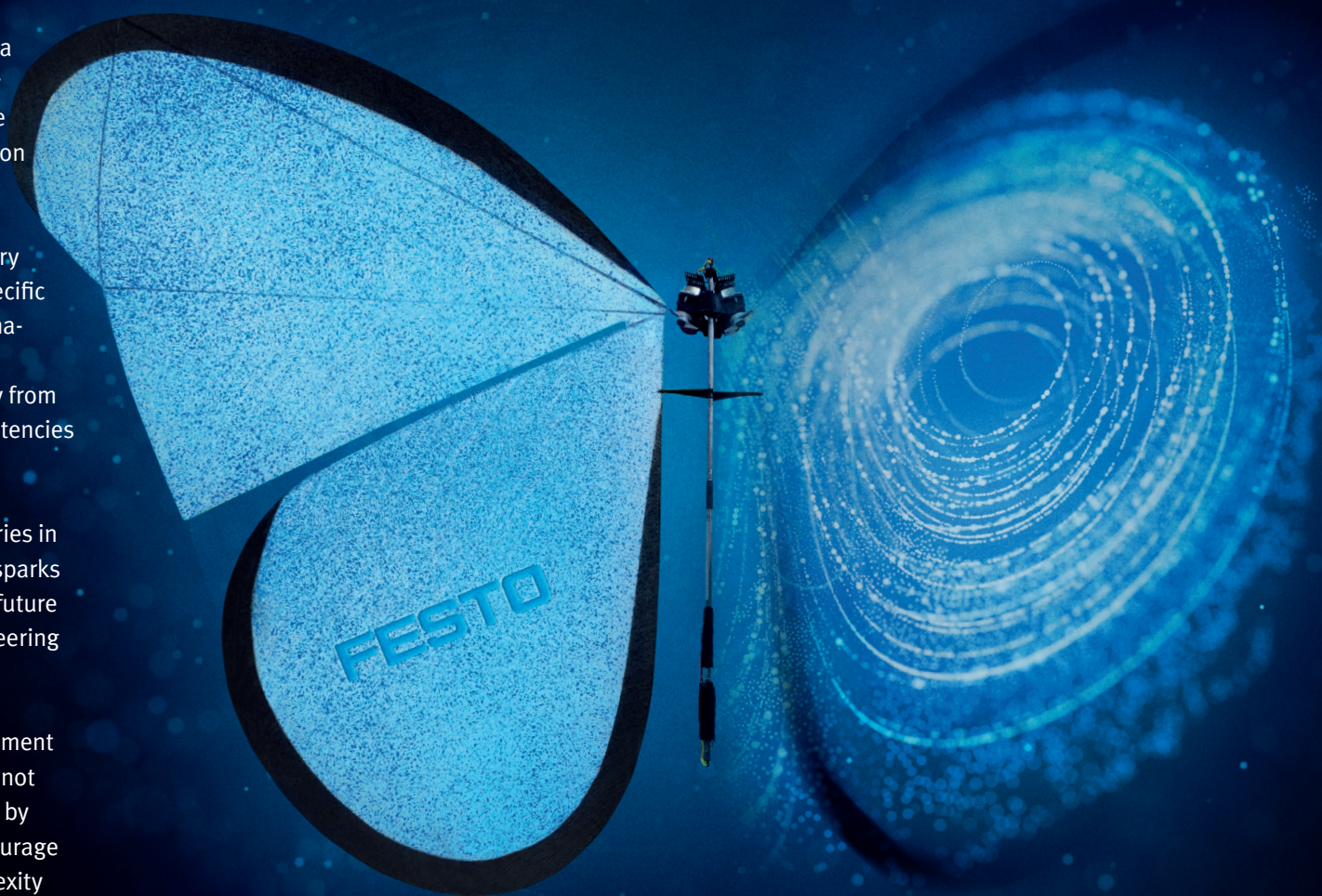
From a Small Impulse to the Entire World of Motion

In the world of industrial automation, stagnation is not an option – everything is in motion. Movement is the driving force behind transformation and growth. From pneumatic motion with air to electric automation, from the transportation of fluids, raw materials, and components to the digital transmission of data – movement has significantly influenced Festo from the very beginning. With inventiveness and pioneering spirit, we have been shaping and redefining the world of industrial production for 100 years.

To mark its 100th anniversary, Festo has built an extraordinary application: the Incredible Machine. It doesn't produce a specific product, but instead functions rather like a Rube Goldberg machine, in which one impulse triggers the next. The Incredible Machine demonstrates the history of automation technology from the past to the present and reflects our wide range of competencies and extensive expertise.

It showcases our fascination with motion and the key industries in which we offer products and solutions for our customers. It sparks enthusiasm for technology and offers a glimpse of what the future of automation might hold – because inventiveness and pioneering spirit have been in our DNA from the very beginning.

Education and experience lead to new knowledge. The movement of thoughts and ideas brings forth innovations that often do not follow a linear and orderly path, but sometimes also happen by chance, evolve gradually, and take us by surprise. It takes courage and inventiveness to break into new solution spaces. Complexity is best managed through strong partnerships. We want to make a difference together. **And what moves you?**



People have unique abilities. Our ability to think, learn, and develop has accelerated technological progress and significantly improved our quality of life. We identify patterns and processes in seemingly chaotic environments and translate them into targeted actions.

Many innovations make our day-to-day lives easier. Through technology and automation, we reduce routine and time-consuming work so that we can focus more on creative and challenging tasks. This makes us work more efficiently and with greater satisfaction. Automation and technical education are the keys to further progress, because education generates and imparts the knowledge that forms the basis for new ideas and discoveries.

Another key aspect is the responsible use of our planet's resources. We want to play our part in showing how to integrate technology and education into our daily work in a way that benefits society.

Just as the flap of a butterfly's wing sets a small impulse in motion, a whole swarm of butterflies can have a much greater impact. Festo is a technology and education partner for industry. As a strong community, we provide impulses for a better quality of life and greater sustainability.

We set the world in motion for our customers by simplifying complex processes through innovation. In doing so, quality and efficiency are our top priorities. With this in mind, Festo's automation technology offers the right solution spaces for everything needed to achieve lasting success – from pneumatics and controlled pneumatics to electric automation, digitalization, and AI. Compatible and with seamless connectivity.

Together, we move the world. Welcome to the World of Motion. Welcome to Festo.

Festo Incredible Machine

World of Motion

From a Small Impulse to the Entire World of Motion

We are a holistic automation partner and technical education specialist. We provide our customers around the globe with technical solutions ranging from pneumatics and electrics to digitalization and AI.



History

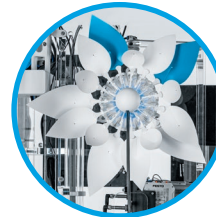
From the Beginnings to the Future

Inventiveness is firmly anchored in our corporate culture. We are driven by the desire to develop innovative solutions for our customers. In doing so, our goal is to make the collaboration between people and machines even better and easier.

Didactic

From How to Know-How

Lifelong learning plays a fundamental role in giving life meaning. We provide professionals with practical learning solutions to meet new challenges. In this process, our focus is on the people, because they are the ones who drive the development of technologies.

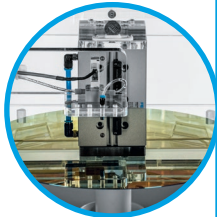


Bionic Flower

Semiconductors

From the Sandbox to Microchips

Microchips are the beating heart of digitalization, making our material environment intelligent and opening up virtual worlds for us.

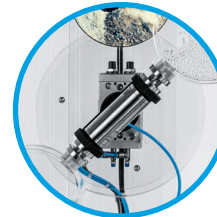


Wafer production

Process Industry

From Flowing to Mining

The controlled movement of liquids and raw materials is a core task in the process industry. Safe, precise, and fast. From water supply to mining.

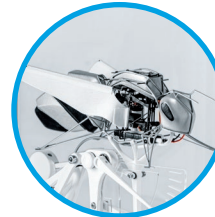


Pinch valve VZQH

Bionics

From Nature to the Future

The dream of flying is as old as mankind, and flying itself is even older. We learn from nature how the effortlessness of flying can be implemented in technology.



BionicBee

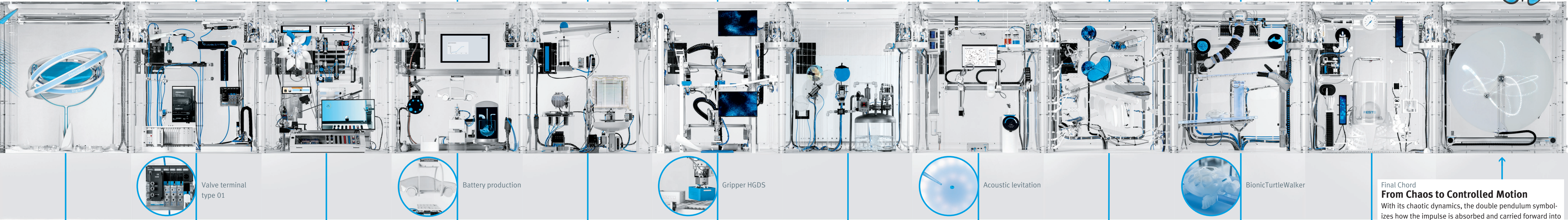
Future Motion

From Natural Motion to New Technical Drives

We are always looking for new solutions for motion to constantly improve our products.



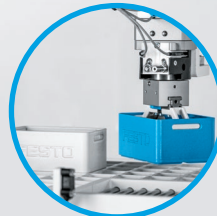
HASEL actuator
(Hydraulically amplified self-healing electrostatic)



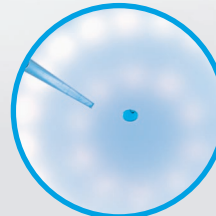
Valve terminal type 01



Battery production



Gripper HGDS



Acoustic levitation



BionicTurtleWalker

Final Chord
From Chaos to Controlled Motion
With its chaotic dynamics, the double pendulum symbolizes how the impulse is absorbed and carried forward into the future. Precise control and accurate measurements can be used to stabilize and control such chaotic motion systems.



More information is available here:
www.festo.com/incrediblemachine



Project Participants

Festo team:

The Incredible Machine is the work of many hands. An interdisciplinary team transformed the topic of motion, which has been a driving force at Festo for 100 years, into a fascinating journey. Over 14 meters, the application seamlessly integrates more than 1,000 Festo components and over 1.8 kilometers of tubes and cables.

Areas involved:

Corporate Bionic Projects, Corporate Communication, Corporate Design, Corporate History, Corporate Research and Innovation, Didactic, Global System Solutions, Live Market Communication (exhibition department), Prototyping, SupraMotion Projects, Vocational Education (trainees).

Conceptual support:

Milla & Partner – Spatial Experiences by Jung von Matt

External partners:

- University of Freiburg, Cluster of Excellence “Living, Adaptive and Energy-autonomous Materials Systems (livMatS)”
- University of Stuttgart, Institute for System Dynamics (ISYS)
- Airstage by Effekt-Technik GmbH, Riederich
- Artimus Robotics, Boulder, CO, USA
- ebert zobel industrial design, Frankfurt am Main
- Fusion Bionic GmbH, Dresden
- Laura Neuscheler, Stuttgart
- Peter Dahmen – Papierdesign, Dortmund
- ZeMA – Zentrum für Mechatronik und Automatisierungstechnik gGmbH, Saarbrücken



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