



WE MAGNETISE THE WORLD



A Day with Kendrion



Profile

Kendrion develops, manufactures and markets high-quality electromagnetic systems and components for industrial and automotive applications.

For over a century, we have been engineering precision parts for the world's leading innovators in passenger cars, commercial vehicles and industrial applications. As a leading technology pioneer, Kendrion invents, designs and manufactures complex components and customised systems as well as local solutions on demand.

We are committed to the engineering challenges of tomorrow, and taking responsibility for how we source, manufacture and

conduct business is embedded into our culture of innovation. Rooted in Germany, headquartered in the Netherlands and listed on the Amsterdam stock exchange, Kendrion's expertise extends across Europe to the Americas and Asia.

Created with passion and engineered with precision.

Kendrion – We magnetise the world!

KENDRION N.V.



INDUSTRIAL

INDUSTRIAL MAGNETIC SYSTEMS

Electromagnetic components and solutions for advanced technologies

INDUSTRIAL CONTROL SYSTEMS

Industrial automation, modular, safety, locking and fluid control systems

INDUSTRIAL DRIVE SYSTEMS

Full-line provider of electromagnetic brakes and clutches for industrial applications



AUTOMOTIVE

PASSENGER CARS

Electromagnetic and electronic components and systems for specific customer applications in the automotive industry

COMMERCIAL VEHICLES

Individual systems for commercial vehicles and off-highway applications as well as the hydraulic industry

A Day with Kendrion

Did you know that you can't spend a day without coming across thousands of our products? Let us show you where and how you get benefit from these products every day - making sure you can't imagine your daily life without us!

00:00 a.m.

It's midnight – in the mail center the packages are already handled which were sent the day before. The plant reads the address, stamps and sorts the packages by postcode, street and distribution center. At extremely high speed and precision, our rotary solenoids actuate the switches which are responsible for the correct sorting of the packages.

Whether shoes, books or electrical appliances, powerful rotary solenoids ensure that we receive our favourite ordered goods in time.



01:15 a.m.

While you are sleeping, your daily newspaper is being printed. Electromagnets in the printing machines adjust the speed of the motors and make sure that the paper is cut precisely.

Pneumatic actuators ensure the exact intake of the paper. In order to prevent the different layers from sticking together, electromagnetic valves apply powder to the printing paper. All this to make sure that you know what's happening in the world while you enjoy your breakfast.



06:15 a.m.

Your alarm clock is ringing relentlessly – time to get up! You switch on the light and electrical current passes through the power lines quite naturally. In wind turbines Kendrion permanent magnet brakes position and stop the rotor blades just in this moment. Our brakes are specially designed to meet the extremely high standards of the wind energy industries.

Using our certified valves, modern fuel cells transform natural gas into electricity and heat. At the power station, a Kendrion electromagnet has already ensured that the valve in the high-pressure primary circuit has opened so that the generators can produce electricity.

There are huge 'light switches' in the transformer station that supply the mains with electric current. These are also switched on or off by our electromagnets. Electromagnets inside transformer stations switch networks on or off fully automatically – from high to medium or low voltage. Load is managed by ripple control systems equipped with a Kendrion industrial PC, to ensure a correct connection within the complete grid. Think of us the next time you switch on the light.



06:45 a.m.

Your children arrive to the superb breakfast buffet. You've already taken sausage and cheese out of the refrigerator. These foods were recently processed and packed safely using Kendrion control technologies.

The freshly baked bread from the bakery smells divine. The sophisticated baking process includes a concept for ventilation and door locking, in which our magnets and locking systems play an essential role.

You press the button on your coffee machine and - without noticing - hear the result of three magnetic functions: pumping, dosing and pressing.

Would you like some milk for your coffee? You can be sure the milk is free from contaminants, being regularly tested in laboratories. This process involves mechatronic Kendrion valve units to ensure precise and reliable analysis.



07:03 a.m.

You hear the garbage truck. Your trash can is being emptied. An electromagnetic clutch controls the hydraulic systems. With increasing load of the vehicle the sensors of Kendrion ensure in connection with the air suspension system a constant level and thus a secure travel.



07:14 a.m.

You leave the house. As it is quite cold, you put on your sweater. What you probably don't know is that in order to meet the highest standards the yarn of your sweater was produced with an inductive heating process managed by Kendrion in a fully automated knitting machine equipped with more than 100 electromagnets. The same applies to most of the clothes you wear; the seams of your trousers and the button holes of your jacket were sewn with the help of solenoids.



“Your sweater was produced by a fully automated knitting machine equipped with more than 100 electromagnets”



“An electromagnetic fan clutch also ensures efficient engine-cooling which saves energy and protects the environment.”

07:20 a.m.

You see school children getting on an air-conditioned bus.
Various electromagnets help to maintain a comfortable temperature.
An electromagnetic fan clutch also ensures efficient engine-cooling
which saves energy and protects the environment.





07:25 a.m.

You get into your car and your seats automatically adjust to your body shape. The back massage gives you the feeling of relaxation even on short journeys – all made possible by small, power-optimised electromagnetic valves made by Kendrion.

As you start your car you listen to the roaring sound of the engine with satisfaction - regardless whether you drive a combustion, hybrid or electric vehicle. A software-supported sound actuator is composing the engine sound according to the driving characteristics.



07:26 a.m.

Once you press the brake, an electromagnet releases the gear shift lever - you can now shift in the drive position safely. The same electromagnet prevents you from unintentional shifting of the gear lever in the reverse position.



A close-up, low-angle shot of the front side of a dark-colored car, possibly a Volvo, as it drives on a paved road. The car's sleek lines and alloy wheel are visible. The background consists of lush green trees and foliage, which are blurred due to the car's motion, creating a sense of speed. The lighting is bright, suggesting a sunny day.

“An electromagnetic control valve ensures that the right amount of fuel with the optimal pressure reaches the combustion chambers to achieve an optimum performance and consumption ratio.”



07:27 a.m.

You push the gas pedal and the power efficient fuel pump control from Kendrion controls the required amount of fuel for your engine. An electromagnetic control valve ensures that the right amount of fuel with the optimal pressure reaches the combustion chambers to achieve an optimum performance and consumption ratio. The vehicle you drive is powerful and energy-efficient.

The gears are activated automatically with the help of electromagnetic valves. The dynamic stability control and the dynamic running gear are controlled by electromagnetic damping valves as well. You smoothly drive on the streets and enjoy the sunrise.



07:38 a.m.

You stop at the bank and withdraw cash from the ATM. Several electromagnetic clutches position and eject the banknotes.



07:53 a.m.

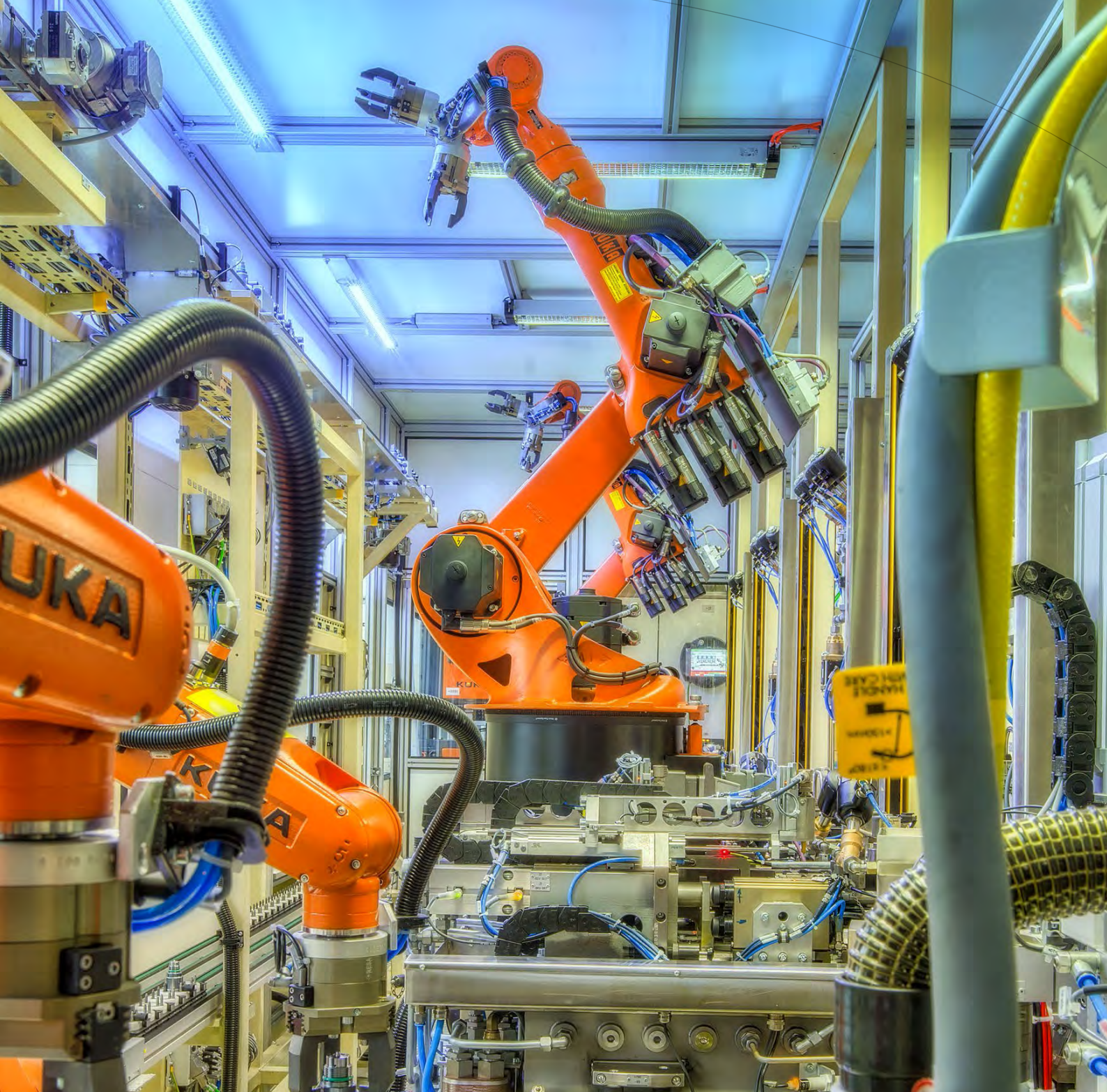
You're using the elevator in a building. During the ride up, you watch the information terminal on a multimedia screen. A Kendrion controller is used to manage its contents on each floor. The elevator stops on the desired floor. Its position is maintained by an electromagnetic elevator brake. Furthermore, the safety catch is secured by an electromagnetic overspeed control system.



08:06 a.m.

A truck delivers goods to the receiving area. It's impressive how much quieter trucks are these days. Kendrion torsional vibration dampers ensure that everything in the engine compartment runs smoothly and vibrations are prevented.





08:12 a.m.

The production in your company is already running at full speed. In the robots, which are used in the production line, several servomotors with safety brakes have been installed. In the event of a power failure or emergency stop, they are held in position. Motors with brakes are also installed in the machine tools and conveyor belts to ensure safety.

All automation components are controlled by an industrial PC with Kendrion CNC control.





“The fire doors are kept open by electromagnetic holding solenoids.”

08:23 a.m.

You walk through a corridor connecting two buildings. The fire doors are kept open by electromagnetic holding solenoids. In case of fire, they make sure that these doors close automatically to prevent the fire to spread.

Our shutting-speed regulators also ensure in multi-storey and basement parking lots that doors close reliably and automatically in case of fire.



08:28 a.m.

Before you rush to your first meeting of the day, you remember that you need to book a flight for next week's meeting with a customer.

You can be sure that you will have a comfortable flight because your seat can be adjusted exactly to your needs – of course with the help of electromagnetic valves from Kendrion. Besides, our electromagnets also ensure safe locking of the luggage compartments above your seat.

Also the oxygen masks are securely locked. Kendrion locking systems guarantee that the lid will be unlocked automatically in case of emergency.



08:40 a.m.

This morning you have a dentist appointment that you need to cancel. Fortunately, these appointments are not as bad as they used to be. For example, Kendrion's silent valves are used to give you a pleasant massage while you sit in the dentist's chair.



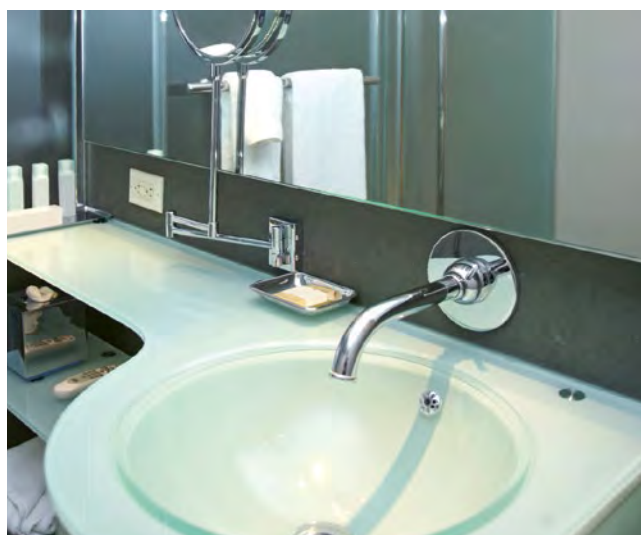
08:52 a.m.

On the way to the coffee break, you will pass a laundrette. Here, high-quality commercial laundry machines are used, which are safely locked and monitored using Kendrion locking systems. Complete magnetic locking systems or self-locking door locks by means of a motor, Kendrion offers a suitable system solution for every user.



08:57 a.m.

You quickly wash your hands before your coffee break – with state-of-the-art touchless sensor technology. The valve below the sink is also operated by an electromagnet. The water is heated by a combined heat and power system located inside the building. A Kendrion control system manages the demand-driven function while producing electricity that is fed into the public grid.



*It's only 9:00 a.m. and you've
already come across more than
1,000 electromagnetic components.*

*Can you imagine what
your day would be like
without Kendrion?*



WE MAGNETISE THE WORLD

