

WHITE PAPER

# Future of packaging: trends, tech, and measurement solutions

## THE PACKAGING REVOLUTION

The industrial packaging sector is undergoing a dynamic transformation, driven by ever-changing market trends and consumer preferences. Emphasis on sustainable solutions prevails, as customers demand recyclable, biodegradable, and renewable materials. Functional designs that curb waste and amplify usability are also gaining momentum. Building consumer trust, transparency and accurate product information are key. In our fast-paced world, consumers demand convenience and portability, seeking packaging that is easy to carry and use. Safety features, such as tamper-evident seals, are crucial for ensuring product integrity with personalization and brand experience also playing a significant role, forging emotional connections with consumers. In the world of e-commerce, packaging must be compact, lightweight, and eco-friendly, optimised for online shopping.

## SUSTAINABILITY AND ECO-RESPONSIBILITY

Sustainability and eco-responsibility are driving factors in the industrial packaging sector, shaping business strategies and consumer perceptions. Those who prioritize sustainability and eco responsibility benefit from improved brand reputation, a competitive edge, and cost savings. Moreover, it fuels innovation and collaboration, propelling the creation of greener packaging solutions, benefitting businesses, industries, and our environment.

## TECHNOLOGY AND INNOVATION

Technology and innovation have also revolutionized the industrial packaging sector with automation and robotics enhancing the efficiency of packaging processes, and boosting productivity while minimizing errors. New, groundbreaking materials and techniques provide enhanced product protection, safeguarding them during storage, transport, and handling. Technology has also facilitated the development of eco-friendly packaging options that align with environmental goals.

Smart packaging, integrating technologies, such as radio frequency identification (RFID) and sensors, enable real-time tracking while data-driven insights provide businesses with valuable information for informed decision-making and operational efficiency. Advanced technologies also play a crucial role in implementing anti-counterfeiting measures, protecting brand integrity, building consumer trust and ensuring quality control and traceability. The continuous drive for innovation in the industry allows businesses to stay competitive and future-proof, adapting to the evolving needs and expectations of consumers in the market.



## THE POWER OF PACKAGING

So what do the different industries prioritise when it comes to packaging?

### Food and beverage

The food and beverage industries are responding to consumer demands by embracing sustainable packaging trends. From recyclable materials to cutting down on plastics, the focus is on eco-friendly options. Additionally, on-the-go packaging, such as single-serve packages and resealable pouches cater to the needs of busy consumers.

### Pharmaceutical and healthcare

For these two industries, safety and compliance are top of the list. Manufacturers are committed to incorporating tamper-evident and child-resistant packaging to ensure product integrity and safeguard patient well-being while adhering to rigorous regulatory standards. Smart packaging technologies – from temperature monitoring to tamper detection – also enhance medication management and guarantee the authenticity of products.

### Cosmetics and personal care

These industries are embracing both minimalism and sustainability with recyclable materials, biodegradable packaging, and refillable containers, all crafted to reduce waste and satisfy eco-conscious consumers. Yet, the allure of luxury prevails with brands devoted to creating an opulent experience through premium packaging. Brands are investing in elaborate aesthetics, high-quality materials, and unforgettable unboxing experiences to elevate the perceived value of their products.

### Electronics and technology

Protecting goods is the main priority, with trends such as anti-static packaging, cushioning materials, and secure designs, providing an impenetrable shield against shock, moisture, and static electricity. However, the industry is also embracing eco-friendly practices and champions the use of recyclable materials, reducing packaging waste, and implementing take-back programs for responsible disposal and recycling of electronics packaging.

### Retail and e-commerce

Packaging is seen as a critical aspect of ensuring customer satisfaction and product protection. With focus on online shipping, robust packaging solutions using durable materials, compact designs and packaging options that minimize environmental impact while preserving product integrity, are prioritized. Packaging is also an integral part of brand identity, fostering customer loyalty and recognition with customized packaging and branded designs leaving a lasting impression on customers.

### Industrial and chemical

For the chemical sector the emphasis is on safety for hazardous materials, where adhering to strict regulations, proper labelling, and secure containment are essential. At the same time, there's a growing focus on sustainability, with eco-friendly materials and responsible disposal methods to reduce environmental impact.

**INDUSTRIAL PACKAGING SECTOR IS UNDERGOING A DYNAMIC TRANSFORMATION, DRIVEN BY EVER-CHANGING MARKET TRENDS AND CONSUMER PREFERENCES**



## EXPLORING HBK'S ADVANCED MEASUREMENT SOLUTIONS FOR PACKAGING MACHINERY

### Filling machines

In the fast-paced industries of food and beverage, cosmetics, pharmaceuticals, and agriculture, filling machines play a vital role in automating the filling process and improving efficiency. HBK recognizes the significance of accurate weighing in filling machines and offer advanced weighing solutions for hygienic and aseptic applications, enabling operators to achieve precise and efficient filling processes while adhering to strict industry regulations.

### Recommended for filling machines

- FIT5A digital load cells
- PW27A single point load cells
- PW6D single point load cells
- PW15PH single point load cells
- PW22 single point load cells
- PAD digital transducer electronics
- DSE-HIE sensor electronics

### Dosing machines

In packaging and formulation processes, dosing machines (including hoppers, feeders, filling machines, and checkweighers) play a critical role in ensuring accurate and consistent dispensing of materials. From pharmaceuticals to chemicals, industries rely on dosing equipment to maintain product integrity and safety. At HBK, we understand the importance of meeting capacity and measurement standards and ensuring precise dosing without overfilling, which could lead to excessive costs and resource waste. With our range of measurement solutions, you can achieve high-precision dosing, adhering to strict industry regulations while enhancing productivity and efficiency.

### Recommended for dosing machines

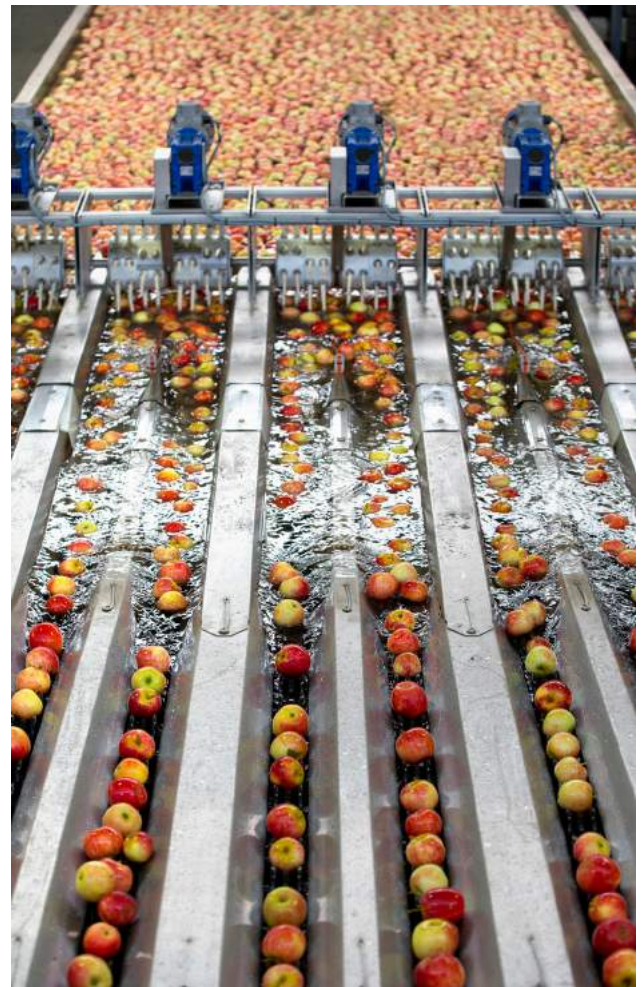
- Z6R bending beam load cells
- FIT5A digital load cells
- HLC load cells
- PW4M and PW4M-OP single point load cells
- SP4M series of aluminium load cells
- WTX110 and WTX120 weighing terminals
- AED digital transducer electronics
- ClipX industrial signal conditioner

### Sorting machines

Sorting machines are used to organise items based on specific criteria, guaranteeing optimal efficiency and quality. From food processing to pharmaceuticals and recycling, these machines streamline operations and maintain the highest standards of quality control. HBK's sorting solutions include advanced load cells, powerful electronics, and state-of-the-art software that surpass industry standards in functionality, speed, and accuracy.

### Recommended for sorting machines

- FIT7A digital load cells
- Z6R bending beam load cells



## Checkweighers

Checkweighers ensure precise weighing and sorting, guaranteeing uniformity and compliance. They're vital for quality control, verifying packaging regulations, reducing raw material usage, and automating production. Equipped with reference weight and tare, checkweighers offer real-time weight data. They include feeding conveyors, load cell-equipped sections, rejection systems, user-friendly terminals, and sturdy chassis to minimize vibration.

Used across diverse industries, including food, pharmaceuticals, chemicals, cosmetics, transportation and logistics, their tasks range from weighing and sorting packaged goods, pre-packaged items, tray-packed products, boxed items, to sachets and cartons.

We offer advanced measurement solutions specifically tailored for checkweigher applications. Our high-dynamic, high-precision digital load cells are equipped with high-speed filters and checkweighing algorithms, ensuring unrivalled performance. With these digital load cells, you can achieve stand-alone evaluation of light barriers and precise control of ejectors, optimizing your control tasks.

### Recommended for checkweighers

- FIT7A digital load cells
- Z6R bending beam load cells

## Multi-head combination weighers (MHCW)

Multi-head combination weighers are machines used for the weighing and distribution of products. Their multiple weighing heads ensure fast, accurate, and reliable weighing for both food and non-food items, enabling accurate filling of various bag sizes from small crisp packets to large catering packs – at unmatched speed and efficiency. These machines have evolved to handle an extensive array of products, ranging from snacks and confectionery to fresh meat, cheese, powders, and even complex ready meals. They excel in weighing different substances, from sticky and viscous products to solids, liquids, crystals, powders, granules, and seeds.

HBK provides dedicated measurement solutions for MHCWs, ensuring robust, high-precision, and high-speed weighing operations.

### Recommended for multi-head combination weighers

- SP8 single point load cells
- AD105D digital transducer electronics
- PW22 single point load cells
- PW27A single point load cells

## Bagging machines

Operating at high speeds, filling and labelling an impressive 40 to 60 bags per minute, bagging machines offer cost-effective and efficient packaging, labelling and sealing solutions, catering to various industries such as food, medical, and pharmaceuticals. Bagged packaging offers simplicity, ease of storage, and extended shelf life. The versatility of bagging machines allows them to handle various materials, such as polyethylene, polypropylene, plastic, paper, wax paper, and burlap, enabling customized packaging solutions based on specific product requirements – from large burlap sacks for potatoes to plastic-foil bags for coffee preservation.

With our diverse portfolio of load cells and weighing electronics, HBK provides tailored solutions to meet the specific requirements of bagging machine applications and delivering optimal performance and accuracy.

### Recommended for bagging machines

- FIT5 digital load cells
- FIT7 digital load cells
- WTX110 and WTX120 weighing terminals
- AED digital transducer electronics
- ClipX industrial signal conditioner
- HLC load cells
- Z6R bending beam load cells

## Postage meters and sealing machines

Postage meters are used for directly applying postage to envelopes or labels, improving efficiency for businesses. These devices accurately calculate postage based on weight, size, and destination, simplifying mail management and increasing productivity. Postage meters are widely used in offices, businesses, and mailrooms to handle bulk mailings, ensure accurate postage, track expenses, and simplify the application process. HBK's solutions for postage meters feature high-speed measuring chains and precise single point load cells that guarantee accurate and reliable weighing of masses.

Sealing machines, also known as heat sealers, create secure seals on products and packaging materials using heat. They are used to ensure secure and contaminant-free seals. Our comprehensive measurement solutions feature force transducers for precise control and monitoring of sealing pressure.

### Recommended for postage meters and sealing machines

- PW4M and PW4M-OP single point load cells
- PW6C single point load cell
- AED digital transducer electronics
- U9C miniature load cells
- U3 force transducers
- ClipX industrial signal conditioner

## Capping machines

Capping machines seal containers with caps or lids, ensuring the freshness and integrity of products. These machines, including inline cappers, chuck cappers, and spindle cappers, handle a variety of closure types and cap sizes with exceptional precision, and offer a multitude of advantages, such as increased production rates, enhanced efficiency, and reduced manual fatigue. By delivering precise torque values and easy cleaning, they streamline the packaging process while minimizing the need for manual labour. Automatic capping machines are widely used in the food and beverage, pharmaceutical, cosmetics, and chemical industries.

By implementing HBK's measurement solutions, capping machine operators can benefit from accurate and reliable torque measurement, optimizing the performance of their capping processes.

### Recommended for capping machines

- T210 shaft torque sensor
- Custom sensor assemblies designed to enhance the performance of capping machines. Factors like space limitations, specific torque ranges, and compatibility with existing components are taken into account during the design process

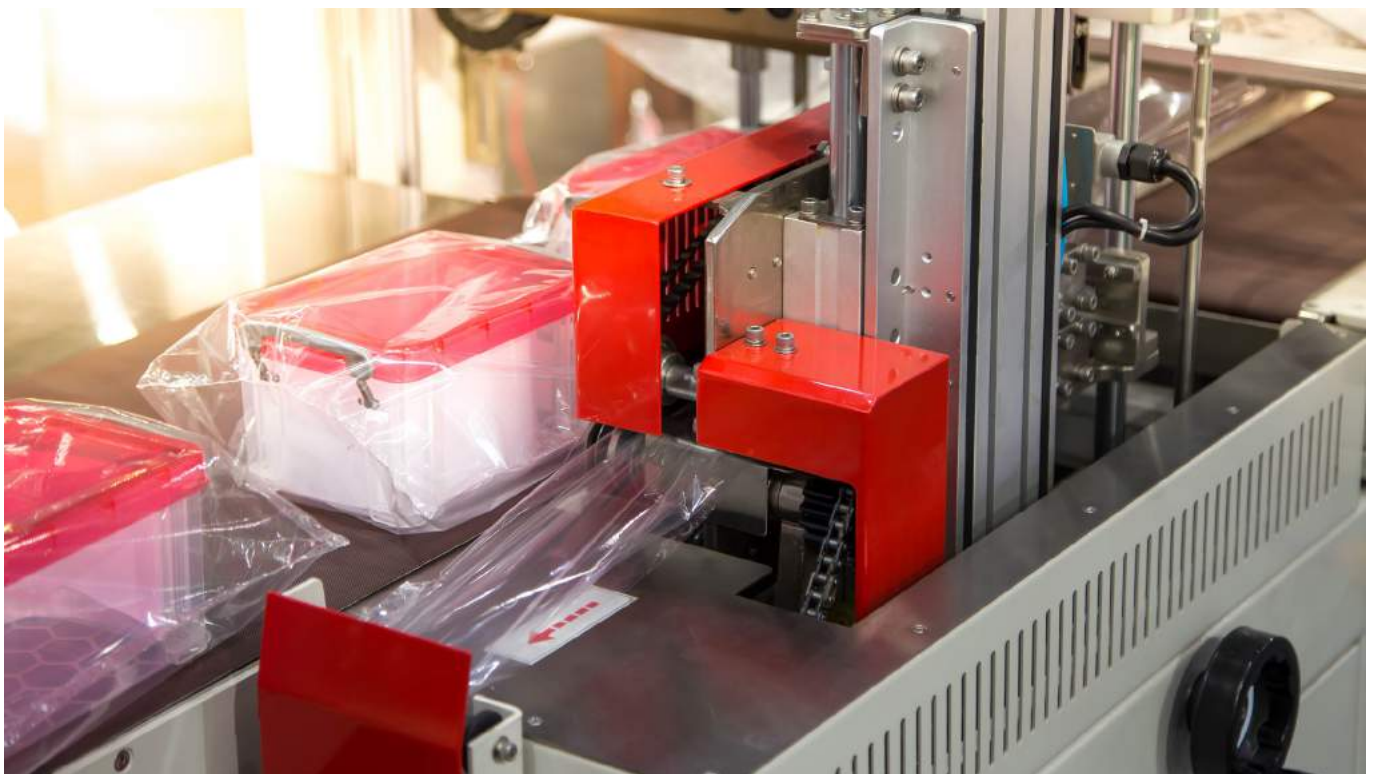
## Wrapping machines

Wrapping machines are used for the precise wrapping of mass-produced articles or predetermined quantities of merchandise – from soap and razor blades to pastry and sugar – ensuring consistent and reliable packaging. The typical components of a wrapping machine include a wrapping mechanism, a transporting device, rolls of wrapping material or labels, and a gluing device. They can perform one-, two-, or three-layer packaging using materials like paper, cellophane, or foil. Wrapping machines can operate independently or as part of a larger automatic prepacking and packaging system. With capacities of up to 600 pieces per minute for automatic machines and 120 to 130 pieces per minute for semi-automatic machines, they deliver impressive productivity. These machines are extensively used in logistics, warehousing, retail, and distribution centres for tasks like pallet wrapping, bundle wrapping, and individual product wrapping.

HBK offers solutions tailored to control wrap forces and ensure precise and reliable operation. The ability to precisely control wrap forces ensures that each article or quantity of merchandise is consistently and securely wrapped, meeting the highest standards of packaging excellence.

### Recommended for wrapping machines

- S9M load cells
- U9C miniature load cells
- ClipX signal conditioner



## Cartoning machines

Also known as cartoners, their role involves erecting, closing, folding, side-seaming, and sealing cartons. They are designed to transform carton board blanks into fully sealed cartons that are filled with products or bags of products.

The automation provided by these machines significantly enhances the process of inserting products into cartons or boxes. They can handle different carton styles, including top-load, side-load, or end-load cartons. As a result, cartoning machines are frequently used in industries like food and beverage, pharmaceuticals, cosmetics, and consumer goods, where they efficiently package products into cartons or boxes for retail distribution.

Our range of specialized measurement solutions ensures precision and efficiency in robotic handling systems, static checkweighing, and complete box verification.

### Recommended for cartoning machines

- U3 force transducers
- FIT5A digital load cells
- ClipX industrial signal conditioner
- DSE-HIE sensor electronics

## Palletizing machines

Also known as palletizers, these are automated solutions for sorting, transferring, and stacking cases of goods onto pallets, typically found at the end of manufacturing lines. These machines ensure load stability, precision, and fast operation, enabling the movement of multiple loads simultaneously. By replacing the manual process of placing boxes on pallets, palletizers save time, reduce costs, and alleviate strain on workers.

Advancements in computer and robotics technologies, have revolutionized palletizing machines, expanding their capabilities and providing greater control. They are extensively used in logistics, warehousing, and manufacturing, optimizing pallet loading, improving operational efficiency, and streamlining the handling of large quantities of products.

With HBK's cutting-edge measurement solutions for palletizing machines, manufacturers can experience the world of robust and accurate load cells, versatile integration options, and reliable weighing terminals.

### Recommended for palletizing machines

- HLC load cells
- WTX110 weighing terminal



## OUR SOLUTIONS IN MORE DETAILS

At HBK, we specialize in delivering tailored solutions that precisely meet your needs, ensuring impeccable precision, unmatched durability, and reliability in any environmental condition. In the dynamic landscape of packaging industries, characterized by modularity, quality, and regulatory compliance, HBK offers resilient and adaptable solutions expertly designed to address these challenges. With our range of precision load cells, state-of-the-art electronics, and cutting-edge software developed over decades, we have consistently redefined industry benchmarks in terms of functionality, speed, and precision.

### SINGLE POINT LOAD CELLS

#### **PW4M and PW4M-OP single point load cells: precise weighing of masses**

Designed for precise weighing (batching, filling, and control) of masses from 300 g to 5 kg. Ideal for industries such as pharmaceuticals, cosmetics, and food, handling small-sized packages. The PW4M has an accuracy class C3 and is approved in legal-for-trade applications.

The PW4M-OP variant provides intelligent overload protection, reliably withstanding up to 10 times its maximum capacity, especially important in the case of fast and dynamic loads, such as those found in high-speed packaging machines. Integrated overload stops reduce the risk of failures, avoiding downtime costs.

Also includes off-centre load compensation, low temperature coefficient, IP65 degree of protection, and high EMC compliance for precise and reliable results.

#### **PW6C single point load cell: static multi-range measurement**

With capacities up to 40 kg, it is perfect for shop-counter scales, conveyor systems, and platform scales. Offers exceptional versatility for multi-range applications, thanks to its low temperature coefficient. It ensures reliable and precise measurements with its increased nominal displacement and accuracy class C3 MR. The load cell's stable measurement signal, off-centre load compensation, and high EMC compliance make it suitable for various applications.

#### **PW6D single point load cell: extremely fast weighing processes**

Perfect for high precision and fast weighing up to 40 kg with accuracy class C3 multi-range. Outstanding stiffness due to its special design. Individually configurable with different cable lengths and signal outputs.

#### **PW15PH single point load cell: stable results under extreme conditions**

Offers flexibility and quick replaceability with its innovative plug system. With a hermetically welded device plug, it also fulfills IP68/69K protection. Has accuracy class C3 multi-range precision and stainless steel construction. Available in capacities ranging from 10 kg to 100 kg.

#### **PW22 high-speed load cell: fast and dynamic weighing**

Designed for fast and dynamic weighing, with exceptional rigidity and a high natural resonant frequency, ensuring quick settling and weighing times. With a high maximum scale interval factor and C3 accuracy class, it delivers precise and accurate measurements. Can withstand overloads up to five times its maximum capacity, thanks to the patented overload stop in both compressive and tensile directions.

Available in several versions, offering different maximum capacities, cable lengths, and even an explosion-proof ATEX version.

#### **PW27A single-point load cell: aseptic production**

Designed for hygienic weighing up to 20 kg, the PW27A series meets EHEDG specifications. A stainless steel body and IP68/IP69K degree of protection for easy cleaning make it ideal for the food and pharmaceutical industries.





## **SP4M single point load cells: extremely flexible**

Certified single point load cell made of aluminum and a very large nominal load range weighs particularly precisely up to accuracy Class C6 multi-range and an enormous maximum factor (Y value) of up to 20,000. In addition to explosion-proof versions for potentially explosive atmospheres, the load cell is available with additional options such as different connection cable lengths and balanced output for parallel connection.

## **SP8 single-point load cell: compact and cost-effective for multi-head combination weighers**

Specifically designed for multi-head combination weighers, with a compact design that seamlessly integrates into any setup, ensuring easy installation and replacement without operational downtime. Covers a wide range of weighing capacities, from 5 kg to 100 kg, and offers high-precision C3 accuracy class for precise and reliable results. Its aluminum construction enables swift weighing processes with minimal settling times, making it ideal for various filling applications.

With its minimal settling times, the SP8 load cell contributes to shorter weighing cycles, enhancing overall efficiency and offering a cost-effective solution for multi-head combination weighers.

## **DIGITAL LOAD CELL**

### **FIT5A digital load cell: the heart of weigh fillers**

Developed through extensive collaboration with industry leaders to deliver precise filling and increased output. Confirmed precision and OIML-certified for C4, Y value of up to 25,000. Slim design minimizes space requirements in rotational fillers, and IP68/69K rating ensures suitability for moist climates and high-pressure cleaning. Constructed with food-safe steel, it is resistant to harsh detergents. Robust, with 1000% overload stability and high lateral force stability, ensuring reliability in demanding environments. Intelligent features such as autonomous valve control and a versatile filling algorithm, provide enhanced functionality, making it the perfect candidate for batching tasks. It forms the heart of heavy-duty multi-head combination weighers or hopper scales.

### **FIT7A digital load cell: the heart of checkweighers**

Provides you with the freedom to build your own checkweigher, free from expensive components, for your packaging line. With confirmed precision and an OIML certificate for C6, Y value of up to 50,000, the FIT7A offers exceptional accuracy. Its extremely stiff design allows for high throughput with fast signal response and short filter times. Built of steel, it is optimal for the food industry and resistant to strong detergents. The FIT7A load cell is robust with 1000% overload stability, high off-centre load behaviour, and IP66 rating for wash-down applications. Offers intelligent features such as stand-alone evaluation of light barriers and control of ejectors, eliminating the need for an additional PLC. Operation is via our free PanelX software, saving valuable development time.

## **BEAM LOAD CELL**

### **Z6R bending beam load cell: shorter cleaning times**

Sets global standards with its easy-to-clean design and exceptional features. Offering capacities from 20 to 200 kg, it excels in hygienic-sensitive and harsh environments, providing precise weighing and reduced setup time.

### **HLC load cells: robust and precise, for any application**

The epitome of durability and reliability in weighing solutions, available in standard dimensions, HLC load cells can be easily integrated and quickly adapted to the required maximum capacities ranging from 110 kg to 10 tons. They are tough, boasting IP68 (100h/1m) and IP69K degrees of protection, making them suitable for harsh environments, including humidity and high-pressure conditions. Crafted with stainless steel, they also offer optional TPE-0 cable sheaths for excellent resistance to chemical substances.

## AMPLIFIERS AND WEIGHING ELECTRONICS – DESIGNED FOR DYNAMIC AND HIGH-SPEED FILLING ROUTINES

### DSE-HIE sensor electronics: highly dynamic and automated weighing applications

Perfect for highly dynamic and automated weighing and industrial automation, this system digitizes signals from analog strain gauge based sensors like load cells and force transducers. It seamlessly interfaces with common industrial Ethernet protocols (PROFINET RT/IRT, EtherCAT, Modbus/TCP) via an integrated multi-protocol unit. The compact, stainless-steel DSE unit promotes efficient integration with its Ethernet interface and close sensor installation. EHEDG-compliant design ensures hygiene standards compliance for food, pharma, and automation industries. P67/68/69K protection guarantees safety during high-pressure cleaning and CIP system use.

### PAD digital transducer electronics: perfect connection to the digital world

PAD digital transducer electronics digitizes passive sensors through a plug-and-play M12 connection, facilitating cost-effective transition to digital technology. Encased in a compact stainless-steel enclosure, the PAD ensures protection from liquids and dirt. It delivers maximum precision, even in challenging conditions, boasting IP68/IP69K protection

### WTX110 weighing terminal: true heavyweight in performance and reliability

The stainless-steel WTX110-D, with IP69K certification, excels in harsh industrial weighing, ideal for food, pharma, and chemical sectors. It interfaces with digital load cells and integrates with C16I, featuring a high-resolution TFT display and user-friendly PanelX software. Resistant to humidity, dust, and cleaning agents, WTX110 excels in challenging conditions. Offering on-site or remote setup, it is adept at static and dynamic weighing with a legal-for-trade resolution of 10,000 e (OIML). German engineering ensures reliable and affordable performance, adhering to a cost-effective 'only-pay-for-what-you-need' approach for versatile applications.

### AED digital transducer electronics: simple process control and monitoring

The AED transducer electronics digitize the signals from analog load cells, thus ensuring digital precision in new or existing systems.

### WTX120: industrial and legal-for-trade weighing terminal

The WTX120 industrial rail-mountable weighing terminal seamlessly connects with analog load cells using strain gauges. Perfect for filling, dosing, and sorting applications, it boasts modern weighing capabilities. Integration into standard industrial control systems is easy with its industrial Ethernet and Fieldbus interfaces. On-site operation is simplified with push buttons, a display, and text navigation. Additionally, the intuitive HBM weighing software, PanelX, aids in startup and maintenance, enhancing its usability.

### AD105D digital transducer electronics

This versatile solution converts analog load cell signals to digital, offering digital precision to save time and costs. It suits strain gauge sensors and load cells with adjustable output rates up to 200 measurements per second. Equipped with digital filters, trigger functions, and limit switches, it ensures stable digitization for diverse applications. Seamless integration through RS-485 and CANopen interfaces allows easy connectivity with various systems. Initiating the device is effortless, as it connects to a PC using the PanelX software.

### ClipX: the precise and easy-to-integrate industrial signal conditioner

ClipX simplifies integration and offers precise measurement control, boasting an accuracy class of 0.01 and an included calibration certificate. It excels in industrial process control with versatile measurement inputs and robust automation interfaces, ensuring accurate and interference-free signal conditioning. Its high sample rate and bandwidth enhance industrial processes, while the user-friendly web interface facilitates easy setup and diagnosis. ClipX allows individual system configuration, calculation channels, and flexible options, making it a future-proof, cost-effective investment with outstanding price-to-performance value.



## FORCE SENSORS

### S9M: precision and excellent protection

Ideal force measurement solution for wrapping machines, boasting durability, accuracy, and user-friendliness. Stainless steel construction ensures robustness and high load-bearing capacity, even in challenging environments. With an accuracy class of 0.02, it delivers precise and reliable measurements. Exhibits minimal temperature-dependence and is highly resistant to parasitic torques and forces, ensuring measurement integrity.

### U9C miniature load cell for tensile and compressive force

Ideal for space-limited applications. This compact force sensor excels in measuring both tensile and compressive forces, making it versatile for dynamic and static measurements. Its robust, welded stainless steel design ensures a high load-bearing capacity. With an accuracy class of 0.2, it delivers precise measurements, and practical cable lengths, along with optional features like TEDS and integrated amplifier, enhance its usability.

### U3 force transducer: installed in minutes

Perfect for cartoning machine and sealing applications that require accuracy and reliability. Uses the diaphragm principle and incorporates strain gauges within a robust housing. Its unique supporting membrane design guarantees exceptional lateral force stability, making it ideal for challenging applications. Compensates for acting moments and transverse forces with bending moment adjustment and a double-sided flange connection, ensuring precise measurements. Available in different nominal forces and HBM accuracy class 0.2, delivering high accuracy and reliable performance.

## TORQUE SENSORS

### T210 rotating shaft torque sensor: an all-round solution

Designed for measuring rotating torque up to 200 N.m. Employs a precise measuring system that enables contactless transmission of measurement values and energy supply from the rotor to the stator. Also captures rotational speed and angle of rotation, providing comprehensive torque data. Offers voltage or frequency output for seamless data transmission. Commonly used in end-of-line applications and development test benches. Its round shaft ends enable easy and play-free integration into various systems, and a standardized design allows effortless retrofitting in existing plants, ensuring compatibility with a wide range of capping machines.



## HBK STANDARDS AND MEMBERSHIP: A GUARANTEE OF PRECISION, QUALITY AND SAFETY

As a market leader in test and measurement and weighing technology, we understand the importance of providing reliable and compliant solutions for packaging applications.

Our strong associations with leading international organizations and associations in the field of measurement standards ensure that our products and solutions align with the latest industry requirements and best practices and comply with a wide array of local and international standards, including ISO, ASTM, IEC, and various country-specific regulations. By actively participating in international commissions, we contribute to defining the measurement standards that shape our industry and by ensuring compliance, we provide our customers with the confidence that our solutions meet the highest levels of quality and performance.

### IP (INGRESS PROTECTION)

The IP (Ingress Protection) rating, defined by the International Electrotechnical Commission (IEC) 60529, is a standard that determines the resistance of electrical equipment to dust and weather conditions. It is applicable across various industries, including agri-food and pharmaceuticals, and ensures the protection and resistance of a product against the intrusion of solid materials and liquids, reducing the risk of device damage and accidents like fires.

In industry, IP ratings ensure equipment safety outdoors and during manufacturing by certifying proper protection levels through lab tests and modifications as needed for intended use.

HBK's load cells and electronics typically comply with IP67, IP68, and IP69 protection ratings, ensuring high resistance to solids and liquids:

- IP67: complete protection against dust and allows limited immersion up to one meter depth without damage
- IP68: full protection against dust and allows prolonged immersion at depths greater than one meter
- IP69: the highest level of liquid resistance, protecting against powerful water jets and high-pressure cleaning

These IP ratings ensure that HBK products can perform effectively and durably in demanding industrial environments, even under harsh and wet conditions.

## EHEDG (EUROPEAN HYGIENIC ENGINEERING AND DESIGN GROUP)

This organization focuses on promoting food safety by enhancing hygiene practices in the food manufacturing process. As a member of EHEDG, HBK is committed to preventing food hygiene issues and minimizing safety risks for consumers, and provides customers in plant engineering, process control, and food manufacturing industries with high-quality sensors and measurement technology adhering to hygienic principles. This ensures that HBK's customers can serve their own customers in the best and safest way possible.

EHEDG's main role is to connect industry, research, and legislation to ensure the quality and safety of food products. Their workgroups interpret EU directives on hygiene for food processing machinery and translate them into guidelines for equipment manufacturers and users. These guidelines cover design, installation, operation, maintenance, and cleaning of production plants to prevent contamination during food processing and packaging. In addition to providing guidelines, EHEDG conducts test procedures and issues certificates to ensure compliance with EU legislation.

By following EHEDG guidelines, HBK ensures that their load cells, essential components of weighing devices, adhere to the stringent hygiene standards in the food and pharmaceutical industries. This commitment to hygienic design ensures that HBK's products contribute to safe and reliable food production processes.

## OIML (INTERNATIONAL ORGANIZATION OF LEGAL METROLOGY)

OIML is an intergovernmental treaty organization established in 1955 to promote the harmonization of legal metrology procedures worldwide. Its primary objective is to provide guidelines and recommendations for member countries to develop their national and regional requirements concerning the manufacture and use of measuring instruments for legal metrology applications.

By choosing HBK's OIML-compliant load cells and force sensors, customers benefit from the assurance that their instruments meet globally recognized metrological standards. This guarantees accuracy, reliability, and traceability of measurements, which are vital in various industries, including manufacturing, research, and quality control. OIML compliance also ensures legal conformity, easing international trade and promoting fair competition among businesses.

## ATEX /IECEX

ATEX (Atmosphère Explosives), is a term that appears in the name of the European Directive 94/9/EC (now replaced by DIRECTIVE 2014/34/EU), concerning equipment used in explosive atmospheres. Generally, it is used to refer to ATEX certifications/standards related to the suitability of a product for use in hazardous environments.

ATEX certification is granted to equipment that has undergone rigorous testing defined by European Union directives and has been proven safe for use in specific environments with explosive atmospheres, depending on the zone(s) for which they are certified to be used.

Similar to ATEX certification, IECEx certification is granted to products that have been thoroughly tested and proven to operate safely in environments with explosive atmospheres. IECEx certification is an internationally accepted method that demonstrates compliance with International Electrotechnical Commission (IEC) standards. IEC standards and evaluations are internationally recognized as a reference in the field of electrotechnics.

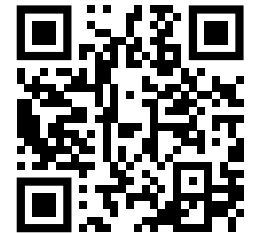
Working with hazardous materials requires diligent protection against explosions in all industries where explosive atmospheres may be present. HBK offers ATEX/IECEX certified sensor and electronic solutions that help professionals stay focused and safe while performing their work. These solutions are suitable for various applications, including industries with potentially explosive atmospheres such as food production, pharmaceuticals, painting, manufacturing, and processing plants or refineries where natural resources including oil, gas, or chemicals may be handled.

## FM APPROVAL

FM Approvals is an internationally renowned independent testing and certification organization that ensures fire prevention products and services meet the highest standards of quality, technical integrity, and performance.

By incorporating FM Approval-certified HBK products into their machines, manufacturers can ensure the reliability and safety of their equipment, gaining a competitive edge in the industry.

HBK is committed to providing high-quality and compliant solutions for packaging applications. Through our association with leading international organizations and adherence to global norms and standards, we ensure that customers can rely on our products for accurate and reliable measurements.



[CONTACT US](#)