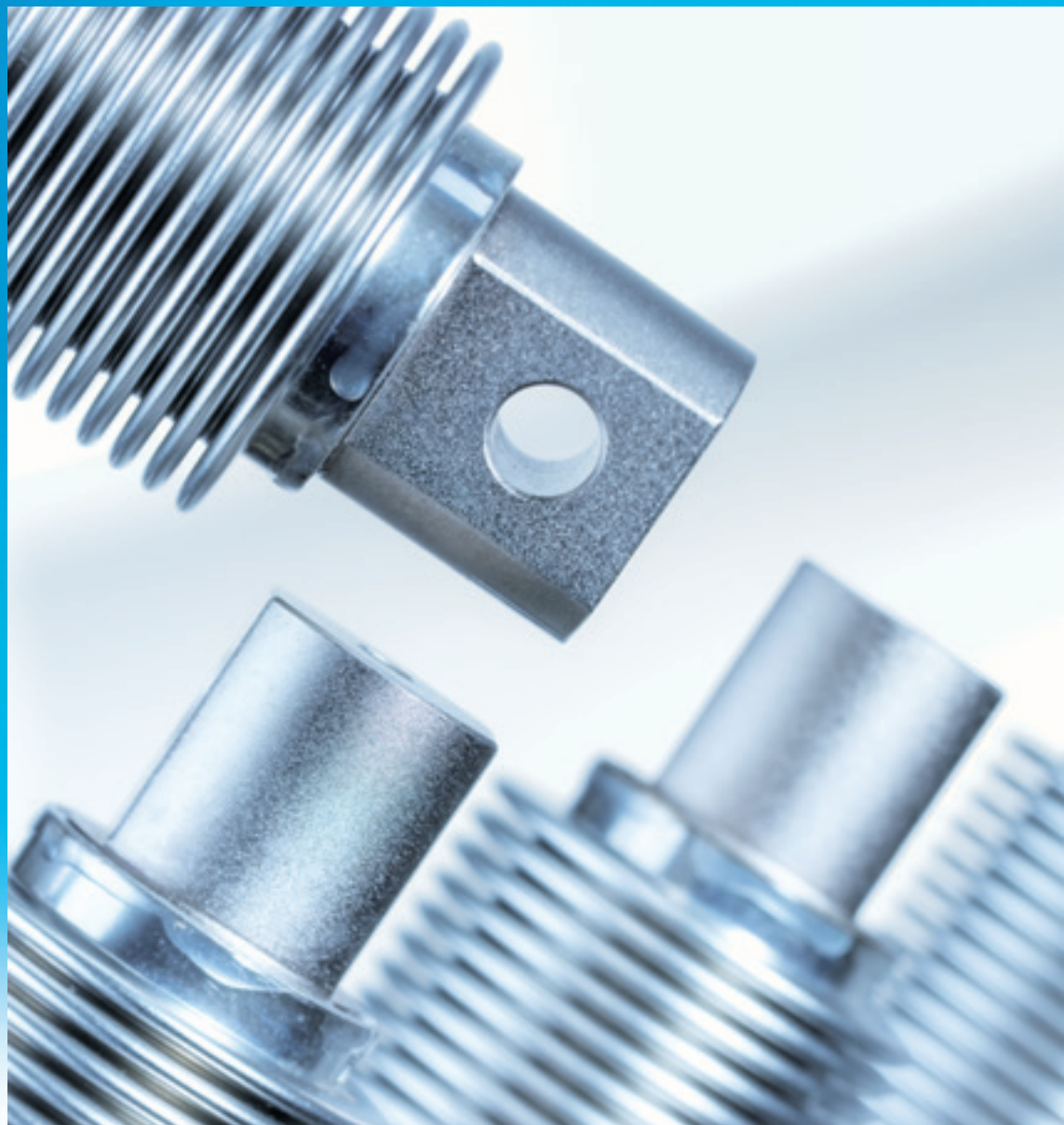# Weighing Components

Weighing Components
Reliability, Performance, Expertise

METTLER TOLEDO

Select the Right Partner
Run a Successful Business

METTLER TOLEDO is a technology leader in precision instruments. The company is the world's largest manufacturer and supplier of weighing instruments and components for use in laboratory, industrial and food retailing applications. METTLER TOLEDO is a truly global company. Its logistics and business processes provide its customers with a multitude of services, wherever they are.

Assembly of a Monobloc Load Cell

METTLER TOLEDO has factories in Switzerland, Germany, UK, USA, Norway, India and China. All load cells with the high-resolution Monobloc technology are manufactured in Switzerland. The assembly of these robust yet extremely sensitive modules requires a significant amount of skilled manual work.

Fully Automatic Strain Gauge Application

Robots affix strain gauges to the metal body inside a clean room. All METTLER TOLEDO factories are equipped with advanced production technologies and apply state-of-the-art methods for production management. They are certified according to ISO9000 and ISO14000.

Testing Laboratories
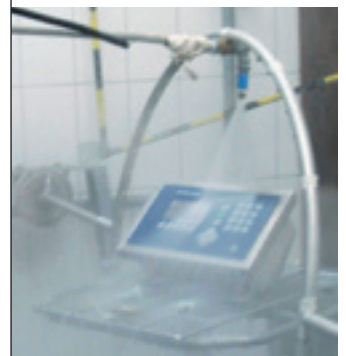
METTLER TOLEDO operates several ISO/IEC 17025 : 2005 accredited test labs, which perform tests according to internationally applicable EN/IEC standards. Static and dynamic loading as well as all kinds of environmental effects such as shocks, vibrations, temperature, water and dust impacts can be simulated.

Integration

The cost of a component is negligible compared to the costs involved in mechanical, electrical and software integration.

METTLER TOLEDO offers more than just components. Our large range of accessories and application terminals enables fast, easy and economical installation to keep your overall costs as low as possible.

Service and Consulting

The successful integration of weighing technology depends on your expertise, but may sometimes benefit from additional know-how, tools, training or skilled hands.

METTLER TOLEDO's factory-trained service staff can supply on-site services and support when and where you need it, from improving performance, through installation and training, right up to validation.

Leader in Technology
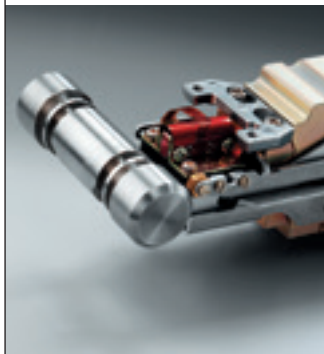
Different applications require different weighing technologies to comply with specifications, the environment or regulations.

METTLER TOLEDO has the right technology for your needs. The unique MonoBloc technology offers very high accuracy, linearity and repeatability. Strain Gauge technology is used in standard applications.

Global Reach

System integrators often depend on local service from their suppliers at the final installation site of their solutions.

METTLER TOLEDO serves customers worldwide. Our sales and service organizations around the globe have experienced and highly qualified specialists, adding value to your solutions and processes.

3

Accurate Weighing for Automation
With a Precision of 1µg

Weight is a key parameter in production and quality control. A reproducible resolution of up to 1 part per 20 million allows detection and measuring of the smallest deviations and quantities. Whether your application requires simple weighing, precise filling, characterization of materials or quality control, METTLER TOLEDO precision weigh modules, sensors and terminals provide reliable weight results for automated processes.

### High-Throughput Filling of Liquids in Small Volumes

High-capacity and high-resolution weigh modules must be able to cope with different types of vials, syringes or ampoules on the same machine.

Accurate Dosing of Solids in Production

Easy cleaning of weigh modules enables a fast change of products for automated dosing and check weighing of solids, powers, granules and pellets.

Laboratory Automation Liquid Handling
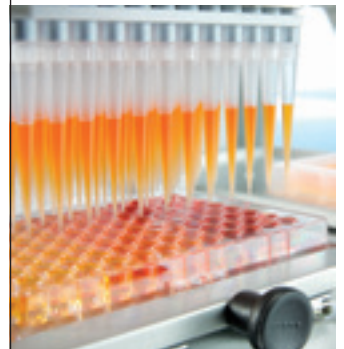
On board weighing enables more accuracy and safety in automated dispensing of liquids for analyses and synthesis. Weighing technology is an efficient and reliable calibration method for pipettes.
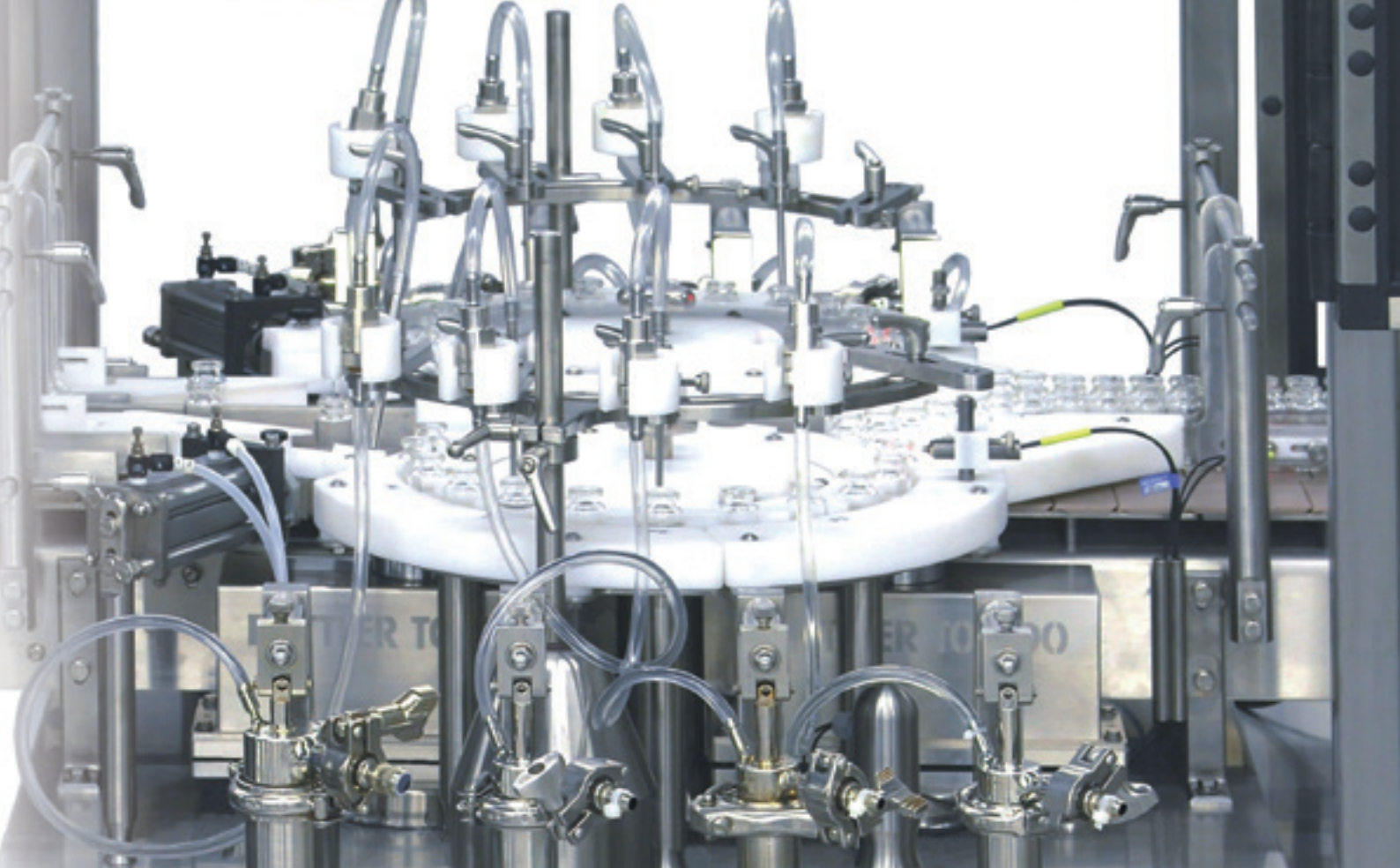
Weighing in Hazardous Environments

Weigh modules with approval for hazardous environments are for automatic filling and quality control for airbag ignitors, amunition, explosive liquides, gases or solids.

Weighing in Hermetically Sealed Environments

Fast and accurate automatic dosing of medicines, drug preparation and handling of toxic or hazardous materials in hermetically sealed sterile environments require weigh modules with stainless steel housing and in-place cleaning features.

Quality Control of Parts, Modules and Kits

Checks for completeness and density of tool-shaped parts and assembled kits such as sinter metal, brake pads, cast parts, molded plastic parts, ball bearings or gear boxes. Weigh modules can detect very small deviations or missing parts.

Quality Control of Electronic Parts

Verification of the correct sealing of integrated circuits. Checking the thickness of coatings on solar wafers, galvanized or painted surfaces. These applications require very high-resolution weigh modules and excellent repeatability.

Seamless Integration
Combined With Greater Efficiency

Liquids, powders, solids, and gases are captured, transported, dispensed, filled, stored, and processed in many different types of containers. Whether bottles, cans, drums, big bags, tanks, hoppers or vessels, there are numerous requirements for integrating weighing technology into automatic processing machines or devices. METTLER TOLEDO's broad product portfolio, with platforms, weigh modules, load cells, transmitters and terminals offers weighing solutions from 1 µg to hundreds of tons.

Packaging and Filling of Bottles, Cans

Parallel arrays of weigh modules require small dimensions and ease of mechanical, electrical and software integration into very compact and complex machines.

Big Volume Filling

Robust and accurate weighing technology is required for the automated filling of drums, big bags and IBC to avoid expensive overfill. Compliance with regulations is required in order to fill solids and liquids in hazardous environments.

Logistics, Warehouses and Airports

Specially designed weigh modules for conveyors in warehouses and airport logistic centers absorb strong lateral shocks from moving parcels, palettes and containers. Terminals with dedicated software for in-motion weighing process correct weight results.
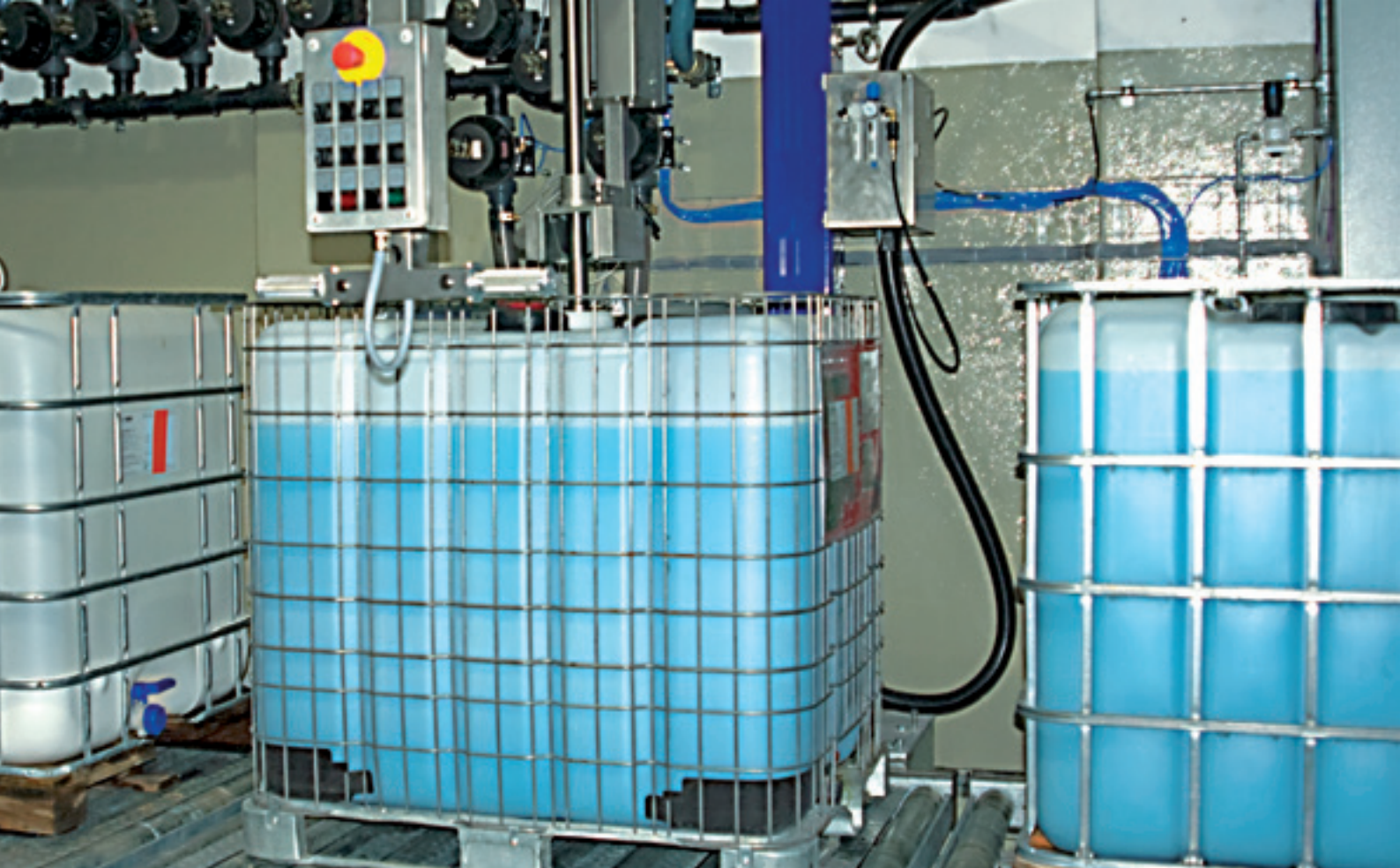
Courtesy BASF-CC

Metal Production, Casting and Scrap Handling

Outdoor batching of scrap metal in winter and the weighing of red hot steel beams radiating extreme heat are a reality for weigh modules and terminals. Accurate weighing in such environments is still possible with the right equipment.

Bulk Material Conveying and Handling

Conveyors covering a long distance are often exposed to harsh weather, dust and temperature changes. Access to weighing technology for service is difficult. Reliable and rugged weighing technology has to guarantee the uptime of large process plants.

Concrete and Asphalt Batching

Weighing technology for concrete and asphalt batching has to withstand dust, humidity, vibrations, heat and temperature changes and provide reliable weight values during the whole lifetime.

Tanks, Vessels and Hoppers

Dosing, mixing, batching or inventory control with outdoor tanks, silos, hoppers and vessels is heavy duty for weighing technology. The weighing equipment must be able to withstand high forces from the effects of mixers, wind and earthquakes.

Tailor-made for Automation
Easy to Integrate

Weigh modules with the electro magnetic force restoration technology from METTLER TOLEDO offer the highest levels of linearity, repeatability and speed. They are tailored to the needs of machine and equipment manufacturers for simple electrical and mechanical integration. The proven ruggedness allows reliable operation for many years in an industrial environment. They are the perfect solution for high-precision weighing in automation.

	WMC	**WMS**	**WXS**
	Ultra-compact design with a width of 25mm. This allows integration of high-resolution weighing where space is limited.	Slim weigh module with high weighing capacity and adaptable platform offers highest flexibility. ATEX approval for Zone 2.	Highest precision and accuracy for automated weighing in industrial environments. Top model with readability of 1 µg up to 21 g.
Capacity	10 g – 20 g	120 g – 6100 g	21 g – 220 g
Readability	0.01 mg – 0.1 mg	0.1 mg – 10 mg	0.001 mg – 0.1 mg
Features		Models with and without internal calibration weight	Incorporated calibration weight. Optional terminal
Interface	RS232, Ethernet and Fieldbus as option	RS232 and RS422, Fieldbus as option	RS232, Ethernet and Fieldbus as option
Material	Stainless steel	Stainless steel	Stainless steel
		IP54 protection. Wash-down option with IP66 protection.	
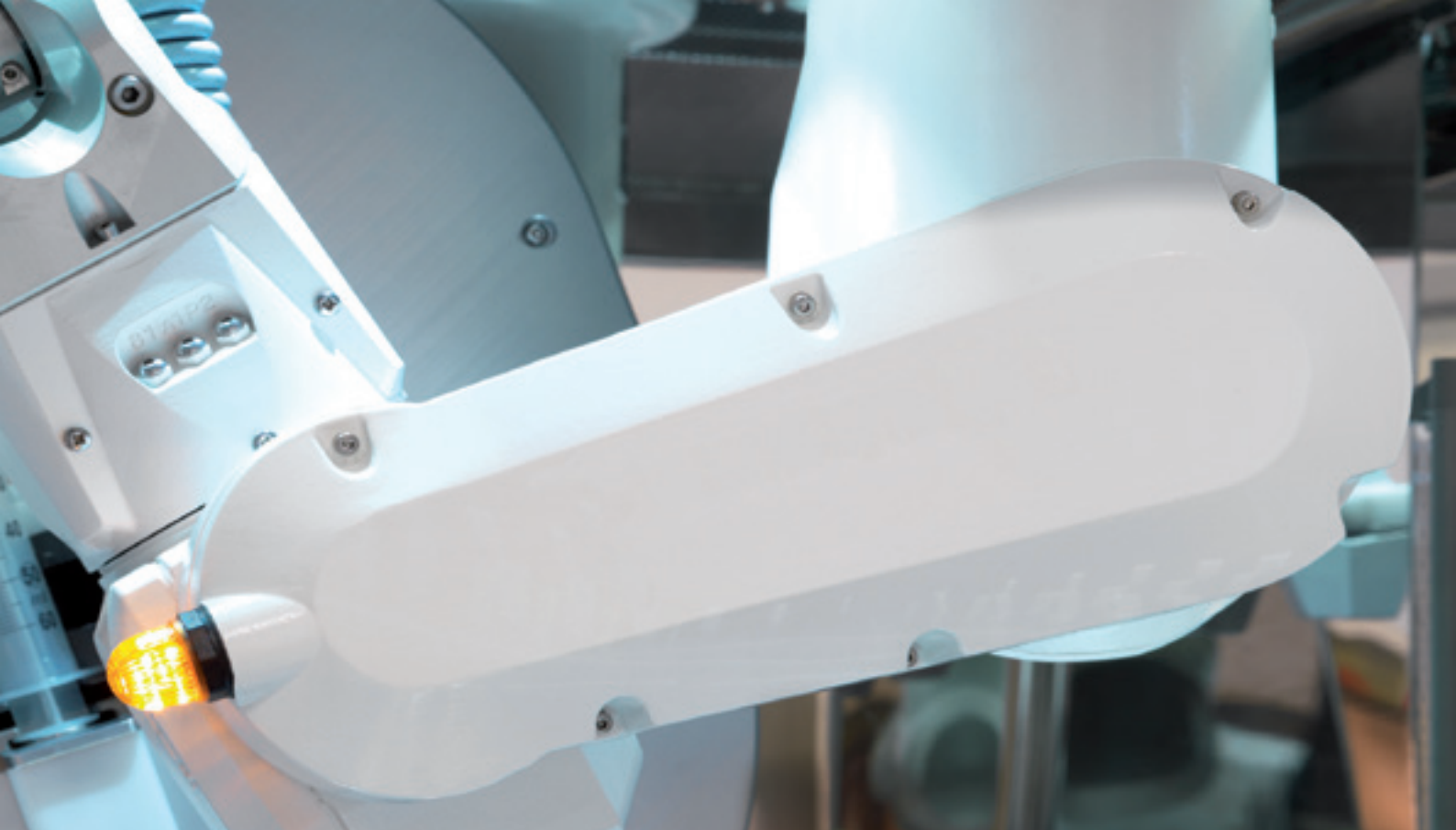
WM-Ex ⟨Ex⟩

Rugged weigh module successfully used for numerous automated applications in hazardous areas.

121 g – 6100 g

0.1 mg – 10 mg

Incorporated calibration weight

RS232 or RS422, Fieldbus as option

Stainless steel

With ATEX, CSA and FM approval. IP44 protection. Wash-down option with IP66 protection.

WMH / WMH-Ex ⟨Ex⟩

High-precision and high-capacity weigh platform for direct connectivity to control systems.

15 kg – 3000 kg

0.1 g – 50 g

Incorporated calibration weight for load cell

RS232 and RS422, Fieldbus as option

Stainless steel, hot galvanized or enameled

With ATEX and FM approval. IP66/67 protection.

Fieldbus Modules

For direct integration of all high-precision weigh modules into your control system.

Profibus® DP

Profinet® IO

EtherNet/IP™

DeviceNet™

CC-Link

Connection Modules

Devices for economical and convenient installation in control cabinets

ConBlock:
To connect WMS. With 3 digital inputs, 3 digital outputs. DIN rail mounting. IP65 protection as option

ConModule:
To connect WMH. With 3 digital inputs, 3 digital outputs. DIN rail mounting.

ConBox:
To connect WMS and WMH. In aluminum die cast housing with IP68 protection.

▶www.mt.com/APW

Preserve Accuracy
To Reduce Downtime

The weighing of tanks, vessels or conveyors is heavy duty for weigh technology, which must be able to withstand vibrations, aggressive raw materials, wind forces, temperature fluctuations and torques fr mixers. The very robust weigh modules cope with those impacts and preserve fast weighing and accurate results for a long lifetime.

SWB505 MultiMount™ ⟨Ex⟩	SWB605 PowerMount™ ⟨Ex⟩	0970 RingMount™ ⟨Ex⟩	SWC515 PinMount™ PDX® ⟨Ex⟩
Multi-purpose weighing with self restoring RockerPin. With SafeLock™ for efficient and safe installation.	POWERCELL® technology providing predictive maintenance and no-junction-box cable connections. Assures reliable production and fast fixing of problems.	Extremely low profile. For use in sanitary and wash-down environments.	POWERCELL® technology providing predictive maintenance and no-junction-box cable connections. Assures reliable production and fast fixing of problems.
5kg - 4400 kg	220kg - 4400 kg	250 kg – 10 t	20 t – 90 t
OIML C3/C6, NTEP 5K/10K, IP68, ATEX Zones 1/21, 2/22, FM approval	OIML C3/C6/C10, NTEP 5K/10K, IP68, ATEX Zones 2/22, FM approval	OIML C3/C6, NTEP 5K/ IIILM10K, IP68, ATEX Zones 1/21, 2/22, FM approval	OIML C3, NTEP IIILM10K, IP68, ATEX Zones 2/22, FM approval
Conveyors, tanks, vessels, hoppers, mixers, customized scales	Weighing equipment where failures would create significant follow up costs.	High-accuracy tank weighing, conveyors, applications with hygienic requirements	Weighing equipment where failures would create significant follow up costs.
Zinc plated or 304/316 stainless steel mounting hardware	Zinc plated or 304/316 stainless steel mounting hardware	316 stainless steel	Plated steel or 304 stainless

Courtesy Procter & Gamble

SWC515 PinMount™ ⟨Ex⟩
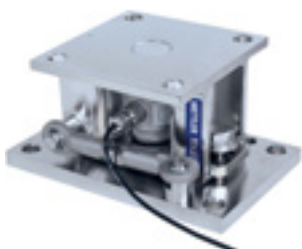
Multi-purpose weighing with high levels of safety. All safety-related fixtures are present in duplicate. Stabilizers as option.

7.5 t – 100 t

OIML C3/C4, NTEP 6K/IIILM10K, IP68, ATEX Zones 0/20, 1/21, 2/22, FM approval

Tank weighing, silos, conveyors, mixers, applications with high lateral forces.

Plated steel, 304, 316 stainless steel

3390 GageMount™ ⟨Ex⟩

Heavy capacity weigh module for extremely heavy loads in compact design. Stabilizer for tank fixing.

200 t – 300 t

IP68, ATEX Zones 1/12, 2/22, FM approval

Silos, storage tanks

Plated steel, 304 stainless steel

SWS310-SLS510 ⟨Ex⟩

Designed for suspended weighing. Load cell protection by means of isolation and ground loop.

50 kg – 10 t

OIML C3, NTEP 5K, IP67, ATEX Zones 0/2, 20/22, FM approval

Suspended hoppers and vessels.

Stainless steel load cell. Suspension plated steel.

Accessories
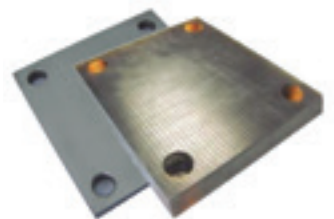
The extensive range of accessories for weigh modules allow for correct installation in harmful environmental conditions to increase lifetime and performance.

Thermal pads for hot tanks from 82 °C to 170 °C.

Damping pads isolate from shock loads and vibration

Dead stands and dummy load cells protect equipment in the installation phase.

Spacer plates allow for load cells to be exchanged without tank lifting – crucial when fixed piping needed.

▶ **www.mt.com/ind-compression-weigh-modules**

High Level of Accuracy
With Global Approvals

**METTLER TOLEDO is the world's largest consumer and a leading manufacturer of quality load cells. Our reliable load cells are at the heart of our success as a manufacturer of complete scales.
We offer load cells for all globally required approvals and standards.**

Steel Beam Load Cells Ex	**Canister Load Cells** Ex	**S-Type Load Cells** Ex

Steel Beam Load Cells Ex

Fully welded stainless steel load cells to withstand harsh industrial environments.

MTB:
Stainless steel, IP68,
5 kg – 500 kg
OIML, NTEP, ATEX,
FM approval.

0745A:
Stainless steel, IP68/67,
110 kg – 4.4 t
OIML, NTEP, ATEX, FM
approval.

0745A:
Stainless steel, IP68,
9 t – 20.4 t
OIML, NTEP, ATEX,
FM approval.

Canister Load Cells Ex

Most compact high-capacity solution for outdoor applications such as truck, railroad and tank scales

SLC610:
Stainless steel, IP68,
7.5 t – 22.5 t
OIML, ATEX, FM approval.
OIML C4 approval as option.

0782:
Stainless steel, IP68,
20 t – 300 t
OIML, ATEX, FM approval.
Load receivers as option.

S-Type Load Cells Ex

Used to convert suspended hoppers or other hanging devices into a weighing system.

SLS410:
Nickel plated steel, IP67,
50 kg – 7.5 t

SLS510:
Stainless steel, IP67,
50 kg – 10 t
OIML, ATEX, FM approvals.
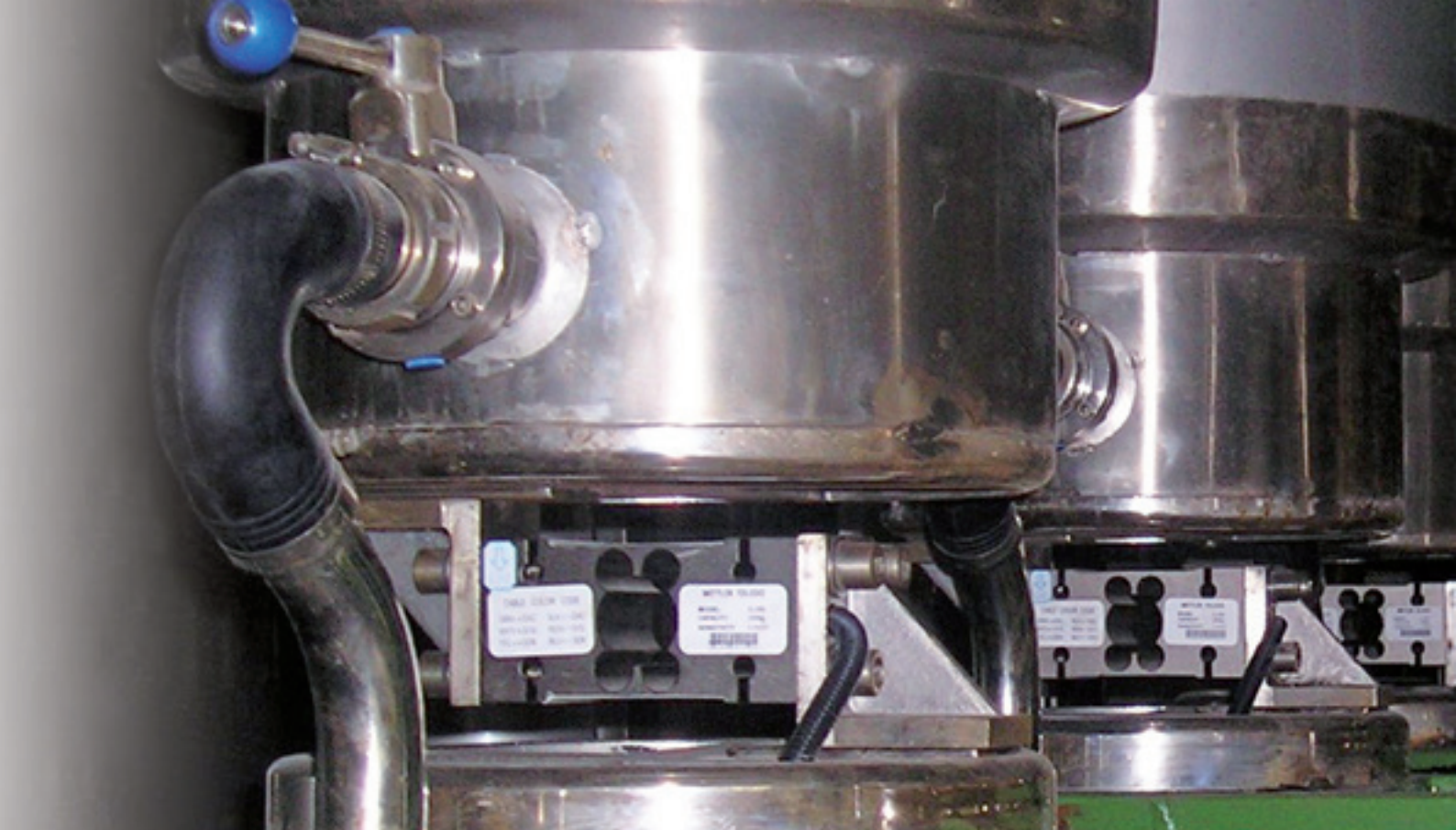
Aluminum Single Point Load Cells ⟨Ex⟩

To build scales with one load cell only.

MT1022:
Aluminum, IP67, 3 kg – 30 kg OIML. For platforms up to 350 x 350 mm.

MT1041:
Aluminum, IP67, 10 kg – 100 kg OIML. For platforms up to 400 x 400 mm.

MT1241:
Aluminum, IP67, 30 kg – 250 kg OIML. For platforms up to 400 x 400 mm.

MT1260:
Aluminum, IP67, 50 kg – 750 kg OIML. For platforms up to 600 x 600 mm.

Steel Single Point Load Cells

To build scales with one load cell only.

SSH:
Stainless steel, IP68 protection. 150 kg - 2000 kg (331 lb - 4408 lb) For platforms up to 800 x 1000 mm.

IL:
Nickel-plated stainless steel with IP67 protection. 50 kg - 1000 kg (110 lb - 2205 lb), 3 000e OIML. For platforms up to 800 x 1000 mm.

SLP845:
Hermetically sealed IP68/ IP69K, stainless steel load cell 15 kg - 200 kg (32lb - 440lb) OIML, NTEP, ATEX, FM For platforms up to 500 x 400 mm

Junction Boxes ⟨Ex⟩

Junction boxes are suitable for the quick and simple connection of multiple load cells to weighing electronics. The integrated rotary switches allow corner errors to be minimized by simply adjusting them with a screwdriver - no soldering or separate resistors are necessary.

The IP65/69k stainless steel housing provides optimum reliability.

Available with ATEX approval.

Accessories

For easy integration into customized solutions and to adapt to environmental disturbances such as vibrations. Accessories also ensure the correct application of force in the load cell, thus guaranteeing an accurate weighing result.

EK: Expansion Kit and ball/ cup load transmissions for ideal load transmission.

EVK: Expansion Vibration Kit for ideal load transmission and vibration damping.

BPK: Base Plate Kit for fixing load cells to a sturdy foundation, such as concrete.

▶**www.mt.com/load-cells**

User-Friendly Terminals and Transmitters
for Manual and Automated Processes

METTLER TOLEDO offers a wide range of industrial weighing terminals and weight transmitters to meet the needs of almost any industry and any application. They range from terminals for simple weighing applications to advanced controllers that are able to store data, operate peripheral equipment and communicate with computers or PLC systems.

	ISB(x) **Intrinsic Safety** **Barrier**	**IND110** **Weight Transmitter**	**IND131** **Process** **Transmitters**
	Connects an analog load cell in the hazardous area to a terminal in the safe area. The ISB limits the energy delivered into the hazardous area to prevent ignition of a potentially explosive atmosphere.	Provides an economical way to connect an analog strain gauge scale or weigh module via 4-20mA to process control equipment.	Available in DIN rail mount and Junction Box configurations in AC and DC versions. Support for up to 8 analog load cells on AC units and up to 4 analog load cells on DC units.
Resolution, Approvals	– Operating voltage 0-5VDC or 5-15VDC	4000 d	100 000 divisions, OIML Class III 6000 e, MID approval NTEP Class III/IIIL 10 000 d
Material	Available for DIN rail mounting: for safe areas in plastic, for hazardous areas in aluminum housing, NEMA Type 7/9	Plastic , IP20, NEMA Type 1 for DIN rail or in stainless steel housing IP65, type 4 x	DIN rail plastic IP20 Type 1.
Interfaces		4-20 mA	4-20 mA, AB RIO, DeviceNet™, Profibus® DP, ControlNet™, EtherNet/IP™, Modbus® TCP, CC-Link, serial

IND131
Process Terminal in Junction-Box

Available in DIN rail mount and Junction Box configurations in AC and DC versions. Support for up to 8 analog load cells on AC units and up to 4 analog load cells on DC units.

100 000 divisions,
OIML Class III 6000 e,
MID approval
NTEP Class III/IIIL 10 000 d

Stainless steel, IP69k,

4-20 mA, AB RIO,
DeviceNet™, Profibus® DP,
ControlNet™, EtherNet/IP™,
Modbus® TCP, CC-Link, serial

IND331
Process Terminal

All you get from an IND131. Available in Harsh and Panel mount configurations in AC and DC versions. The panel mount configuration supports remote installation of display.

100 000 divisions,
OIML Class III 6000 e,
MID approval
NTEP Class III/IIIL 10 000 d

Stainless steel, IP65, NEMA Type 4 x and 12 (panel front) IP66 (harsh)

4-20 mA, AB RIO,
DeviceNet™, Profibus® DP,
ControlNet™, EtherNet/IP™,
Modbus® TCP, CC-Link, serial

IND560
Process and Conveyor Terminal

Dedicated software for process weighing, dosing, filling and in-motion weighing in conveyors.

100 000 divisions,
OIML Class II/III 10 000e,
MID Approval
NTEP Class III/IIIL 10 000d,
NTEP Class II 100 000d

Stainless steel, IP65, NEMA Type 4x and 12 for panel-mount model, IP69k, Type 4x and 12 for harsh model

4-20 mA/0-10V, AB RIO,
DeviceNet™, Profibus® DP,
EtherNet/IP™, Modbus® TCP,
Ethernet TCP/IP, serial

IND780
High End Process Terminal

Controls up to 4 scales with ultrafast A/D conversion and I/O update rate. Colored TFT LCD display. Application software for batching, material transfer, vehicle weighing.

1 000 000 divisions, OIML Class II 100 000d (depending on platform), MID Approval, OIML Class III, IIII 10 000e, NTEP Class III/IIIL 10 000d, NTEP Class II 100 000d

Stainless steel, IP65/Type 4x and 12 for panel-mount model. IP69k for harsh model

4-20 mA, AB RIO,
DeviceNet™, ControlNet™,
Profibus® DP, Ethernet/IP™,
Ethernet TCP/IP, USB,
Modbus® TCP, serial

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www.mt.com

For more information