

SIEMENS



Weighing technology

Weighing and feeding guide

Complete solutions for a world of weighing applications

[siemens.com/weighing](https://www.siemens.com/weighing)

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Complete solutions for all your weighing requirements

In the field of process automation, Siemens offers an extensive range of weighing products. In today's competitive environment, reliable, accurate, and dependable weighing and feeding equipment from Siemens helps your profitability. Whether your application is crushed stone, ore, cement, coal, food processing, or chemicals, you can profit from our field-proven load cells, conveyor belt scales, weighfeeders, solids flowmeters, and integrators. Standard and custom models are available to suit your requirements. Our products are rugged – built for tough operating conditions in the aggregate, cement, and mining industries, but sensitive and reliable enough for the food and chemical industries. They are easy to install and to maintain, and expert technical support is there when you need it.

Weighing and feeding solutions overview



Platform scales

Platform scales are the most common scale in industry. Siemens provides a broad range of load cells and weighing electronics to build cost-effective platform scales.



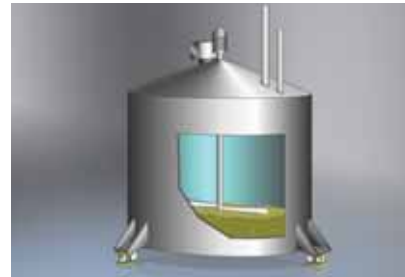
Hopper weighing

Liquids, powders, solids, and gases are stored or produced in a variety of tanks and bins. With Siemens weighing solutions you can measure the level, no matter what kind of material is stored.



Belt scales

Belt scales help maximize the use of raw materials, control inventories, and aid in consistent manufacturing. Siemens scales are suitable to your specific application requirements.



Batch system

Successful, high-quality products depend on precise dosing of ingredients. Siemens high-quality measuring equipment ensures precise dosing.



Filling machines

Filling, sack filling, and big bag machines are used in a wide range of industries. Siemens weighing electronics ensure the filling of solid or liquid goods is completed quickly and accurately.



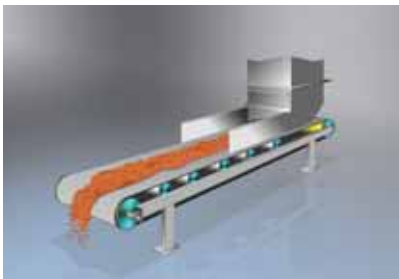
Checkweighing

Checkweighing ensures the correct weight of the product. Siemens electronics provide high functionality of the checkweigher in combination with SIWAREX load cells.



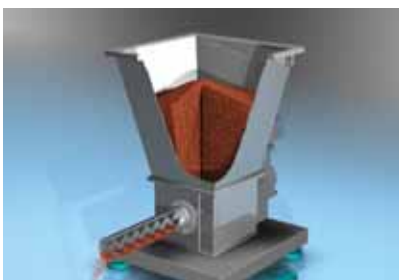
Solids flowmeter

Solids flowmeters from Siemens accurately monitor the rate of material in gravity-fed pipes or chutes for production monitoring or precise recipe control.



Weighfeeder

Weighfeeders control the rate of material into or out of a process. Siemens designs are flexible to meet any customer requirement.



Loss-in-weight

A loss-in-weight system with SIWAREX load cells and electronics can achieve high levels of accuracy in continuous dosing applications.



Whatever your application, it's covered

	Mining, Aggregate, Cement, Steel, Power generation, Pulp and paper					
	Storage/ inventory	Transport	Transport	Crusher	Process	Delivery
	Stacker conveyors for piles or silos	Overland to factory	Process transfer	Fed by belt conveyor	Recipe control	Finished product load-out
Belt scales						
Milltronics MMI	●	●	●		●	●
Milltronics MSI	●	●	●	●	●	●
Milltronics MCS	●	●	●	●	●	●
Milltronics MUS	●	●	●	●	●	●
Milltronics MBS	●	●	●		●	
Milltronics WD600						
Milltronics MLC						
Flowmeters						
SITRANS WF100			●		●	●
SITRANS WF200			●		●	●
SITRANS WF250			●		●	●
SITRANS WF330			●		●	●
SITRANS WF340			●		●	●
SITRANS WF350			●		●	●
Weighfeeders						
SITRANS WW100			●		●	
SITRANS WW200			●		●	
SITRANS WW300			●		●	●

Target applications

Mining



Monitoring throughput in mining production with Milltronics MSI belt scale

Aggregate



Inventory stockpiles on stackers with Milltronics MUS belt scale

Cement



Controlling the rate of raw material with SITRANS WW300 weighfeeder

Steel



Recipe control in sinter process with SITRANS WW300 weighfeeder

Power generation



Train load-out of coal into inventory with Milltronics MMI belt scale

Chemical, Pharmaceutical, Water/wastewater			Food and beverage		
Transport	Process	Delivery	Transport	Process	Delivery
Process transfer	Recipe control	Finished product load-out	Process transfer	Recipe control	Finished product load-out
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
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●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●

● preferred
● condition-dependent

Pulp and paper



Monitoring the rate of chip feeding into digesters with Milltronics MCS belt scale

Chemical



Loss-in-weight feeding with SIWAREX FTC

Pharmaceutical



Bin weighing with SIWAREX load cells

Water/wastewater



Continuous monitoring of sludge removed from wastewater with Milltronics MSI belt scale

Food and beverage



Recipe control with SITRANS WW200 weighfeeder

Siemens belt conveyor weighing – world-class performance

Weighing and controlling the rate of materials on a conveyor belt is one of the most common procedures in process automation. Siemens has more than 35 years of experience weighing bulk materials on conveyors. You will find our reliable equipment in almost any industry.

Belt scales help maximize the use of raw materials, control inventories, and ensure manufacturing is consistent.

Milltronics belt scales from Siemens combine simple drop-in installation, low maintenance (no moving parts), and repeatable accuracy for productive operation. They show minimal hysteresis, superior linearity, and ignore side loading. All designs feature overload protection. With hazardous trade approvals, Milltronics belt scales can be used in almost any industrial environment or application.

Combined with a Milltronics BW100, BW500/L, or BW500 integrator or SIWAREX FTC module, Siemens conveyor belt scales offer field-proven technology for reliable performance. Our products can be calibrated to OIML, MID, NTEP, SABS, and Measurement Canada standards and are certified according to ATEX and CSA, FM, IECEx for use in areas subject to explosion hazards.



A typical belt conveyor scale system is composed of a weighbridge structure supported on load cells, an integrator, and a speed sensor. Siemens has a complete portfolio to suit any application and to deliver industry-leading performance. Siemens also offers a wide selection of calibration accessories and peripheral devices.

Belt scales	
Integrators	
Speed sensors	
Calibration accessories	
Accessories	



Application solution: Siemens NTEP belt scale package keeps custody transfer on track

A major aggregate producer in the USA needed the capability to load rail cars with material from a conveyor belt and create a custody transfer transaction for point of sale. The weighing system required National Type Evaluation Program (NTEP) approval to be declared acceptable for custody transfer certification. Siemens provided an NTEP approved Milltronics MMI-2 belt scale system. The MMI-2 belt scale provides an accuracy of $\pm 0.25\%$ over the totalized range, and has passed laboratory and field testing required for NTEP approval. The package included the Milltronics BW500 integrator and the SITRANS WS300 speed sensor.

For the full story, visit www.siemens.com/weighing



Belt scale application requirements

- Accuracy specification
- Capacity and capacity rate range
- Belt speed and width
- Conveyor idler mounting width
- Conveyor stringer inside width
- Idler diameter, trough angle, and spacing
- Conveyor length (pulley centers)
- Conveyor pulley diameter (for speed sensor mounting)
- Conveyor incline angle

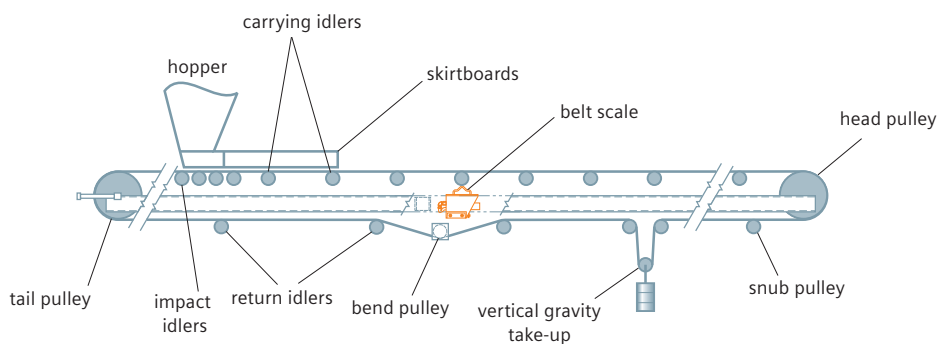
Application information to choose the right options

- Legal for trade requirements
- Hazardous installation requirements
- Scale construction material
- Calibration method

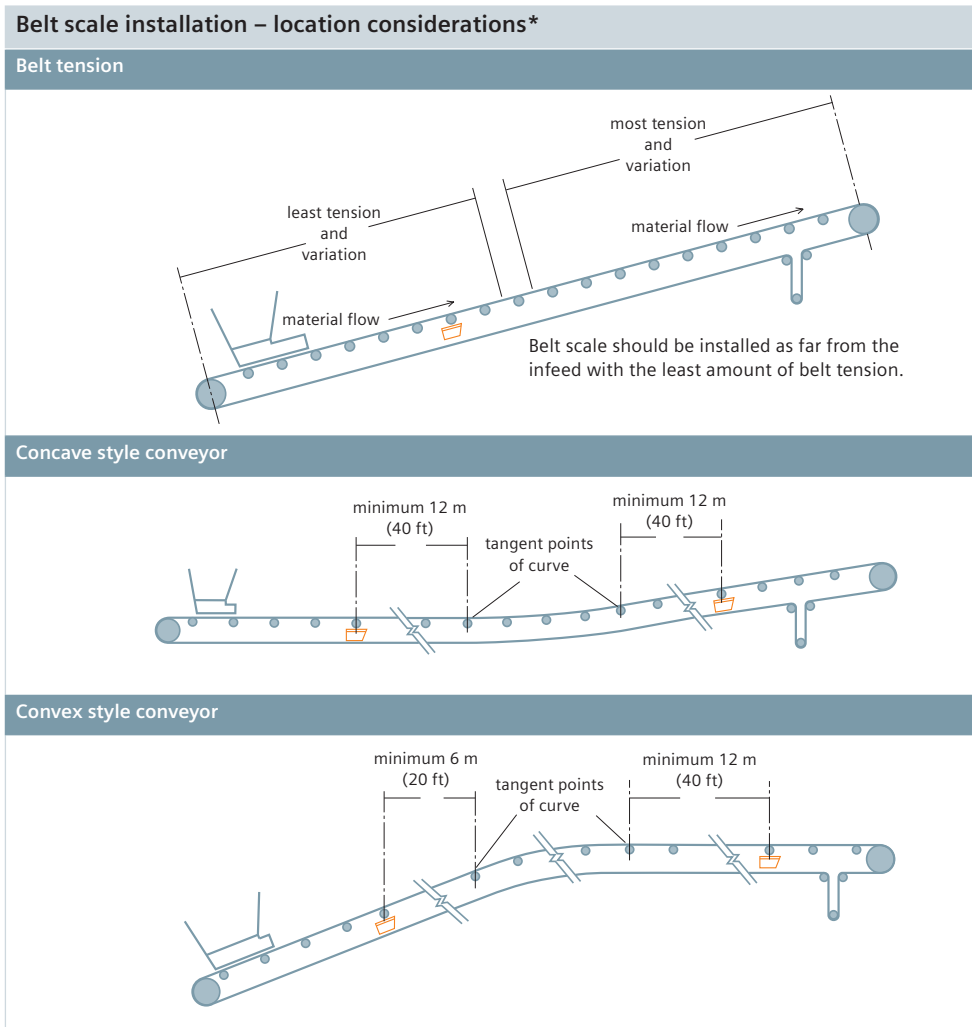
Technology comparison

	Belt scale	Laser/Ultrasonic/ Radar scanner	Optical sensor	Gamma radiation
Typical accuracy	0.5 to 1%	3 to 5%	5%	0.5%
Benefits	<ul style="list-style-type: none"> • Direct measurement of material weight captures changes in bulk density • No moving or rotating parts (Siemens scales) 	<ul style="list-style-type: none"> • Non-contacting technology mounts above conveyor • Changes in belt tension or conveyor do not affect scanning 	<ul style="list-style-type: none"> • Non-contacting technology • Changes in belt tension or conveyor do not affect scanning 	<ul style="list-style-type: none"> • Non-contacting technology • Changes in belt tension or conveyor do not affect scanning
Challenges	<ul style="list-style-type: none"> • Conveyor changes/wear can affect accuracy • Requires repeated re-calibration 	<ul style="list-style-type: none"> • Cannot detect buried pockets in material flow • Changes in bulk density cannot be detected 	<ul style="list-style-type: none"> • Changes in bulk density cannot be detected • Mounts below discharge and is susceptible to damage by material 	<ul style="list-style-type: none"> • End user needs special training for use and calibration • Site must be certified for use with radiation equipment

Belt conveyor terminology



Optimizing your belt scale



Suitable belt scale idlers			Belt considerations
Flat conveyor idler	Troughed conveyor idler	Offset conveyor idler**	Belt too stiff
V-Roll (2 Roll) conveyor idler	Catenary idler	Wire rope conveyor idler	Good belt flexion

*These positions are ideal. For geometry outside these guidelines, please contact Siemens technical support.

**Acceptable in some applications.



Whether your bulk solids conveyor application is ...

- Maximizing use of raw materials
- Controlling inventories
- Controlling manufacturing of product
- Quality control – process control by weighing
- Legal for trade operations
- Transportation load-out recording
- Tracking production totals
- Controlling feed rates
- Monitoring transfer rates between processes

... Siemens has the right belt scale for you.

Siemens belt scales – the first choice for weighing systems

Choosing the best belt scale for your application depends on the type of material weighed, conveyor design, rate range, space limitations, and accuracy required. All Milltronics belt scales require very little maintenance and are fast and easy to install and calibrate. They have no moving parts, include corrosion-resistant load cells, and are designed for 150% of rated capacity and 300% of ultimate load cell capacity. Siemens representatives are with you every step of the way to ensure the best fit for your application.

Milltronics MSI belt scale – unparalleled performance

Milltronics MSI features simple, proven construction and the most effective load cell technology. It provides instant response to loading and overload protection to 300%. Milltronics MSI is so structurally sound that it can be applied to the most demanding applications. Drop-in installation makes alignment simple and economical. Milltronics MSI is the easiest belt scale on the market to install and maintain.

Using two or more MSI belt scales in tandem creates the Milltronics MMI system, providing the advantages of the MSI and the benefit of additional weighing idlers. This creates a superior multi-idler belt scale system. Use the MMI-2 for $\pm 0.25\%$ accuracy applications, or the MMI-3 for accuracy up to

$\pm 0.125\%$ with Milltronics BW500 or SIWAREX FTC integrators. The MSI and MMI belt scales can be installed without the use of cranes or other high-cost resources, making them cost-effective for the most challenging accuracy requirements.








Milltronics MSI/MMI, combined with a Milltronics BW500 integrator and a speed sensor, has many trade approval certificates. Milltronics MSI/MMI offers outstanding accuracy and repeatability meeting strict requirements for weights and measures applications globally.

The MSI belt scale's combination of accuracy, ease of installation, commissioning, and maintenance are unparalleled in today's industrial world. Milltronics weighing equipment from Siemens offers accuracy and durability in a cost-effective package.

Benefits of Milltronics belt scales

- Rugged, corrosion-resistant load cells for all types of applications
- Patented electronic load cell balancing
- No moving parts for safe operation and limited maintenance requirements
- Compact construction types
- Hazardous area approvals
- Easy to install and calibrate
- Custody transfer approvals



	Food and light-duty industry		Medium-duty industry			Heavy-duty industry	
	Milltronics MLC	Milltronics WD600	Milltronics MBS	Milltronics MUS	Milltronics MCS	Milltronics MSI	Milltronics MMI
							
Order No.	7MH7126	7MH7185	7MH7121	7MH7123	7MH7125	7MH7122	7MH7122
Typical industries	Animal feed, fertilizers, food processing, tobacco	Food, pharmaceutical, tobacco	Aggregate, gravel, animal feed, minerals	Aggregate, agriculture, mining, steel, chemicals	Aggregate, gravel, retrofitting	Cement, chemicals, coal, food processing, mineral processing, mining	Cement, chemicals, coal, food processing, mineral processing, custody transfer
Typical applications	Secondary industries	Process and load-out control, light- to medium-duty	Aggregates, medium-duty	Aggregates, medium- to heavy-duty	Mobile crushers, aggregates, weighfeeder retrofits	Industrial heavy-duty, for process and load-out control	Heavy-duty, multiple idler for process and load-out control
Accuracy*	±0.5 to 1%	±0.5 to 1%	±1%	±0.5 to 1%	±0.5 to 1%	±0.5% or better	MMI-2: ±0.25% MMI-3: ±0.125%
Specified range	25 to 100%	25 to 100%	33 to 100%	25 to 100%	25 to 100%	20 to 100%	MMI-2: 20 to 100% MMI-3: 25 to 100%
Belt speed max.*	2 m/s (400 fpm)	2 m/s (400 fpm)	3 m/s (600 fpm)	3 m/s (600 fpm)	4 m/s (800 fpm)	5 m/s (1000 fpm)	5 m/s (1000 fpm)
Capacity max.	50 t/h (55 STPH)	100 t/h (110 STPH)	1500 t/h (1650 STPH)	5000 t/h (5500 STPH)	2400 t/h (2640 STPH)	12000 t/h (13200 STPH)	12000 t/h (13200 STPH)
Approvals	CE, C-TICK	CE, C-TICK, meets FDA/USDA requirements for food processing	CE, C-TICK	CE, C-TICK, GOST	CE, C-TICK, GOST, ATEX, CSA, FM, IECEx	CE, C-TICK, GOST, SABS, Measurement Canada, OIML, MID, ATEX, IECEx, CSA, FM	CE, C-TICK, GOST, NTEP, Measurement Canada, OIML, MID, ATEX, IECEx, CSA, FM

*Accuracy subject to the following: on factory approved installations the belt scale system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt or at least ten minutes running time, whichever is greater.



State-of-the-art communication with Siemens integrators

Milltronics integrators from Siemens incorporate patented electronic load cell balancing to perform basic and sophisticated measurement and flow control functions. Milltronics integrators display primary speed and load values, as well as derived values of rate and total on the LCD, or output the information as analog mA output, alarm relay, or remote totalizer. SIWAREX weighing modules are designed for direct integration into a SIMATIC automation system.

	Milltronics BW100	Milltronics BW500/L	Milltronics BW500	SIWAREX FTC
Order No.	7MH7150	7MH7152	7MH7152	7MH4900
Compatibility	Milltronics MLC, MBS, MUS, MCS, MSI, and WD600		Milltronics MLC, MBS, MUS, MCS, MSI, MMI, and WD600	
Display output	Rate, totalized weight, belt loading, belt speed	Rate, totalized weight, belt loading, belt speed	Rate, totalized weight, belt loading, belt speed, PID, batching	Available through SIMATIC PCS 7 displays
Analog output	Optically isolated 4 to 20 mA scalable, selectable for rate, load, or speed	Optically isolated 4 to 20 mA scalable, selectable for rate, load, or speed	Optically isolated 4 to 20 mA scalable, selectable for rate, load, or speed	Optically isolated 4 to 20 mA
Remote totalizer	Two adjustable pulsed outputs	Two adjustable pulsed outputs	Two adjustable pulsed outputs	Two of eight adjustable outputs can be programmed
Alarm relay	One programmable SPDT Form C contact rated 5A at 250 V AC non-inductive	Two programmable SPST Form A contacts rated 5A at 250 V AC non-inductive, reversible	Five programmable SPST Form A contacts rated 5A at 250 V AC non-inductive, reversible	With programmable digital outputs
Power requirements	100/115/200/230 V AC $\pm 15\%$ 50/60 Hz, 15 VA; optional, 12 V DC and 24 V DC	100/115/200/230 V AC $\pm 15\%$ 50/60 Hz, 31 VA	100/115/200/230 V AC $\pm 15\%$ 50/60 Hz, 31 VA	24 V DC, 500 mA
Approvals	CSA _{NRTL/C} , FM, CE, C-TICK, GOST	CSA _{NRTL/C} , FM, CE, C-TICK, GOST	CSA _{NRTL/C} , FM, CE, C-TICK, GOST, NTEP, OIML, MID, Measurement Canada	CE, FM, _{cUL-us} , _{cUL-us} for hazardous locations, Ex zone 2, Ex zone 1 optional (with SIWAREX IS)
Options		PROFIBUS DP, Allen-Bradley Remote I/O (AB RIO), DeviceNet industrial communication options	Two additional analog inputs; two outputs programmable for PID control, PROFIBUS DP, AB RIO, DeviceNet, industrial communication options	Ex Zone 1 Approval (with SIWAREX IS)






Application solution: high accuracy with Milltronics MSI

A major UK aggregates producer dispatches 5,000 tonnes of finished product daily at its flagship location. About 3,000 tonnes are loaded into railway cars with another 2,000 transported by truck. The loads must be accurately weighed to ensure maximum permissible weight without exceeding the limit. Underloading is inefficient and increases transportation costs. Overloading is expensive and time consuming as excess material must be unloaded and is often unrecoverable. A Milltronics MSI belt scale is installed on each conveyor. The MSI scales are connected to Milltronics BW500 integrators, which indicate flow rate, total weight, belt load, and belt speed. A speed sensor monitors conveyor belt speed for input to the integrator. Based on the overall accuracy of the Milltronics MSI scale system, direct loading of railcars is now possible. The company added a second MSI scale to create a multiple idler system (MMI) for even greater accuracy. At this site, the company now has more than 20 Siemens belt scales for inventory management and control.

For the full story, visit www.siemens.com/weighing

Siemens speed sensors

Speed sensors play a key role in any belt scale measurement system – the overall system accuracy depends on a consistent speed signal. Siemens offers high resolution shaft-driven and belt-driven speed sensors that are easy and economical to install and provide reliable and accurate signals.

	Milltronics TASS	Milltronics RBSS	SITRANS WS100	SITRANS WS300
				
Order No.	7MH7131	7MH7134	7MH7176	7MH7177
Type	Compact, low-profile, wheel-driven return belt speed sensor	High resolution, wheel-driven return belt speed sensor	Compact medium-resolution, pulley shaft-driven belt speed sensor with magnetic mounting	Compact low to high resolution, pulley shaft-driven speed sensor
Applications	Mobile crushers and constricted spaces	Aggregate, cement, mineral belt conveyors	Aggregate, mineral processing, recycling industries	Aggregate, mineral, chemical, cement, and food
Benefits	<ul style="list-style-type: none"> • Rugged design • Easy, low cost installation • Compact, low-profile • IP67 rated 	<ul style="list-style-type: none"> • Rugged design • Easy, low cost installation • Accurate results • IP67 rated • Intrinsically Safe (IS) version available* 	<ul style="list-style-type: none"> • Small, lightweight • Good resolution for accurate measurement, suitable for varying shaft speeds • Long bearing life • Intrinsically Safe (IS) version available* 	<ul style="list-style-type: none"> • Rugged design • Small, lightweight • Long bearing life • IP65 rated • Intrinsically Safe (IS) version available*
Power	10 to 35 V DC, 15 mA at 24 V DC maximum	Standard: 4.5 to 28 V DC, 16 mA; IS: 5 to 25 V DC	Standard: 4.5 to 28 V DC, 16 mA; IS: 5 to 25 V DC	10 to 30 V DC, 25 mA at 24 V DC maximum
Approvals	CE, C-TICK	Standard: CE, C-TICK IS: ATEX, CSA/FM, CE, C-TICK	Standard: CE, C-TICK IS: CE, ATEX, CSA/FM, C-TICK	Standard and IS: CE, C-TICK, CSA, FM, ATEX, IECEx

*Pepperl+Fuchs switch isolator required to interface with integrator.

Siemens belt scale accessories – calibration made easy

Siemens provides a full range of mechanical calibration aids and installation accessories. For optimally calibrating your belt scales, Siemens offers the specific products you need.

Belt scale accessories help ensure effective stock control, reduce transaction costs, and protect assets. Mechanical calibration aids such as hoisting systems are used for test weights and calibration chains.

As well, bend pulleys are available as installation aids when required by the application.

Siemens belt scale accessories complete the package – with everything needed for the whole range of belt scale-related tasks.

With OIML, MID, NTEP, Measurement Canada, or SABS certification, you can count on reliable information and accurate measurement.





	Milltronics MWL weight lifter	Milltronics test chains	Test chain storage reels
			
Order No.	7MH7218	7MH7161	7MH7163
Description	Calibration weight lifter for use with MSI, MMI, MUS, MBS, and MCS belt scales. MWL safely applies and stores calibration test weights for belt loading simulation.	Calibration test chains for dynamic belt loading simulation for Milltronics belt scales. All test chains are bushed and minimum length is 1.2 m (4 ft).	Calibration test chain storage reels for motor driven chain application and storage. All test chain storage reels come with a geared brake motor.
Benefits	<ul style="list-style-type: none"> • Safe and easy application of belt scale reference weights with the operator remaining away from the conveyor • Modular construction, easily adaptable to different conveyor widths • Low profile allowing easy fit into belt conveyor • Easy-to-store drive handle that can be applied to left or right side of MWL or motorized option • Security pin to ensure safe storage of weight 	<ul style="list-style-type: none"> • Simulates dynamic scale loading of a known weight value, thus supplying the calibration reference • A greater test load can be applied to high capacity belt scales and weighfeeders because most weighbridge designs can only accommodate a limited number of static weights. • High capacity test loading is especially important on systems using mechanical weighing elements and lever systems because they calibrate the systems with test load values close to normal operating loads. 	<ul style="list-style-type: none"> • Electronically apply and retract calibration test chains • Important when high capacity test chains are used to calibrate mechanical belt scales • An electronic geared brake motor rolls the chain onto the belt and over the weigh length. The brake will hold the chain in storage if power fails to the motor. • Available in multiple compartment styles to simulate different loading conditions





Application solution: keeping production totals on track

An aggregate plant in Asia, using a Milltronics MSI belt scale to monitor production totals, needed to ensure accuracy of the totals. The conveyor is 76.2 cm (30") wide and carries 250 tph (275 STPH). They added a Milltronics MWL for span calibrations to guarantee consistency and accuracy. Not having to apply and remove a number of weights for calibrations equalled less downtime and came with added safety for the operator. The benefits of using the Milltronics MWL were guaranteed production totals and fast, easy, and safe calibration.

For the full story, visit www.siemens.com/weighing



	Chart recorder	Ticket printer	Roll printer	Remote totalizer
				
Order No.	7MH77261AL	7MH77261AK	7MH77261AT	7MH77231GG
Benefits	<ul style="list-style-type: none"> Track physical data for production totals Two alarms: high/low Alarms when 100% of set rate is exceeded or for below 20% of set rate Displays production total during power failure 	Prints totals to produce production records to meet the standards of approval agencies	For continuous printing of totals to produce production records to meet the standards of approval agencies	<ul style="list-style-type: none"> Two alarms: high/low Alarms when 100% of set rate is exceeded or for below 20% of set rate Displays production total during power failure

	Panel totalizer	Inclinometer	HMI	Bend pullies
				
Order No.	7MH77261AU	7MH77261AP		7MH7170/1, 7MH7187/8
Benefits	Displays production total during power failure	Provides mA output based on angle of conveyor	<ul style="list-style-type: none"> Remote access for up to four Milltronics BW500 integrators Single parameter access No PLC interface required Calibration and totalizer resets from panel 	<ul style="list-style-type: none"> Pre-drilled mounting for SITRANS WS300 speed sensor Self cleaning or drum style Creates installation room for belt scale

Siemens solids flowmeters – consistent and continuous metering

SITRANS dry solids flowmeters enhance process control, contributing to improved product quality and a positive bottom line. These flowmeters provide continuous in-line weighing of dry bulk solids with accurate, repeatable results. SITRANS flowmeters offer field-proven technology for consistent performance.

SITRANS solids flowmeters are heavy-duty and low maintenance. They have a totally enclosed design to eliminate product waste or contamination and reduce plant maintenance. Since the units are dust-tight, they create a healthier work environment, especially when hazardous substances are present.

SITRANS solids flowmeters monitor dry bulk materials from powders to granulates up to 25 mm (1") in diameter, handling flow rates from 200 kg/h to 900 t/h (440 lbs/h to 990 STPH). They easily manage materials ranging from puffed wheat to iron ore. They are unaffected by product buildup as they only sense the horizontal movement of product impact.

SITRANS WF100 and 200 series flowmeters use triple beam parallelogram strain gauge style load cells that register the horizontal impact of the material flow. These are the same load cells that have proven their reliability and durability in Siemens MSI heavy-duty belt scales. This patented design offers superior accuracy and repeatability.

SITRANS WF300 series flowmeters use SITRANS WFS300 and SITRANS WFS320 sensing heads. These out-of-process sensing heads use only the horizontal force created by the impact of the product on the sensing plate and then apply the horizontal deflection to a highly reliable Linear Variable Differential Transformer (LVDT). Friction-less pivots exclude the vertical force and a viscous fluid damper provides mechanical damping in the event of pulsating flows. This method of sensing material flow has been proven in thousands of applications throughout the world.

All flowmeter models produce accurate, repeatable results, and may be used for critical functions such as batch load-out and blending. Safe overload protection is standard. A stand-alone Milltronics SF500 integrator or SIWAREX FTC module completes the system, processing signals into operating data for flow measurement.



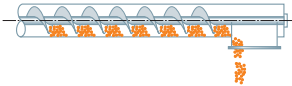

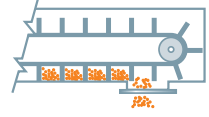
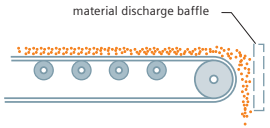

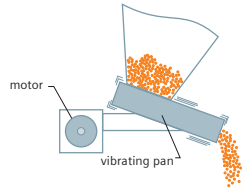
Application solution: cost savings with SITRANS WF330 flowmeter

An integrated potash producer (the world's largest fertilizer enterprise by capacity) operates an underground mining operation with an annual capacity of 1.36 million tonnes of KCl (potassium chlorate). The mine produces white soluble and granular product, and K-Prills. A prill is a small aggregate, most often a dry pellet, formed from a liquid. This producer required a replacement for the nuclear densitometer (nuclear belt scale) used to measure prill flow on an inclined conveyor belt. They wanted to remove the radioactive densitometer from the site to reduce work and costs associated with managing the nuclear device in accordance with regulations. A suitable continuous weighing solution had to be capable of measuring flow rates up to 15,000 kilograms per hour and be compatible with the dusty and slightly corrosive material. Siemens supplied a SITRANS WF330 solids flowmeter with a stainless steel sensing plate and a stainless 15.25 cm (6") flow guide. The flowmeter uses a Milltronics SF500 integrator to process the signal from the WFS300 sensing head into a material flow rate to calculate daily totals. The installation incorporated a long feed chute to connect the process to the flowmeter, allowing the material to be weighed as it flows downward and eliminating the concern regarding material rollback. The SITRANS WF330 flowmeter solution meets the company's strict requirements. Furthermore, substantial long-term cost savings are realized by eliminating the nuclear source from the plant.

For the full story, visit www.siemens.com/weighing

Flowmeter applications

There are several different feed conditions where a solids flowmeter can be applied. Siemens flowmeters provide accurate, efficient measurements for some of the following most common applications:

Screw conveyor	Rotary feeder	Drag conveyor
		
Belt conveyor	Bucket elevator	Vibratory feeder
		

Technology comparison

	Impact	Centripedal	Coriolis
Typical accuracy	1%	0.5 to 1%	0.5%
Benefits	<ul style="list-style-type: none"> Not affected by material buildup as only horizontal movement is detected Very high flow rates can be monitored – up to 900 t/h (990 STPH) 	<ul style="list-style-type: none"> Not affected by changes in bulk density Available in open style constructions 	<ul style="list-style-type: none"> Not affected by changes in bulk density Rate range from 100% down to 10% of max flow rate
Challenges	<ul style="list-style-type: none"> Material feed should be a consistent flow Changes in bulk density can affect accuracy 	<ul style="list-style-type: none"> Material buildup on sensing plate causes inaccuracy Presence of moisture can affect velocity of material flow 	<ul style="list-style-type: none"> Requires high-voltage power for motor Material buildup causes inaccuracy



Flowmeter application requirements

- Accuracy specification
- Capacity and capacity rate range
- Material and its bulk density, temperature, particle size, moisture content
- Pre-feed device

Application information to choose the right options

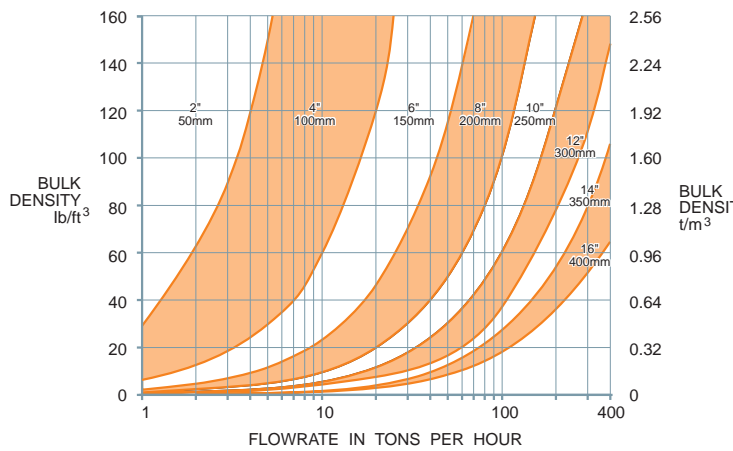
- Material flowability, abrasiveness, adhesiveness, causticity
- Installation constraints for size
- Hazardous installation requirements
- Flowmeter construction material
- Calibration method

Siemens solids flowmeters

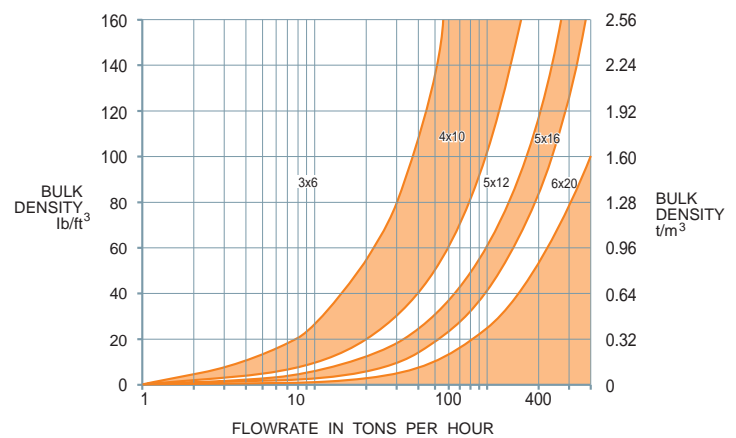
SITRANS WF flowmeters perform in applications where other weighing devices cannot be integrated into an existing process. They are not affected by material buildup and monitoring remains reliable. SITRANS WF flowmeters require minimal maintenance or recalibration after the initial installation and material tests.

Flowguide capacity

Round infeed flowguide capacity



Vertical infeed flowguide capacity





Milltronics SF500 – full feature integrator for use with solids flowmeters


- Compatible with SITRANS WF series flowmeters; one or two load cell flowmeters; LVDT-equipped solids flowmeters, using optional interface board
- Displays rate, totalized weight, PID, and batching
- Two adjustable pulsed outputs
- Multispan calibration
- Linearization function
- Five programmable SPST Form A contact relays rated 5A at 250 V AC non-inductive, reversible
- Type 4X/NEMA 4X/IP65 rated, CSA, FM, CE, GOST and C-TICK approvals

SIWAREX FTC

- Fully embedded in SIMATIC
- Optically isolated 4 to 20 mA
- 24 V DC, 500 mA
- Eight programmable digital outputs
- PLC rack mounted
- CE, FM, μ LUS approvals

Strain gauge load cell based flowmeters		SITRANS WF100	SITRANS WF200	SITRANS WF250
	Order No.	7MH7108	7MH7115	7MH7115
	Typical industries	Food, grain, milling, animal feed, plastics, glass	Aggregates, grain, cement	Cement, mineral processing
	Typical applications	Monitoring of food ingredients, pet food blending, plastic pellet production, silica sand in glass making	Grinding mill rejects in cement, load-out of grains and seeds	Cement in aerated gravity conveyor
	Accuracy*	±1% (33 to 100% of rate)		
	Capacity range	1 to 200 t/h (1 to 220 STPH)	200 to 900 t/h (220 to 990 STPH)	200 to 900 t/h (220 to 990 STPH)
	Approvals	CE, C-TICK, CSA, FM, ATEX, IECEx, stainless steel options meet FDA and USDA requirements for food processing		

LVDT based flowmeters		SITRANS WF330	SITRANS WF340	SITRANS WF350
	Order No.	7MH7102	7MH7104	7MH7106
	Typical industries	Chemicals, grain, mineral, cement	Aggregate, grain, mineral, cement	Cement, mineral processing, mining
	Typical applications	Fly-ash, lime dosing, cement flow and control in mining, flour stream monitoring	Fly-ash load-out, lime dosing, gypsum flow	Powders and granulates conveyed by aerated gravity conveyors, fly-ash load-out, precipitator dust
	Accuracy*	±1% (33 to 100% of rate)		
	Capacity range	0.2 to 300 t/h (0.2 to 330 STPH)	0.2 to 300 t/h (0.2 to 330 STPH)	0.2 to 300 t/h (0.2 to 330 STPH)
	Approvals	CE, C-TICK, CSA, FM, ATEX, IECEx, Stainless steel options meet FDA and USDA requirements for food processing		

SITRANS WFS sensing heads		SITRANS WFS300	SITRANS WFS320
	Order No.	7MH7110	7MH7112
	Typical applications	For use with SITRANS WF330, 340, 350 flowmeters	
	Particle size (maximum)	13 mm (0.5")	25 mm (1")
	Flow rate: Minimum Maximum	<ul style="list-style-type: none"> • 0.2 t/h (0 to 0.2 STPH) • 40 t/h (0 to 44 STPH) 	<ul style="list-style-type: none"> • 20 t/h (0 to 22 STPH) • 300 t/h (0 to 330 STPH)
	Product temp. (max.)	232 °C (450 °F)	
	Design	Aluminum body, fiberglass cover, 304 L (1.4306) stainless steel sensing plate	

*Accuracy subject to the following: on factory approved installations the flowmeter system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for at least ten minutes running time.

Siemens weighfeeders – crucial weighing, made to order

SITRANS weighfeeders are custom-engineered to meet your application, guaranteeing the perfect fit. Ranging from light- to heavy-duty, these weighfeeders deliver fast, reliable, and uninterrupted service no matter what your application. Virtually maintenance-free construction delivers unmatched performance from food processing to aggregates and everything in between.

A weighfeeder system is a custom-engineered conveyor integrated with a belt weighbridge and speed sensor. A variable speed drive, motor, and gearbox allow the flow of material to be controlled by a given setpoint chosen in the Milltronics BW500 integrator.

SIWAREX FTC through SIMATIC S7 or SIMATIC PCS 7 affords similar control. This setup allows the feeder to provide precision weighing accuracies, and to improve blend consistencies, accountability, and record keeping.

Weighfeeders are indispensable when automated production processes require continuous in-

line weighing and feeding. Flanged belting is available on most models so that product is not lost during transport. The height of the flange depends on model and application. Belt widths and conveyor lengths are made to measure for the required application.

SITRANS WW300 is a patented heavy-duty weighfeeder for applications up to 800 t/h (880 STPH). The flexible design can accommodate particle sizes up to 6" (150 mm). All Siemens weighfeeders are cantilevered for quick and easy belt change and maintenance.

Technology comparison




	Belt weighfeeder	Apron weighfeeder	Screw weighfeeder
Typical accuracy	0.5%	3 to 5%	1 to 2%
Benefits	<ul style="list-style-type: none"> Flexible design for width, length, and height requirements High flow rates can be conveyed up to 800 t/h (880 STPH) 	<ul style="list-style-type: none"> Can convey very high temperature material up to 650 °C (1200 °F) Heavy-duty design can convey up to 2000 t/h (2205 STPH) 	<ul style="list-style-type: none"> Can be totally sealed for sanitary applications Can be very compact and run long distances
Challenges	<ul style="list-style-type: none"> Fluidized material can flush over the belt and affect accuracy Off-center material loading can affect belt tracking 	<ul style="list-style-type: none"> Large amount of maintenance with multiple rotating and moving parts Requires large installation area 	<ul style="list-style-type: none"> Material buildup on flights can cause inaccuracy Limited flow rate of typically 300 t/h (331 STPH)

Weighfeeder application requirements

- Accuracy specification
- Capacity and capacity rate range
- Material and its bulk density, temperature, particle size, moisture content
- Pre-feed device
- Conveyor length (CL infeed to CL discharge)
- Installation incline angle
- Open or enclosed construction

Application information to choose the right options

- Hazardous installation requirements
- Weighfeeder construction material
- Material flowability, abrasiveness, adhesiveness, causticity
- Installation constraints for size
- Calibration method

	SITRANS WW100	SITRANS WW200	SITRANS WW300
			
Order No.	7MH7180	7MH7300-8	N/A
Typical industries	Bulk chemicals, tobacco, food	Bulk chemicals, grain, food, vegetables	Aggregates, cement, mineral processing, coal, mining, pulp and paper
Typical applications	High-accuracy, low-capacity for minor ingredient additives	Low- to medium-capacity for minor ingredient additives	Medium- to high-capacity for macro ingredient additives
Design rate range	0.045 to 18 t/h (100 lbs/h to 20 STPH)	0.45 to 100 t/h (1,000 lbs/h to 110 STPH)	4.5 to 800 t/h (5 to 880 STPH)
Belt speed	0.005 to 0.36 m/s (1 to 70 fpm)	0.005 to 0.36 m/s (1 to 70 fpm)	0.005 to 0.36 m/s (1 to 70 fpm)
Accuracy*	±0.25 to 0.5%	±0.5% or better	±0.5% or better
Specified range	<ul style="list-style-type: none"> • 10 to 100% based on speed 		
Sensing element	<ul style="list-style-type: none"> • Long length platform weighbridge • Single load cell 	<ul style="list-style-type: none"> • Platform weighbridge • Dual load cells 	<ul style="list-style-type: none"> • Single idler scale • Dual load cells • Option: special versions of the MSI belt scale, with load cells located outside conveying area
Approvals	Stainless steel options meet USDA and FDA requirements for food processing, CE, C-TICK	Stainless steel options meet USDA and FDA requirements for food processing	

*Accuracy subject to the following: on factory approved installations the weighfeeder system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt or at least ten minutes running time, whichever is greater.

Application solution: cereal – made to order

In the food industry, consistent taste, composition, and appearance are essential for long-lasting market success. A major cereal producer required exact dosing of vitamins to secure consistent product composition and controlled feed to the roaster kiln for optimal roasting conditions. High accuracy and easy washdown were highest priority. The equipment needed to be adaptable to the limited installation conditions. Siemens provided two compact SITRANS WW200 weighfeeders, custom-engineered to suit the location. A Milltronics BW100 integrator processes the signals from the load cells and the speed sensor to deliver a 4 to 20 mA output signal to the plant control system.

The use of a weighdeck with flat bars for belt support minimizes the number of moving parts and reduces maintenance and cleaning. The Siemens system offers maximum process optimization due to outstanding accuracy, linearity, and repeatability. The company benefits from high operating reliability and low maintenance requirements from the roller-free belt transportation and cantilevered design that allows easy belt cleaning or replacement. SITRANS WW200 can be modified for specific application needs with different lengths, drives and belt types. The SD version is specifically designed for the food industry and allows for easy cleaning and high pressure wash-down. The design eliminates material buildup, ensuring reliable operation.

For the full story, visit www.siemens.com/weighing








Precision from a single source – weighing technology from Siemens

With SIWAREX electronics and load cells, not only are you choosing the highest quality in construction, long-lasting performance, and easy integration into your weighing systems, you are also opening the doors to Siemens comprehensive spectrum of instrumentation. Ideally coordinated for all of your weighing applications, SIWAREX is part of Siemens integrated solutions for industry.

Using the proven Siemens automation solutions and SIWAREX weighing systems, you can automate all of your scales. SIWAREX weighing modules are completely integrated into SIMATIC S7 and can be expanded as required and adapted to individual requirements. SIWAREX's integration in SIMATIC makes it a part of Totally Integrated Automation (TIA).

With TIA, Siemens is the only manufacturer to offer an integrated range of products and systems for automation in all industry sectors. We cover it all – from incoming goods to the field level, through the production control level to connection with corporate management.



	SIWAREX U	SIWAREX CS	SIWAREX MS	SIWAREX FTA	SIWAREX FTC
					
Order No.	7MH4950	7MH4910	7MH4930	7MH4900	7MH4900
Typical applications	Basic weighing and force measuring tasks, one or two channel modules available	Basic weighing and force measuring tasks	Basic weighing and force measuring tasks	Automatic and non-automatic weighing, e.g. for production of mixtures, filling, loading, monitoring, and bagging	Continuous weighing for conveyor scales
Automation system integration	S7-300 (directly or via ET 200M), S7-400 (H), PCS 7 (H) (via ET200M)	S7-400, S7-300 (via ET 200S)	S7-200	S7-300 (directly or via ET 200M), S7-400 (H), PCS 7 (H) (via ET200M)	S7-300 (directly or via ET 200M), S7-400 (H), PCS 7 (H) (via ET200M)
Accuracy	0.05%	0.05%	0.05%	0.005%	0.005%
Approvals	ATEX 95, FM, cUL _{US} Haz. Loc.			ATEX 95, FM, cUL _{US} Haz. Loc., EU type approval (CE, OIML R76), EU prototype test to MID (OIML R51, R61, R107)	ATEX 95, FM, cUL _{US} Haz. Loc.

Application solution: efficient to the last grain

A producer of raw materials and cereal-derived ingredients for a variety of end products was looking to solve its complex logistical challenges of milling grains into such a high number of products. To increase flexible and efficient use of products, the company decided to automate the routing system.

A range of process instrumentation, connected through either PROFIBUS DP or PROFIBUS PA, was the solution: Pointek CLS200 capacitance level switches and four SITRANS LU10 ultrasonic level controllers on the silos, a SITRANS LR400 radar transmitter for the level on powder and dust hoppers, and a SIWAREX FTA weighing controller for batching. SIWAREX weighing systems are ideal for high accuracy verification weighing. The system, consisting of a processor and one or more load cells, can be applied throughout the manufacturing process. SIWAREX weighing modules are designed for direct integration into a SIMATIC automation system in either central or distributed configurations. The company now has complete control of the raw materials and ingredients with the benefit of greater flexibility in the processes and optimizing material stocks.

For the full story, visit www.siemens.com/weighing



The foundation of every scale – SIWAREX load cells

SIWAREX load cells have high precision and reproducibility of weighing and batching processes. They are designed for a range of applications, especially when accuracy is a must. With Siemens, you can source both your load cells and electronics. Choose from our extensive, performance-graded line of weighing systems – with everything you need for the whole range of tasks in your industry.

SIWAREX load cells are made of aluminum or stainless steel, are hermetically sealed, and are impervious to dust and water. They are ideal in almost any industrial sector – in the food-processing and steel-making industries as well as in the chemical and pharmaceutical industries.



With the diverse construction types and comprehensive, graded load classes ranging from 3 kilograms to 280 tons, you are sure to find the right load cell for your application.

Avoid installation troubles by complementing your load cells with SIWAREX mounting parts from Siemens. Load cells must sense only the weight that they are intended to measure. Undesirable torsional or bending torques must be excluded because they falsify the measured result and can damage the load cell. SIWAREX mounting accessories, as part of Siemens complete weighing systems, allow implementation in record times so that you are ready for operation in the shortest possible period.

Benefits at a glance

- Rugged load cells for all types of applications
- Accuracy class C3 according to OIML R60
- Compact construction types
- Wide range of load class (3 kilograms to 280 tons)
- Explosion-proof certification
- Simple installation due to mounting devices, and important data printed directly on the load cell
- Support and hotline – around the clock and around the globe



	SIWAREX WL230	SIWAREX WL230	SIWAREX WL250	SIWAREX WL260	SIWAREX WL270
					
Order No.	7MH5107	7MH5106	7MH5105	7MH5102/3/4	7MH5108/10
Type	Shear beam	Bending beam	S-Type	Single point	Compression
Typical applications	Container, overhead rail conveyor, and platform scales	Small scale containers and platform scales	Tank weighing, hybrid scales, or suspended container weighing	Small to medium platform scales and weighing machines	Containers, hoppers, and vehicle scales
Nominal load (E_{max})	0.5 to 5 t	10 to 500 kg	50 kg to 10 t	3 to 500 kg	10 to 200 t
Accuracy class and maximum scale intervals	C3 to OIML R60; 3,000 intervals	C3 to OIML R60; 3,000 intervals	C3 to OIML R60; 3,000 intervals	C3 to OIML R60; 3,000 intervals	C3 to OIML R60; 3,000 intervals 200t: 0.2%
Minimum scale intervals	$E_{max}/10,000$	$E_{max}/6,000$ to $E_{max}/10,000$	$E_{max}/7,000$ to $E_{max}/12,000$	$E_{max}/7,500$ to $E_{max}/15,000$	$E_{max}/9,000$ to $E_{max}/10,000$
Supply voltage	5 to 12 V	5 to 12 V	5 to 12 V	5 to 12 V	5 to 12 V
Nominal characteristic	2 mV/V	2 mV/V	3 mV/V	2 mV/V	2 mV/V
Degree of protection	IP68	IP68	IP67	IP65/IP67	IP68

Application solution: Seasoning production flexibility

Raps GmbH & Co. KG, based in Kulmbach, Germany, is one of the most advanced seasoning companies in Europe. Raps is the first manufacturer to use supercritical extraction for the supply of high quality extracts to the food industry. To modernize the weighing and dosing units for improved customized seasoning blending, Raps installed Siemens SIWAREX FTA (Flexible Technology, Automatic weighing instrument) weighing module and SIWAREX load cells.

SIWAREX load cells come in a wide variety of designs and mounting options for industrial use. They can be applied for automatic and nonautomatic weighing, such as the production of mixtures, filling, loading, monitoring, and bagging. SIWAREX FTA is the ideal solution for applications that demand a high degree of accuracy and speed: it will measure at speeds of 400 measurements per second, with a resolution of 16 million increments in up to three ranges. The device comes already calibrated, which means there is no need for recalibration after components are exchanged. Raps has had a very positive experience with SIWAREX FTA. Some of the benefits from this installation include the high performance of all typically needed weighing modes, so no separate and costly options were required. As such, Raps enjoys the high flexibility of this individual, customized design.

For the full story, visit www.siemens.com/weighing



The wide range of weighing applications from SIWAREX systems

From incoming to outgoing goods, and through the entire chain of production, transport, and storage, SIWAREX performs numerous and varied weighing tasks.

Process stage/weighing application	Type of scale	Appropriate SIWAREX weighing system
Goods in		
Weight recording when unloading bulk materials, liquids, and also weight units such as sacks, pallets, crates. Also suitable in legal-for-trade applications.	<ul style="list-style-type: none"> • Truck scale • Weighbridges • Totalizing scales 	<ul style="list-style-type: none"> • SIWAREX FTA (automatic/non-automatic weighing machine) • SIWAREX CS (non-automatic weighing machine) • SIWAREX WL200 (load cells, mounting parts)
Production		
Various weighing processes in proportioning, mixing, and batch processes – also force measurement.	<ul style="list-style-type: none"> • Batch system • Loss-in-weight feeders 	<ul style="list-style-type: none"> • SIWAREX FTA (batch processes) • SIWAREX FTC (continuous processes and force measurement) • SIWAREX CF (force measurement) • SIWAREX WL200 (load cells, mounting parts) • SIWAREX IS (Ex barriers)
Storage for raw materials, end products, intermediate storage		
Static weight monitoring, for example, of stored bulk material, barrels, sacks, pallets, crates.	<ul style="list-style-type: none"> • Hopper weighing • Weighbridges 	<ul style="list-style-type: none"> • SIWAREX U, CS, MS (static weight recording) • SIWAREX WL200 (load cells, mounting parts) • SIWAREX IS (Ex barriers)
Quality assurance in-house transport		
Control of material flow, completion check of packaging units, and weight value for in-house calculations.	<ul style="list-style-type: none"> • Conveyor scales • Dynamic and static control scales • Dynamic and static check weigher 	<ul style="list-style-type: none"> • SIWAREX FTC (conveyor scales, bulk flowmeter) • SIWAREX U, CS, MS (static weight recording) • SIWAREX WL200 (load cells, mounting parts) • SIWAREX FTA (check weighing)
Goods out		
Weight recording/checking when filling or bagging bulk goods and liquids, and for units such as pallets or crates. Also suitable in legal-for-trade applications.	<ul style="list-style-type: none"> • Sacking scales • Filling machine • Truck scale • Weighbridges • Loading scales • Check weigher 	<ul style="list-style-type: none"> • SIWAREX FTA (automatic/non-automatic weighing machine) • SIWAREX CS (non-automatic weighing machine) • SIWAREX WL200 (load cells, mounting parts)



Key benefits of volumetric feeders

- Simple design
- Heavy gauge construction
- Dependable and reliable feeding
- Easy to maintain
- Convenient controls and readouts
- Smooth handling of difficult material flows






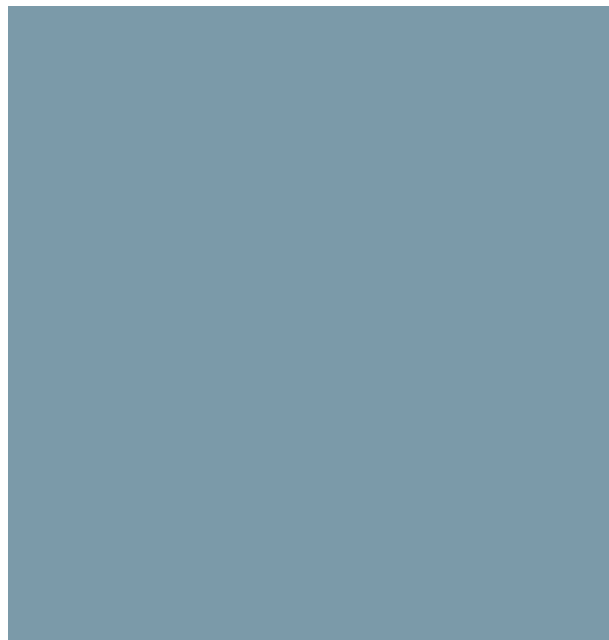
Volumetric flow

Volumetric feeders from Siemens are designed for the demands of industrial process applications. These feeders are designed to give reliable service feeding for applications at consistent temperatures and pressures, whereas variable temperatures and/or pressures will require mass flow measurement.

Volumetric screw-type feeders measure various water and wastewater chemicals as well as industrial chemicals. Examples include alum, lime, ferric sulfate, citric acid, or plastic pellets. Dry chemical feed systems meter dry and semi-dry powders and other free-flowing materials as well as pellets, flakes, chips, and other difficult materials with accuracy and repeatability.




Materials to be fed are placed in the hopper through the top of the device and then settle to the bottom. Vibrating plates in the hopper walls provide constant agitation. Agitation extends to the feed screw and prevents arching and packing.

	32-050 Volumetric screw type feeder	32-055 Volumetric feeder	32-300 Volumetric screw type feeder
			
Description	Feed screw that gives single-ended delivery to a solution tank or process at a consistent rate via a down spout.	Volumetric feeder featuring chemical-resistant plastic and stainless steel construction, design simplicity, and variable speed control in three arrangements: manual, start-stop, and automatic.	Feeder with electric-variable-speed control, consisting of an SCR variable-speed drive in NEMA 4 enclosure.



Process monitoring anywhere

SITRANS RD500 is a remote data manager providing integrated web access, alarm event handling, and data capture for instrumentation. With Ethernet and wireless GPRS communications options, and a flexible IO offering, it is well suited for a variety of applications and provides scalability. SITRANS RD100 and RD200 are remote digital displays for level, flow, pressure, temperature, weighing, and other process instrumentation. SITRANS RD100 is NEMA 4X/IP67 enclosed for indoor and outdoor applications and in safe or hazardous areas. SITRANS RD200 is a universal input, panel mount remote digital display. Data can be remotely collected, logged, and presented from as many as 100 displays on your local computer using free downloadable RD Software.

	SITRANS RD100	SITRANS RD200	SITRANS RD500
			
Order No.	7ML5741	7ML5740	7MH5750
Input types	4 to 20 mA	Universal current, voltage, RTD, thermocouple	Current, voltage, RTD, thermocouple, digital and serial Modbus
Power input	Loop powered	12 to 36 V DC, 12 to 24 V AC, 6W max.	24 V DC
Display	3½ digit display	4 digit display	Virtual display via Web browser
Accuracy	±0.1% of span ±1 count	Input type dependent	Input type dependent
Approvals	FM, CSA hazardous approvals	CE, UL, cUL	CE, UL, cUL



PROFIBUS communications offer Totally Integrated Automation

Siemens offers a range of instruments that connect to a PROFIBUS network. PROFIBUS is the fieldbus standard for complete production plants in all process sectors, and helps manufacturers achieve operational excellence and cost savings throughout the complete service life. It is the network solution with the most advantages for Totally Integrated Automation (TIA) providing digital communications between the automation system and field instrumentation on a single serial bus.

Communications and software

Milltronics BW500/L, BW500, and SF500 integrators offer PROFIBUS DP connection through a SmartLinX module. SIWAREX FTC function module is integrated into SIMATIC S7/PCS 7 and uses the features of this automation system, such as integral communication, diagnostics, and configuration tools.

SmartLinX communication modules			
Description	SmartLinX provides direct digital connection to commonly used industrial communications buses with true plug-and-play compatibility. The modules are fast and easy to install, and can be added at any time to a Milltronics BW500/L, BW500, or SF500 Integrator.		
SmartLinX module	Allen-Bradley Remote I/O	DeviceNet	PROFIBUS DP
Features	<ul style="list-style-type: none"> • Accessed via standard PLC data transfer techniques • Using Block Transfer, the PLC can both read and write all appropriate data 		<ul style="list-style-type: none"> • Accessed via standard PLC data transfer techniques • Supports read and write access to all Siemens Milltronics instrument data and parameters
Interface	RIO Interface	DeviceNet physical layer	RS-485 (PROFIBUS standard)
Baud rate	57.6, 115.2 or 230.4 kbps user selectable	125, 250, 500 kbps user selectable	All valid PROFIBUS DP rates from 9600 bps to 12 mbps, self-configured
Dolphin Plus configuration software			
Instrument configuration software for Milltronics BW100, BW500/L, BW500, and SF500 that allows you to quickly and easily configure, monitor, tune, and diagnose Siemens weighing devices remotely using a desktop PC or in the field using a laptop. Dolphin Plus is easy to install and use. After configuration, you can edit parameters on the fly, upload and download parameter sets to and from disk, and use parameter sets from other instruments. Features include: real-time monitoring and adjustment of parameters; on-screen visualization of process values; copying of data for programming several devices; generation of configuration reports within seconds.			
SIWATOOL			
SIWATOOL is a special program for adjusting and servicing SIWAREX weighing modules with a Windows operating system. The program enables the scales to be commissioned without the need for prior knowledge of the automation system. When servicing, the technician can use a PC to analyze and test the procedures in the scale, as well as reading out the diagnostics buffer from the SIWAREX electronics. Features include: parameterization and adjustment of the scale; testing of scale properties; saving and printing scale data; and recording and analysis of weighing sequences. A further program function can be used to download a new firmware version onto the SIWAREX electronics on site. This means that firmware upgrades can be carried out on site as required anywhere in the world.			








Application solution: small sensors create big savings

In the steel, cement, and other heavy processing industries, maintaining proper fuel feed rate is essential for consistent processing temperatures. A major coated steel producer (the largest supplier of steel to the European automotive industry) burns pulverized coal delivered through injectors. The kiln operates at 1200 °C (2192 °F). To ensure smooth operation, the company wanted an effective way to monitor coal flow into the furnace. Each injector was equipped with a SITRANS AS100, mounted on pulverized coal infeed conduits. The sensor monitors acoustic emissions from the coal movement. The sensor mounts outside the process for a non-invasive method of process monitoring. Operators are immediately alerted if a flow change occurs. This facilitates smooth regulation of the furnace operation to ensure maximum productivity and the solution was inexpensive and easy to install.

For the full story, visit www.siemens.com/weighing

Process protection

Process protection devices act as early warning systems to avoid costly process interruptions and equipment breakdowns. Non-contacting motion sensors detect changes in motion and speed of conveying, reciprocating, and rotating machinery. Non-invasive acoustic sensors detect high frequency acoustic emissions caused by materials in motion. They can detect conditions of flow/no flow or high/low flow to warn of blockages, product absence, or equipment failure. The sensors are located outside of the process, accurately detecting conditions without wear on the sensor. Motion sensors can warn of equipment malfunction and shut down machinery in case of slowdown or failure. They are rugged and perform even in harsh industrial conditions.

	Milltronics MFA 4p	Milltronics Millpulse 600	SITRANS WM100	SITRANS AS100	SITRANS CU02
					
Order No.	7MH7144	7MH7142	7MH7158	7MH7560	7MH7562
Description	Highly sensitive single setpoint motion sensor system used with MSP and XPP probes	Heavy-duty 2-wire motion sensor providing solid state switch output to PLCs	Heavy-duty zero-speed alarm switch	Acoustic sensor detects high frequency emissions from friction or the impact of dust, powders, and granules and solids in motion	Operates with the SITRANS AS100 to provide reliable continuous protection for bulk solids flow; two relays are fully programmable



Sales and support

To meet your product requirements – even those that are unique or unusual – Siemens offers products suited to a wide variety of applications. Integration of designers, engineers, technical specialists, and project management ensures that the product meets all of your needs. With over 40 years of experience in the weighing technology field, our experience is substantial.

With its global presence, Siemens will always be at your side with experienced specialists – in over 160 countries. We will offer you advice from the very beginning with the planning and implementation of your weighing systems – and we will be there for you afterwards.

Our sales and support services range from consulting and engineering, connection to the control system, and comprehensive after-sales services:

- System and schedule planning
- Complete design planning and engineering of the field devices
- Consultation on product selection
- System documentation
- Installation, testing, and commissioning

Custom engineering

Siemens provides custom-engineered products to solve your special application needs. From material compatibility challenges to unique size requirements, Siemens custom engineering team can help.

Service around the world

Plants must function reliably at all times. Efficient and effective process instrumentation and analytics are an indispensable prerequisite to this end. You also need to be certain of fast and competent service from your supplier. Siemens is a global company that reacts locally. Whether you require consulting, quick delivery, or installation of new devices, the Siemens network of specialists is available to you around the world, wherever your location.

Service around the clock

Our online support system offers rapid, comprehensive assistance regardless of time or location. From product support to service information, Siemens Industry online support is your first choice – around the clock, 365 days a year.

www.siemens.com/automation/service&support



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Our process instrumentation, analytics, automation, and drives product range

Siemens offers the most comprehensive product range with a solution for even the most difficult applications.

Level	Flow	Weighing	Pressure	Temperature	Positioning	Power supplies
						

Process protection	Process controllers	Remote displays	Process recorders	Gas analytics	SIMATIC	Industrial communication
						

Motors	Gear reducers	Motion control	Control gear	PLCs	Drives	HMI
						

More information:

www.siemens.com/weighing

www.siemens.com/processprotection

www.siemens.com/siwarex

www.siemens.com/processautomation

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