Accurate weighing, made to order

SITRANS WW300 weighfeeder

Accurate in-motion weighing

SITRANS WW300 is a medium- to high-capacity weighfeeder for macro ingredient additives. It is designed for industrial applications such as mining, cement, chemical processing, pulp and paper, and other heavy industries. In cement and mineral processing, weighfeeders can be used to provide rate control for blending raw materials or additives.

Design

Durable and almost maintenance free, SITRANS WW300 is custom engineered to meet the application. It is specially designed for heavy-duty industrial and harsh applications. The design eliminates material build-up to ensure accurate, reliable measurement. The unique weigh system reduces dead load and applies live load directly to load cells for accurate measurement. The dual load cells are externally mounted for easy access and maintenance.

Components

SITRANS WW300 comes with weigh bridge, speed sensor, and test weights supported by Milltronics BW100, BW500 or SIWAREX FTC microprocessor-based integrators for easy blending, batching and feed rate control. It is available in a variety of belt widths up to 1.8 m (72”), several different inlet configurations, and materials of construction.

Mode of operation

Weighfeeders weigh bulk material while it is conveyed. An accurate rate of flow and totalized weight measurement is received without interrupting the process. An adjustable mechanical shear gate profiles the material and fixes the correct material bed depth for a given material particle size. The belt speed can be automatically adjusted to attain the correct feed rate. In-motion weighing requires accurate transmission of the product load to strain gauge load cell(s). The resulting voltage signal corresponding to weight is transmitted to the integrator and becomes one of two inputs required for integration. Unlike static weighing, in-motion weighing integration requires a second input: a pulse signal proportional to the speed of the conveyor belt. Each belt speed sensor pulse represents a fixed distance of travel. Since the force measured by the load cell is represented as weight per unit length, it can be multiplied by the distance of belt travel (one speed sensor pulse) to provide product weight for that segment of the belt.

Weighing technology
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SITRANS WW300

SITRANS WW300 weighfeeder is a custom-engineered conveyor integrated with a belt weigh bridge and speed sensor. A weighfeeder system controls the rate of material flow into or out of a process. A variable speed drive, motor, and gearbox allow the flow of material to be controlled by a given setpoint chosen with a Siemens integrator such as Milltronics BW500 or SIWAREX FTC through SIMATIC S7 or SIMATIC PCS 7. This control allows the feeder to provide precise weighing accuracies, and to improve blend consistencies, accountability, and record keeping.

- Heavy-duty industrial design
- Open or dust-tight enclosed construction
- Unique design eliminates areas of material build-up
- 102 mm (4") CEMA C idlers
- Calibration weights included
- Cantilevered design allows for easy belt replacement
- Externally mounted dual load cells for ease of access
- Crowned pulleys and automatic belt tracking and alignment
- Belt widths up to 1.8 m (72")

	SITRANS WW300
Mode of operation	
Measuring principle	Heavy-duty strain gauge load cells and digital speed sensor
Typical applications	Industrial and process applications in feeding, blending, or ratio/control in cement, steel manufacturing, or mining industries
Performance	
Accuracy*	±0.5% with 10:1 turn down based on load, up to 30:1 based on speed
Design rate range	4.5 to 800 t/h (5 to 880 STPH)
Process conditions	
Operating temp.	-10 to 40 °C (14 to 104 °F)
Maximum material temperature	• Standard: 107 °C (225 °F) • Up to 204 °C (400 °F) with optional belting
Design	
Construction	Mild steel, optional abrasion resistant or stainless steel material contact parts
Load cells	Two corrosion resistant platform type with mechanical overload protection • Non-linearity: ±0.03% • Non-repeatability: ±0.02%
Speed sensor	Industrial duty, digital optical encoder, tail shaft mounted
Framework	Cantilevered painted mild steel structural frame for quick and easy belt replacement
Pulleys	200 to 500 mm (8 to 20"), crowned with 6 mm (¼") minimum rubber lagging on drive pulley for maximum traction, 200 to 500 mm (8 to 20") crowned tail
Idlers	Heavy-duty 100 mm (4") CEMA C with precision ground ball bearings and triple labyrinth seals for longer life, CEMA D, E, impact-style where required
Belting	• Black rubber, 150-440 PIW 2-4 ply vulcanized endless • 'B' section (standard) • Up to 130 mm (5") corrugated sidewalls (optional)
Belt tension	• Screw type, telescoper module with 150 mm (6") min. travel • Self steering tensioner (optional)
Belt cleaning	• Gravity tensioned UHMW blade at head pulley • Return plow at tail pulley
Drive	• 0.19 kW (0.25 HP) min., TEFC, or TENV 208/230/380/460/575 V AC, three phase or 90/180 V DC permanent magnet - both with flange mounted gear reducer • Larger/other motor sizes and voltages available
Shipping weight	410 kg (900 lbs) minimum
Approvals	For use in hazardous rated areas, consult with factory
Control and communications	
	Electronic integrators process sensor signals into operating data for continuous in-line weighing and flow measurement
Milltronics BW500	• Dolphin Plus configuration software and Modbus® RTU/ASCII (standard) • SmartLinx® communications modules for A-B® RIO, PROFIBUS DP, or DeviceNet™ (optional); Analog I/O card for PID control (optional)
SIWAREX FTC	Siemens PLC module integrated in Totally Integrated Automation

*Accuracy subject to: 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.

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