

# EMC Weigh Feeder Systems

Accurate Flowrate Control of Bulk Material on Belt Conveyors



EMC Industrial Group

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Our Weigh Feeder Systems provide a simple and accurate way to control and measure the flowrate of bulk material passing along a conveyor belt.

They transport bulk material from a hopper on a driven belt across a weigh section. The weight on the weigh section is measured by a high resolution loadcell.

Our ModWeigh processor computes the flowrate based on the weight and measured belt speed. The flowrate is then regulated to the desired value by varying the speed of the belt.

Our standard systems include:

- 3 idler weigh section, with integrated loadcell
- Direct drive sealed gearmotor
- Belt speed via tail drum encoder
- ModWeigh MW96A Processor to calculate and control the flowrate (t/hr), etc

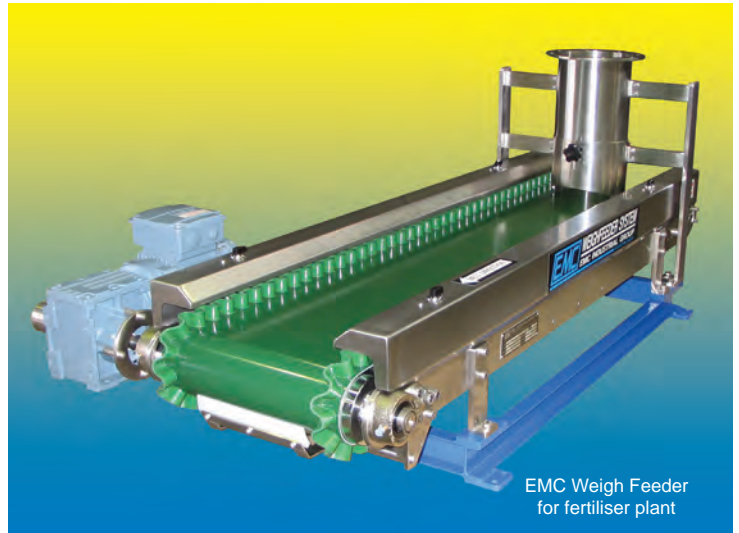
## Proven experience



We manufactured our first Weigh Feeder in 1973 and have since supplied over 250 throughout NZ and worldwide. This wealth of practical experience provides you with a mechanical design and rugged construction that has been proven in many industries and applications.

An essential component of any weighing system is a reliable and economic processor. We have been designing and manufacturing Weighing Processors for almost 40 years and our ModWeigh Series is recognised internationally for its quality and ease of operation.

Our experienced staff and fully equipped workshops ensure that full local back-up and service is provided throughout New Zealand.



EMC Weigh Feeder for fertiliser plant

## Weigh Feeder applications

If your industry is mining, quarrying, cement, fertiliser, chemical, steel, timber, food processing, etc, then Weigh Feeders may be used somewhere in your production or blending processes.

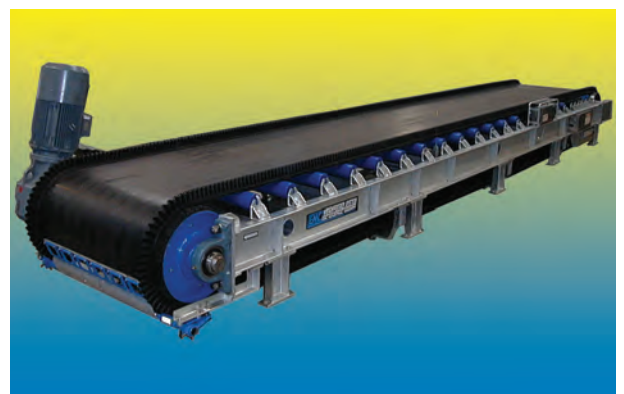
Some of the diverse products that we have accurately measured with our Weigh Feeders include fertiliser, coal, sand, iron sand, aggregates, wood fibre / chips, wool, cereals, vegetables, tobacco, powder, etc.

Weigh Feeder applications are wide and diverse:

- Maintaining bulk material flowrates. E.g. optimising the flow of material into kilns, driers, grinding mills, etc ensures peak efficiency and high product quality
- Continuous blending of materials to a desired recipe
- Production rate measurement
- Batching material where bin weighing is not practical



Coal Weigh Feeder at cement plant



Large coal Weigh Feeder. (9 metre drum centres)



Fully enclosed system installed at cement plant



Weigh Feeder installed at tobacco plant

## Design

Our standard Weigh Feeders are precision engineered units designed to maintain or monitor flowrates with an accuracy of better than 0.5%.

The weigh section incorporates 3 precision machined idler rollers, with the weigh roller mounted on a flexure suspension system which transfers the belt weight to a high resolution loadcell. The loadcell is completely protected from accidental overloads by precision stops.



Drive is via a sealed gearmotor and is direct; no messy chains or belts. The belt speed is taken from the tail drum encoder to ensure belt slip does not result in flowrate errors (shown left).

On WF 600 and smaller Weigh Feeders, belt steering is handled by crowning of the drive and tail drums. On larger models, belt steering is via a pneumatic actuator.

In most cases both rollers and drums are hard chrome plated. Bearings are sealed for life type. Side guards (if required), inner and outer belt scrapers, a junction box and calibration weights are all standard items.

## Rugged industrial construction

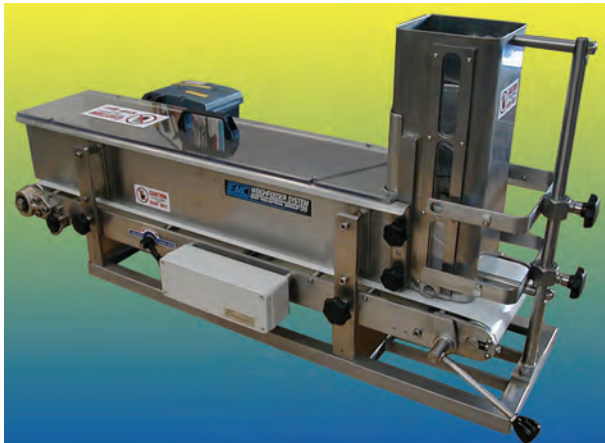
Our Weigh Feeders are built to withstand harsh and aggressive industrial environments and we offer a variety of construction options to suit the conditions.

Standard models are constructed from steel and are acid-etched before being electrostatically powder coated.

Options include galvanised and stainless steel construction. Fully enclosed versions (for dust control requirements) are also an option as are hermetically sealed stainless steel loadcells.



Stainless steel Weigh Feeders for hygienic food applications



## Standard Weigh Feeder models

Our standard range of Weigh Feeders are available in 4 sizes as shown below. These are designed to fulfil a wide variety of different applications but, if they are not exactly right for your purpose, we can custom build a system to suit.

Model	Belt width	Drum centres	Maximum flow rate *
WF 400	400mm	1300mm	7 t/h
WF 600	600mm	2200mm	30 t/h
WF 900	900mm	2650mm	60 t/h
WF 1200	1200mm	2850mm	110 t/h

\* Maximum flow rate is calculated using a theoretical material bulk density of 600kg/m<sup>3</sup> and a belt speed of 15m/min. Sizing of your weigh feeder will depend on your actual product.



Weigh Feeder for nut products

## EMC Weigh Feeder features

- Sealed, direct drive, AC gearmotor
- High resolution loadcell
- Loadcell overload protection
- 2 belt scrapers; 1 internal, 1 external
- Side guards (when required)
- Belt steering system
- Electrostatic powder coated finish
- Stainless steel impact plate
- Plated head and tail drums
- Belt run-off limit switches
- Calibration weights provided
- Sealed, labelled junction box
- Easy belt removal from one side
- ModWeigh control instrumentation
- Made in New Zealand with full local support

## Optional features

- DC drive motor
- Lagged drive drum
- High temperature belt (150°C)
- Extra conveyor length
- Galvanised steel frame, stainless steel guards
- All stainless steel construction
- Custom built feed hopper
- Full dust tight enclosure
- Impact rollers to replace impact plate
- Slotted construction for drive and tail drums to prevent build up of sticky materials

## EMC ModWeigh MW96A Weigh Feeder Instrumentation

Our unique ModWeigh Series of Continuous Weighing Processors, with separate transmitter and display, utilise digital technology to provide you with a modular system that is highly accurate, cost-effective and easy to use.

ModWeigh MW96A is specifically designed for weigh feeder applications where the purpose is to control the flowrate measured by Weigh Feeder mechanics.

Each MW96A ModWeigh Weigh Feeder package includes a Transmitter and Display together with a variety of accessories and options (e.g. rugged field mount housing):

### Digital Transmitter

MT6 transmitters are the most commonly used for weigh feeding applications. The transmitter incorporates a plug-in module that determines the function (e.g. Weigh Feeder) and holds calibration settings, etc. Calibration is achieved using the MW99 display via an easy to use menu.



Mounted in either DIN Rail or IP67 Field Housings, they are 12-24Vdc powered with excitation supply for the loadcell(s) and tachometer.

Modbus communications, two analog outputs and auto zeroing are standard features on the MT6.

The MT6 transmitter includes 4 digital Input and 4 digital Output user-programmable functions.

### ModWeigh MW96A features

- Flowrate control & measurement for weigh feeders
- Motor speed control output signal
- Programmable 4-20mA flowrate output
- Material totaliser
- Platform weight output (with MO2 option)
- Setpoint input (with MO2 option)
- Programmable digital inputs and outputs
- Graphics LCD display with membrane keypad
- Field or DIN rail mounting transmitter
- Modbus comms (independent RS232 & RS485 ports)
- Automatic zeroing
- Time and date clock for printouts
- Alarm function
- Batching feature

### Graphics Display

The MD1 ModWeigh Indicator is panel mounted (208 x 104mm facia), 24Vdc powered and features a colour graphics LCD display with an easy to use menu selection.



The MD1 Indicator displays flowrate, total weight, belt speed, alarm status, bargraphs, etc. Display items can be added or removed as required.

A single MD1 can calibrate several Transmitters.

Instrumentation can be mounted in robust, fully wired enclosures (as shown right) - just let us know your requirements.



### Installation, Commissioning and Service



We can arrange installation and commissioning of your new Weigh Feeder System to ensure optimum performance.

Our Service Engineers regularly travel throughout New Zealand and can provide service reports, maintenance checks and calibration on all our Weighing Equipment.

### Questionnaire

As our Weigh Feeders are custom designed to suit each individual application, a completed Questionnaire is required to allow us to quote and/or commence manufacture. The Questionnaire includes details such as design, product characteristics, flowrates, belt width, construction materials, etc.



Please contact our experienced staff to discuss your application and obtain a copy of the questionnaire. Alternatively the questionnaire can be downloaded from our web site: [www.emc.co.nz/downloads](http://www.emc.co.nz/downloads)

#### WA

22 Beneficial Way Wangara WA 6065 ☎ (08) 6314 1111  
✉ [support@automation-control.com.au](mailto:support@automation-control.com.au)

ABN 87 619 578 595

#### NSW

Unit 7 / 70 Holbeche Road Arndell Park NSW 2148 ☎ (02) 8078 2288  
✉ [cs@automation-control.com.au](mailto:cs@automation-control.com.au)

ABN 61 645 267 116

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