

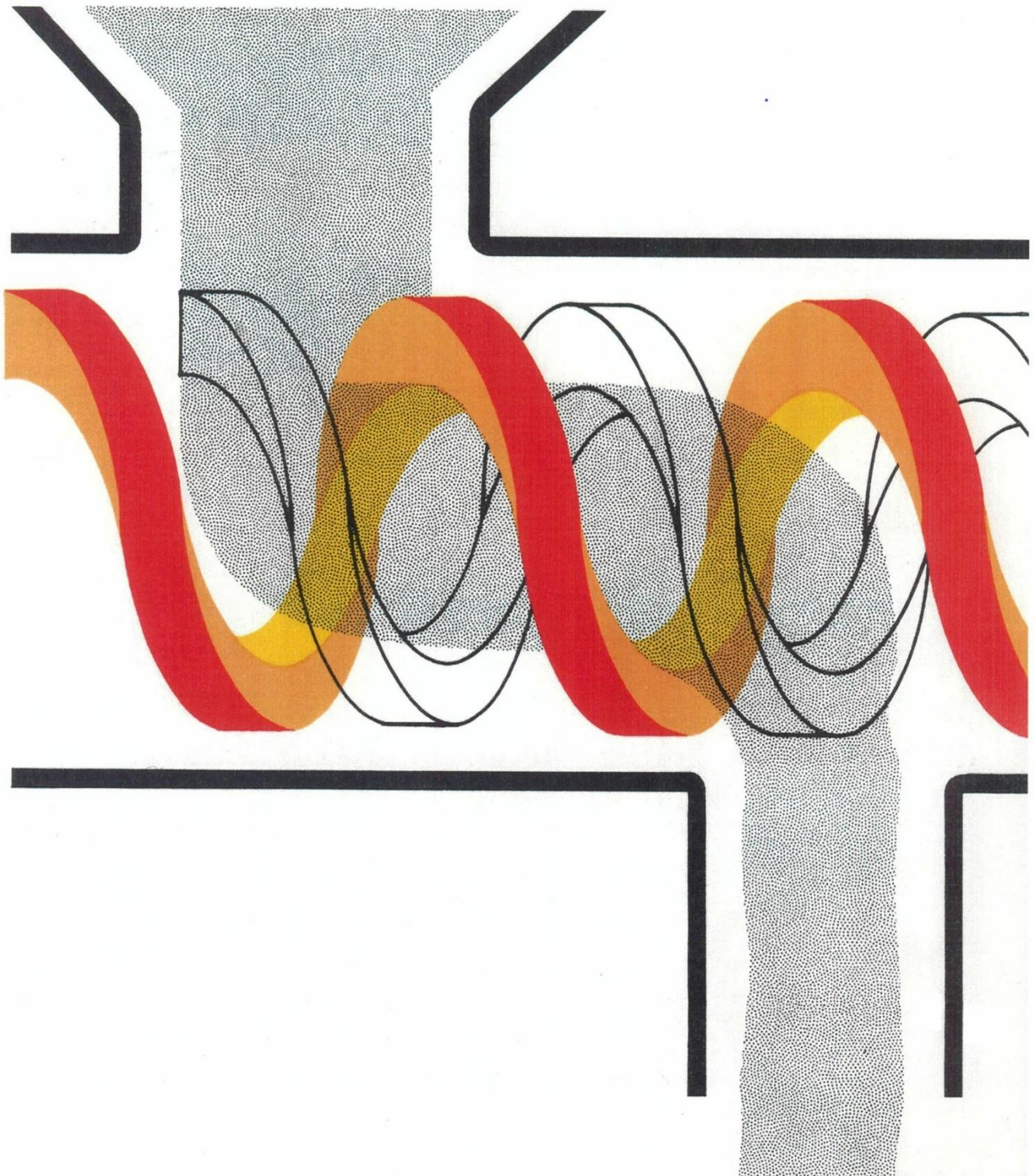


GRAIN TECH LTD

PROCESSING, HANDLING & STORAGE SYSTEMS

Autofeeder

Volumetric Metering Feeder

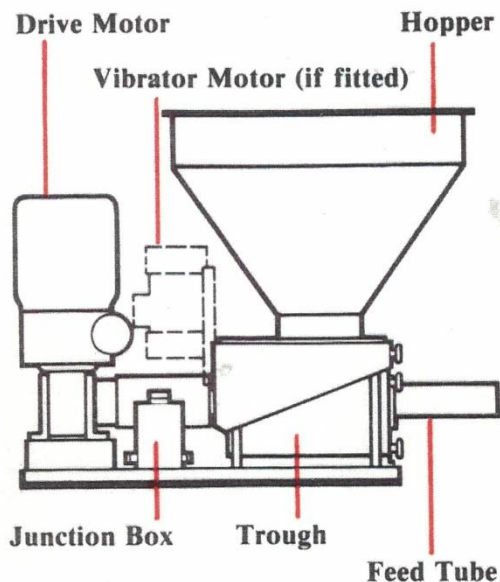


The Grain Tech AutoFeeder is introduced as the most versatile and compact unit on the market, offering a high degree of reliability and accuracy. The modular design is simple and yet offers advantages over more expensive feeders on sale today, with quick and easy interchangeability of components.

It has been designed to meet the need for an accurate, versatile range of feeders to meter powders and granular or fibrous materials from the food, plastic, chemical, pharmaceutical, cement and associated industries.

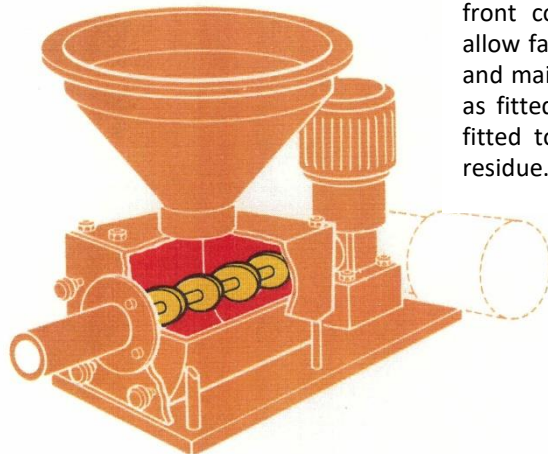
The material feed can be either on a batch or continuous basis, and in many applications, accuracies of $\pm 1\%$ or better can be achieved.

The various AutoFeeder alternatives offer the most cost-effective solution for metering and dosing problems.



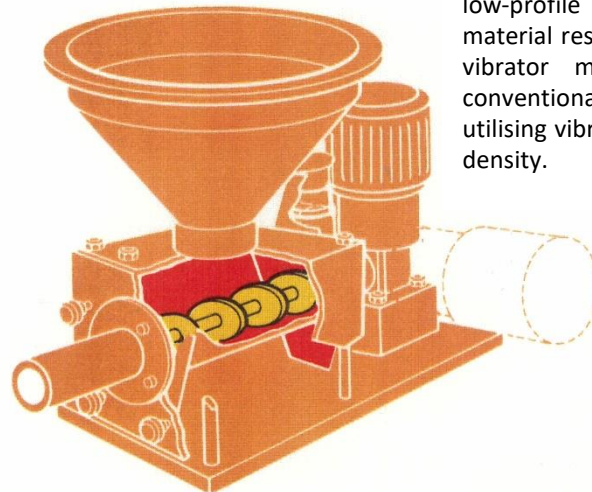
Standard Feeder

The standard AutoFeeder is suitable for free-flowing materials and comes with a large trough containing a feed screw assembly. Quick release catches on the front cover, hopper and trough covers allow fast strip down for ease of cleaning and maintenance. The low-profile trough, as fitted on the vibrating model, can be fitted to the body to achieve minimum residue.



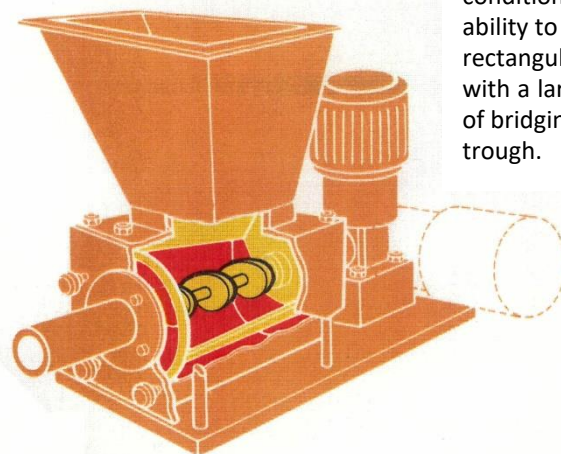
Vibrating Feeder

The vibrating AutoFeeder is designed for fine cohesive or adhesive powders with a low-profile trough to give minimum material residue. This unit is fitted with a vibrator motor and functions as a conventional metering screw feeder, utilising vibration to achieve an even bulk density.



Conditioning Feeder

The conditioning AutoFeeder is fitted with an agitator blade assembly. The agitator is designed to keep fibrous materials in 'live' condition, giving the AutoFeeder the ability to meter these difficult materials. A rectangular hopper has been developed with a large throat to avoid the possibility of bridging and to ensure flood feed to the trough.



QUICK EASY CLEAN-DOWN

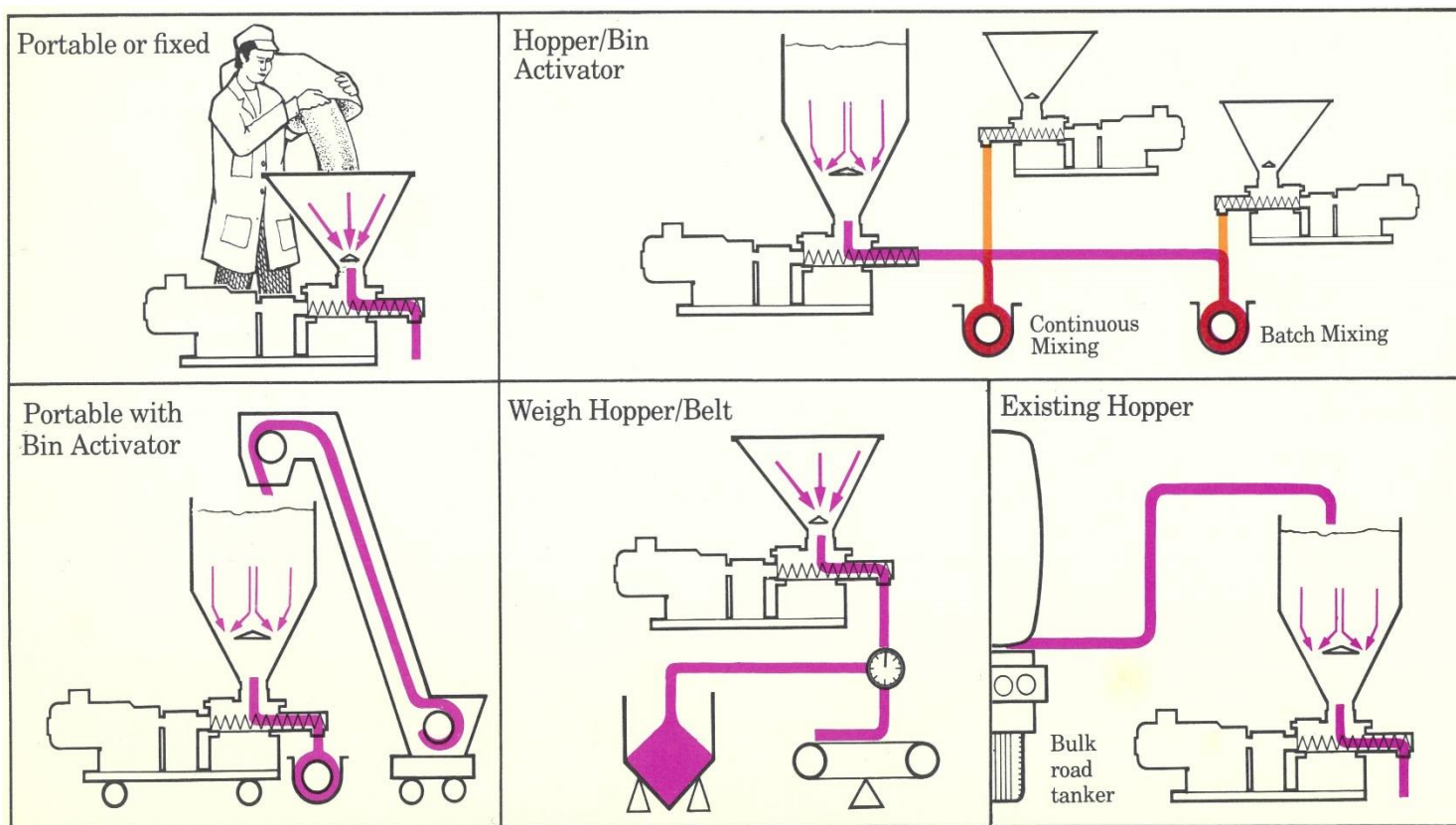
- Electrical Safety Interlocks
- Quick Release Fasteners
- Operative Clean-down

Based on many years of experience in the design and manufacture of bulk handling equipment, the Grain Tech range of metering feeders incorporates many advanced features. They have been designed to meet the need for an accurate, versatile, and reasonably priced feeder to meter dry or semi-dry, powdered or granular materials, in the chemical, food, pharmaceutical, plastic, cement, and associated industries. The material output can be either an intermittent or continuous basis. In many cases +/- 1% accuracy or better is possible.

This metering feeder series, with its advanced performance against capital cost, when compared with gravimetric or similar equipment, has been designed to high standards to give many years of reliable service with dependable and repeatable metering performance.



Applications



Description

Grain Tech's expertise in handling difficult materials ensures that the correct equipment is specified for your application. A range of options and extras being available to fine tune the feeder to suit every need, and with the six interchangeable feed screws / discharge tubes, it is possible to re-rate this machine at any time for a small capital outlay.

The machine may be supplied either with or without a vibrator motor, but this is dependent upon the characteristics of the material being handled.

This machine is supplied with a hopper – 45 or 90 litres (1.5 or 3.0ft³) – mounted above a trough. In the base of the trough runs a metering feed screw. This extends horizontally through the end of the trough and along a discharge tube, from which the material is discharged either out of the end, or from the bottom. The hopper may be filled by hand or from a silo. When feeding from a silo it is advised that a Bin Activator is used to reduce the headload on the feeder. Limit switches in the hopper operate the Bin Activator.

The whole of the above assembly may be vibrated, by an adjustable vibrator motor, dependent upon the characteristics of the material being handled and the accuracy required (e.g. easily handled, free-flowing material may not require the vibrator motor if an accuracy of less than $\pm 1\%$ is required). By the correct application of vibration techniques, powdered and granular material in the hopper and trough are suitably conditioned to provide a steady and smooth supply of material to the feed screw. More than 95% of all vibrations are isolated from the surrounding steelwork.

The design of the feed screw determines the final performance and accuracy of the machine. Three types are available, the correct one being chosen to suit material characteristics. All bearings are lubricated for life and the standard material for the sleeves is natural rubber.

The speed of the feed screw, and hence the flow of the material, can be controlled to a set speed or varied over a 20:1 range, either manually or automatically to suit the application.

The drive is supplied by a shunt wound, geared DC motor, controlled by one of two thyristor motor speed control systems, depending upon the accuracy required. The connection between the drive unit and the feed screws is through a flexible coupling. This easily replaced item also acts as a safety device, in case of blockage in the discharge tube.

Operation

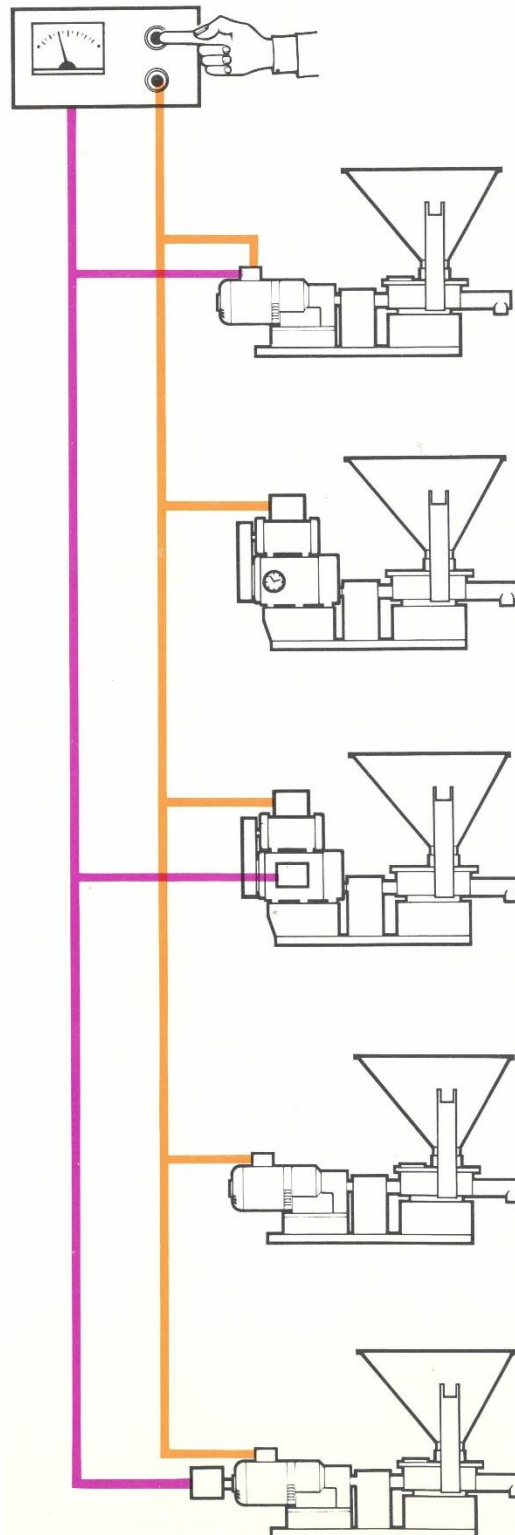
The material is fed into the hopper, either manually or through a Bin Activator, to be conditioned by vibration to a constant density. After conditioning it flows past an externally adjustable baffle, which eliminates bridging, rat-holing, etc., into a trough. Between the hopper and the trough is an externally adjustable sleeve that governs the loading of the material above the feed screw. A transparent window is supplied for routine checking of this material level.

Further conditioning of the material is carried out in the trough, before the material is conveyed by the feed screw into the discharge tube, for delivery into the process.

The amount of material delivered may be adjusted by hand, at the machine or from a remote panel, or controlled automatically.

No special equipment is required to disassemble the machine.

Alternative Drives



Standard Drive

Shunt wound, geared, DC motor, controlled by one of two thyristor motor speed control units, either with armature feedback, or, where high accuracy is required, through a tachogenerator closed loop feedback circuit.

Electro-Hydraulic Variable Speed Drive

Manually operated speed change dial on the hydraulic gearbox.

Electro-Hydraulic Variable Speed Drive

Complete with remote or automatic speed control by an electrical or pneumatic signal.

Fixed Speed, Geared, AC or DC Drive

Fixed for a given output speed or pre-determined variations.

Speed Indication

Either remote or local to the feeder, through a tachogenerator, complete with instrumentation.

Features / Benefits

Quick release mechanisms ensure that no special equipment is required to disassemble the machine and allows for fast operative clean-down and changeover to other materials.

Feed troughs and hoppers are interchangeable for different material applications.

Components are interchangeable across the range reducing the spares carrying requirement.

The motor drive unit can be rotated by 90-degree increments to select the most convenient position for the particular installation.

Three types of screws are available and detailed recommendations will be made by our Engineers subject to the material being handled.

Magnetic switches ensure that the machine will not start when moving parts are exposed.

All bearings are 'sealed' for life.

Specification

Size Range

6 sizes of feed screw/discharge tube are available 6-50mm (¼-2in) inside diameter.

Standard

Inlet to outlet centre line dimension of 320mm (12½in).

Optional

Longer discharge tubes, to a maximum of 1m (3ft 3in) between centres

Hopper Sizes

45 or 90 litres (1.5 or 3.0ft³). A lid and/or screen can be supplied for certain applications.

Materials of Construction

Standard

Mild steel, natural rubber sleeves.

Optional

Stainless steel, polished if required.

All welds ground smooth.

Food quality sleeves.

Internal / External Finish

Standard

Enamel paint.

Optional

Epoxy paints, PTFE, polyurethane, etc.

Drive

Standard

½hp shunt wound, geared DC motor controlled by one of two thyristor motor speed control units, depending upon the required accuracy of the feed. 220/250 volt, 1ph, 50/60Hz supply.

Extra

Can be supplied to accept 4-20mA external feedback signal for automatic speed/time control.

Voltage other than 220/250.

Hoseproof.

Optional

Geared motor with fixed speed.

380/440 volt, 3ph, 50/60Hz supply AC motor and variable speed hydraulic gearbox.

Extra

Can be supplied to accept 0.2-1.0 Kg/cm² (3-15 lbf/in²) master signal with Servo unit. Remote speed indicator (tachogenerator). Electric remote control.

Voltages other than 380/440.

Hoseproof.

Flameproof (BS 229 Groups II and III).

Vibrator Motor

1/16hp, 3000 rev/min vibrator motor, suitable for 220/250 volt, 1ph, 50/60Hz or 380/440 volt, 3ph, 50/60Hz supply, with variable weight settings.

Under our policy of continued improvement, we reserve the right to amend specifications at any time.

Approximate Maximum Capacities

Size (mm)	6	13	20	25	43	50
Litres/hr	1.2	10.7	63	97	570	792
Ft³/hr	0.04	0.37	2.3	3.5	20	28

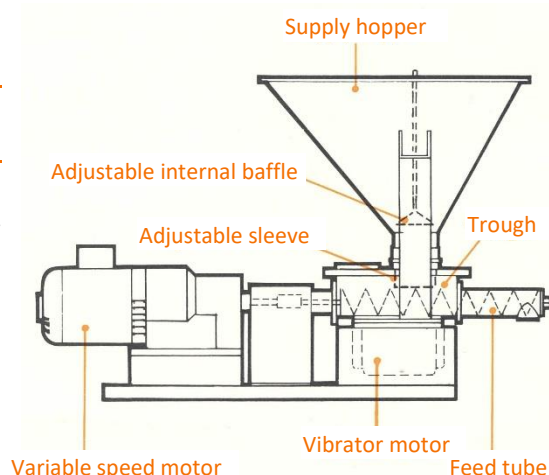
The above throughputs assume a relatively free-flowing material, e.g. ground coffee. Throughputs for other materials will be greater or less, depending upon their physical characteristics.



Flight Screw



Wire Screw



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OFFERS TOTAL CAPABILITY IN
EQUIPMENT SYSTEMS & PROCESSORS FOR
Particle Size Reduction, Milling, Crushing, Sifting,
Classifying, Mixing, Pelleting, Agglomeration,
Extruding, Bulk Material Handling, Drying,
Cooling, Conveying & Packaging