

Acrison®

Volumetric Feeders Models 170-1-2 and 170-2-2

For Dry Solid Materials



Self-Purging • Rapid Emptying • Easy to Clean
Built to Last

*Advanced design technologies for superior
performance, quality and reliability.*

Volumetric Feeders Models 170-1-2 and 170-2-2 *For Dry Solids*

Designed for both continuous and batching applications, the ruggedly built Model 170-1-2 and 170-2-2 Volumetric Feeders feature a uniquely versatile metering mechanism with two independently driven metering augers for accurately and reliably metering a diverse variety of dry solid ingredients over an exceptionally broad feed range.

Background

Specifications for an auger type dry solids volumetric feeder for a given application usually stipulate maximum feed range output capabilities of 10:1 or 20:1, which can generally be achieved with a single metering auger since the variable speed drives of most auger type volumetric feeders are capable of providing such speed ranges. However, for the majority of applications, optimum levels of metering performance are achieved when the output feed (speed) range for a given metering auger size is restricted (perhaps to 10:1 or less). And in such instances, particularly when a high degree of short-term metering accuracy is a process requirement, more than one metering auger is usually necessary.

When a dry solids auger type volumetric feeder is operating, product discharge pulsates, which to varying degrees is common to virtually all type auger feeders, and which pulsations are directly related to the design and speed of the metering auger. At lower auger speeds, feed output pulsations are most pronounced, which may be undesirable for certain processes; in fact, many modern-day processes require the smoothest possible feed. And because of this, processors often operate auger type dry solids feeders at higher speeds; however, operating a metering auger at high speeds (i.e., in excess of 200 RPM) could create other problems (e.g., heat generation) that may adversely affect product characteristics, product degradation and/or attrition, adhesion, etc..

Optimizing the speed range of the metering auger of a dry solids feeder is always a crucial consideration associated with overall feeder performance, especially short-term. Consequently, whenever a specific application requires a feed range output that is beyond the optimal speed



range of a given size metering auger, changing to another metering auger size (larger or smaller) has historically been the route taken.

To enhance very short-term metering performance (even as short as a fraction of a second), Acrison offers a number of uniquely designed metering augers (some proprietary in nature) specifically to produce the highest level of short-term metering accuracy. And although not suitable for all dry solid ingredients, tests utilizing such metering augers can be performed (with the actual material) to determine performance characteristics.

Models 170-1-2 and 170-2-2 Volumetric Feeders

Featuring two independently driven metering augers for metering dry solid ingredients over an exceptionally wide feed range.

Operational Overview

The Models 170-1-2 and 170-2-2 Volumetric Feeders consist of a circular, wide-throat, flat bottom feed chamber that attaches directly to the outlet of a mating supply hopper. Within the feed chamber, a slowly rotating horizontal agitator (driven from beneath) ensures positive flow of product out of the supply hopper and directly into the feed chamber.

Integral to the underside of the feed chamber, two metering augers, housed in individual troughs, are efficiently and completely filled with product of consistent density by the sweeping rotational action of a uniquely configured agitator. All areas within the feed chamber and metering auger troughs are active; dead zones do not exist and therefore, product stagnation cannot occur anywhere within the feeder.

In addition, these particular model feeders have the unique ability to *"self empty"* – when permitted to feed until empty, or to be *"emptied-quickly"* – when it is desired to empty the feeder rapidly. The latter is accomplished by means of novel discharge port located in the flat bottom of the feed chamber. Clean-out is fast, easy and complete.

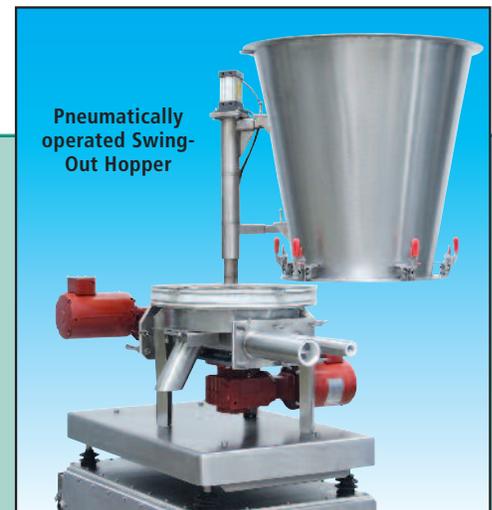
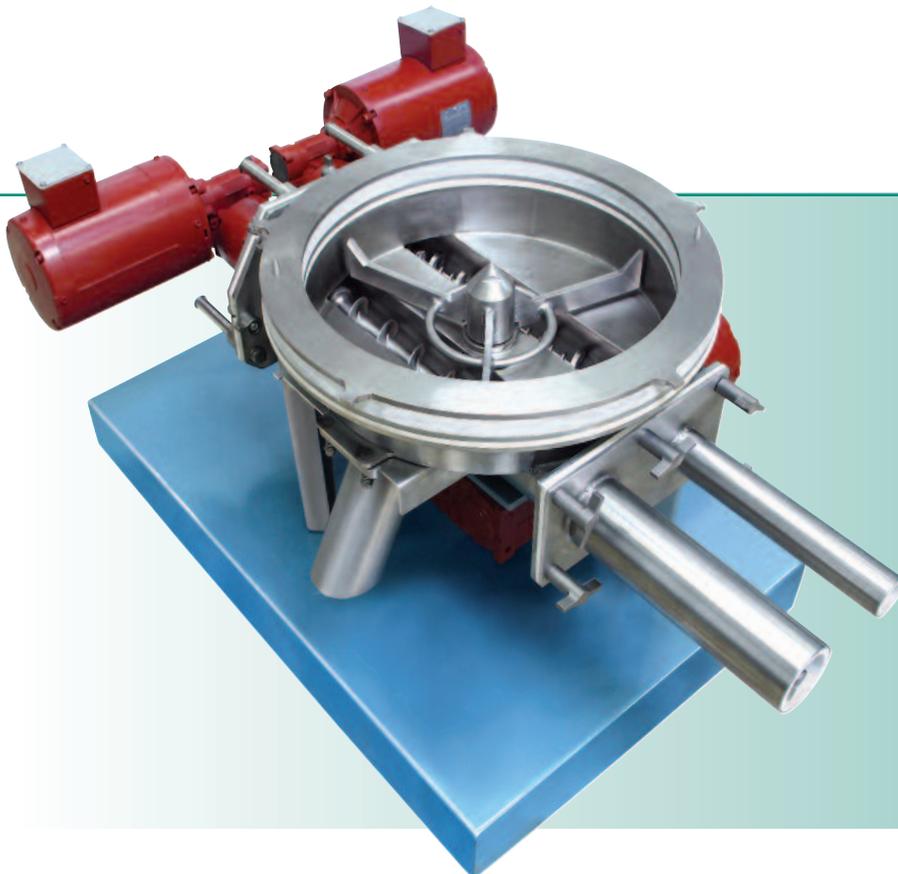
Specifically, the Model 170-1-2 and 170-2-2 Feeders eliminate the undesirable requirement to change the size of a feeder's metering auger whenever a feed range is required that cannot be effectively covered by a single size auger. But with two metering augers sized accordingly, a very wide feed range is possible.

Additionally, for batching applications, these Model 170 Feeders are able to provide high and low feed outputs (rapid feed/dribble feed) whereby a large metering auger feeds the majority of the material for the desired batch, and a smaller auger provides the final "dribble" amount so that the highest degree of batch accuracy can be achieved.

Model 170-1-2 and 170-2-2 Feeders utilize three separate heavy-duty drives – one for the agitator and one for each of the two metering augers. The agitator is usually driven by a constant speed gearmotor, and the metering augers by variable speed drives. However, for optimum flexibility in certain applications, the agitator and metering augers may be powered by variable speed drives, operating in a ratio (adjustable) to each other.

In general, the overall control scheme for a given Model 170-1-2 or 170-2-2 Feeder is configured to suit the specifics of a given application and/or user requirements.

Metering accuracies generally range between ± 1 to 2 percent or better (error) for the majority of products based on a given number of consecutive one minute samples.



Models 170-1-2 and 170-2-2 Volumetric Feeders

Featuring a “Self-Emptying” design and a novel “discharge Port” to enable rapid emptying/cleaning.

Standard Features

- Designed with just three moving parts.
- All product contact surfaces are 304 stainless steel.
- For the Model 170-1-2, available hopper capacities are either 4 or 6 cubic feet.
- For the Model 170-2-2, available hopper capacities are 10, 15 and 20 cubic feet.
- No hopper loading head effect on output feed rate.
- Self-empties.
- Rapid-emptying (via discharge port).
- Simple and easy to clean.
- Totally enclosed variable speed AC or DC gearmotor drives for the metering augers provide a 10:1, 20:1, 30:1 or 50:1 speed range.
- For the Model 170-1-2, the total feed rate output capacity ranges from 0.28 to 84 cubic feet per hour (see Capacity Chart on page 5).
- For the Model 170-2-2, the total feed rate output capacity ranges from 0.4 to 160 cubic feet per hour (see Capacity Chart on page 5).
- Metering auger gearmotors slide-back to facilitate cleaning.
- Rugged and dependable.
- Requires minimal maintenance.

Optional / Accessory Equipment

- Various AC and DC variable speed motor controllers and control modes.
- Quick Disassembly/Re-assembly Construction.
- Sanitary Construction to meet USDA and FDA codes and requirements.
- Swing-out and lift-off hoppers to facilitate clean-out.
- Vibrating hopper with Acrison’s unique Isolation Pad for promoting the flow of products possessing poor handling characteristics.
- Hazardous area electrical construction.



Quick Discharge

Isolation Pad

Quick Disconnect Clamps

“Active Hopper” Option

Based on product handling characteristics, Model 170 Feeders may be equipped with Acrison’s exclusive “Hopper Isolation Pad”, which allows the feeders’ integral supply hoppers to become uniformly active when a gentle, high frequency vibration is applied. In turn, positive flow from within the supply hoppers and into the feed chambers is ensured.

“Quick Disassembly/Re-assembly” Option

To further enhance, expedite and simplify clean-out, the Models 170-1-2 and 170-2-2 Feeders are available with “Quick Disconnect Construction” for rapid and complete access to all internal areas.

For ease of removing certain major components and/or to facilitate accessibility, this option typically includes captive knobs on feeder discharge spouts, threaded metering auger attachments to their drive shafts, and quick removable conditioning agitators. In addition, gearmotor drives powering the metering augers slide back for full access to the rear portion of the metering auger troughs, allowing easy and complete clean-out.

Also for ease of removal, standard hoppers can be supplied with quick-release clamps that secure the hoppers to their respective feed chambers, allowing full access to all internal areas for cleaning. In addition, the hoppers of Models 170-1-2 and 170-2-2 Feeders can also be furnished with “swing-out/lift-off” mechanisms that lift hoppers (6 cubic feet in capacity and larger) off of their feed chambers pneumatically, providing the capability for total and complete clean-out (see page 3).

Models 170-1-2 and 170-2-2 Volumetric Feeders

Standard Metering Auger Combinations and Output Capacities

- The feed output capacities for the indicated metering auger sizes are based on feeding an amorphous material weighing approximately 40 pounds per cubic foot.
- Metering auger sizes outlined in the Capacity Chart are configured so that based on the indicated feed range output for each metering auger, the maximum output of the first metering auger overlaps the minimum output of the second metering auger.
- For the Model 170-1-2, the largest possible combination of metering augers is size "GG", which will provide a total (combined) output capacity of 84 cubic feet per hour (reference the applicable Capacity Chart).
- For the Model 170-2-2, the largest combination of metering augers is size "GG" and "KK", which will provide a total (combined) output capacity of 160 cubic feet per hour (reference the applicable Capacity Chart).
- Metering auger combinations, other than those indicated in the Capacity Charts, may be available.



Model 402X-170-1-2
"Weight-Loss-Differential"
Weigh Feeder with a
special downspout.

MODEL 170-1-2 CAPACITY CHART (Capacities shown in cubic feet per hour)				
Based on a 10:1 Output Feed Range for each Metering Auger				
First Metering Auger Size	Feed Output	Second Metering Auger Size	Feed Output	Total Feed Range
CC	0.14 to 1.4	EE	0.87 to 8.7	62:1
D	0.24 to 2.4	F	1.4 to 14	58:1
DD	0.42 to 4.2	G	2.9 to 29	69:1
E	0.6 to 6	GG	4.2 to 42	70:1
EE	0.87 to 8.7	GG	4.2 to 42	48:1
Based on a 15:1 Output Feed Range for each Metering Auger				
First Metering Auger Size	Feed Output	Second Metering Auger Size	Feed Output	Total Feed Range
CC	0.093 to 1.4	F	0.93 to 14	150:1
D	0.16 to 2.4	FF	1.27 to 19	119:1
DD	0.28 to 4.2	G	1.93 to 29	104:1
E	0.4 to 6	GG	2.8 to 42	105:1
EE	0.58 to 8.7	GG	2.8 to 42	72:1

MODEL 170-2-2 CAPACITY CHART (Capacities shown in cubic feet per hour)				
Based on a 10:1 Output Feed Range for each Metering Auger				
First Metering Auger Size	Feed Output	Second Metering Auger Size	Feed Output	Total Feed Range
E	0.6 to 6	G	2.9 to 29	48:1
E	0.6 to 6	GG	4.2 to 42	70:1
E	0.6 to 6	H	5.1 to 51	85:1
EE	0.87 to 8.7	HH	7.2 to 72	83:1
F	1.4 to 14	K	9.6 to 96	69:1
FF	1.9 to 19	KK	11.8 to 118	62:1
G	2.9 to 29	KK	11.8 to 118	41:1
GG	4.2 to 42	KK	11.8 to 118	28:1
Based on a 15:1 Output Feed Range for each Metering Auger				
First Metering Auger Size	Feed Output	Second Metering Auger Size	Feed Output	Total Feed Range
E	0.4 to 6	G	1.93 to 29	73:1
E	0.4 to 6	GG	2.8 to 42	105:1
E	0.4 to 6	H	3.4 to 51	128:1
E	0.4 to 6	HH	4.8 to 72	180:1
EE	0.58 to 8.7	K	6.4 to 96	166:1
F	0.93 to 14	K	6.4 to 96	103:1
FF	1.27 to 19	KK	7.9 to 118	93:1
G	1.93 to 29	KK	7.9 to 118	61:1
GG	2.8 to 42	KK	7.9 to 118	42:1

Discover the difference!

We cordially invite you to witness a test in Acrison's state-of-the-art Customer Demonstration Facilities handling your actual product(s) with the specific equipment we recommend for the application. Usually, there is no cost or obligation for this service. Discover the difference in technology, quality and performance of Acrison equipment.



Empire Boulevard Facility
Moonachie, NJ USA

Acrison products...

- Models 101 and 130 Volumetric Feeder Series
- Models V-101 and V-130 Volumetric Feeders
- Model 1015 Volumetric Feeder Series
- Model 105 Volumetric Feeder Series
- Model W-105 Volumetric Feeder Series
- Model 120 Volumetric Feeder
- Model 140 Volumetric Feeder Series
- Model 170 Volumetric Feeder Series
- Model 905-14 Volumetric Feeder
- Bin Discharger Feeders
- Model 200 Weigh Belt Feeder Series
- Model 203B Weigh Auger Feeder Series
- Model 270 In-Line Weigh Feeder Series
- Models 402, 404, 405, 406, 407, 408 and 410 ("Weight-Loss-Differential") Weigh Feeders
- Model Series 403 ("Weight-Loss-Differential") Weigh Feeders
- Model 403B(D) Batch/Dump Weighing Systems
- Model 404BZ(BU) Bulk Bag Unloader Batch Weigher
- Models 350 and 301 Continuous Blenders and Blending Systems
- Multiple Auger Bin Dischargers and Multiple Auger Bin Discharger Hoppering Systems
- Vibratory Bin Discharger Hoppering Systems
- Model 170-BD-30 Bin Discharger
- Models 810 and 820 Bulk Bag Unloaders
- Models 500, 515, 530, and 580 Polyelectrolyte Preparation Systems
- Water and Waste Water Treatment Systems
- Volumetric and Gravimetric Feeder Controllers and Control Systems
- Silo Systems
- Accessory Equipment for Acrison Products
- Systems Engineering



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