

Acrison[®]

Volumetric Feeders Model 170 Series

For Dry Solid Materials



Self-Purging • Rapid Emptying • Easy to Clean

*Advanced Materials-Handling Technologies Combined
with Strong Mechanical Designs for Superior Metering
Performance and Equipment Reliability.*

Acrison®

Volumetric Feeders

Model 170 Series

For Dry Solids

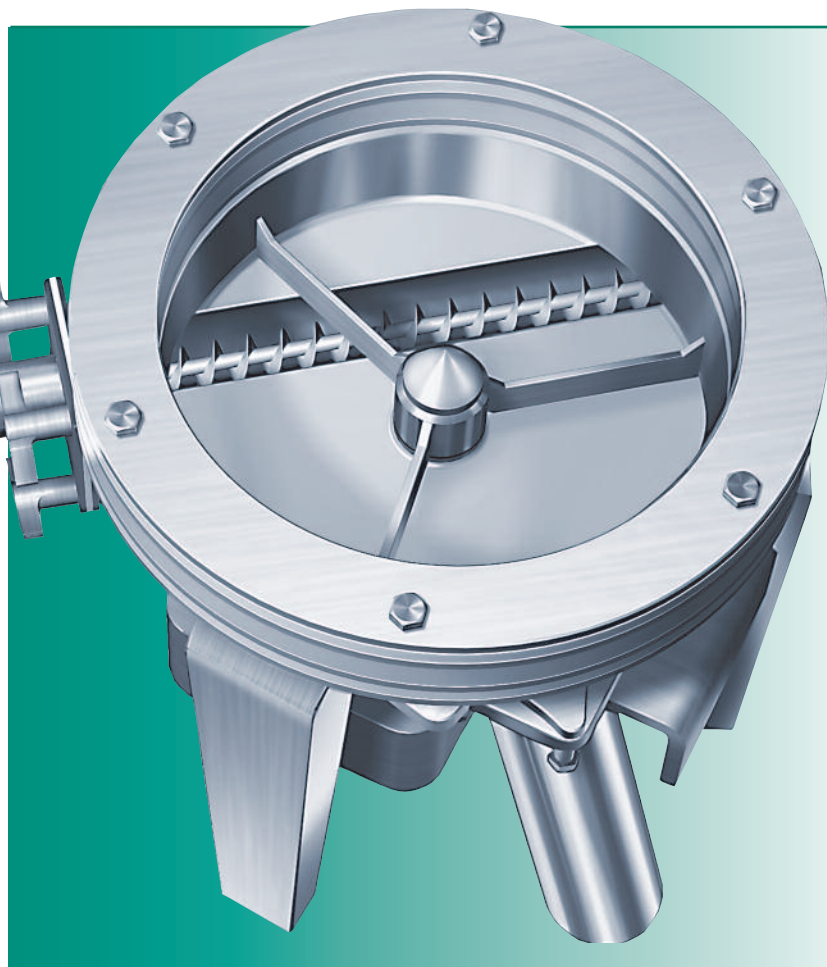
The ruggedly built Model 170 Series of Feeders are designed with a uniquely versatile metering mechanism that will accurately and reliably meter a very wide and diverse variety of dry solid materials. In addition, these particular model feeders also include the ability to **'self-empty'** and be **'emptied rapidly'**.

The Model 170 Series of Volumetric Feeders consist of circular flat bottom feed chambers with unrestricted inlets onto which the mating outlets of conical supply hoppers attach. Within the feed chambers, the sweeping rotational action of uniquely configured, slowly rotating horizontal agitators (driven from beneath) efficiently and completely **'fills'** the metering auger (or augers) with product of uniform consistency. Simultaneously, the agitators also aid the downward flow of product out of the feeders' integral hoppers and into the feed chambers. All areas within the feed chambers and metering auger troughs are active; product stagnation cannot occur anywhere within the feeders.

The metering mechanism of Model 170 Feeders has the unique ability to **'self-empty'**, when permitted to feed until empty, or to be **'emptied quickly'**, when it's desired to empty the feeder rapidly. The latter is accomplished by means of a novel **'discharge port'** located in the flat bottom of the feed chamber.

Basic Model 170 Feeders are available in six different sizes, with each model capable of a specific feed range output capacity (see pages 4, 5 and 6). They are equipped with a single metering auger and two gearmotor drives, one for the variable speed metering auger and another for the agitator.

The Models 170-1-2 and 170-2-2 Feeders (see pages 7-10) are equipped with two metering augers instead of one, and include three independent gearmotor drives, two for the variable speed metering augers, and another for the agitator.



In the utilization of two metering augers, the need to change the size of an auger during a production run in order to achieve a broad feed range not realistically possible with a single metering auger, is eliminated. Also, in the utilization of two independently powered variable speed metering augers, optimally sized to cover a specific feed range, the augers will operate at speeds that will produce maximum metering performance and uniformity of product discharge.

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

Model 170 Series of Volumetric Feeders

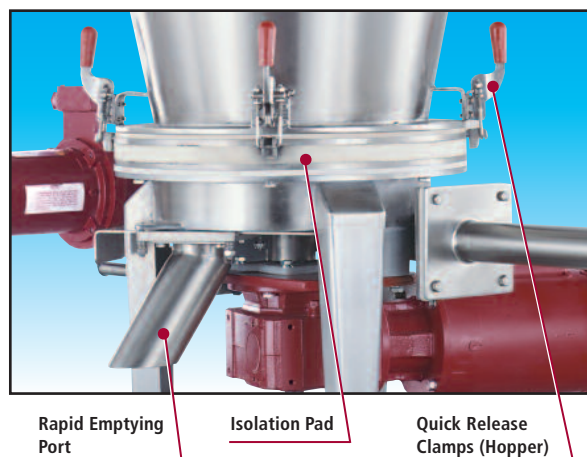
Features a 'self-emptying' design including the ability to be 'emptied rapidly' by means of a novel discharge port.

Standard Features

- Superior Metering Performance.
- All product contact surfaces are 304 stainless steel.
- Designed with just two moving parts.
- Self-empties.
- Rapid emptying via a novel discharge port.
- Simple and easy to clean.
- See pages 4 and 5 for available hopper sizes.
- A totally enclosed variable speed AC or DC gearmotor powers the metering auger; provides a 10:1, 20:1, 30:1 or 50:1 speed range.
- The metering auger gearmotor (with seal assembly) slides back to facilitate cleaning.
- A totally enclosed AC gearmotor powers the agitator.
- The overall (total) feed rate output capacity for the complete range of Model 170 Feeders is 0.0012 to 900 cubic feet per hour (see pages 4, 5 and 6 for specifics).
- Rugged and dependable. Silent when operating.
- Requires minimal maintenance.
- Temperature:
Ambient -20 to 140 degrees F.
Product -20 to 200 degrees F.

Optional / Accessory Equipment

- 316 stainless steel construction.
- Quick disassembly/re-assembly construction (certain models).
- Sanitary construction to meet USDA and FDA codes and requirements.
- Lift-off/swing-out and tilt-back hoppers to facilitate clean-out (certain models).
- Vibrating hopper with Acrison's unique Isolation Pad to ensure the flow of difficult-handling products (certain models).
- Various AC and DC variable speed motor controllers and control modes.
- Hazardous area electrical construction.



'Active Hopper' Option

Based on product handling characteristics, Model 170 Feeders may be equipped with Acrison's '**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 of even the most difficult-handling products is ensured.

'Quick Disassembly/Re-assembly' Option

To further enhance, expedite and simplify total clean-out, certain Model 170 Feeders are available with '**Quick Disconnect Construction**' so that cleaning can be performed in just minutes by allowing 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 the feeder's discharge spout, a threaded metering auger attachment to its drive shaft, and a quick removable conditioning agitator. In addition, the metering auger drives (of most Model 170 Feeders) slide back for full access to the rear portion of the metering auger trough, allowing thorough clean-out.

Also for ease of clean-out, the hoppers of the Models 170-00, 170-0 and 170-1 Feeders are available with **quick-release clamps** for removal, while the hopper of the Model 170-00 Feeder can be furnished with a tilt-back (hinged) design, likewise to facilitate clean-out. In addition, and in order to simplify the task of clean-out, the hoppers of the Models 170-0, 170-1 and 170-2 Feeders can be provided with '**Lift-Off/Swing-Out**' mechanisms that lift the hoppers off their feed chambers (either manually or pneumatically), so they can be moved to the side for ease of cleaning.

Model 170 Series of Volumetric Feeders



Model 170-00



Model 170-0



Model 170-1



Model 170-2

Model 170-00 Feeder

Designed with a 9-inch diameter feed chamber, the Model 170-00 Feeder has a feed rate output capacity ranging from approximately 0.0012 to 6 cubic feet per hour in the utilization of a number of different size metering augers. As standard, the Model 170-00 Feeder is furnished with either a 0.5 or 1 cubic foot supply hopper and is available as one of the integral metering mechanisms used with Acrison's Model 406 'Weight-Loss' Weigh Feeder.

Model 170-0 Feeder

Designed with a 13.5-inch diameter feed chamber, the Model 170-0 Feeder has a feed rate output capacity ranging from approximately 0.0076 to 19 cubic feet per hour in the utilization of a number of different size metering augers. As standard, the Model 170-0 Feeder is furnished with a 2 cubic foot supply hopper, although a larger hopper is available as an option. In addition, the Model 170-0 Feeder is available as one of the integral metering mechanisms used with Acrison's Model 405 'Weight-Loss' Weigh Feeder.

Model 170-1 Feeder

Designed with an 18-inch diameter feed chamber, the Model 170-1 Feeder has a feed rate output capacity ranging from approximately 0.084 to 51 cubic feet per hour in the utilization of a number of different size metering augers. As standard, the Model 170-1 Feeder is furnished with a 4 cubic foot supply hopper, although a larger hopper is available as an option. In addition, the Model 170-1 Feeder is available as one of the integral metering mechanisms used with Acrison's Model 402 'Weight-Loss' Weigh Feeder.

Model 170-2 Feeder

Designed with a 24-inch diameter feed chamber, the Model 170-2 Feeder has a feed rate output capacity ranging from approximately 0.28 to 118 cubic feet per hour in the utilization of a number of different size metering augers. As standard, the Model 170-2 Feeder is furnished with a 10 cubic foot supply hopper, although larger hoppers are available as an option. In addition, the Model 170-2 Feeder is available as one of the integral metering mechanisms used with Acrison's Model 402X 'Weight-Loss' Weigh Feeder.

Model 170 Series of Volumetric Feeders



Model 170-3



Model 170-4

Model 170-3 Feeder

Designed with a 30-inch diameter feed chamber, the Model 170-3 Feeder has a feed rate output capacity ranging from approximately 0.38 to 240 cubic feet per hour in the utilization of a number of different size metering augers. As standard, the Model 170-3 Feeder is furnished with a 20 cubic foot supply hopper, although larger hoppers are available as an option. In addition, the Model 170-3 Feeder is available as one of the integral metering mechanisms used with Acrison's Model 403 and 404X 'Weight-Loss' Weigh Feeder.

Model 170-4 Feeder

Designed with a 36-inch diameter feed chamber, the Model 170-4 Feeder has a feed rate output capacity ranging from approximately 1.92 to 900 cubic feet per hour in the utilization of a number of different size metering augers. As standard, the Model 170-4 Feeder is furnished with a 40 cubic foot supply hopper, although larger hoppers are available as an option. In addition, the Model 170-4 Feeder is available as one of the integral metering mechanisms used with Acrison's Model 403 and 404X 'Weight-Loss' Weigh Feeder.

Model 170 Series of Volumetric Feeders

Feed Output Capacities

MODEL 170-00 FEEDER CAPACITY CHART
(Capacities shown in cubic feet per hour)

Model Size	Minimum Output		Maximum Output
	30:1 Speed Range	50:1 Speed Range	
170-00-A	0.002	0.0012	0.06
170-00-B	0.005	0.003	0.15
170-00-BC	0.0127	0.0076	0.38
170-00-BB	0.018	0.0108	0.54
170-00-C	0.03	0.018	0.9
170-00-CC	0.047	0.028	1.4
170-00-D	0.08	0.048	2.4
170-00-DD	0.14	0.084	4.2
170-00-E	0.2	0.12	6

MODEL 170-0 FEEDER CAPACITY CHART
(Capacities shown in cubic feet per hour)

Model Size	Minimum Output		Maximum Output
	30:1 Speed Range	50:1 Speed Range	
170-0-BC	0.0127	0.0076	0.38
170-0-BB	0.018	0.0108	0.54
170-0-C	0.03	0.018	0.9
170-0-CC	0.047	0.028	1.4
170-0-D	0.08	0.048	2.4
170-0-DD	0.14	0.084	4.2
170-0-E	0.2	0.12	6
170-0-EE	0.29	0.174	8.7
170-0-EF	0.38	0.23	11.4
170-0-F	0.47	0.28	14
170-0-FF	0.63	0.38	19

MODEL 170-1 FEEDER CAPACITY CHART
(Capacities shown in cubic feet per hour)

Model Size	Minimum Output		Maximum Output
	30:1 Speed Range	50:1 Speed Range	
170-1-DD	0.14	0.084	4.2
170-1-E	0.2	0.12	6
170-1-EE	0.29	0.174	8.7
170-1-EF	0.38	0.23	11.4
170-1-F	0.47	0.28	14
170-1-FF	0.63	0.38	19
170-1-G	0.97	0.58	29
170-1-GG	1.4	0.84	42
170-1-H	1.7	1.02	51

MODEL 170-2 FEEDER CAPACITY CHART
(Capacities shown in cubic feet per hour)

Model Size	Minimum Output		Maximum Output
	30:1 Speed Range	50:1 Speed Range	
170-2-F	0.47	0.28	14
170-2-FF	0.63	0.38	19
170-2-G	0.97	0.58	29
170-2-GG	1.4	0.84	42
170-2-H	1.7	1.02	51
170-2-HH	2.4	1.4	72
170-2-K	3.2	1.9	96
170-2-KK	3.9	2.4	118

MODEL 170-3 FEEDER CAPACITY CHART
(Capacities shown in cubic feet per hour)

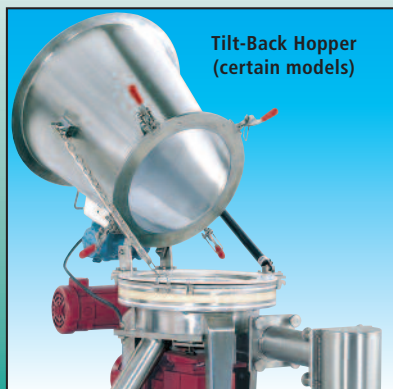
Model Size	Minimum Output		Maximum Output
	30:1 Speed Range	50:1 Speed Range	
170-3-FF	0.63	0.38	19
170-3-G	0.97	0.58	29
170-3-GG	1.4	0.84	42
170-3-H	1.7	1.02	51
170-3-HH	2.4	1.44	72
170-3-K	3.2	1.92	96
170-3-KK	3.9	2.36	118
170-3-M	5.3	3.2	160
170-3-N	6.7	4.0	202
170-3-NN	8	4.8	240

MODEL 170-4 FEEDER CAPACITY CHART
(Capacities shown in cubic feet per hour)

Model Size	Minimum Output		Maximum Output
	30:1 Speed Range	50:1 Speed Range	
170-4-K	3.2	1.92	96
170-4-KK	3.9	2.36	118
170-4-M	5.3	3.2	160
170-4-N	6.7	4.0	202
170-4-NN	8	4.8	240
170-4-P	11	6.4	320
170-4-R	20	12	600
170-4-S	30	18	900

Output Capacities

The above Charts indicate the maximum output capacity for each size metering auger available with the Model 170 Series of Feeders based on 30:1 and 50:1 speed ranges (10:1 and 20:1 speed ranges are not shown). Since the physical properties of a given product usually affect the exact output, the stated capacities could vary.



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

Unlike dry solids feeders designed with a single metering auger, the Models 170-1-2 and 170-2-2 Volumetric Feeders include two independently driven metering augers, the combination of which not only provides an exceptionally wide feed range, but also, eliminates the requirement to change the size of a metering auger whenever a desired feed range cannot be effectively covered by a single auger.

In addition, all Model 170 Series of Feeders feature *'self-emptying'*, and *'rapid emptying'* capabilities. When permitted to feed until empty, only a bare minimal amount of residual material will remain in the feeder. In addition, all Model 170 Feeders are also capable of being emptied rapidly via a novel *'discharge port'* located in the bottom of their feed chambers.

Specifications for an auger type dry solids feeder typically stipulate a 10:1 or 20:1 feed range capability, which can generally be achieved with a single metering auger since the variable speed drives of most auger type feeders are capable of providing such speed ranges. But there are also applications where feed ranges wider than those indicated above are required, which can likewise be accomplished with a single metering auger (with an appropriate drive system), although other factors must be considered.

For example, when a relatively wide feed range is a process requirement, processors may elect to use a dry solids feeder where the maximum speed of the metering auger may be 200 RPM (or higher), so that a wider feed range turndown can be achieved that will minimize pulsations at lower speeds. However, operating a metering auger at high speeds can create other problems such as heat generation, 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 where short-term accuracy is concerned, which necessitates minimizing feed output pulsations at lower auger speeds.



Therefore, whenever a specific application requires a feed range that is beyond the optimal speed range of a given size metering auger (typically 10:1), changing to another size auger (larger or smaller) has historically been the route taken. However, exchanging metering augers for different feed output capacities can often be a burdensome and time-consuming task. With the Models 170-1-2 and 170-2-2 Feeders, this requirement has been eliminated.

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

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

Features two independently driven metering augers, the combination of which provides an exceptionally wide feed range. Also features a 'self-emptying' design and the ability to be 'emptied rapidly' by means of a novel discharge port.

Operational Overview

Designed for both continuous and batching applications, the ruggedly built Model 170-1-2 and 170-2-2 Volumetric Feeders, like all Model 170 Series Feeders, feature flat bottom feed chambers (with fully open inlets) housing uniquely configured horizontal agitators, driven from beneath. Integral to the underside of the feed chambers, two metering augers, independently powered, are housed in separate troughs. Mating conical supply hoppers attach directly to the inlets of the feed chambers.

In operation, the sweeping rotational action of the slowly rotating agitator efficiently and completely fills the metering augers with 'conditioned' product for accurate and reliable product delivery of a very wide assortment of dry solid materials. All areas within the feed chambers and metering auger troughs are active; dead zones do not exist and therefore, product stagnation cannot occur anywhere within the feeders.

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

Additionally, for batching applications, these particular 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.



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

Standard Features

- Superior metering performance.
- All product contact surfaces are 304 stainless steel.
- Designed with just three moving parts.
- Self-empties.
- Rapid emptying via a novel discharge port.
- Simple and easy to clean.
- 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.
- 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 10).
- 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 10).
- Totally enclosed variable speed AC or DC gearmotors power the two metering augers; provides a 10:1, 20:1, 30:1 or 50:1 speed range.
- The metering auger gearmotors (with the seal assemblies) slide back to facilitate cleaning.
- Totally enclosed AC gearmotor powers the agitator.
- Rugged and dependable. Silent when operating.
- Requires minimal maintenance.
- Temperature:
Ambient -20 to 140 degrees F.
Product -20 to 200 degrees F.

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.
- Vibrating hopper with Acrison's unique Isolation Pad for promoting the flow of products possessing poor handling characteristics.
- Hazardous area electrical construction.



Rapid Emptying Port

Isolation Pad

Quick Release Clamps (Hopper)



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

Standard Metering Auger Combinations and Feed 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 170-1-2

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
EF	1.14 to 11.4	GG	4.2 to 42	37:1
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
EF	0.76 to 11.4	GG	2.8 to 42	55:1

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
EF	1.14 to 11.4	HH	7.2 to 72	63:1
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
EF	0.76 to 11.4	K	6.4 to 96	126:1
F	0.93 to 14	KK	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

Output Capacities

The above Charts indicate the maximum output capacity for each size metering auger available with the Model 170 Series of Feeders based on 30:1 and 50:1 speed ranges (10:1 and 20:1 speed ranges are not shown). Since the physical properties of a given product usually affect the exact output, the stated capacities could vary.

Model 170 Series of Volumetric Feeders

Model 170 Volumetric Feeders used as the integral metering mechanisms of Acrison 'Weight-Loss' Weigh Feeders



Model 402X-170-2



Model 402-170-1-2

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 905-18 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 and 404 Series, 405, 406, 407X, 408 and 410 'Weight-Loss' Weigh Feeders
- Model Series 403 'Weight-Loss' 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
- Model 800 Series 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



Joseph Street Facility
Moonachie, NJ USA

"Visibly Different... Measurably Better"

Acrison[®], Inc.

20 Empire Blvd., Moonachie, NJ 07074

201-440-8300 • Fax: 201-440-4939

Toll Free: 800-4ACRISON

Email: informail@acrison.com

www.acrison.com