

# Acrison®

## Volumetric Feeders

Models BDFM, BDF-1, BDF-1.5  
BDFX-1.5 and BDFX-1.5-2

*For Dry Solid Materials*



*Dry Solids Volumetric Feeders that combine the highly effective "Flow-Inducing/Conditioning" action of dual augers/agitators with a metering auger(s), operating at dissimilar speeds, to produce unrivaled materials-handling versatility and metering performance.*

## Volumetric Dry Solids Feeders

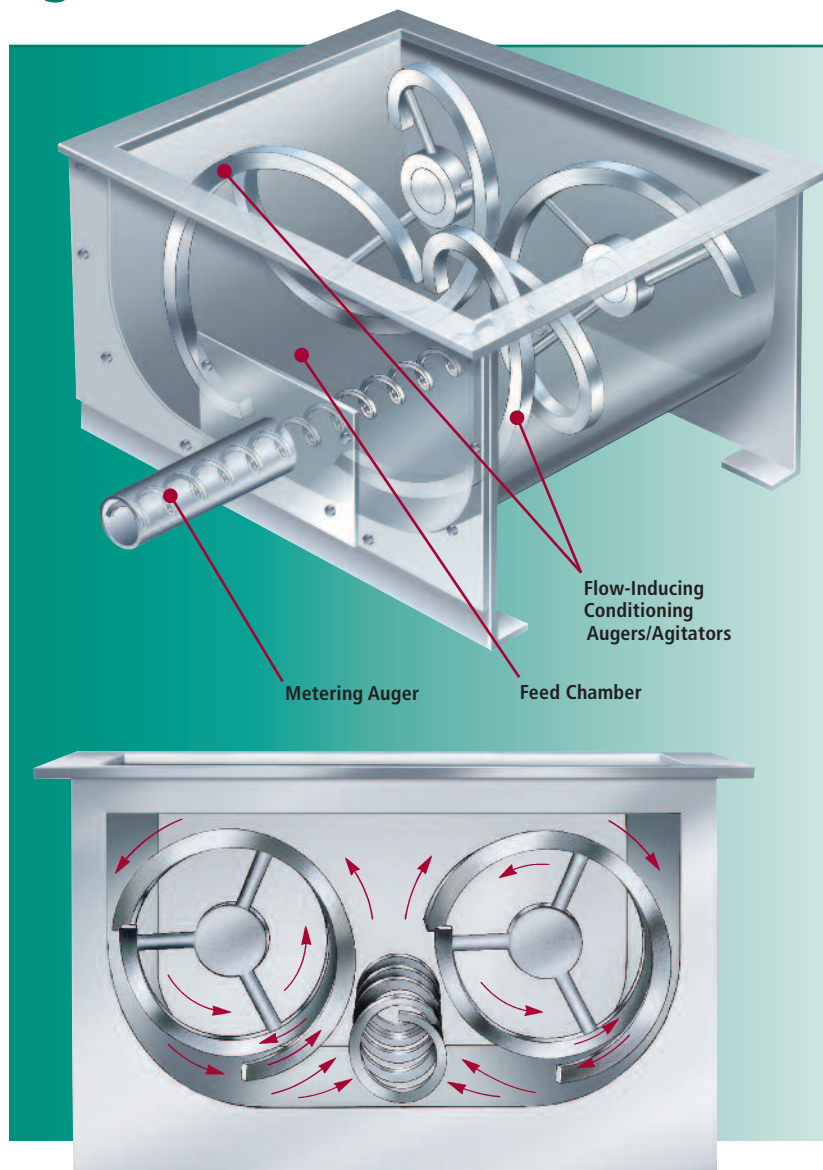
Models BDFM, BDF-1 and BDF-1.5

### 'Bin Discharger Feeders'

The Models BDFM, BDF-1 and BDF-1.5 Volumetric Feeders combine the highly effective '*flow-inducing and conditioning action*' generated by dual (counter-rotating) augers/agitators with a metering auger to produce positive flow and feed of a wide variety of dry solid materials. The dual augers/agitators and metering auger operate at *dissimilar speeds* and are mechanically geared together, powered by a single heavy-duty gearmotor.

Unlike dry solids feeders where a single feed auger is typically located at the bottom of a converging 'V' shaped trough -- *across which many non-free flowing products easily bridge, regardless of whether or not the trough is vibrated or agitated* -- the unique design of Acrison Bin Discharger Feeders totally eliminates any type of internal convergence that could prove detrimental to product flow and feed.

Within the feed chamber, the highly effective flow-inducing/conditioning action produced by the two slowly rotating large augers/agitators ensures that the smaller, higher speed metering auger is consistently 'filled' with product for reliable and accurate product delivery.



### A Highly Versatile Dry Solids Metering Concept

In order for an auger type dry solids feeder to meter accurately, its metering auger must be consistently and reliably filled with product '*conditioned*' to a relatively uniform state.

Acrison's '*dual auger/agitator flow-inducing conditioning mechanism*' effectively and efficiently '*fills*' the centrally positioned metering auger from a minimum of 320 degrees.

*Volumetric metering accuracies generally range between  $\pm 1$  and 2 percent or better (error) for the majority of products. Accuracy is based on a given number of consecutive one minute samples.*

# Models BDFM, BDF-1 and BDF-1.5 Volumetric Feeders



## **Model BDFM**

For feed rates ranging between 0.0006 and 3 cubic feet per hour.



## **Model BDF-1**

For feed rates ranging between 0.0015 and 9.5 cubic feet per hour.



## **Model BDF-1.5**

For feed rates ranging between 0.024 and 48 cubic feet per hour.

## **Model BDFM**

Utilizes a pair of 3.75 inch diameter 'Conditioning' augers/agitators.

## **Model BDF-1**

Utilizes a pair of 6 inch diameter 'Conditioning' auger/agitators.

## **Model BDF-1.5**

Utilizes a pair of 10 inch diameter 'Conditioning' augers/agitators.

# Models BDFM, BDF-1 and BDF-1.5 Volumetric Feeders

## Standard Features for the Models BDFM, BDF-1 and BDF-1.5 Feeders

- Product contact surfaces are 304 stainless steel.
- Drive shafts and seal components are 304 stainless steel.
- Metering auger is 316 stainless steel.
- The metering auger utilizes a threaded attachment to its drive shaft.
- Model BDFM augers/agitators are threaded onto their drive shafts.
- Model BDF-1 and BDF-1.5 augers/agitators are flange-attached to their drive shafts.
- The Model BDFM is furnished with a one-quarter cubic foot (vertical) supply hopper. Additional hopper sizes may be available.
- The Model BDF-1 is furnished with a one cubic foot (vertical) supply hopper or a flanged feed chamber with a cover having a circular inlet up to 8 inches in diameter. Additional hopper sizes may be available.
- The Model BDF-1.5 is furnished with a four cubic foot (vertical) supply hopper or flanged feed chamber with a cover having a circular inlet up to 12 inches in diameter. Additional hopper sizes may be available.
- Model BDF Feeders are furnished with a variable speed AC or DC gearmotor with either a 30:1 or 50:1 speed range.
- The Model BDFM is powered by a 1/2 horsepower motor, the Model BDF-1 by a 3/4 horsepower motor, and the Model BDF-1.5 by a one (1) horsepower motor. All motors are totally enclosed.
- Dust-tight, heavy-duty construction.
- The feeder is virtually silent when operating.
- All non-stainless steel external surfaces are painted with Acrison's standard (blue) enamel.

## Optional / Accessory Equipment

- Various materials of construction.
- Integral supply hoppers larger than the standard sizes may be available (depending upon product-handling characteristics).
- Various variable speed (AC and DC) controllers, speed range and control modes.
- Quick disconnect construction for ease of cleanout.
- Sanitary construction to satisfy USDA and FDA regulations (includes quick disconnect construction).
- High temperature construction.
- Pressure construction.

**NOTE:** Reference Bulletin 712 for larger Model Bin Discharger Feeders.

**MODEL BDFM FEEDER CAPACITY CHART**  
(Capacities shown in cubic feet per hour)

Model Size	Minimum Output		Maximum Output
	30:1 Speed Range	50:1 Speed Range	
BDFM-A/2	0.001	0.0006	0.03
BDFM-B/2	0.0025	0.0015	0.075
BDFM-BC/2	0.0063	0.0038	0.19
BDFM-BB/2	0.009	0.0054	0.27
BDFM-C/2	0.015	0.009	0.45
BDFM-CC/2	0.023	0.014	0.7
BDFM-D/2	0.04	0.024	1.2
BDFM-DD/2	0.07	0.042	2.1
BDFM-E/2	0.1	0.06	3.0

**MODEL BDF-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	
BDF-1-B/2	0.0025	0.0015	0.075
BDF-1-BC/2	0.0063	0.0038	0.19
BDF-1-BB/2	0.009	0.0054	0.27
BDF-1-C/2	0.015	0.009	0.45
BDF-1-CC/2	0.023	0.014	0.7
BDF-1-D/2	0.04	0.024	1.2
BDF-1-DD/2	0.07	0.042	2.1
BDF-1-E/2	0.10	0.06	3.0
BDF-1-EE/2	0.145	0.087	4.4
BDF-1-EF/2	0.19	0.11	5.7
BDF-1-F/2	0.23	0.14	7.0
BDF-1-FF/2	0.31	0.19	9.5

**MODEL BDF-1.5 FEEDER CAPACITY CHART**  
(Capacities shown in cubic feet per hour)

Model Size	Minimum Output		Maximum Output
	30:1 Speed Range	50:1 Speed Range	
BDF-1.5-D/2	0.04	0.024	1.2
BDF-1.5-DD/2	0.07	0.042	2.1
BDF-1.5-E/2	0.10	0.06	3.0
BDF-1.5-EE/2	0.15	0.088	4.4
BDF-1.5-EF/2	0.19	0.11	5.7
BDF-1.5-F/2	0.23	0.14	7.0
BDF-1.5-FF/2	0.32	0.19	9.5
BDF-1.5-G/2	0.48	0.29	14.5
BDF-1.5-GG/2	0.7	0.42	21.0
BDF-1.5-H/2	0.85	0.51	25.5
BDF-1.5-HH/2	1.2	0.72	36.0
BDF-1.5-K/2	1.6	0.96	48.0

## Capacities

The above Capacity Charts indicate the typical output range for each standard size metering auger available with the Models BDFM, BDF-1 and BDF-1.5 Volumetric Feeders.

Since the physical properties of the actual product being metered may have an effect upon the exact output, the stated capacities could vary.

## Volumetric Dry Solids Feeders

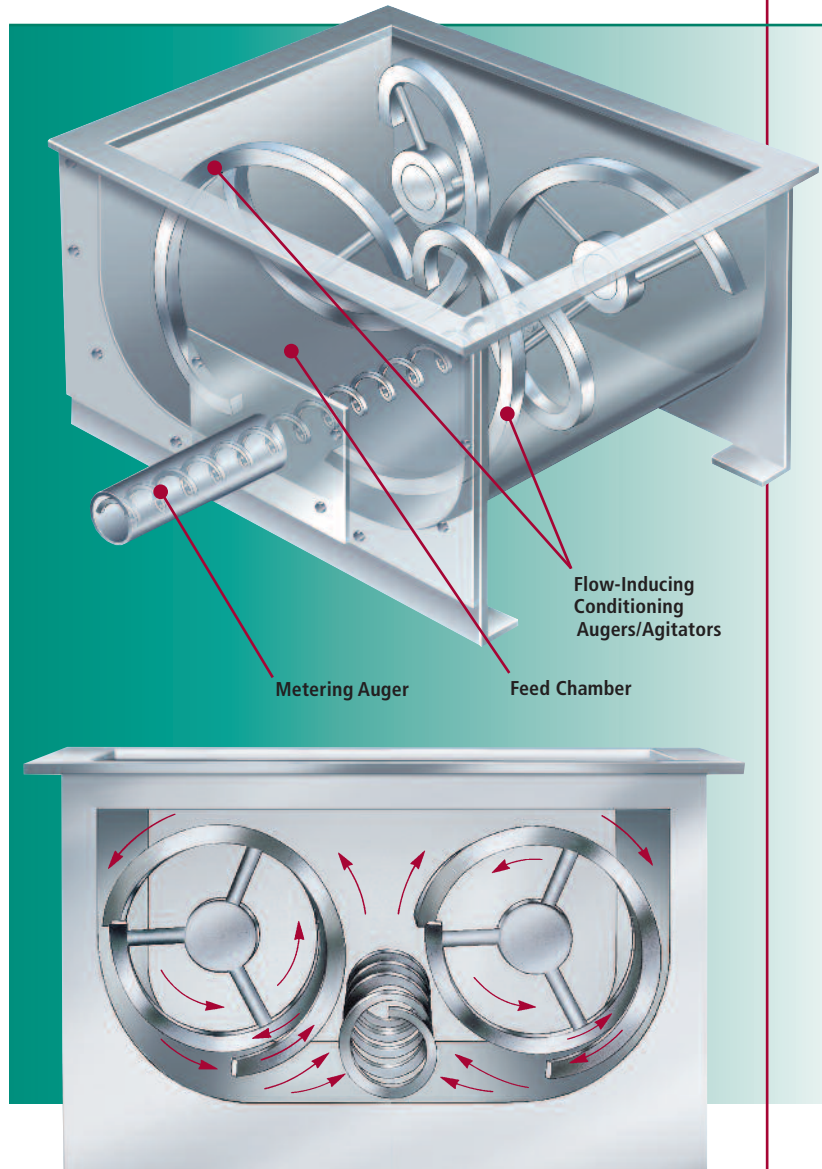
### Model BDFX-1.5

#### 'Bin Discharger Feeder'

The Model BDFX-1.5 Dry Solids Volumetric Feeder combines the highly effective '*flow-inducing and conditioning action*' generated by dual (counter-rotating) augers/agitators with a metering auger to produce positive flow and feed of an exceptionally wide variety of dry solid materials. However, unlike the Model BDF-1.5 Feeder, which utilizes a single variable speed gearmotor to operate its dissimilar speed metering mechanism, the Model BDFX-1.5 Feeder is powered by three independent heavy-duty gearmotors.

Typically, the dual augers/agitators operate at a constant speed, although depending upon application parameters, their individual gearmotors may be electronically configured to operate in proportion to the speed of the metering auger, which operates at a variable speed.

This particular model feeder is generally used in applications where the Model BDF-1.5 Feeder has certain limitations (e.g., when hoppers larger than the standard size are used, and/or when metering products possessing difficult handling characteristics).



#### A Highly Versatile Dry Solids Metering Concept

In order for an auger type dry solids feeder to meter accurately, its metering auger must be consistently and reliably filled with product '*conditioned*' to a relatively uniform state.

Acrison's '*dual auger/agitator flow-inducing conditioning mechanism*' effectively and efficiently '*fills*' the centrally positioned metering auger from a minimum of 320 degrees.

*Volumetric metering accuracies generally range between  $\pm 1$  and 2 percent or better (error) for the majority of products. Accuracy is based on a given number of consecutive one minute samples.*

# Model BDFX-1.5 Volumetric Feeder

## Standard Features for the Model BDFX-1.5 Feeder

- Product contact surfaces are 304 stainless steel.
- Drive shafts and seal components are 304 stainless steel.
- The metering auger is 316 stainless steel.
- The metering auger is threaded onto its drive shaft.
- The augers/agitators are flange-attached to their drive shafts.
- The metering auger is equipped with either an AC or DC variable speed one (1) horsepower gearmotor.
- Standard hopper is 6 cubic feet in capacity. Additional hopper sizes may be available.
- The auger/agitator gearmotors typically operate at a constant speed powered by 1/4 horsepower motors.
- All motors are totally enclosed.
- The entire feeder is heavy-duty in construction and dust tight.
- The feeder is virtually silent when operating.
- All non-stainless steel external surfaces are painted with Acrison's standard (blue) enamel.

## Optional / Accessory Equipment

- Various materials of construction.
- Integral supply hoppers larger than the standard sizes may be available (depending upon product-handling characteristics).
- Various variable speed (AC and DC) controllers, speed ranges and control modes.
- Sanitary construction to satisfy USDA and FDA regulations.
- High temperature construction.
- Pressure construction.

**NOTE:** Reference Bulletin 712 for larger Model Bin Discharger Feeders.

### Model BDFX-1.5

For feed rates ranging between 0.048 and 96 cubic feet per hour.

MODEL BDFX-1.5 FEEDER CAPACITY CHART (Capacities shown in cubic feet per hour)			
Model Size	Minimum Output		Maximum Output
	30:1 Speed Range	50:1 Speed Range	
BDFX-1.5-D	0.08	0.048	2.4
BDFX-1.5-DD	0.14	0.084	4.2
BDFX-1.5-E	0.2	0.12	6.0
BDFX-1.5-EE	0.29	0.174	8.7
BDFX-1.5-EF	0.38	0.22	11.4
BDFX-1.5-F	0.47	0.28	14.0
BDFX-1.5-FF	0.63	0.38	19.0
BDFX-1.5-G	0.97	0.58	29.0
BDFX-1.5-GG	1.4	0.84	42.0
BDFX-1.5-H	1.7	1.02	51.0
BDFX-1.5-HH	2.4	1.4	72.0
BDFX-1.5-K	3.2	1.9	96.0

### Capacities

The above Capacity Chart indicates the typical output range for each standard size metering auger available with the Model BDFX-1.5 Volumetric Feeder.

Since the physical properties of the actual product being metered may have an effect upon the exact output, the stated capacities could vary.



## Model BDFX-1.5

Utilizes a pair of 10 inch diameter 'Conditioning' augers/agitators.

# Acrison®

## Volumetric Dry Solids Feeders

### Model BDFX-1.5-2

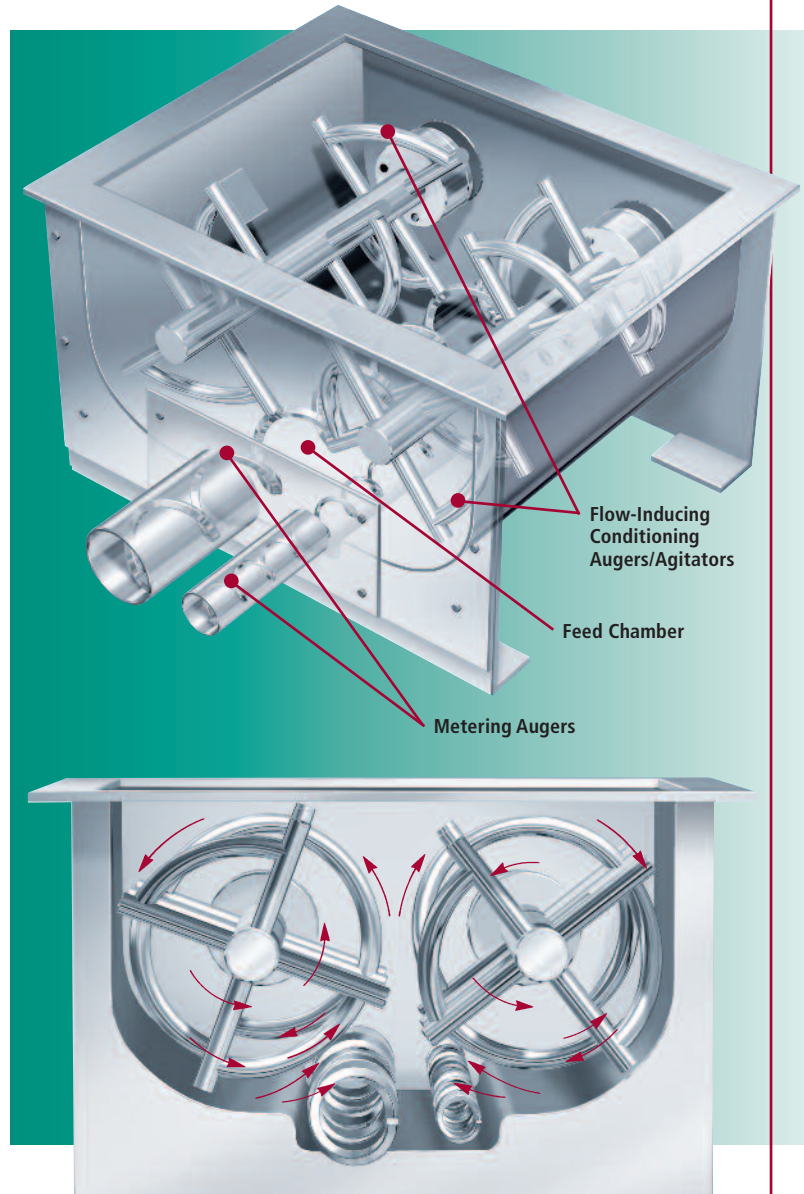
### 'Bin Discharger Feeder'

The Model BDFX-1.5-2 Volumetric Feeder combines the highly effective '*flow-inducing and conditioning action*' generated by dual (counter-rotating) augers/agitators with two metering augers to produce positive flow and feed of an exceptionally broad variety of dry solid materials. Both the two metering augers and dual augers/agitators are individually driven by heavy-duty gearmotors.

In a centrally located trough integral to the bottom of the Model BDFX-1.5-2 feed chamber, two metering augers are mounted side by side beneath the flow-inducing/conditioning augers/agitators. The two metering augers, entirely independent of each other, are driven by variable speed gearmotors. The dual agitators are also independently driven, typically at a constant speed. On occasion, however, the speed of the augers/agitators may be configured to operate in proportion to the variable speed of the metering augers.

The Model BDFX-1.5-2 Feeder eliminates the undesirable, if not burdensome task of changing the size of the feeder's metering auger whenever an uncommonly wide feed range is required (a single metering auger is typical of most auger type volumetric feeders). Also, this particular model feeder can provide both high and low feed outputs for batching applications (i.e., a larger metering auger feeds the majority of the selected batch weight, and a smaller metering auger feeds the final amount so that the highest degree of batch accuracy can be achieved).

*Volumetric metering accuracies generally range between  $\pm 1$  and 2 percent or better (error) for the majority of products. Accuracy is based on a given number of consecutive one minute samples.*



### A Highly Versatile Dry Solids Metering Concept

In order for an auger type dry solids feeder to meter accurately, its metering auger(s) must be consistently and reliably filled with product '*conditioned*' to a relatively uniform state.

Acrison's '*dual auger/agitator flow-inducing conditioning mechanism*' effectively and efficiently '*fills*' the two centrally positioned metering augers from a minimum of 320 degrees.

# Model BDFX-1.5-2 Volumetric Feeder

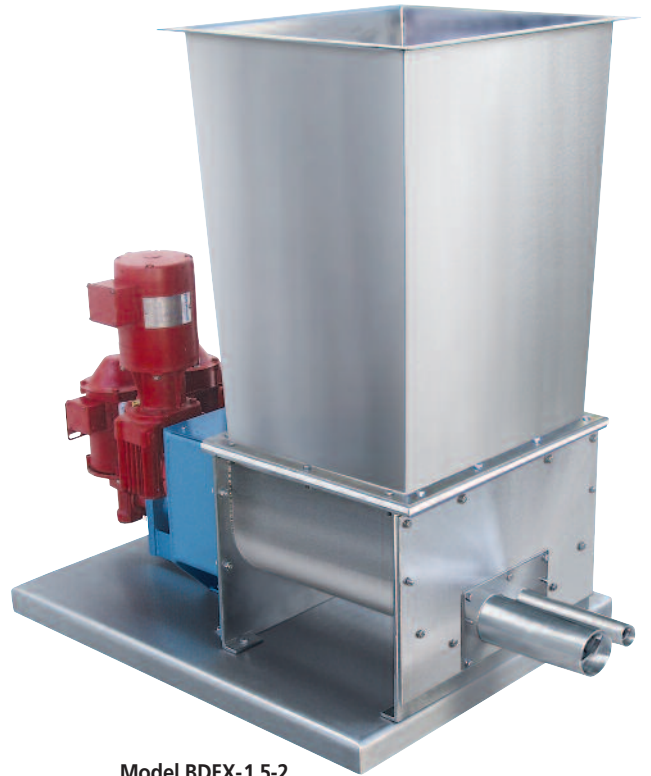
## Background

Specifications for an auger type dry solids volumetric feeder for a given application generally stipulate a maximum feed range output capability of 10:1, 20:1, 30:1 or more, which can be achieved with a single metering auger since the variable speed drive of most auger type volumetric feeders is usually capable of providing such speed ranges.

However, when a dry solids auger type volumetric feeder is operating, product discharge pulsates, which to varying degrees is common to 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. And because of this, processors often operate auger type dry solids feeders at higher speeds; however, operating a metering auger at high speeds (e.g., in excess of 200 RPM) could create other problems (i.e., heat generation that may adversely affect product characteristics, or cause product degradation, attrition, adhesion, wear, etc.)

Optimizing the speed range of the metering auger of a dry solids feeder is always a crucial consideration associated with overall feeder performance. 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 size metering auger (larger or smaller) has historically been the route taken. And at times, this can be somewhat burdensome.

The Model BDFX-1.5-2 Feeder provides users with an extremely wide feed range (up to 180:1) in the utilization of two independently driven metering augers of the appropriate sizes. Usually, only one metering auger operates at a time, each covering a specific feed range, the combination of which provides the wide feed output capability (please reference the Capacity Chart on page 9).



**Model BDFX-1.5-2**

For feed rates ranging between 0.93 and 192 cubic feet per hour.

## Model BDFX-1.5-2

Utilizes a pair of 10 inch diameter '*Conditioning*' augers/agitators.

### Standard Features for the Model BDFX-1.5-2 Feeder

- All product contact surfaces are 304 stainless steel, including all drive shafts and seal components.
- The metering augers are 316 stainless steel.
- The augers/agitators are flange-attached to their drive shafts.
- The metering augers utilize a threaded attachment to their drive shafts.
- The two discharge cylinders for the metering augers are mounted onto a common flange that attaches to the feeder's feed chamber.
- As standard, the feeder is equipped with a four (4) cubic foot vertical supply hopper.
- The two metering augers are independently driven by heavy-duty variable speed AC or DC gearmotors having either a 10:1, 20:1, 30:1, or 50:1 speed range.
- The augers/agitators are independently driven by heavy-duty constant speed AC gearmotors.
- All motors are totally enclosed.
- All applicable controls and controllers are mounted in a common NEMA 12 Enclosure furnished separately for user mounting.
- The entire feeder is heavy-duty in construction and dust-tight.
- The feeder is virtually silent when operating.
- All non-stainless steel external surfaces are painted with Acrison's standard (blue) enamel.

### Optional / Accessory Equipment

- Various materials of construction.
- Integral supply hoppers of various capacities (depending upon product handling characteristics).
- Discharge cylinders equipped with a common right-angle downspout.
- Various variable speed (AC and DC) controllers, speed ranges and control modes.
- Sanitary construction to satisfy FDA and USDA sanitary regulations.
- High temperature construction.
- Pressure construction.

# Model BDFX-1.5-2 Volumetric Feeder

## Standard Metering Auger Combinations and Capacities

### 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.
- The 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 a total feed range as indicated.
- The largest combination of same size metering augers that can be used with the Model BDFX-1.5-2 Feeder is size 'K', which provides a combined maximum feed output capacity of 192 cubic feet per hour, but not a wide range (see Chart).
- Metering auger combinations, other than indicated in the Capacity Chart, may be available.

MODEL BDFX-1.5-2				
Based on a 10:1 Output Feed Range for each Metering Auger				
First Metering Auger Size	Feed Output (cubic feet)	Second Metering Auger Size	Feed Output (cubic feet)	Total Feed Range
CC	0.14 to 1.4	F	1.4 to 14	100:1
D	0.24 to 2.4	FF	1.9 to 19	79:1
DD	0.42 to 4.2	GG	4.2 to 42	100:1
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	K	6.4 to 96	84:1
F	1.4 to 14	K	9.6 to 96	69:1
Based on a 15:1 Output Feed Range for each Metering Auger				
First Metering Auger Size	Feed Output (cubic feet)	Second Metering Auger Size	Feed Output (cubic feet)	Total Feed Range
CC	0.093 to 1.4	F	0.93 to 14	151:1
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
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	HH	4.8 to 72	124:1
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	K	6.4 to 96	103:1
K	6.4 to 96	K	6.4 to 96	15:1



Model BDFX-1.5-2  
Volumetric Feeder

## *Various Model 'Bin Discharger' Volumetric Feeders*



**Model BDF-1  
Volumetric Feeder**



**Model BDF-1.5  
Volumetric Feeder**



**Model BDFX-1.5  
Volumetric Feeder**



**Model BDFX-1.5  
Volumetric Feeder**

## *Various Model 'Bin Discharger Feeders' used as the Metering Mechanisms for Acrison 'Weight-Loss' Weigh Feeders*



Model 402X-BDF-1.5  
'Weight-Loss'  
Weigh Feeder



Model 402X-BDFX-1.5-2  
'Weight-Loss'  
Weigh Feeder



Model 402X-BDFX-1.5  
'Weight-Loss'  
Weigh Feeder

## 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 recommended 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  
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## Acrison products...

- Models 101 and 130 Volumetric Feeder Series
- Models V-101 and V-130 Volumetric Feeders
- Model 101S 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, 407X, 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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