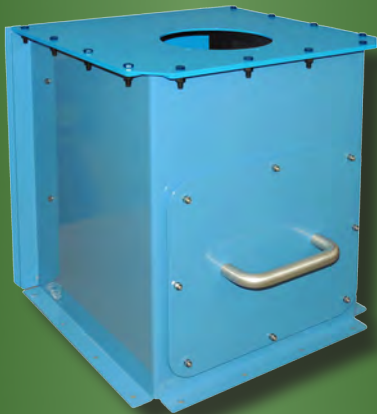


# EASTERN INSTRUMENTS



## TYPE II SOLIDS MASS FLOW METERS



**CentriFlow**<sup>®</sup>  
EASTERN INSTRUMENTS

Precision Material Handling Equipment

# Eastern Instruments Material Handling Solutions

## About Eastern Instruments

Eastern Instruments, a Certified Women's Business Enterprise, is an engineered solutions company located adjacent to the North Carolina International State Port in Wilmington, North Carolina. Since 1984, we have been engaged in the design and manufacture of devices that measure and control the flow of industrial bulk solids. These devices have been integrated into a variety of systems for regulating operations and improving efficiency across nearly every industrial sector. Every device within Eastern Instruments' solids flow measurement product line provides a high degree of accuracy, easy installation, a minimal footprint and extremely simple and intuitive operation and maintenance for both continuous and batch operations.

The following catalog is for our Type II Mass Flow Meters. For more information on our other products, please see all of our available catalogs. We offer an entire line of feeders, fillers and other specialty solids flow devices, so if you are in need of equipment other than a mass flow meter, Eastern Instruments can help.

Contact us today.

*Mildred R. Brandt*  
President and CEO

FOR MORE INFORMATION  
CALL (910) 392-2490



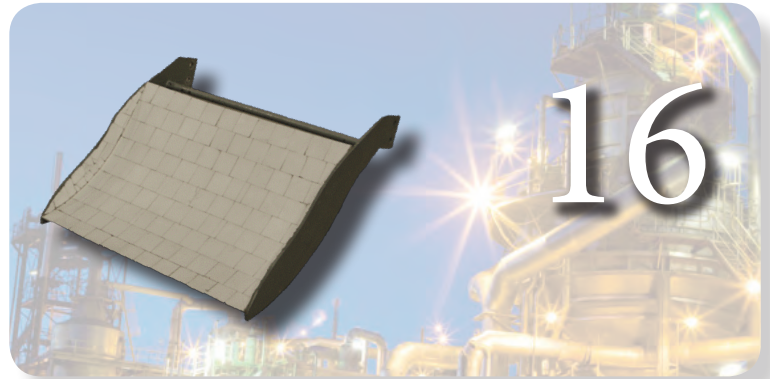
416 Landmark Drive  
Wilmington, NC 28412  
Phone: 910.392.2490  
Fax: 910.392.2123  
[www.easterninstruments.com](http://www.easterninstruments.com)



## Applications



## Type II Flow Meters



## Options



## Electronics



# The Principle of Centripetal Force and the Science Behind our Solids Flow Meters

Why are the solids flow measurement and control devices from Eastern Instruments so accurate? The secret lies in their zero-friction patented design, which is based on the principle of centripetal force.

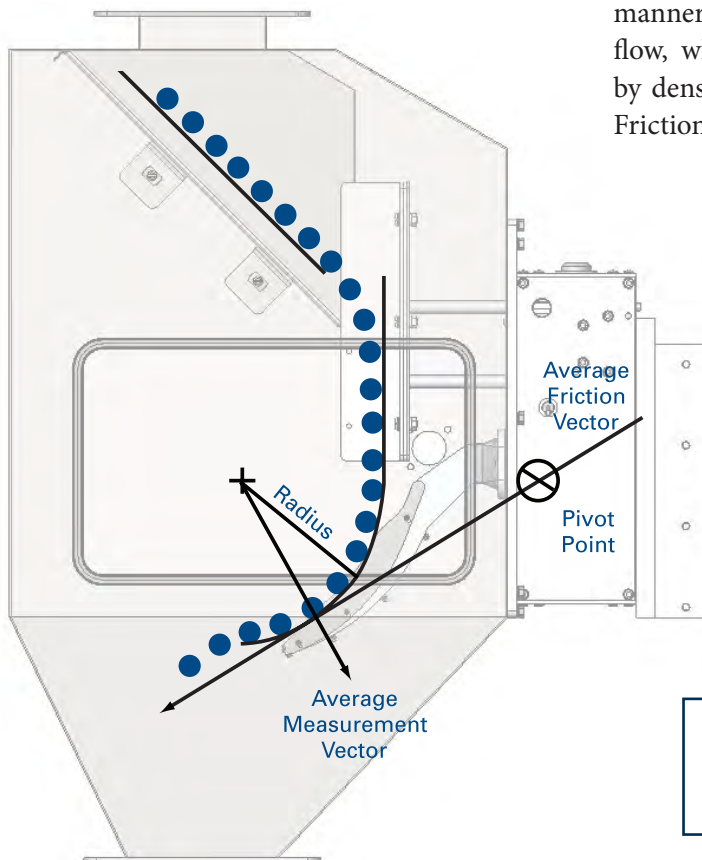
Centripetal force is the inward force required to keep an object moving in a circular path. It can be shown that an object moving in a circular path has acceleration towards the center of the circle along a radius.

This radial acceleration, called the centripetal acceleration, is such that if an object has a linear or tangential velocity when moving in a circular path of radius (R), the centripetal acceleration is  $v^2/R$ . If the object undergoing the centripetal acceleration has a mass (M), then by Newton's second law of motion, the centripetal force ( $F_c$ ) is in the direction of acceleration. This is expressed by the formula:

From Newton's first law of motion, it follows that the natural motion of an object is one with constant speed in a straight line and that a force is necessary if the object is to depart from this type of motion. The force present when an object moves in a curve is called centripetal force.

The CentriFlow<sup>®</sup> Meter and all of the products in our Solids Flow Measurement Product Line actually measure the centripetal force exerted on the curved surface, in this case, the Measurement Pan, as particles travel over it. The meter does not measure the impact of particles because they never impact the Measurement Pan. Rather, they slide across the Pan for a longer duration, thus resulting in a significantly more accurate signal.

Based on the patented design of these unique devices, they are able to identify and cancel the friction component and, when combined with a velocity that is constant and a radius that is unchanging, the flow equals mass. In this manner, the flow signal from our devices is an actual mass flow, which is linear and accurate, and is not affected by density or slight particle size variations. This is Zero Friction Flow Measurement.



Measures Centripetal Force, not the Impact of Particles

$$Force = \frac{Mass \times Velocity^2}{Radius}$$

# Applications

## Construction

- Drywall/Plywood
- Concrete Products
- Engineered Materials
- Recycled Materials
- Roofing Products
- Asphalt Products



## Petrochemical

- Rubber Products
- Oil Extraction
- Petrochemicals
- Plastics/Additives



## Agricultural

- Beans/Grains
- Nuts
- Fertilizers/Additives
- Corn Products



The CentriFlow Meter:  
Exceeding Expectation  
in Every Industry.  
Contact Us Today.

## Industrial Chemicals

- Industrial Powders
- Consumer Goods
- Glass Ceramics
- Mining



## Energy Production

- Bio-Energy Feedstocks
- Ethanol Production
- Renewable Energy
- Coal-Fired Energy



## Food

- Baked Goods
- Beans and Grains
- Dried Foods
- Snack Foods/Cereals
- Beverages
- Tobacco Products



## Pet Products

- Feed Pellets
- Additives
- Kibble
- Litter/Bedding

## Recycling

- Recycled Plastics
- Renewable Energy
- Construction Materials
- Asphalt Production

CENTRIFLOW<sup>®</sup>: ACCURATE MEASUREMENT FOR MANY APPLICATIONS





## Why choose the CentriFlow®?

### Accuracy

Unlike existing technologies that *calculate* mass flow by making assumptions based on weight, speed, belt tension, or volume, the CentriFlow® Meter actually *measures* flowable solids in a process. This unique measurement ability allows the CentriFlow® Meter to have a typical  $\pm 0.25\%$  accuracy full scale on virtually all flowable solids, significantly improving the industry standard.

### Turndown Ratio

The CentriFlow® Meter can maintain its accuracy over a large turndown ratio and an additional Multiple Calibration option is available for extreme turndowns. Because the meter's unique design enables it to identify and cancel the friction component, the resulting mass flow signal = mass rate. This linear relationship allows the meter to measure at a typical accuracy of  $\pm 0.25\%$  full scale and is unaffected by wide variances in rate.

### Solid Construction / Low Maintenance

The CentriFlow® Meter's sturdy high-grade aluminum construction and stainless steel flow paths create a very low maintenance instrument. With no moving parts, it rarely requires recalibration and its solid-construction, low-maintenance design requires very few spare parts.

### Plant Efficient Configurations

Designed to fit into nearly any existing process, the CentriFlow® Meter is available in multiple configurations that minimize the need for costly changes to your process. The Type I Configuration is designed to mount at the end of any existing horizontal feed system, while the Type II Configuration is designed for any in-line vertical feed system. Compared to alternatives, the CentriFlow® Meter's compact, space efficient design requires a small footprint.

### Flexibility

The CentriFlow® Meter is not affected by changes in product elasticity, density, shape or friction and even fluctuations in flow rate don't impact its accuracy. The linearity of the zero friction formula underlying the meter's design allows the CentriFlow® Meter to measure at various densities and turndown ratios, while maintaining near perfect accuracy.

### Continuous Measurement for Continuous Improvement

The CentriFlow® Meter's ability to provide an accurate and real-time, continuous mass flow measurement allows you to optimize your process like never before. The ability to measure gives you the control to manage.

VISIT EASTERN INSTRUMENTS ON FOR PRODUCT VIDEOS



# Type II Meter

## CentriFlow®: Type II Models

The CentriFlow® Type II Meter is a solids mass flow meter designed to measure bulk solids continuously in a process and is specially designed to be installed directly after feed devices that move material in a vertical direction such as rotary valves, screw conveyors, bucket elevators, etc. Perfect for installation in both new construction, or retrofitted into existing processes, the CentriFlow® Type II Meter has a small, vertical footprint as compared to other metering devices on the market. The vertical footprint of the Standard Type II Meter is only 36" in vertical height. With many options available as well as a variety of customizable features, the Type II meter can be optimized to measure nearly any product from highly abrasive industrial materials to flours and powders.

While the Type II Meter can be used to measure both free-flowing materials as well as powdery materials, the enclosure or housing of the Type II Meter lends itself perfectly to applications where measuring powders or other products can create a great deal of dust. In addition, many options are available to enhance the flow of particularly stubborn materials, or to protect against abrasion. Additional options for explosion hazards are also available for all models of the Type II Meter.

The Type II Meter is available in several specialized models (as shown to the right) which range in scope from the Low Flow model CFL to the High Flow, High Density model HDM.

With a variety of customizable features and models to choose from, there is a CentriFlow® Type II Meter designed with your particular process in mind.



### CFM Type II: Standard

- Meter with Enclosure
- Perfect for Most Flow Rates and Materials
- Fed by Rotary Valve, Screw Conveyor, Bucket Elevator, etc.
- For Granular Products as well as Powdery Products



### CFL Type II: Low Flow

- Meter with Enclosure
- Perfect for Very Low Flow Rates
- Fed by Rotary Valve, Screw Conveyor, Bucket Elevator, etc.
- For Free-Flowing or Powdery Materials



### HDM Type II: Heavy Duty

- Meter with Enclosure
- Perfect for Heavy, High-Density Materials
- Fed by Rotary Valve, Screw Conveyor, Bucket Elevator, etc.
- For Free-Flowing or Powdery Materials



### BWS Type II: Budget

- Meter with Enclosure
- Perfect for Grains, or Pellets
- Can be directly coupled to gravity fed pipe or feed device
- Extremely Economical Design



CentriFlow® Type II Meter:

Scan the QR Code for a link to the Type II Meter on our website.



## CentriFlow: Type II Installations

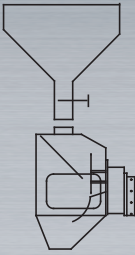
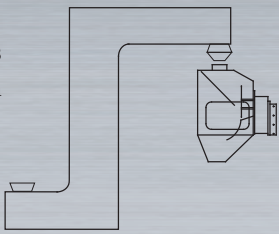
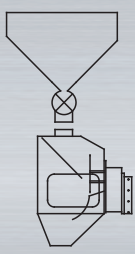
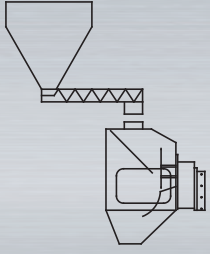
The CentriFlow® Meter is typically installed directly after a feed device in order to ensure a consistent flow of product through your meter. Consistent however, does not mean continuous. Due to its rugged construction and unique design, the Type II Meter is perfect for installation after a variety of feed devices, including those that generate highly pulsating flows or surges of product. Some of the more common feed devices that the Type II Meter is installed after are listed below.

**SCREW CONVEYOR:** The pulsations of screw conveyors have little effect on the Type II Meter's accuracy. The high sample rate and instantaneous measurement of the meter ensures that surges in product will always be measured accurately.

**BUCKET ELEVATOR:** Because bucket elevators typically move product in a vertical direction, they are perfect for Type II Meters which require a vertical feed device. Product typically transitions from the bucket before entering into the CentriFlow®.

**SLIDE GATE:** Slide gates create a very consistent feed of product for the CentriFlow® Type II Meter and allow for very accurate measurement. If you require both flow measurement and control of your product, the CentriFeeder® with ICV combines a CentriFlow® Meter with an Integrated Control Gate for very accurate measurement and control of granular products. See our Feeder catalog for more information.

**ROTARY VALVE:** As with screw conveyors, flow out of rotary valves is often very pulsating and large rotary valves can cause an even greater likelihood of large pulsations. Even these large pulsations, however, have very little effect on the accuracy of the CentriFlow® Type II Meter. In the unlikely event that an extremely large surge floods the meter with product, the meter's enclosure is designed to allow the product flow to continue through the process without blockage so that production can continue unhindered by the unexpected surge in product.

<p><b>Slide Gate/Orifice Valve</b></p> <p>Product Examples</p> <ul style="list-style-type: none"> <li>• Plastic Pellets</li> <li>• Animal Feed</li> <li>• Grains</li> <li>• Coffee Beans</li> <li>• Fertilizer</li> <li>• Granules</li> <li>• Pellets</li> <li>• Milled Grains</li> <li>• Chips/Chunks</li> </ul> 	<p><b>Bucket Elevator</b></p> <p>Product Examples</p> <ul style="list-style-type: none"> <li>• Plastic Pellets</li> <li>• Animal Feed</li> <li>• Grains</li> <li>• Coffee Beans</li> <li>• Fertilizer</li> <li>• Powders</li> <li>• Gypsum</li> <li>• Grains</li> <li>• Cement</li> </ul> 
<p><b>Rotary Valve</b></p> <p>Product Examples</p> <ul style="list-style-type: none"> <li>• Plastic Pellets</li> <li>• Animal Feed</li> <li>• Grains</li> <li>• Coffee Beans</li> <li>• Fertilizer</li> <li>• Powders</li> <li>• Gypsum</li> <li>• Milled Grains</li> <li>• Cement</li> </ul> 	<p><b>Screw Conveyor</b></p> <p>Product Examples</p> <ul style="list-style-type: none"> <li>• Plastic Pellets</li> <li>• Animal Feed</li> <li>• Grains</li> <li>• Coffee Beans</li> <li>• Fertilizer</li> <li>• Powders</li> <li>• Gypsum</li> <li>• Milled Grains</li> <li>• Cement</li> </ul> 

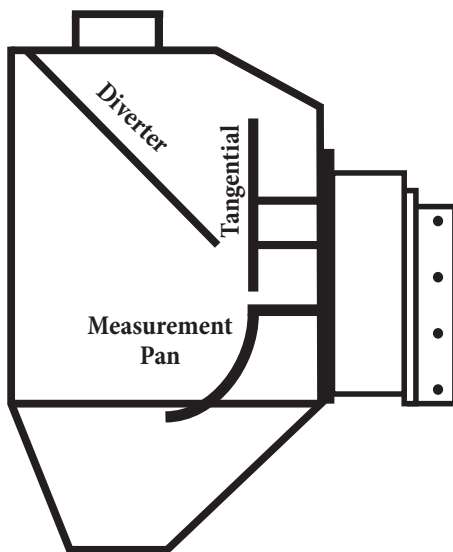
# CFM Type II: Standard

The CentriFlow® Type II Meter is a bulk solids mass flow meter specially designed to be installed directly after feed devices that move material in a vertical direction such as slide gates, rotary air locks, or screw conveyors. The Type II Meter features an enclosure that houses the meter and ensures that the flow path is contained. The housing is flanged on both the intake and discharge chute in order to make installation extremely easy. Although larger than the Type I Meter, the standard Type II enclosure requires less than 36" of vertical space. For tighter fits, custom enclosures are also available. The Type II Meter is great for free-flowing products and powders alike and works especially well for applications where flows pulsate, such as after rotary valves or screw conveyors. The standard Type II Meter can be specially configured to measure nearly any solid material.



## Design Specification

- The Tangential can be vertical (for granular materials), or tipped backward at 10 degrees as is the case with the powder version of the meter.
- The Diverter is set at a 45 degree angle of repose (56 degree for Powder version).
- The standard height for all sizes of the CFM meter is under 36" in height. They are typically installed directly after feed devices, minimizing stackup.
- Custom enclosures are available for shrinking the vertical footprint of the meter or for incorporating special transitions within the enclosure design.



TYPE II STANDARD METER

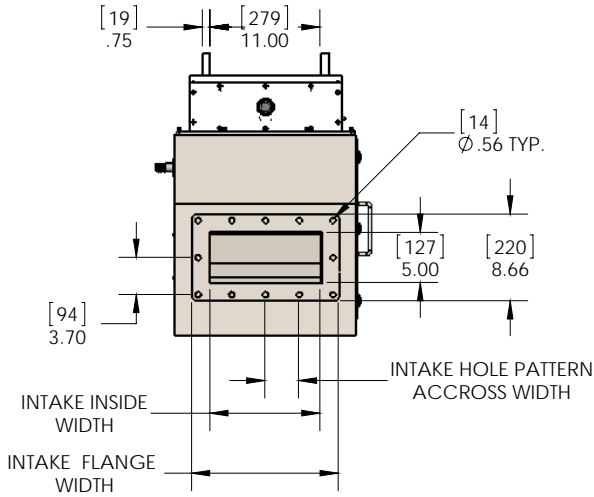
## Material Specification

- Standard meter parts (other than product contact surfaces) are constructed of 6061 aluminum. Stainless Steel also available.
- Standard product contact surfaces (parts within product flow path), as well as Type II enclosure, constructed out of 304 Stainless Steel.
- A selection of customizable liners and coatings is available on all flow surfaces for aiding in product flowability or for improving wear resistance against particularly abrasive materials.

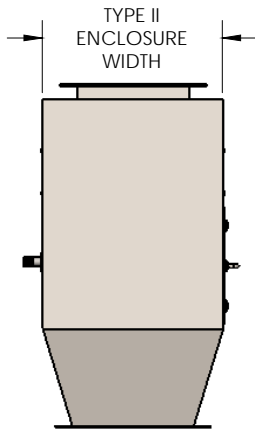
Volumetric Capacity of the CentriFlow® Meter for the Type II STANDARD ft <sup>3</sup> /min (m <sup>3</sup> /hr)				
Meter Size	Granular Products		Powdery Products	
	Min	Max	Min	Max
CFM-03	0.63 (1.06)	5.00 (8.50)	1.25 (2.12)	3.75 (6.37)
CFM-06	1.69 (2.87)	13.50 (22.94)	3.38 (5.73)	10.13 (17.20)
CFM-12	3.75 (6.37)	30.00 (50.97)	7.50 (12.74)	22.50 (38.23)
CFM-24	7.50 (12.74)	60.00 (101.94)	15.00 (25.49)	45.00 (76.46)
CFM-36	11.25 (19.11)	90.00 (152.91)	22.50 (38.23)	67.50 (114.68)
CFM-48	15.00 (25.49)	120.00 (203.88)	30.00 (50.97)	90.00 (152.91)



## TYPE II STANDARD SPECS

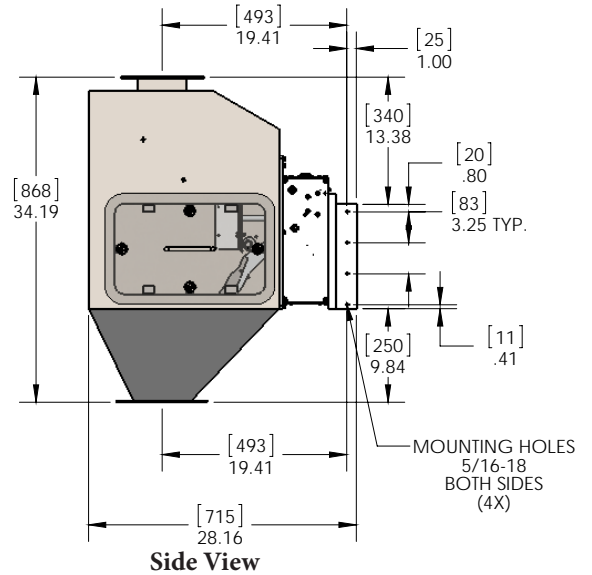
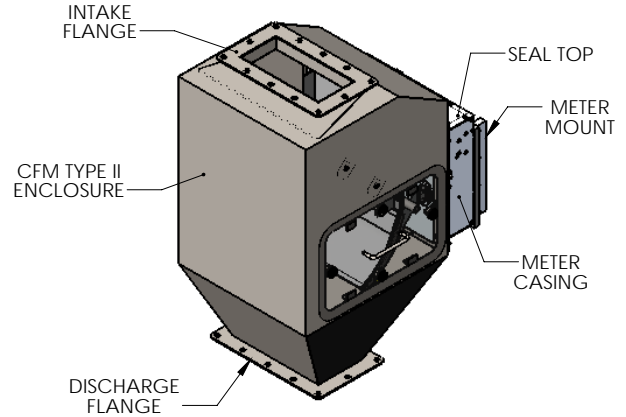


Top View



Front View

For Meters Without An Enclosure Please See Our Type I Catalog



Side View

### Type II Standard – Other Specifications

	Meter Width	Meter Height	Intake Width	Intake Flange Width	Discharge Width	Discharge Flange Width	Approximate Weight (AL)	Approximate Weight (SS)
CFM-03	12.00 in 305 mm	34.19 in 868 mm	5.00 in 127 mm	8.66 in 220 mm	6.00 in 152 mm	9.50 in 241 mm	102 lb 46 kg	167 lb 76 kg
CFM-06	12.00 in 305 mm	34.19 in 868 mm	5.00 in 127 mm	8.66 in 220 mm	6.00 in 152 mm	9.50 in 241 mm	100 lb 45 kg	165 lb 75 kg
CFM-12	18.00 in 457 mm	34.19 in 868 mm	11.00 in 279 mm	14.66 in 372 mm	12.00 in 305 mm	15.50 in 394 mm	125 lb 57 kg	210 lb 95 kg
CFM-24	30.00 in 762 mm	34.19 in 868 mm	23.00 in 584 mm	26.66 in 677 mm	24.00 in 610 mm	27.50 in 699 mm	175 lb 79 kg	275 lb 125 kg
CFM-36	42.00 in 1067 mm	34.19 in 868 mm	35.00 in 889 mm	38.66 in 982 mm	36.00 in 914 mm	39.50 in 1003 mm	225 lb 102 kg	340 lb 154 kg
CFM-48	54.00 in 1372 mm	34.19 in 868 mm	47.00 in 1194 mm	50.66 in 1287 mm	48.00 in 1219 mm	51.50 in 1308 mm	275 lb 125 kg	405 lb 184 kg

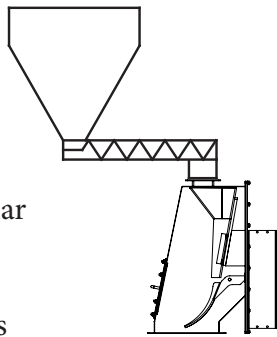
# CFL Type II: Low Flow

The CentriFlow® CFL Meter is a bulk solids mass flow meter specially designed for very low flow rates that can be as low as 100 lb/hr. The CFL is constructed primarily for use after feed devices that move material in a vertical direction such as slide gates, rotary air locks or screw conveyors. It features an enclosure that houses the measurement pan and ensures that the flow path is contained. The housing is flanged on both the intake and discharge in order to make installation extremely easy. The CFL is much smaller than the standard Type II Meter enclosure and measures in at only 24" in height. The CFL is great for both free-flowing products or powders and is often used to measure additives, ensure proper ratios of mixtures being blended together, or for any application in which accurate flow measurement of low flow rates of material is important. The CFL is constructed entirely of Stainless Steel and comes standard with a removable access panel which allows for extremely easy clean up and maintenance.



## Potential Installation Possibilities

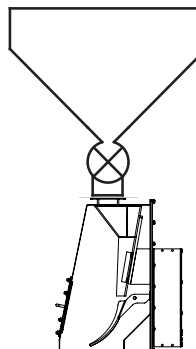
### Rotating Screw or Auger



#### Product Types

- Smaller Granular Products
- Powders
- Low Flow Rates
- Additives

### Rotary Valve or Slide Gate



#### Product Examples

- Plastic Pellets
- Industrial Powders
- Flour
- Gypsum
- Nutrient Additive

## Design and Material Specification

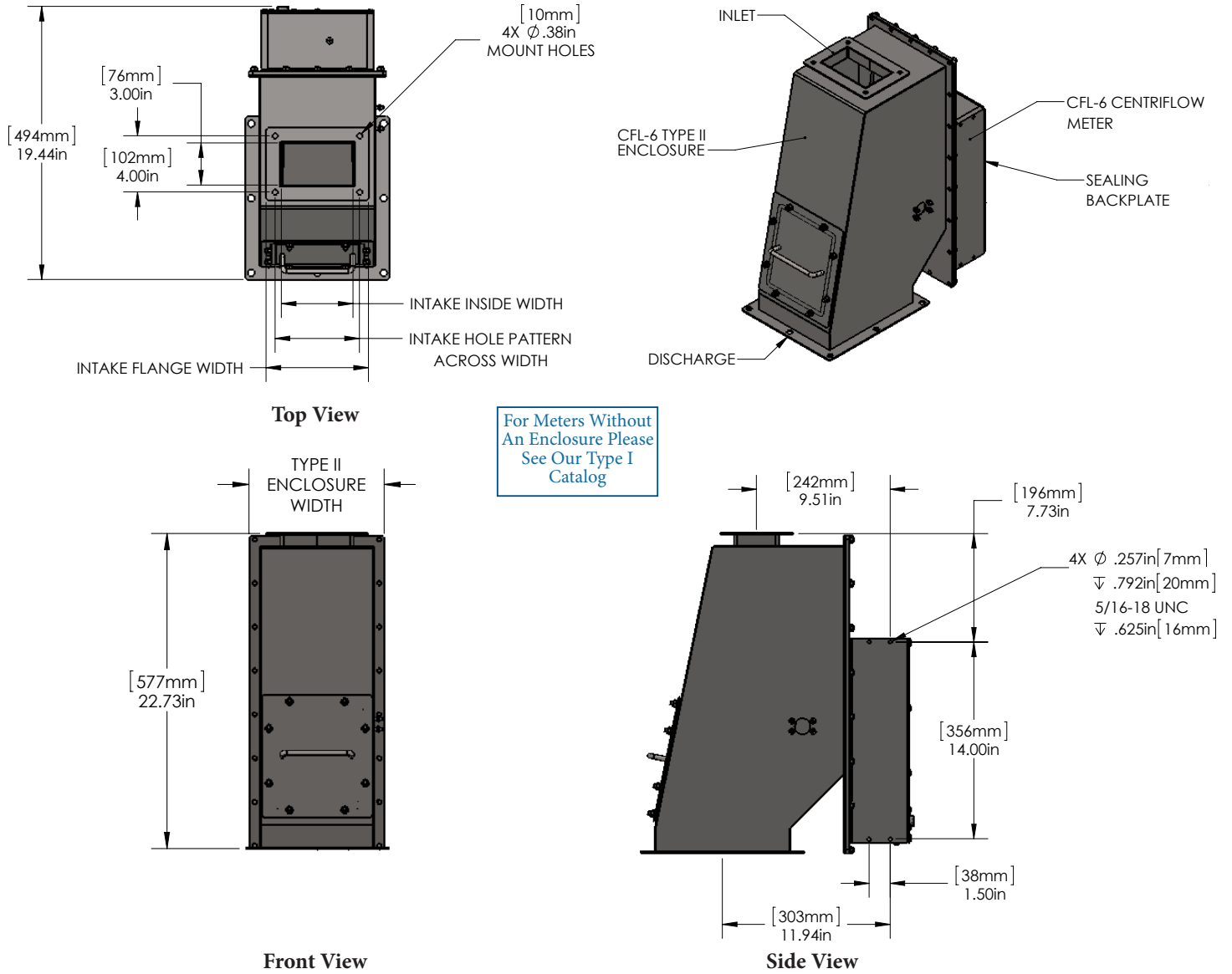
- All standard meter parts including contact surfaces and enclosure are constructed of 304 Stainless Steel.
- Additional coatings are available that are designed to improve product flow and/or improve the wearability of the flow surfaces.
- The outer assembly is fully welded which helps maintain the meter's accuracy especially during measurement periods of extremely low flow rates.
- The overall footprint is less than 24" in height.
- Both the intake and discharge flanges are completely customizable.

Volumetric Capacity of the CentriFlow® CFL Type II Meter ft<sup>3</sup>/min (m<sup>3</sup>/min)

Meter Size	Free-Flowing		Powders	
	Min	Max	Min	Max
CFL-03	0.13 (0.21)	2.50 (4.25)	0.13 (0.21)	2.50 (4.25)
CFL-06	0.34 (0.57)	6.75 (11.47)	0.34 (0.57)	6.75 (11.47)



## TYPE II CFL SPECS

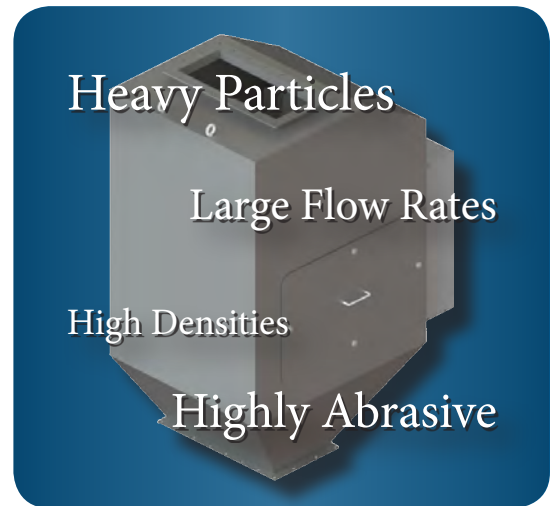


### CFL - Specifications

	CFL Width	CFL Height	Intake Width	Intake Flange Width	Discharge Width	Discharge Flange Width	Approximate Weight (SS)	Installation Angle
CFL-03	10.24 in 260 mm	22.73 in 577 mm	5.10 in 130 mm	5.10 in 130 mm	8.00 in 203 mm	10.24 in 260 mm	91 lb 41 kg	0° Set by Type II Enclosure
CFL-06	10.24 in 260 mm	22.73 in 577 mm	8.10 in 130 mm	8.10 in 130 mm	8.00 in 203 mm	10.24 in 260 mm	93 lb 42 kg	0° Set by Type II Enclosure

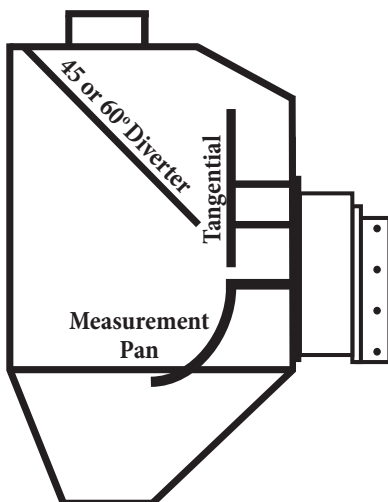
# HDM Type II: Heavy Duty

The CentriFlow® HDM Meter is a bulk solids mass flow meter specially designed for high density products with very high flow rates. Utilized as a Type II Meter, the HDM is mounted within an enclosure and is configured to be fed by devices that move material in a vertical direction such as slide gates, rotary valves and screw conveyors. The HDM Type II Meter, when compared to the standard CFM Type II meter, is actually twice the height and depth, thus making the HDM Meter much better equipped to accurately measure very large flow rates of product. The HDM is great for applications including the processing of mine tailings, the rapid loading and unloading of trucks, railcars or shipping containers or any installation where flow rates, bulk densities, or both are exceptionally high.



## Design Specification

- The depth of the meter and the height of the meter have been doubled in order to accommodate much larger flow rates.
- The radius of the Pan has been doubled in order to accommodate larger particles and higher flow rates.
- The standard HDM Type II Meter comes with rectangular intake and discharge flanges, however, custom intake and discharge flanges are also available.
- The HDM can be installed as either the Type II enclosed meter or as a Type I open meter with no enclosure. See our Type I catalog for more info.



## Material Specification

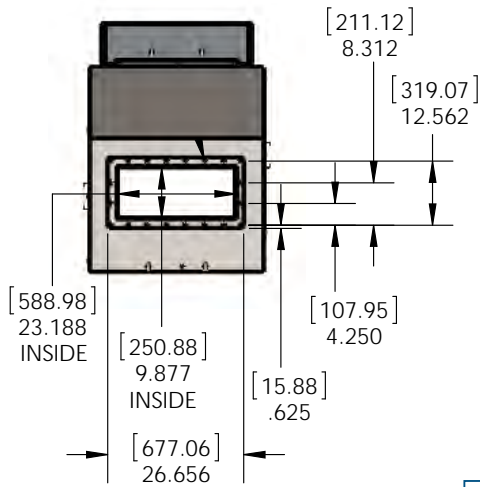
- Standard meter parts other than product contact surfaces are constructed of 304 Stainless Steel. 316 Stainless Steel also available.
- Standard product contact surfaces such as parts within the product flow path are constructed of Stainless Steel.
- Additional coatings are available that are designed to improve product flowability and/or improve the wearability of the various flow surfaces.
- The enclosure for the Type II enclosed HDM Meter is constructed of either Painted Carbon Steel or Stainless Steel.

Volumetric Capacity of the CentriFlow® HDM Type II Meter ft<sup>3</sup>/min (m<sup>3</sup>/hr)

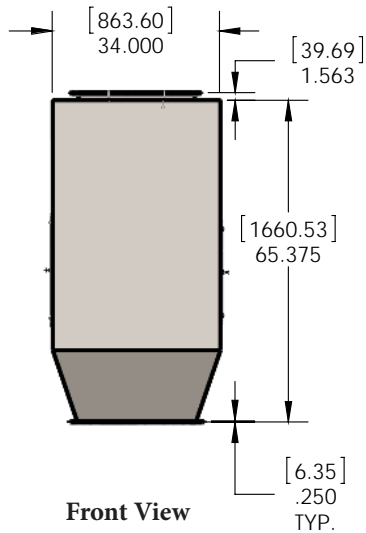
Meter Size	In Line Flow			
	Free-Flowing		Powders	
	Min	Max	Min	Max
HDM-24	18.75 (31.86)	150.00 (254.85)	37.50 (63.71)	112.50 (191.14)
HDM-48	37.50 (63.71)	300.00 (509.70)	75.00 (127.43)	225.00 (382.28)
HDM-72	56.25 (95.57)	450.00 (764.55)	112.50 (191.14)	337.50 (573.41)



## TYPE II HDM SPECS

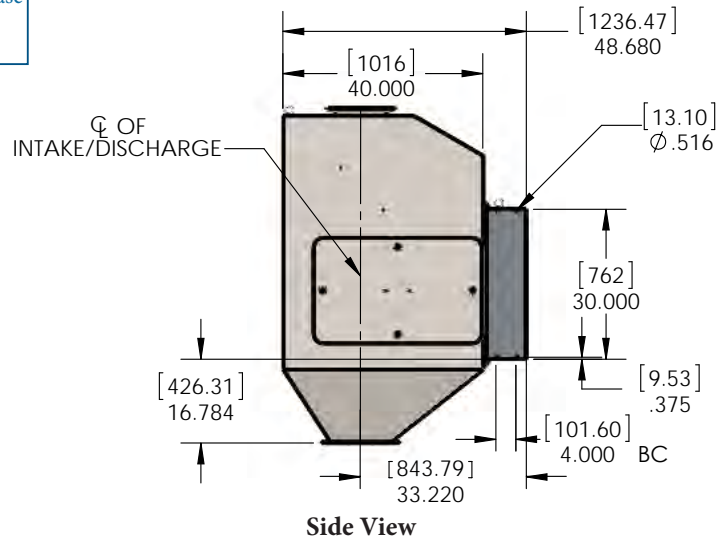
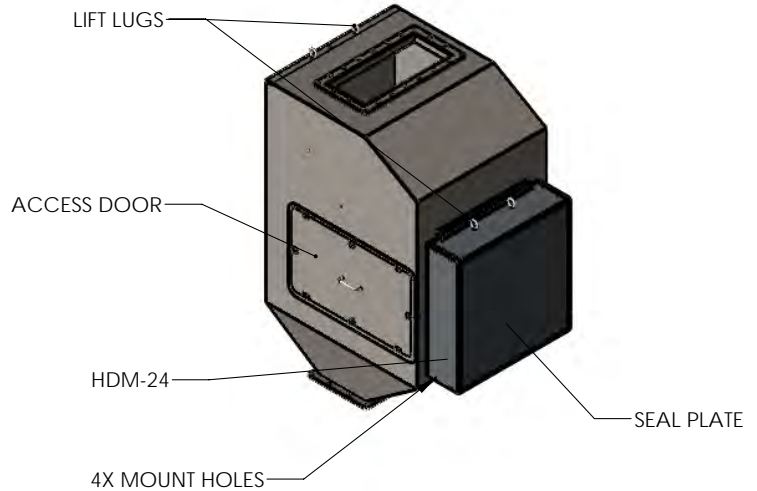


Top View



Front View

For Meters Without  
An Enclosure Please  
See Our Type I  
Catalog



Side View

### Type II Standard – Other Specifications

	Enclosure Width	Meter Height	Intake Inside Width	Intake Flange Width	Discharge Width	Discharge Flange Width	Approximate Weight (SS)	Installation Angle
HDM-24	30.00 in 762 mm	65.38 in 1661 mm	23.00 in 584 mm	26.66 in 678 mm	24.00 in 610 mm	27.50 in 699 mm	1300 lb 590 kg	0° Set by Type II Enclosure
HDM-48	54.00 in 1372 mm	65.38 in 1661 mm	47.00 in 1194 mm	50.66 in 1287 mm	48.00 in 1219 mm	51.50 in 1308 mm	2100 lb 953 kg	0° Set by Type II Enclosure
HDM-72	78.00 in 1981 mm	65.38 in 1661 mm	71.00 in 1803 mm	74.66 in 1896 mm	72.00 in 1829 mm	75.50 in 1918 mm	3400 lb 1542 kg	0° Set by Type II Enclosure

# BWS Type II: Granular

The CentriFlow® BWS Meter is constructed similarly to the Type II Standard Meter in that the meter is contained within an enclosure. The meter is perfect for measuring a variety of granular products such as grains, beans or pellets. Typically installed after feed devices such as rotary airlocks, screw conveyors or bucket elevators, the BWS can also be directly mounted inline into pipes or chutes that are transporting product via gravity. The BWS is designed with simplicity in mind, thus ensuring that the meter is simple and easy to use. The streamlined design allows for a lower price point than the standard CentriFlow Meter with its wide array of options and features. Featuring several options for flow surfaces, including Stainless Steel and ceramic tile lined flow surfaces for high wear applications, the BWS is perfect for measuring any granular, free-flowing solid.



## Design Specification

- Easy to use lifting locations are located around the perimeter of the top surface of the meter's enclosure to assist with positioning the meter during installation.
- A Companion Flange is supplied for the inlet of the BWS. This flange mates to the bolt hole pattern located on the top of the BWS for simple and easy installation.
- The companion flange is designed with a standard 150# flange pattern.
- The BWS' electronics are mounted directly to the rear of the BWS and feature a 4" color touch screen HMI. The electronics allows for push button calibration as well as a variety of other functions.
- The standard outputs for the BWS include:
  - 4-20 mA Output equivalent to flow
  - Totalizing Pulse Output

## Material Specification

- Standard meter parts (other than product contact surfaces) are constructed of 6061 aluminum or Stainless Steel.
- Standard product contact surfaces (parts within the product flow path) are constructed of Stainless Steel.
- Type II enclosure as well as the rear access panel is constructed of painted Carbon Steel.
- Alumina Ceramic Tiled flow surfaces are also available for improving wear resistance against very abrasive materials such as sand or soybeans.

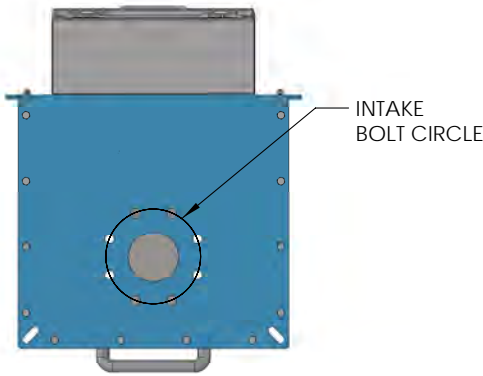
Volumetric Capacity of the CentriFlow® Meter for the Type II BWS Meter ft<sup>3</sup>/min (m<sup>3</sup>/hr)

Meter Size	Min	Max
BWS-06	1.69 (2.87)	10.13 (17.20)
BWS-12	3.75 (6.37)	22.50 (38.23)
BWS-24	7.50 (12.74)	45.00 (76.46)
BWS-36	11.25 (19.11)	67.50 (114.68)
BWS-48	15.00 (25.49)	90.00 (152.91)

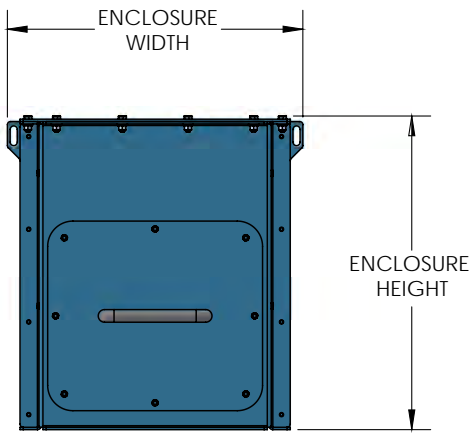
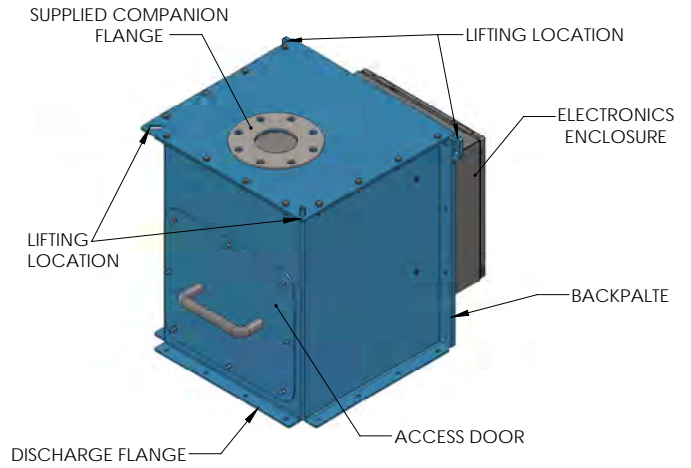




## TYPE II BWS SPECS

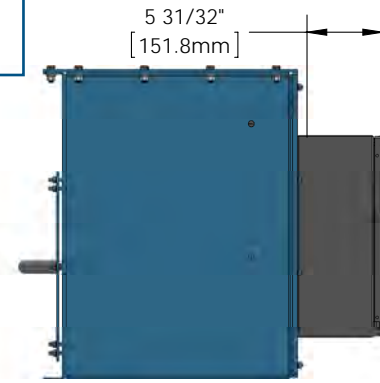


Top View



Front View

For Meters Without  
An Enclosure Please  
See Our Type I  
Catalog



Side View

### Type II Standard – Other Specifications

	Enclosure Width	Enclosure Height	Intake Inlet	Intake Flange	Discharge Flange Width	Discharge Flange Depth	Approximate Weight (CS)
BWS-06	23.38 in 594 mm	24.81 in 630 mm	4.00 in 102 mm	7.50 in 191 mm	21.38 in 543 mm	19.38 in 492 mm	209 lb 95 kg
BWS-12	23.38 in 594 mm	24.81 in 630 mm	6.00 in 152 mm	9.50 in 241 mm	21.38 in 543 mm	19.38 in 492 mm	209 lb 95 kg
BWS-24	35.38 in 899 mm	29.31 in 745 mm	10.00 in 254 mm	14.25 in 362 mm	33.38 in 848 mm	23.88 in 606 mm	379 lb 172 kg
BWS-36	47.13 in 1197 mm	24.56 in 624 mm	6.00 x 30.00 in 152 x 762 mm	8.41 x 32.41 in 214 x 823 mm	47.13 in 1197 mm	20.94 in 532 mm	425 lb 193 kg
BWS-48	58.375 in 1483 mm	24.56 in 624 mm	6.00 x 40.00 in 152 x 1016 mm	8.41 x 42.41 in 214 x 1077 mm	57.13 in 1451 mm	20.94 in 532 mm	492 lb 223 kg

# CentriFlow Options

## MATERIAL OF CONSTRUCTION

### Meter Casing and Enclosure

The material of construction for CFL and HDM style meters is Stainless Steel, while the BWS meter's material of construction is Aluminum. The CFM style meter can be manufactured out of either Aluminum or Stainless Steel. The meter enclosures for most models are Stainless Steel, however the BWS meter's enclosure is manufactured out of painted Carbon Steel.

### Flow Surfaces

The flow surfaces of the meters can either be a welded, one-piece assembly for applications requiring food grade equipment, or they can be composite assemblies which include interchangeable liners for inexpensive replacement of worn flow surfaces.



## DUSTY PRODUCTS

### Air Purge System

The Air Purge System, typically used for dust and moisture control, fills the back casing of the meter with instrument quality air, to create a positive pressure that keeps condensation, dust, and other matter from interfering with the transducer.



## EXPLOSION HAZARD

### Explosion Proof System (Class II Div 2)

This Explosion Proof System is used for installing the CentriFlow® Meter and its electronics within a Class II Div 2 rated area and includes a pressurization or purging system that prevents the entrance of combustible dust into the meter or its electronics.

### Explosion Proof System (Class I Div 2)

This Explosion Proof System is used for installing the CentriFlow® Meter and its electronics within a Class I Div 2 rated area. This option prevents the entrance of flammable gas or vapor within the meter or its electronics by performing a series of four air exchanges and applying a positive pressure to the system.



## SLOW FLOW PRODUCTS

### Pulsed Air System

The Pulsed Air System is designed to deliver a pulsed blast of dry, instrument air to the area both above and below the Measurement Pan in a manner that will not adversely affect flow measurement readings. Use of the Pulsed Air System is intended to assist with product flow, as well as to eliminate product buildup on the Pan; which if left unchecked, could result in a less accurate flow measurement.



### Integrated Air Entrainment (IAE)

The Integrated Air Entrainment System is designed to deliver an even stream of air to the CentriFlow<sup>®</sup> Meter's Measurement Pan. Its continuous, dry air reduces build up and assists in the flow of product on the measurement surface without affecting the measurement readings.



### VibraWeigh

The VibraWeigh<sup>®</sup> option, typically used in powder applications, keeps small particle size materials (down to 10 to 50 microns) from building up on the pan surface. This is important in order to keep the process product flowing through the meter and sliding smoothly on the Pan Liner. Build-up that might divert or impede the flow could result in less accurate flow measurement.



## HEATED/COOLED PRODUCTS

### High-Temperature Option

The High Temperature Option should be used when products exceed 150°F (66° C). Air is used in order to keep the casing's internal temperature down, while a Stainless Steel Barrier with High Temperature Foam is used to isolate the heat of the product from the meter's internal components.

### Internal Heater

For meters that measure cold products or that are installed in cold environments (or environments with extreme temperature changes) an internal heater is available that will heat the meter's internal components to 140° F (60° C).



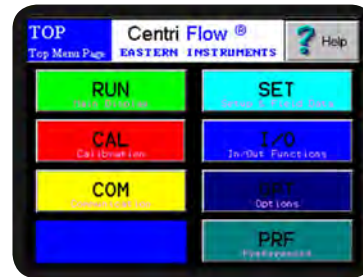
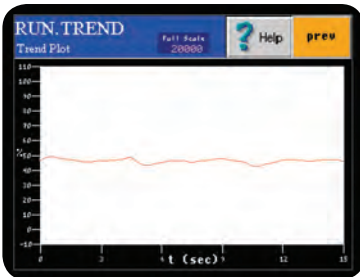
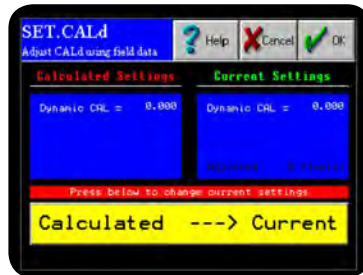
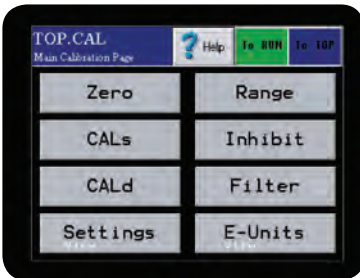
# CentriFlow Electronics

## Remote Electronics Package with NEMA-4 White Painted Steel Enclosure

Each CentriFlow® CFM, CFL and HDM Meter comes with a digital electronics package. The digital electronics includes a color touchscreen HMI housed in either a NEMA-4 white-painted, Carbon Steel, or NEMA-4X Stainless Steel enclosure. The Digital Electronics enclosure can be mounted indoors or outdoors when the necessary precautions are taken and when used in conjunction with NEMA-4-approved conduit.



### SAMPLE SCREENS



Run	CF Meter	Actual	Set Point	% Error
1	0.000	0.000	0.000	+ 0.000
2	0.000	0.000	0.000	+ 0.000
3	0.000	0.000	0.000	+ 0.000
4	0.000	0.000	0.000	+ 0.000
5	0.000	0.000	0.000	+ 0.000



## Features

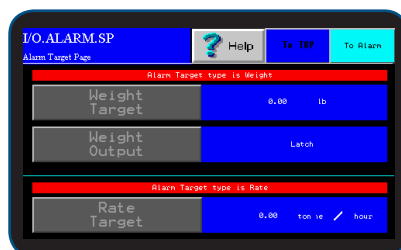
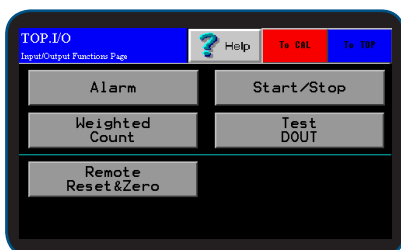
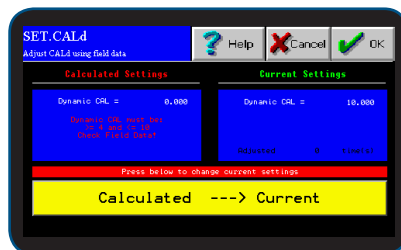
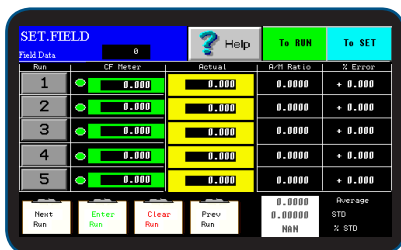
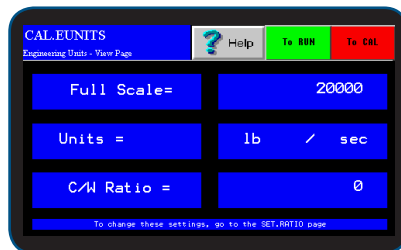
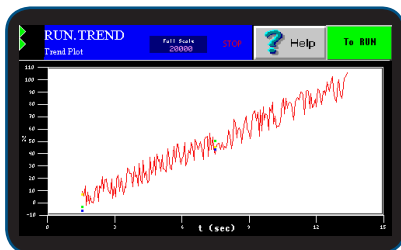
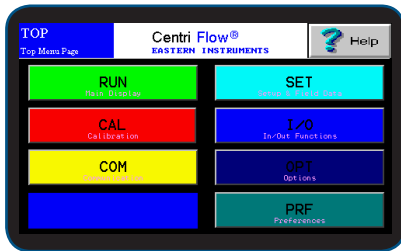
- 4-20 mA Output (Flow Rate Proportional/Current Sourced/Fully Isolated)
- Frequency Output (Flow Rate Proportional – 0-500 Hz)
- Remote Reset Capabilities
- Flow Rate or Totalization
- Alarm/Preset Capabilities
- Large, convenient, color, touch screen HMI with Flow Rate and Totalization displayed simultaneously on the main screen
- Universal Power Supply (85-264 VAC)
- 2 Gigabyte, Compact, Flash Card that records data every second for up to 1 year
- User-friendly Calibration, including Zero Adjustment, Static Calibration, Dynamic Calibration, Field Calibrations
- HMI On-screen Plotting/Trending
- Supports Ethernet and most industrial protocols
- Filterable rate signal allowing for a smoothing of the instantaneous flow rate output

## Integral Electronics Package with White Painted Steel Enclosure

The CentriFlow Integral Electronics is an integral electronics package used with all of the CentriFlow BWS style systems and mounts directly to the rear of these style meters. The integral electronics features a 4" color touchscreen HMI that allows for basic functionality and control of the CentriFlow unit, including calibration and zeroing of the meter. The main run screen shows a live reading of both flow rate and total.



### SAMPLE SCREENS



## Features

- 4-20 mA Output (Flow Rate Proportional/Current Sourced/Fully Isolated)
- Frequency Output (Flow Rate Proportional – 0-500 Hz)
- Flow Rate or Totalization Alarm/Presets Capabilities
- Convenient, color, touch screen HMI with Flow Rate and Totalization displayed simultaneously on the main screen
- AC Power Supply (115-230 VAC)
- User-friendly Calibration, including Zero Adjustment, Static Calibration, Dynamic Calibration, Field Calibrations
- HMI On-screen Plotting/Trending
- Filterable rate signal allowing for a smoothing of the instantaneous flow rate output



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6,640,158; 6,814,108; 6,679,125. Other patents pending.

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