

Weigh Beyond the Ordinary



CentriFlow®
EASTERN INSTRUMENTS

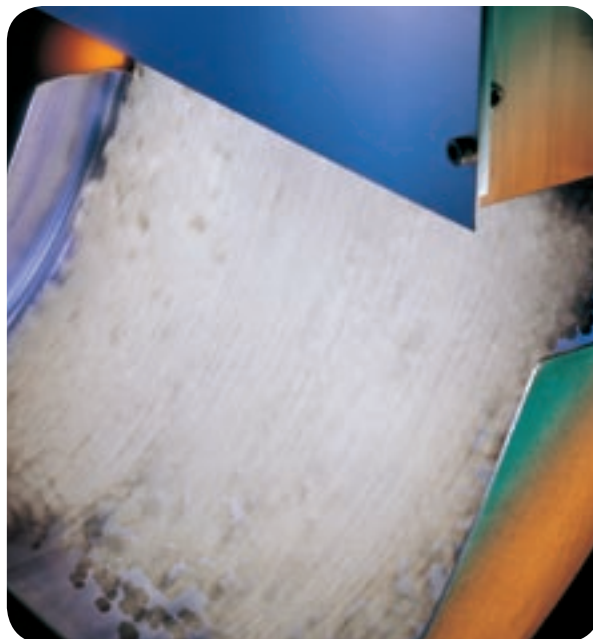
Product Catalog

Weigh Beyond the Ordinary

Welcome to Eastern Instruments

About the CentriFlow®

The CentriFlow® from Eastern Instruments is a Solid-Particle Mass Flow Meter that is durable, accurate, maintenance-free, compact, and cost-effective. It is unique and positioned to replace weigh belts, impact meters, loss in weight meters, and static weigh scales, where accuracy, low maintenance, and zero drift is paramount. Accuracy is not affected by changes in product elasticity, density, or shape. The meter offers a typical accuracy of $\pm 0.25\%$ of full-scale reading at calibrated flow rate and is repeatable within $\pm 0.10\%$. The CentriFlow® Meter has NO moving parts. Calibration and installation are simple to perform.



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 are built into systems that regulate and perform critical process functions. These systems provide a high degree of accuracy combined with simplicity of installation, operation and maintenance for both continuous and batch operations.



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CentriFlow® Weigh Beyond the Ordinary

Our Facilities: Measuring Up to the Highest Standards

In order to meet your needs for precise measurement, we put each of our CentriFlow® Meters through rigorous testing before they are allowed to bear the company brand. To help us achieve – and set – the highest standard of solid particle flow measurement, Eastern Instruments maintains 26,000 sq. ft. of engineering, laboratory, testing and assembly area in two Wilmington locations. There are two stand-alone laboratory sites, one of which is a test facility with solid mass flow fixturing for CentriFlow® material testing and validation. The other is used for full-scale and prototype construction of complete systems and includes instrumentation for flow, blending, mixing, coating and coating analysis of processes under development. Within the main building, which houses the general offices and engineering organization, are a fully supported machine shop, fabrication services, electronics assembly and testing department.

El divides its test facilities into two functional areas: full-scale systems and devices.

Full-scale testing is available for development and validation of process equipment that will be used in production. In addition to run-in testing of our systems, we offer proof of process testing for blending, mixing, drying and coating applications. This facility is also used for prototype development prior to the design and construction of full-scale production unit(s).

Device testing involves material flow and process development for the CentriFlow® family of equipment, plus their instrumentation. For the CentriFlow®, we perform a series of tests to determine flowability of customer-submitted solids, to recommend material choices for the contact surfaces, and to validate function prior to field installation and commissioning. Information gathered will be analyzed to be certain that field applications will perform as specified.



The Principle of Centripetal Force and Zero-Friction Measurement

Why is the CentriFlow® Meter so accurate? The secret lies in its 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 toward 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:

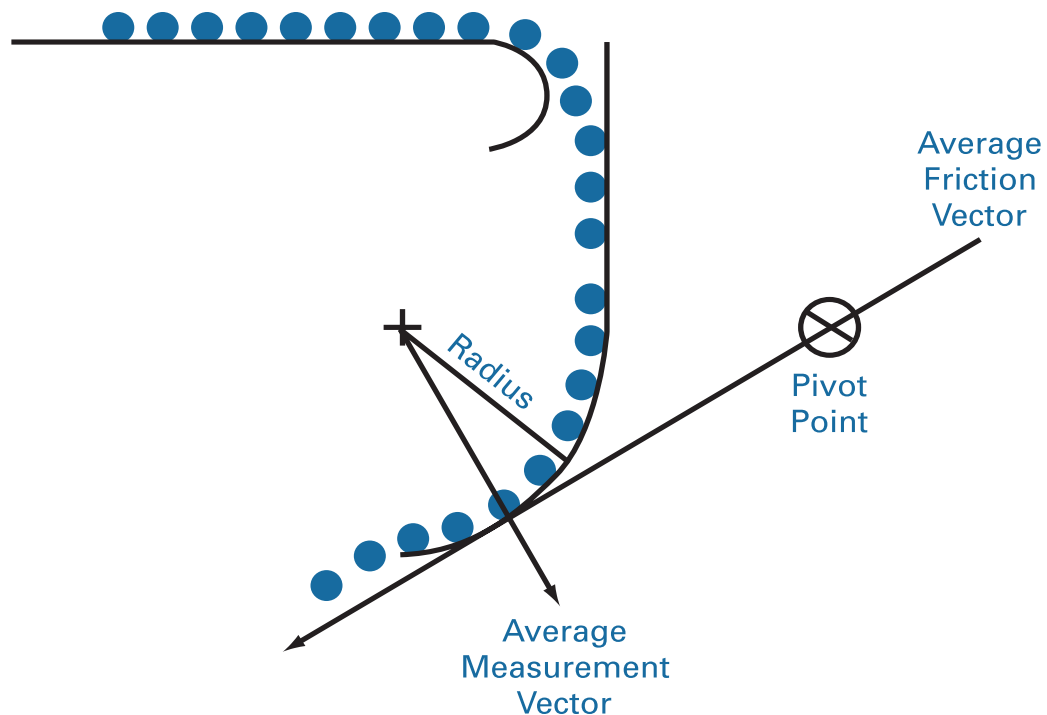
$$\text{Force} = \frac{\text{Mass} \times \text{Velocity}^2}{\text{Radius}}$$

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. Whenever an object moves in a curve, a centripetal force is present.

The CentriFlow® Meter measures the centripetal force exerted on the element as the particles travel over it. It is not measuring the impact of the particles because they do not impact the element. They travel across the element for a longer time period resulting in a significantly more accurate signal.

The CentriFlow® Meter's uniqueness is its ability to identify and cancel the friction component. Combined with a velocity that is constant and a radius that is unchanging, flow equals mass.

That is zero friction flow measurement. The remaining signal is an actual mass flow, which is linear and accurate, not affected by density variations or slight particle size variations.



Why choose the CentriFlow®?

Accurate

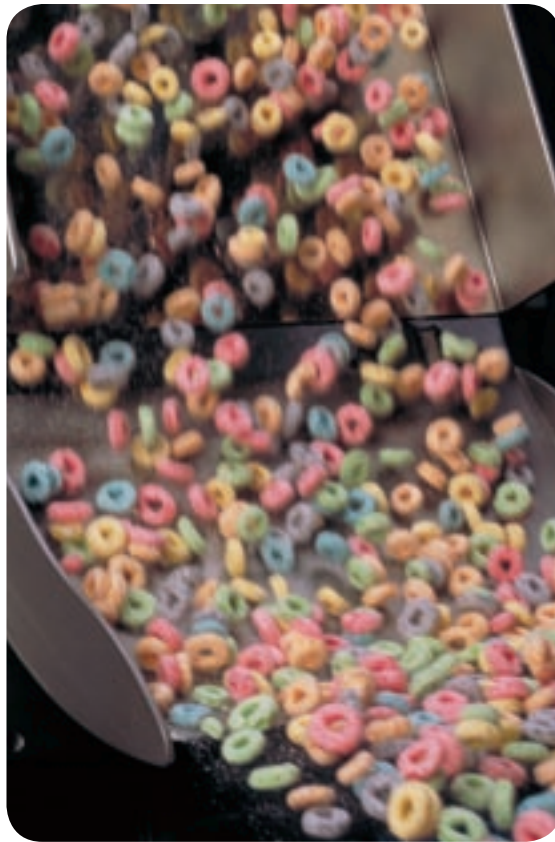
Unlike existing technologies that calculate based on weight, speed, belt tension, or volume, the CentriFlow® Meter actually measures flowable solids in a process. This unique measurement ability allows the CentriFlow® Meter to have 0.25% accuracy full scale on virtually all flowable solids, significantly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

Flexible

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

Solid Construction/ Low Maintenance

Sturdy high-grade aluminum construction with stainless steel flow paths makes the CentriFlow® Meter a very low maintenance instrument. It rarely requires re-calibration because there are no moving parts. There are no belts or drives. Plus, the electronics are located outside the process stream and are not subject to vibration from the manufacturing process.



Plant Efficient Configurations

Designed to fit into just about any existing process with minimal changes, the CentriFlow® Meter is available in two configurations.

The Type I Configuration is designed to attach to the end of an existing horizontal conveyor belt system. The Type II Configuration is designed for an in-line vertical application.

Compared to alternative devices, the CentriFlow® is compact and extremely efficient in its space requirements and doesn't require floor mounting.

Turndown Ratio

The CentriFlow® Meter has a minimum 20:1 turndown capability while maintaining accuracy. The meter's unique design enables it to identify and cancel the friction component of the mass flow. The resulting signal is flow = mass rate, which is linear. The linearity allows the meter to work at 0.25% accuracy full scale. This means it is not affected by the wide variances typical to process flow.

Continuous Measurement for Continuous Improvement

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

FOR MORE INFO, CALL 910.392.2490

What range of products can the CentriFlow® Meter measure?

The CentriFlow® Meter has been proven in the plastics, food processing, tobacco processing and coal burning industries, including materials such as plastic pellets, tobacco, corn meal grain, rice, spices, soybeans, snack foods, pet food, potato chips, and most any other flowable material.

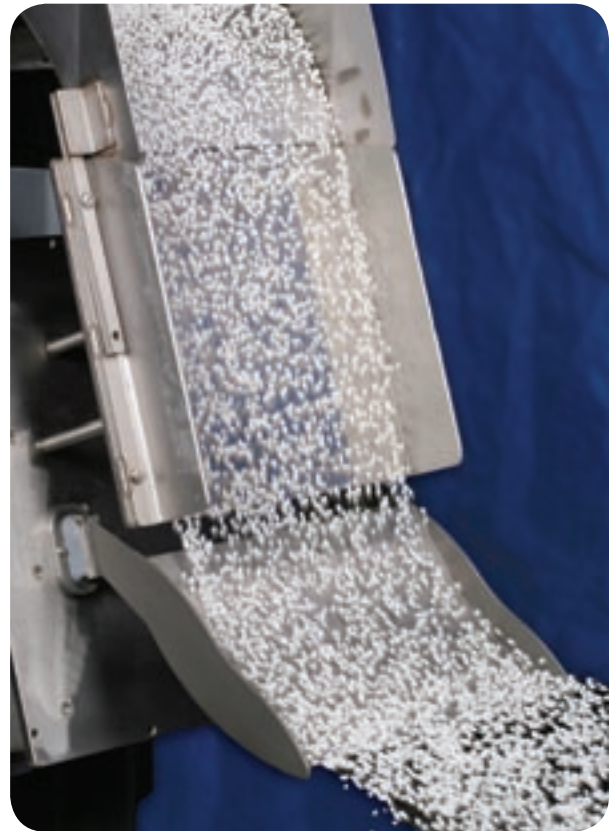
CentriFlow® Meter Applications

The CentriFlow® Meter provides two outputs: pulse output and flow control output. The pulse output is a totalizer output, which sends out 500 pulses per second. This pulse count plus the 100-millisecond response time means superior signal resolution and therefore superior accuracy.

Totalizing applications include:

- Batching
- Filling
- Inventory Control

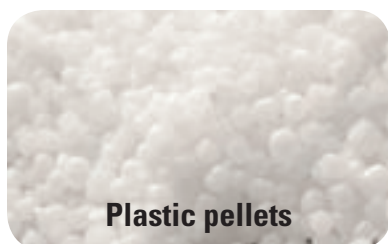
The flow control output is a “real time” output that can govern the flow rate. Modulating a valve with a 4-20mA signal allows the operator to adjust variables in the process to keep flow at the required output. For example, the flow control application can allow the feeding of an extruder at a constant rate by controlling the flow rate through the rotary valve.



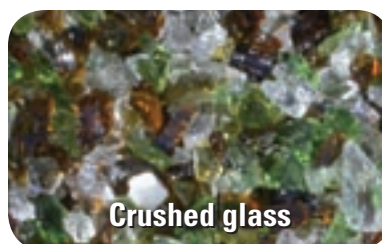
Flow control applications include:

- Ratio control of two or more product streams
- Extruder feed control
- Continuous flow rate

CENTRIFLOW®: ACCURATE MEASUREMENT FOR MANY APPLICATIONS



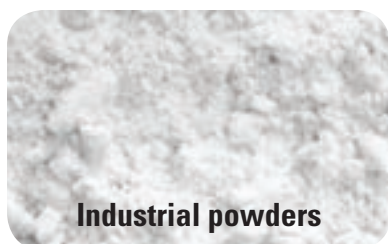
Plastic pellets



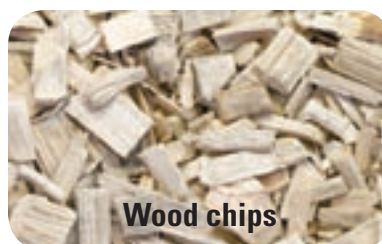
Crushed glass



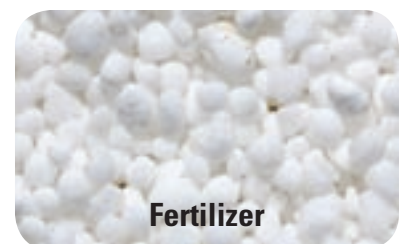
Sand/silica



Industrial powders



Wood chips



Fertilizer

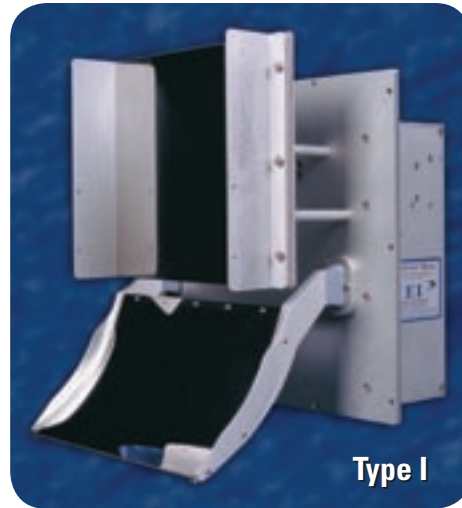
CentriFlow® Meters

Type I Configuration

The Type I Configuration is designed for horizontal feed systems and can be mounted to keep the product stream flowing in-line or to reverse the direction of flow. Typical Feed Systems include belt conveyors and vibratory conveyors.

Type II Configuration

The Type II Configuration is designed for vertical feed systems and can be mounted keeping the product stream vertically in-line. The configuration utilizes an enclosure, which includes a diverter plate that directs product towards the Measurement Pan and allows it to discharge below. An optional flange is available on the intake to mate to a transition or flexible connection. The enclosure also incorporates an access panel to view internal product flow and an integrated calibration chute door for the purpose of product collection to calibrate the meter. This configuration is ideal for processes that are highly pulsating due to the feed system and/or products that need to be contained or enclosed. Typical Feed Systems include screw conveyors, rotary valves, and slide gates.



Type I



Type II

ENGINEERED-TO-ORDER OPTIONS

CentriFlow® Low Density

The CentriFlow® Low Density Meter is a specialized version of the CentriFlow® Meter designed to measure low-density materials (typically products 10lbs/ft³ or less). The radius of the Measurement Pan is twice that of the Standard CentriFlow®. By enlarging the Measurement Pan radius, low-density/high-bulk large-particle materials are accommodated. Materials such as tobacco (whole leaf, strip, stems, processed leaf, etc.), wood chips, leafy vegetables and many others can be measured accurately using the Low Density Meter. It is available in four sizes and can be fed from a belt or vibratory conveyor.

Measurement Pan and Liners

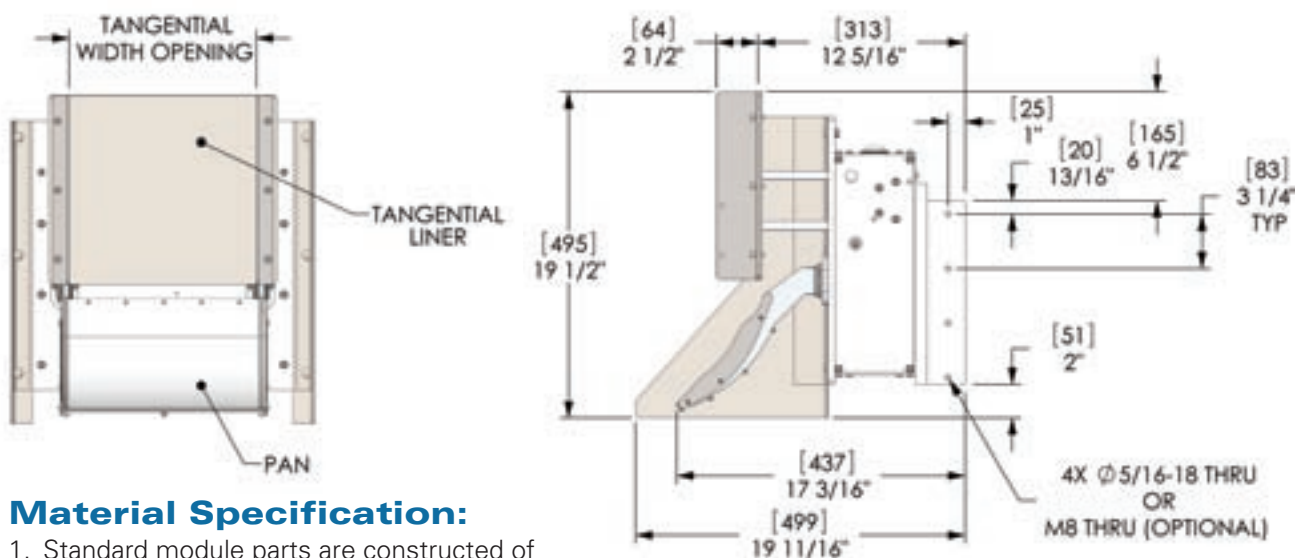
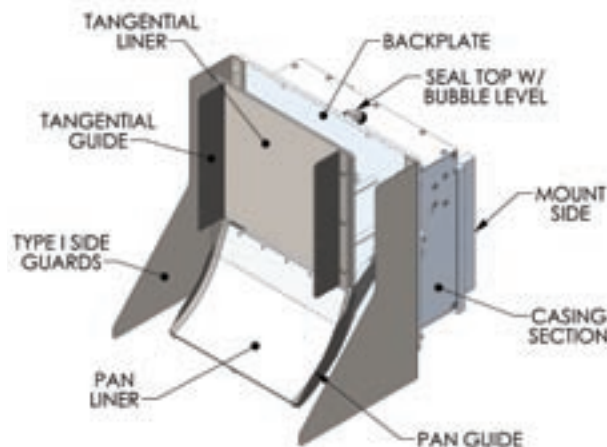
The Measurement Pan of the CentriFlow® Meter is the curved section where the material flow rate is measured. The material slides centripetally through this section during the process flow. In order to allow for different applications and process products and to also accommodate for wear, the Measurement Pan incorporates liners, which easily bolt on and off. This allows the CentriFlow® Meter to be maintained simply by changing out liners instead of full assemblies. There are several different liners depending on the application.

Tangential Entry and Liners

The tangential section of the CentriFlow® Meter brings the process material into the Measurement Pan. This reduces wear on the Pan Liner and ensures proper presentation to the Pan for best accuracy. Tangential Liners are bolt-on surfaces that can be selected specifically for different applications and products. Typically, they are made from the same material chosen for the Pan Liner. Some Tangential Entries can be extended in height for applications with bulk density and large particle size. For bouncy, elastic, or powdery materials, the Tangential Guide Cover Plate can contain them within a "throat" area to ensure proper presentation to the Measurement Pan.

TYPE I SPECS

Type I – Volumetric Capacity				
	Minimum (ft ³ /min)	Maximum (ft ³ /min)	Minimum (m ³ /min)	Maximum (m ³ /min)
CFM-03	0.18 ft ³ /min	2.5 ft ³ /min	0.005 m ³ /min	0.10 m ³ /min
CFM-06	0.35 ft ³ /min	6.75 ft ³ /min	0.01 m ³ /min	0.20 m ³ /min
CFM-12	0.75 ft ³ /min	15 ft ³ /min	0.021 m ³ /min	0.42 m ³ /min
CFM-24	1.50 ft ³ /min	30 ft ³ /min	0.042 m ³ /min	0.84 m ³ /min
CFM-36	2.25 ft ³ /min	45 ft ³ /min	0.063 m ³ /min	1.27 m ³ /min
CFM-48	3.00 ft ³ /min	60 ft ³ /min	0.084 m ³ /min	1.70 m ³ /min
LDM-12	12 ft ³ /min	60 ft ³ /min	0.34 m ³ /min	1.70 m ³ /min
LDM-24	24 ft ³ /min	120 ft ³ /min	0.68 m ³ /min	3.40 m ³ /min
LDM-36	36 ft ³ /min	180 ft ³ /min	1.02 m ³ /min	5.10 m ³ /min
LDM-48	48 ft ³ /min	240 ft ³ /min	1.36 m ³ /min	6.80 m ³ /min

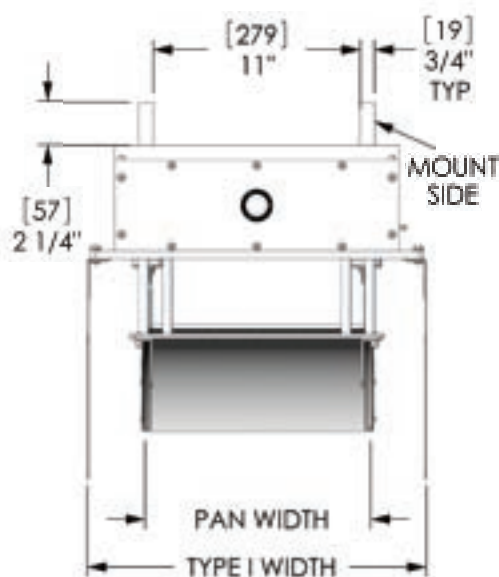


Material Specification:

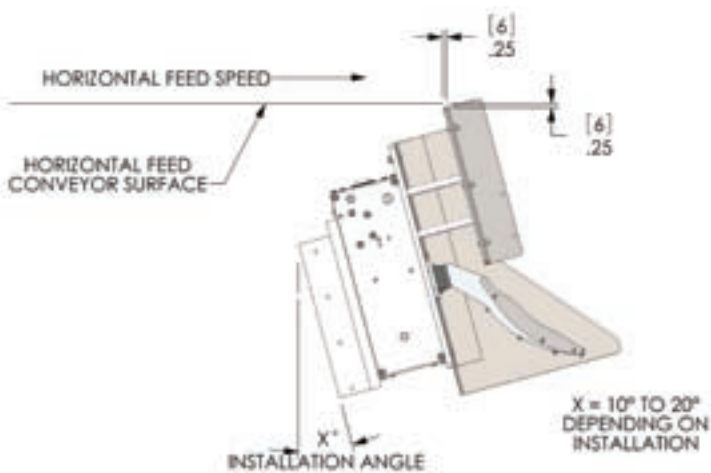
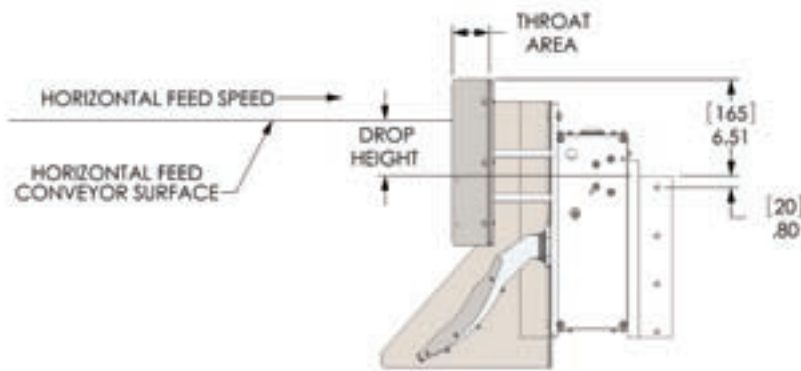
- Standard module parts are constructed of 6061 aluminum.
- Standard process product contact parts are stainless steel and anodized aluminum.
- Type I Side is constructed of 304 stainless steel.

Type I – Other Specifications						
	CFM-3	CFM-6	CFM-12	CFM-24	CFM-36	CFM-48
Type I Width	12 in. (305 mm)	12 in. (305 mm)	18 in. (457 mm)	30 in. (762 mm)	42 in. (1067 mm)	54 in. (1372 mm)
Tangential Width Opening	2.1 in. (305 mm)	5.10 in. (130 mm)	11.10 in. (282 mm)	23.10 in. (587 mm)	35.10 in. (892 mm)	47.10 in. (1196 mm)
Pan Width	3 in. (305 mm)	6 in. (152 mm)	12 in. (305 mm)	24 in. (610 mm)	36 in. (914 mm)	48 in. (1219 mm)
Approx. Meter Wt.	57 lb (25 kg)	55 lb (25 kg)	75 lb (34 kg)	100 lb (45 kg)	125 lb (57 kg)	150 lb (68 kg)
Approx. Shipping Wt.*	182 lb (82 kg)	180 lb (82 kg)	200 lb (91 kg)	225 lb (102 kg)	250 lb (113 kg)	275 lb (125 kg)

* Approx. Shipping Weight incl. Meter Module, Remote Electronics Unit, Remote Electronics Cable and Shipping Crate



TYPE I SPECS, CONT.



Installation Notes

- Flow should always contact Tangential Liner.
- Flow must not flow over the top of Tangential Liner in standard installation position.
- Flow contacting pan directly WILL result in inaccuracy.
- To minimize vibration, meter should not be mounted directly to horizontal feed system.

Type I – Installation Specifications

	Standard	Preferred	Maximum
Drop Height	3.75 in (95.3 mm)	3.75-5.00 in (95.3-127 mm)	13.5-46.0 in (343-1170 mm)
Throat Opening	2.5 in (63.5 mm)	2.5-3.0 in (63.5-76.2 mm)	2.5-10.0 in (63.5-254 mm)
Horizontal Speed	1 ft/sec (0.31 m/sec)	1-2 ft/sec (0.31-0.62 m/sec)	FLOW MUST CONTACT TANGENTIAL LINER
Installation Angle	0° (Reverse Flow Direction)	0° or 10° (0° for Reverse Flow & 10° for In-Line Flow)	20° (In-Line Flow Direction)

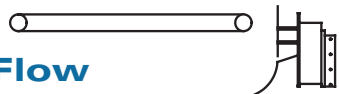
Horizontal Belt Feed

In-Line Flow



- Product Types: Bulky, Large-Particle, Fragile, and/or Free-Flowing Materials
- Product Examples: Tobacco (leaf, stems, processed), Lg/Bulky Frozen Vegetables, Dry Cereal, Rice, etc.

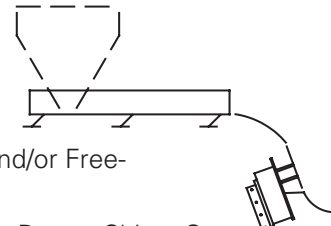
Reverse Direction Flow



- Product Types: Slightly Sticky or Cohesive Materials, Fragile Materials, Heavy Materials
- Product Examples: Wood Shavings, Frozen Vegetables, Dry Cereal, etc.

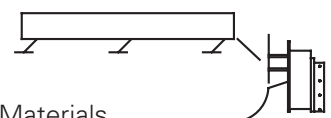
Horizontal Vibratory Feed

In-Line Flow



- Product Types: Bulky, Large-Particle, Fragile, and/or Free-Flowing Materials
- Product Examples: Potato Chips, Corn Chips, Tortilla Chips, Nuts, Oats, Frozen Vegetables, Dry Cereal, etc.

Reverse Direction Flow



- Product Types: Slightly Sticky or Cohesive Materials, Fragile Materials
- Product Examples: Shredded Cheese, Frozen Vegetables, Dry Cereal, etc.

TYPE II SPECS

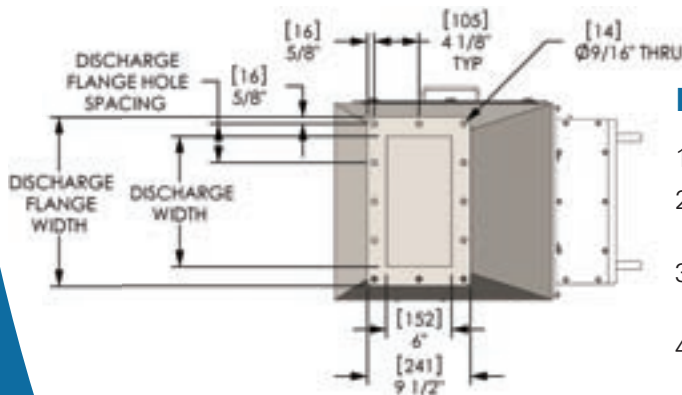
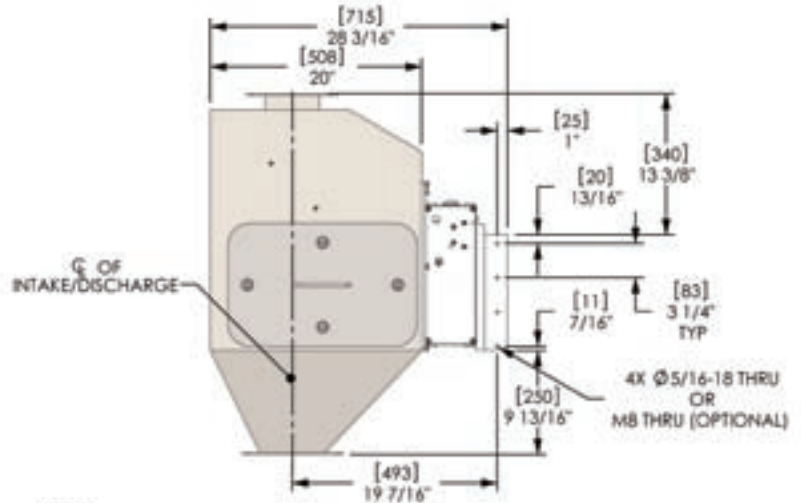
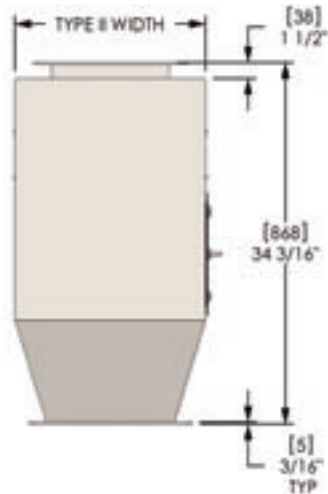
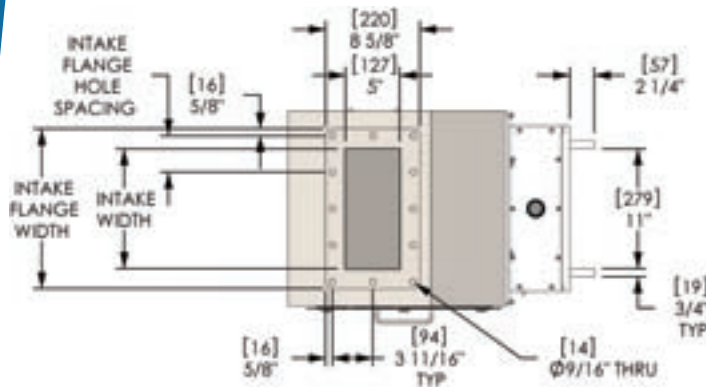
Type II – Volumetric Capacity

	Minimum (ft ³ /min)	Maximum (ft ³ /min)	Minimum (m ³ /min)	Maximum (m ³ /min)
CFM-03	0.35 ft ³ /min	2.5 ft ³ /min	0.01 m ³ /min	0.10 m ³ /min
CFM-06	0.70 ft ³ /min	6.75 ft ³ /min	0.02 m ³ /min	0.20 m ³ /min
CFM-12	1.50 ft ³ /min	15 ft ³ /min	0.042 m ³ /min	0.42 m ³ /min
CFM-24	3.00 ft ³ /min	30 ft ³ /min	0.084 m ³ /min	0.84 m ³ /min
CFM-36	4.50 ft ³ /min	45 ft ³ /min	0.127 m ³ /min	1.27 m ³ /min
CFM-48	6.00 ft ³ /min	60 ft ³ /min	0.170 m ³ /min	1.70 m ³ /min

Type II – Other Specifications

	CFM-3	CFM-6	CFM-12	CFM-24	CFM-36	CFM-48
Type II Width	12 in. 305 mm	12 in. 305 mm	18 in. 457 mm	30 in. 762 mm	42 in. 1067 mm	54 in. 1372 mm
Intake Width	5.0 in. 127 mm	5.0 in. 127 mm	11 in. 279 mm	23.0 in. 584 mm	35.0 in. 889 mm	47.0 in. 1194 mm
I. Flange Width	8.66 in. 220 mm	8.66 in. 220 mm	14.66 in. 372 mm	26.66 in. 677 mm	38.66 in. 982 mm	50.66 in. 1287 mm
I. Flange Hole Spacing	3.70 in. 94 mm	3.70 in. 94 mm	3.35 in. 85 mm	3.63 in. 92 mm	3.74 in. 95 mm	3.29 in. 84 mm
Discharge Width	6.0 in. 152 mm	6.0 in. 152 mm	12.0 in. 305 mm	24.0 in. 610 mm	36.0 in. 914 mm	48.0 in. 1219 mm
D. Flange Width	9.50 in. 241 mm	9.50 in. 241 mm	15.50 in. 394 mm	27.50 in. 699 mm	39.50 in. 1003 mm	51.50 in. 1308 mm
D. Flange Hole Spacing	4.13 in. 105 mm	4.13 in. 105 mm	3.56 in. 90 mm	3.75 in. 95 mm	3.83 in. 97 mm	3.35 in. 85 mm
No. of Holes	8	8	12	18	24	34
Approx. Meter Wt.	102 lb 46 kg	100 lb 45 kg	125 lb 57 kg	175 lb 79 kg	225 lb 102 kg	275 lb 125 kg
Approx. Ship. Wt.*	252 lb 114 kg	250 lb 113 kg	325 lb 147 kg	450 lb 204 kg	575 lb 261 kg	700 lb 318 kg

* Approx. Shipping Weight incl. Meter Module, Remote Electronics Unit, Remote Electronics Cable and Shipping Crate



Material Specification

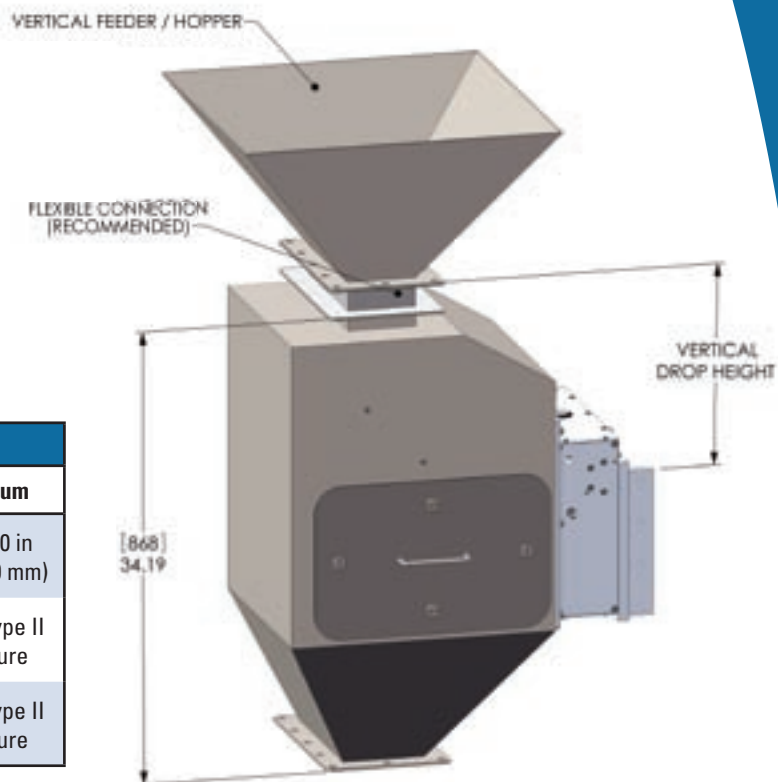
1. Standard module parts are constructed of 6061 aluminum.
2. Standard process product contact parts are stainless steel and anodized aluminum.
3. Type II enclosure is constructed of carbon steel or 304 stainless steel.
4. Access panel is constructed of carbon steel or 304 stainless steel.

TYPE II SPECS, CONT.

Installation Notes

- Flow contacting pan directly WILL result in inaccuracy.
- All connections to Type II enclosure should be made with flexible coupling to help to minimize vibration from feed system.
- Type II enclosure SHOULD NOT be the means of support for feed system or mounting of meter.

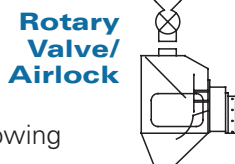
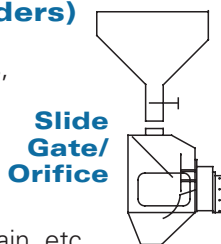
Type II – Installation Specifications			
	Standard	Preferred	Maximum
Drop Height	14.5 in (368 mm)	14-22 in (356-559 mm)	13.5-46.0 in (343-1170 mm)
Throat Opening	2.5 in (63.5 mm)	Set by Type II Enclosure	Set by Type II Enclosure
Installation Angle	0° (In-Line Flow)	Set by Type II Enclosure	Set by Type II Enclosure



Vertical Feed

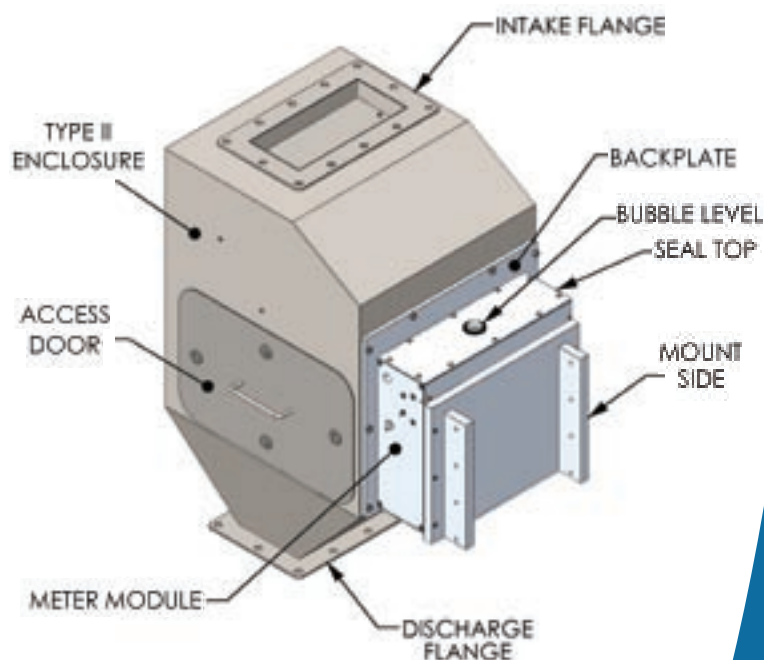
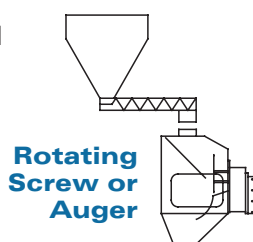
Type II-P (for Powders)

- Product Types: Powders, Ground Materials
- Product Examples: Gypsum, Flours, Limestone, Powdered Milk, Ground Corn or Grain, etc.
- Recommended Feed Devices: Rotary Valve or Airlock, Rotary Screw or Auger



Type II-F (for Free-Flowing)

- Product Types: Free-Flowing Materials
- Product Examples: Plastic Pellets, Animal Feed, Grains, Coffee Beans, etc.
- Recommended Feed Devices: Rotary Valve or Airlock, Slide Gate/Orifice



DETERMINING YOUR PRODUCT NUMBER

M1 Base Meter Type and Module Size

CFM 3	0.18 – 3.5 ft ³ /min capacity
CFM 6	0.35 – 7 ft ³ /min capacity
CFM 12	0.75 – 15 ft ³ /min capacity
CFM 24	1.50 – 30 ft ³ /min capacity
CFM 36	2.25 – 45 ft ³ /min capacity
CFM 48	3 – 60 ft ³ /min capacity
LDM 6	6 – 30 ft ³ /min capacity
LDM 12	12 – 60 ft ³ /min capacity
LDM 24	24 – 120 ft ³ /min capacity
LDM 36	36 – 180 ft ³ /min capacity
LDM 48	48 – 240 ft ³ /min capacity

M2 Materials of Construction

AL	Aluminum Exterior
SS	304 Stainless Steel Exterior
EO	Engineered-to-Order/Custom

M3 Configuration

1S	Type I Configuration – Side Pan Guards
1G	Type I Configuration – Solid Construction Guard
2SL	304 Stainless Steel Enclosure with Lip Inlet (Type II Configuration)
2SF	304 Stainless Steel Enclosure with Intake Flange (Type II Configuration)
2CL	Painted Carbon Steel Enclosure with Lip Inlet (Type II Configuration)
2CF	Painted Carbon Steel Enclosure with Intake Flange (Type II Configuration)
N	Option Not Recommended for this Application
EO	Engineered-to-Order/Custom

M4 Additional Options for Type I Configuration

IT	In-Line Flow Transition
RT	Reverse Flow Transition
N	Option Not Recommended for this Application
EO	Engineered-to-Order/Custom

M5 Additional Options for Type II Configuration

45	45° Diverter for Free-Flowing Materials
56	56° Diverter and Deflector for Powders
TA	Top Access Door
SA	Additional Side Access Door (only for 3, 6, and 12 Sizes)
EO	Engineered-to-Order/Custom
N	Option Not Recommended for this Application

M6 Diverter Construction

NA	Not Applicable for Type I Configuration
OP	0.125" One-Piece 304 Stainless Steel Construction
SS	304 Stainless Steel Diverter with Aluminum Diverter Guides
AW	0.125" High Wear Resistant UHMW Antistatic Diverter Liner (Black)
LF	0.125" Low Friction PTFE Diverter Liner
UW	0.125" UHMW Diverter Liner (White)
HT	0.125" UHMW H.O.T. (High Operating Temperature) Diverter Liner
EO	Engineered-to-Order/Custom

M7 Pan Construction (Aluminum Composite Pan Assembly, unless otherwise noted)

SP	0.025" Hardened 301 Stainless Steel Pan Liner – Polished
SN	0.025" Hardened 301 Stainless Steel Pan Liner – NP3 Coated
AW	0.125" High Wear Resistant UHMW Antistatic Pan Liner (Black)
LF	0.125" Low Friction PTFE Pan Liner
UW	0.125" UHMW Pan Liner (White)
HT	0.125" UHMW H.O.T. (High Operating Temperature) Pan Liner
WP	All-Welded 304 Stainless Steel Pan Construction – Polished
WC	All-Welded 304 Stainless Steel Pan Construction – NP3 Coated
WT	All-Welded 304 Stainless Steel Pan Construction – Alumina Ceramic Tiled
WW	All-Welded 304 Stainless Steel Pan Construction – Thermal Spray Wear Coating
HR	0.125" UHMW with High Release Property Pan Liner
EO	Engineered-to-Order/Custom



To determine your product number, simply note the option you need from each section below, and place that code in its corresponding box in the grid. For instance, if you'd like a base meter with a 3 - 60 ft³/min. capacity, then fill in box M1 with the code CFM-48. Complete the grid by continuing that pattern for each option.

M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11

M8 Pan Guides

- NA Not Applicable (for All-Welded 304 Stainless Steel Pan Construction)
- AP Aluminum Pan Guides – Polished
- AC Aluminum Pan Guides – NP3 Coated
- AH Aluminum Pan Guides – Hard Coat Anodized Coated
- LD LDM Pan Guides
- LF Low Friction PTFE Pan Guides
- EO Engineered-to-Order/Custom

M9 Tangential Construction

- NA Not Applicable for Type I Configuration
- OP 0.125" One-Piece 304 Stainless Steel Construction
- SS 0.125" 304 Stainless Steel Tangential Liner – Polished
- SC 0.125" 304 Stainless Steel Tangential Liner – NP3 Coating
- ST 0.125" 304 Stainless Steel Tangential Liner – Alumina Ceramic Tiled
- AW 0.125" High Wear Resistant UHMW Antistatic Tangential Liner (Black)
- LF 0.125" Low Friction PTFE Tangential Liner
- UW 0.125" UHMW Tangential Liner (White)
- HT 0.125" UHMW H.O.T. (High Operating Temperature) Tangential Liner
- OW 0.125" One-Piece 304 Stainless Steel Construction with Thermal Spray Wear Coating
- OC 0.125" One-Piece 304 Stainless Steel Construction with NP3 Coating
- HR 0.125" UHMW with High Release Property Tangential Liner
- EO Engineered-to-Order/Custom

M10 Tangential Guides

- NA Not Applicable for One-Piece 304 Stainless Steel Construction
- AL Aluminum Tangential Guides
- AH Aluminum Tangential Guides - Hard Coat Anodized
- SS 304 Stainless Steel Tangential Guides – Polished
- SC 304 Stainless Steel Tangential Guides – NP3 Coating
- ST 304 Stainless Steel Tangential Guides – Alumina Ceramic Tiled
- EO Engineered-to-Order/Custom

M11 Miscellaneous Options for Meter Construction (Add as needed)

- V6 VibraWeigh®, 60Hz, 110VAC (for US operation – Not available for 36, 48, or LDM sizes)
- V5 VibraWeigh®, 50 Hz, 220 VAC (50 Hz for some Internat'l operations – Not available for 36, 48, or LDM sizes)
- IA Integrated Air Entrainment - Aluminum Construction
- IS Integrated Air Entrainment - 304 Stainless Steel Construction
- PA Pulsed Air System
- TC Tangential Guide Cover Plate
- BC 304 Stainless Steel Boot Clamps (Seal Boots)
- AP Air Purge System – For Dust and Moisture Control
- E1 Explosion Proof System #1
- E2 Explosion Proof System #2
- HT High Temperature Option
- HF High Temperature Foam
- AI Anodized Internal Aluminum Parts
- CC Anodized/Circuitry Coated Transducer
- N Option Not Recommended for this Application

FOR MORE INFO, CALL 910.392.2490

Remote Electronics Packages

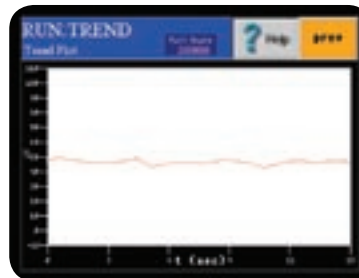
Digital Electronics Package with NEMA-4 White Painted Steel Enclosure

Each CentriFlow® Meter comes standard with a digital electronics package, encased in a NEMA-4-rated white-painted, Carbon Steel enclosure. The Digital Electronics enclosure can be mounted indoors or outdoors when the necessary precautions are used in conjunction with NEMA-4-approved conduit. Some standard features include:

- 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 Onscreen Plotting/Trending
- Supports Ethernet and most industrial protocols
- Programming Control Capability over devices for mixing and blending applications and more!



SAMPLE SCREENS

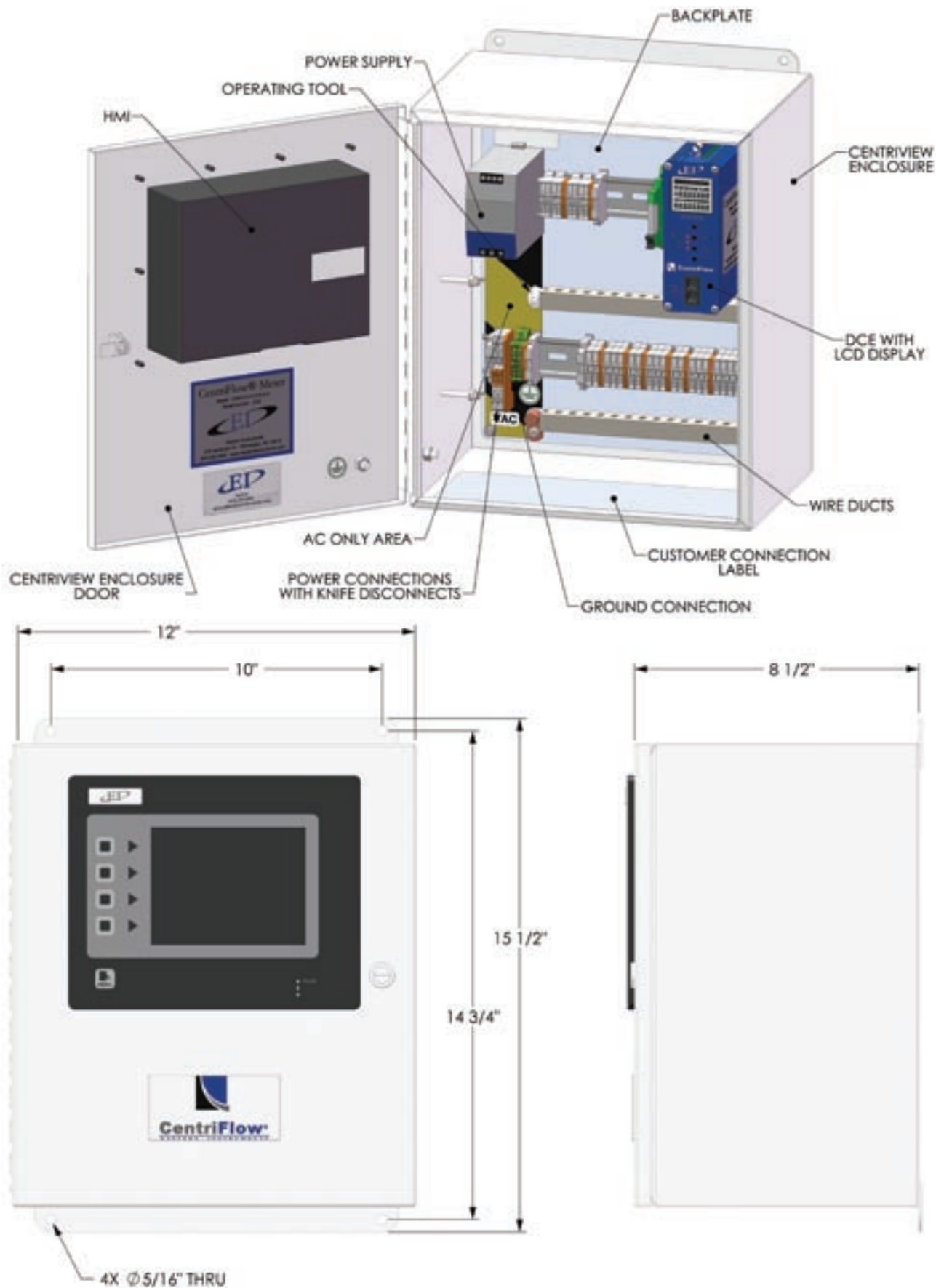


Digital Electronics Package with NEMA-4X Stainless Steel Enclosure

For applications in food processing, the chemical industry, and pulp and paper processing where equipment is subject to corrosive wash down, or direct spray, a Stainless Steel enclosure can be utilized. The enclosure is constructed of 304 Stainless Steel and all external parts including the HMI is NEMA-4X rated.



..... NEMA-4 PAINTED/STAINLESS PACKAGE



DETERMINING YOUR PRODUCT NUMBER

To determine your product number, simply note the option you need from each section below, and place that code in its corresponding box in the grid. For instance, if you'd like an electronics package with a painted carbon steel enclosure, then fill in box E1 with the code CS. Complete the grid by continuing that pattern for each option.

E1	E2	E3	E4	E5	E6
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E1 Electronics Enclosure

- CS Electronics Enclosure, Painted Carbon Steel, NEMA-4
- SS Electronics Enclosure, Stainless Steel, NEMA 4 (CE Approved)
- CR Electronics Enclosure, Stainless Steel, NEMA 4-X (Corrosive/EMI/RFI Resistant)
- SV Stainless Steel, NEMA 4-X (CentriView™)
- CV Carbon Steel, NEMA 4 (CentriView™)

E2 Power Supply

- NA None (Requires 24 Vdc Input Power)
- 110 24 Vdc, 200mA Power Supply (110 VAC)
- 220 24 Vdc, 200mA Power Supply (220 VAC)
- 110F 24 Vdc, 200 mA Power Supply with AC Power Active Tracking Filter (110 VAC) (Only available in the Corrosive/EMI/RFI Resistant Enclosure)
- 220F 24 Vdc, 200 mA Power Supply with AC Power Active Tracking Filter (220 VAC) (Only available in the Corrosive/EMI/RFI Resistant Enclosure)
- UV 24Vdc, Universal Input (CentriView™ Only)

E3 Remote Electronics Cable

- 50 Remote Cable, 50ft
- 250 Extended Remote Cable, 250ft

E4 Display

- NA None
- D1 Ratemeter/Totalizer (110 VAC)
- D2 Ratemeter/Totalizer (220 VAC)
- A1 Ratemeter/Totalizer with Averaging Analog 4-20mA Output (110 VAC)
- A2 Ratemeter/Totalizer with Averaging Analog 4-20mA Output (220 VAC)
- H1 Color Touchscreen HMI (Human/Machine Interface)

E5 Functions/Programming

- NA None
- RO Relay Output using Ratemeter/Totalizer
- RL Relay Logic Output using Ratemeter/Totalizer (requires modification to Ratemeter/Totalizer PCB)
- EO Engineered-to-Order/Custom
- CV Standard CentriView™ Programming

E6 Miscellaneous Options for Electronic Packages (Add as needed)

- IS Intrinsic Safety Barrier System #1 (In separate enclosure)
- SH EMI/RFI Shielding (Only available in the Corrosive/EMI/RFI Resistant Enclosure)
- RT Remote Terminal Box
- SR1 Solid State Relay - 24 vdc Customer Connection - PLC
- SR2 Solid State Relay - VDC Customer Connection - Load
- SR3 Solid State Relay - 110/220 VAC Customer Connection - PLC
- SR4 Solid State Relay - 110/220 VAC Customer Connection - Load
- CVW Standard CentriView™ (weighted count) *SSR Required
- UL UL Approval for Electronic Packages

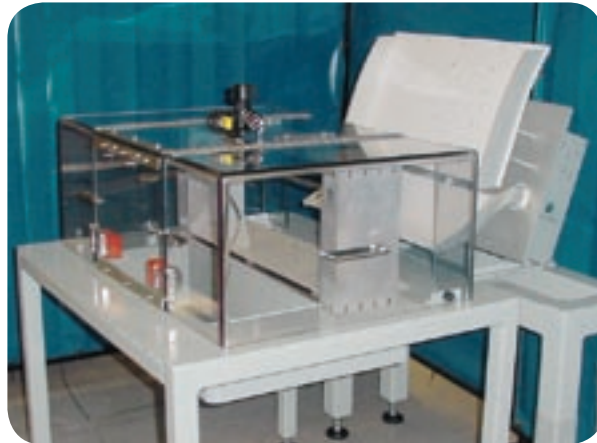
FOR MORE INFO, CALL 910.392.2490



Engineered-to-Order

High-Speed Diverter

The CentriFlow® Meter and High-Speed Diverter System integrates our patented CentriFlow® Solid Mass Flow Meter with a high-speed diverter that can rapidly and accurately fill boxes and containers, readying them for delivery to a co-packer. Retaining its typical accuracy of $\pm 0.25\%$, a CentriFlow® Meter calculates the totalized weight of product passing through the meter and provides a total package weight or box fill. The diverter is signaled when the box fill weight is met, thus shifting the flow of product.



The diverter itself is constructed of lightweight, but very sturdy materials, allowing it to move at high speeds, even during heavy flows. Its compact design allows the diverter system to be situated almost anywhere, including the very end of a conveyor or package line. Completely customizable diverter stands and electronics packages are available, allowing the CentriFlow® Meter and High-Speed Diverter System to be used for almost any application, including batching.

Explosion-Proof Systems

Explosion-Proof System #1

The Explosion-Proof System #1 is a pressurization or purging system that is used when the CentriFlow® Meter and its electronics are required to be in a Class II, Division 2 area. This unit prevents the entrance of combustible dust into the CentriFlow® Meter and its electronics by manually removing any dust and then applying a protective gas supply to maintain a "safe" pressure of 1 inch of water. Power can then be applied to the protected equipment under conditions established by the Division Rating. This unit can be mounted nearby the CentriFlow® Meter Electronics, tubed to the electronics enclosure and casing of meter and then referenced from either the enclosure or casing.

Explosion-Proof System #2

The Explosion-Proof System #2 is a purging system that is used when the CentriFlow® Meter and its electronics are required to be in a Class I, Division 2 area. The unit prevents the entrance of flammable gas or vapor to accumulate within the CentriFlow® Meter and its electronics, by performing four air exchanges and then applying a positive pressure to maintain a "safe" pressure of 0.25 inches of water. Power can then be applied to the protected equipment under conditions established by the Division Rating. This unit can be mounted nearby the CentriFlow® Meter Electronics, tubed to the electronics enclosure and casing of meter and then referenced from either the enclosure or casing of meter.

Other Options

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, thereby creating a positive pressure, to keep condensation, dust, and other matter from interfering with the measurement transducer.

High-Temperature Option

The High Temperature Option should be used when process material exceeds 150°F. Air assists in keeping the casing internal temperature down and also utilizes a Stainless Steel Barrier with High Temperature Foam.

VibraWeigh®

The VibraWeigh® 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 inaccurate measurement.

Integrated Air Entrainment System (IAE)

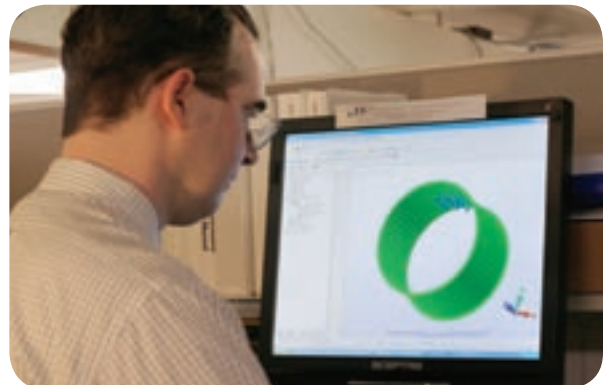
The Integrated Air Entrainment System was designed to deliver an even stream of air to the CentriFlow® Meter's Measurement Pan. Its continuous, dry air reduces build up and assists in the flow of product on the measurement surface without affecting the measurement readings.

Pulsed Blast System

The Pulsed Blast System was designed to deliver a pulsed blast of dry air to the area in front of the Backplate and behind the Tangential Plate of the meter in a manner that will not adversely affect measurement readings. Use of the Pulsed Blast System is intended to reduce product buildup on the Pan Arms and in the area behind the Tangential Plate. Reducing this product buildup will, in turn, reduce pressure on the Pan Arms which, if left unchecked, can result in inaccurate measurements.

Engineered-to-Order Options

Eastern Instruments' Engineering Department works in conjunction with their customers to evaluate and review existing process systems to optimize performance and efficiency utilizing the CentriFlow® Meter.

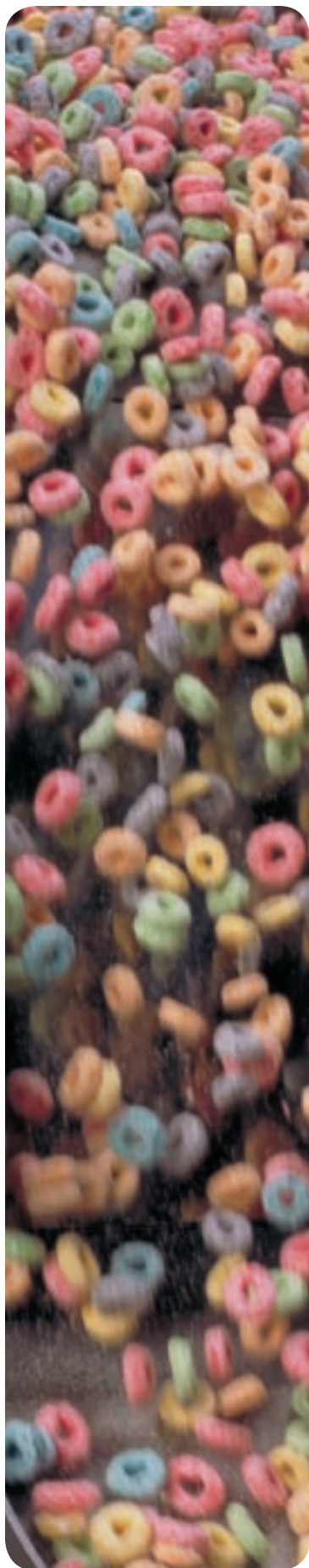


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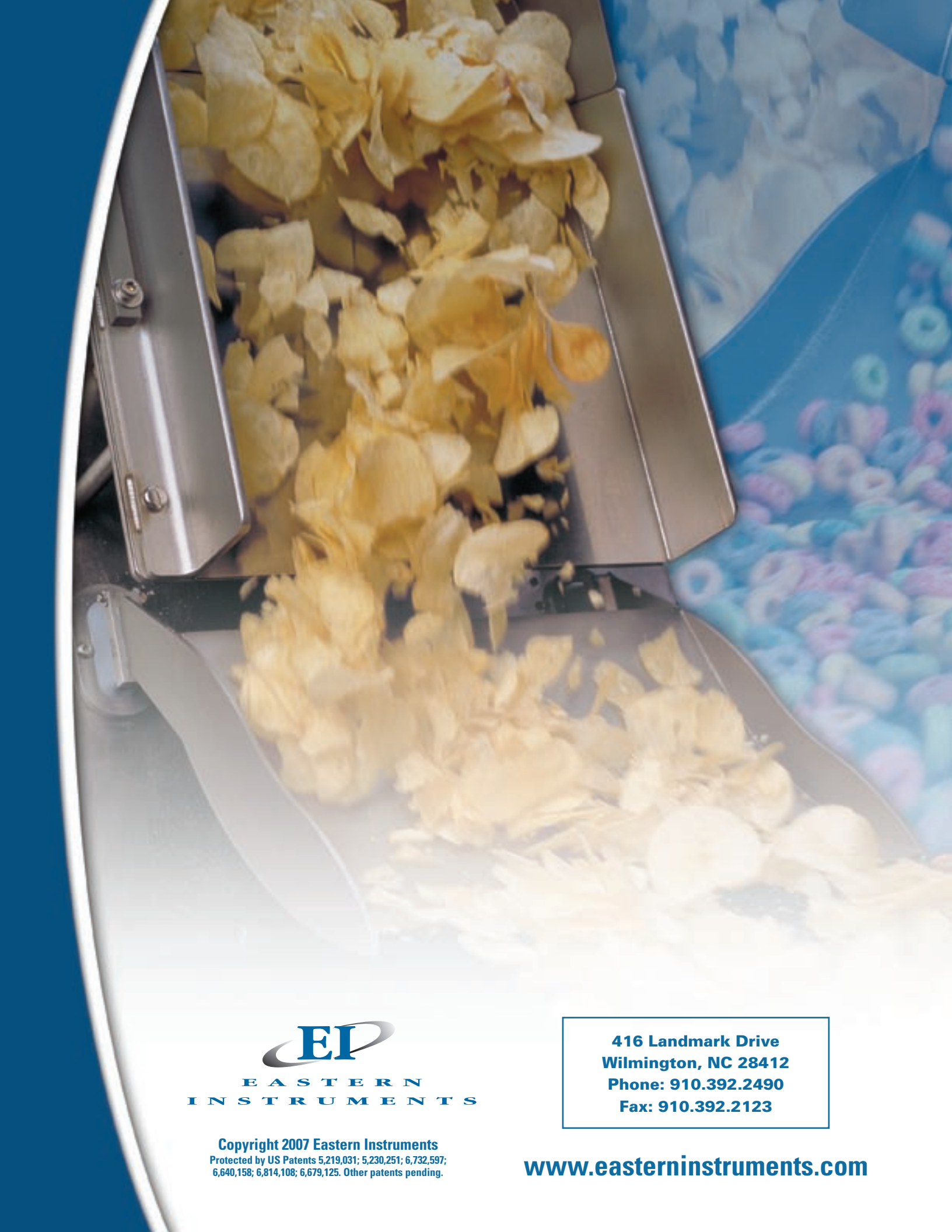
EI EASTERN INSTRUMENTS

CentriFlow® Weigh Beyond the Ordinary



Index

About the CentriFlow®	2
About Eastern Instruments	2
Our Facilities: Measuring Up to the Highest Standards	3
The Principle of Centripetal Force and Zero-Friction Measurement	4
Why choose the CentriFlow®?	5
What range of products can the CentriFlow® Meter measure?	6
CentriFlow® Meter Applications	6
CentriFlow® Meters	
Type I Configuration.....	7
Type II Configuration.....	7
Measurement Pan and Liners	7
Tangential Entry and Liners.....	7
Type I Specifications	8
Type II Specifications	10
Digital Electronics Packages	
Digital Electronics Package with NEMA-4 White Painted Steel Enclosure.....	14
Digital Electronics Package with NEMA-4X Stainless Steel Steel Enclosure	14
Remote Electronics Package Drawings.....	15
Engineered-to-Order	
High-Speed Diverter	17
Explosion-Proof Systems.....	17
Other Options	18



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