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. The meter offers a typical accuracy of ±0.25% of full-scale reading at calibrated flow rate and is repeatable within ±0.10%. The CentriFlow® Meter has NO moving parts. Calibration and installation are simple to perform. Read on to discover more about the CentriFlow®.

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.

EASTERN INSTRUMENTS

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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 it's 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.

EI 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 design and construction of the 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.


Fabrication


Assembly


Electronics


Testing

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 (Fc) is in the direction of acceleration. This is expressed by the formula:

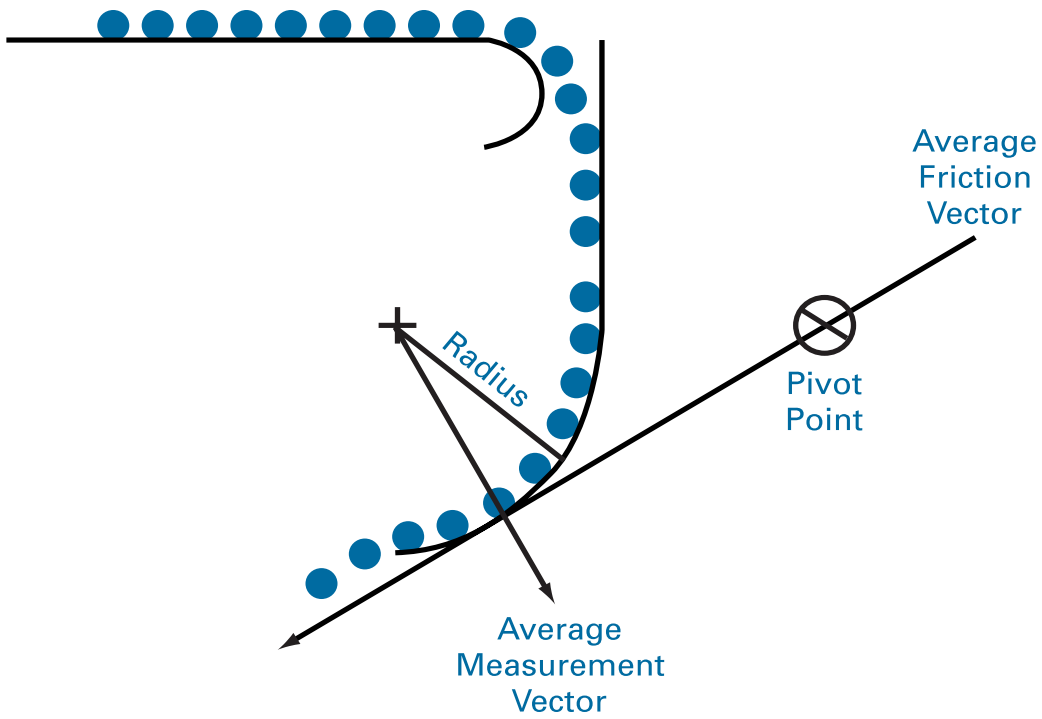
$$\textit{Force} = \frac{\text{Mass x Velocity}^2}{\text{Radius}}$$

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.

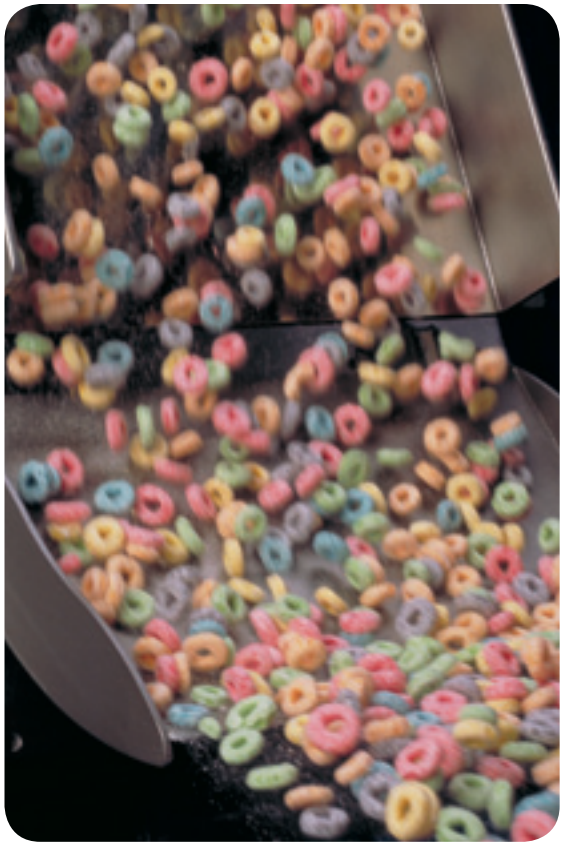
That is zero friction flow measurement. The remaining signal is an actual mass flow, which is linear and accurate, not effected by density variations or slight particle size variations.



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.



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.

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.

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.

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 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.

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.

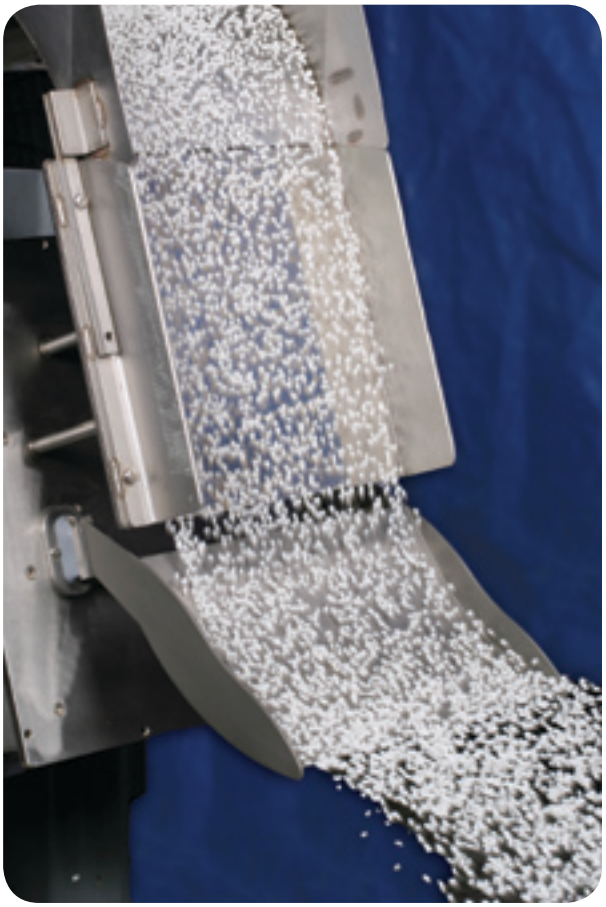
CentriFlow® Meter Applications

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 time constant 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:

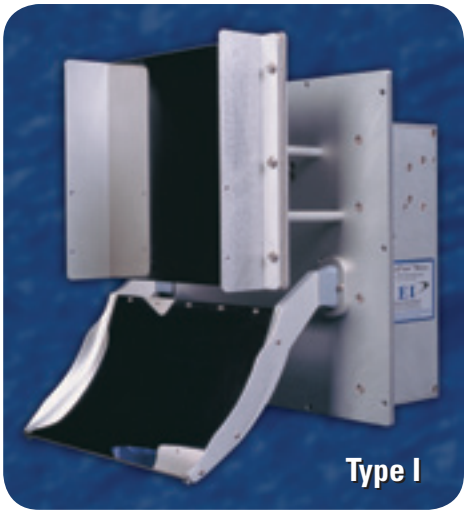
- Ratio control of two or more product streams
- Extruder feed control
- Continuous flow rate

CENTRIFLOW®: ACCURATE MEASUREMENT FOR MANY APPLICATIONS

CentriFlow® Meters

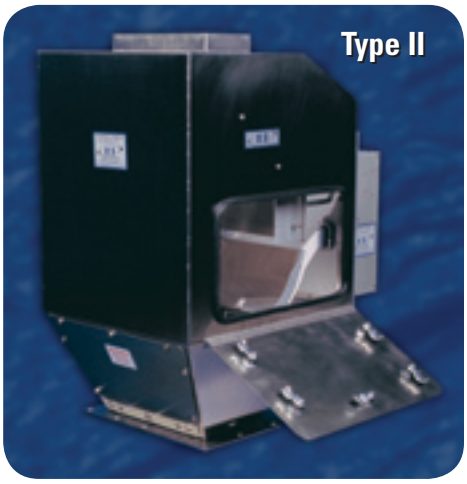
Type I Configuration

The Type I Configuration is designed for horizontal feed systems and can be mounted keeping the product stream flowing in-line or reversing 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.



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. The radius of the Measurement Pan is twice that of the Standard CentriFlow®. By enlarging the Measurement Pan radius, the 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

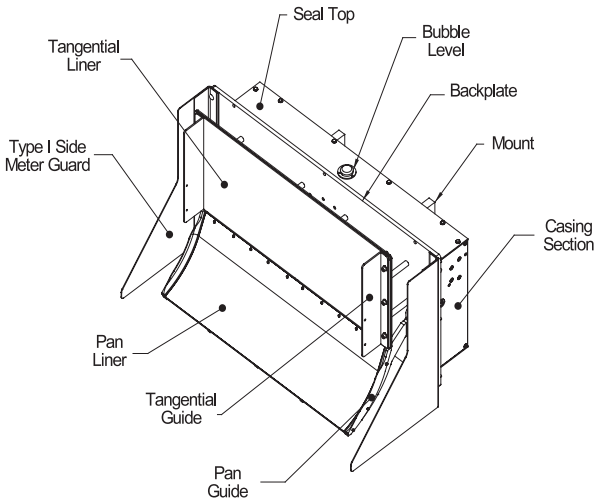
The Measurement Pan of the CentriFlow® Meter is the curved section where the material flow rate is measured. The material slides centripetally through this section during the process flow. In order to allow for different applications and process products and to also accommodate for wear, the Measurement 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 different liners depending on the application.

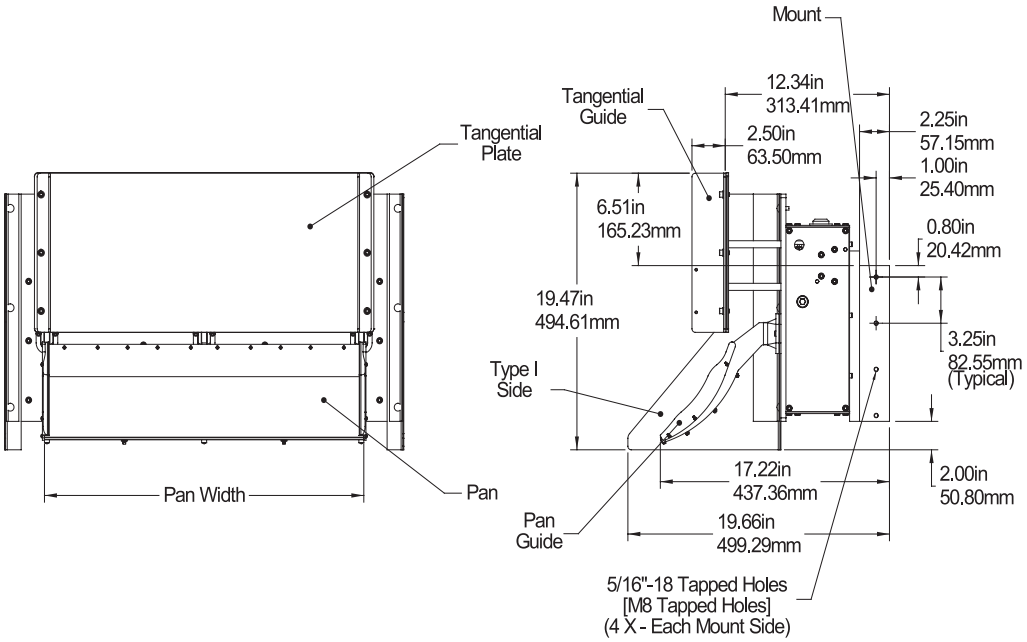
Tangential Entry and Liners

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 matched to 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	3.5 ft^3/min	0.005 m^3/min	0.10 m^3/min
CFM-06	0.35 ft^3/min	7 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



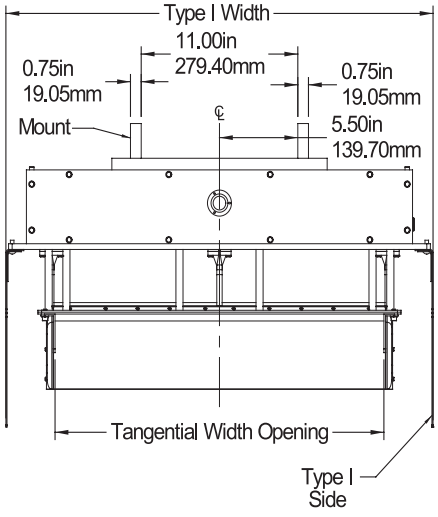


Material Specification:

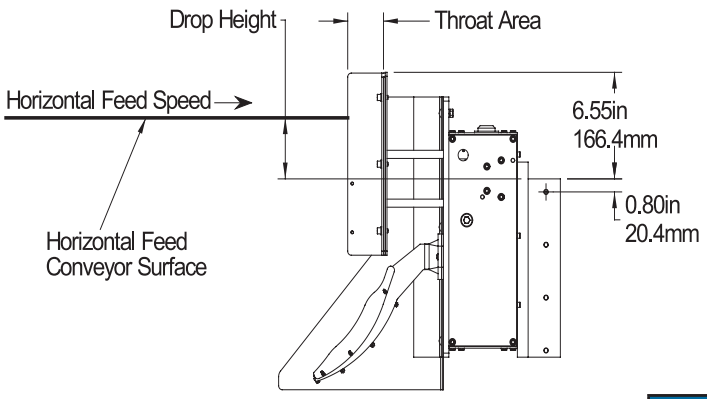
1. Standard module parts are constructed of 6061 aluminum.
2. Standard process product contact parts are stainless steel and anodized aluminum.
3. Type I Side is constructed of 304 stainless steel.

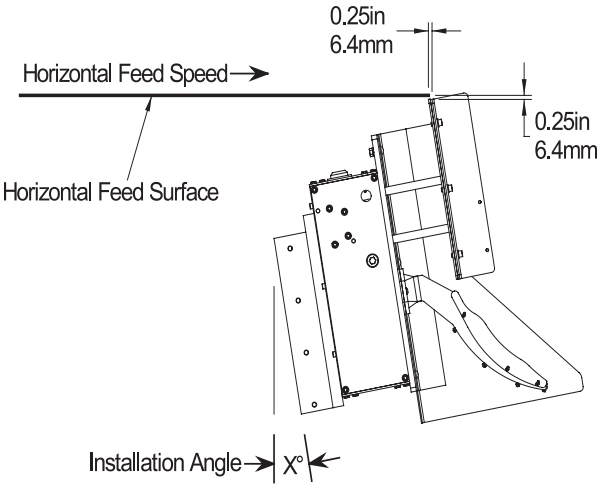
Type I – Other Specifications						
	CFM-3	CFM-6	CFM-12	CFM-24	CFM-36	CFM-48
Type I Width	12 in. (305 mm)	12 in. (305 mm)	18 in (457 mm)	30 in (762 mm)	42 in (1067 mm)	54 in (1372 mm)
Tangential Width Opening	2.1 in. (305 mm)	5.10 in (130 mm)	11.10 in (282 mm)	23.10 in (587 mm)	35.10 in (892 mm)	47.10 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.
- Meter should not be mounted directly to horizontal feed system to minimize vibration.

Type I – Installation Specifications

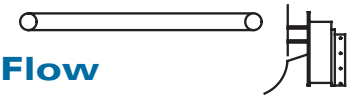
	Standard	Preferred	Maximum
Drop Height	3.75 in (95.3 mm)	3.75-5.00 in (95.3-127 mm)	13.5-46.0 in (343-1170 mm)
Throat Opening	2.5 in (63.5 mm)	2.5-3.0 in (63.5-76.2 mm)	2.5-10.0 in (63.5-254 mm)
Horizontal Speed	1 ft/sec (0.31 m/sec)	1-2 ft/sec (0.31-0.62 m/sec)	FLOW MUST CONTACT TANGENTIAL LINER
Installation 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.

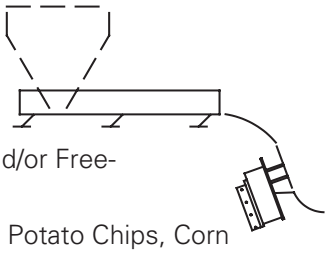
Reverse Direction Flow



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

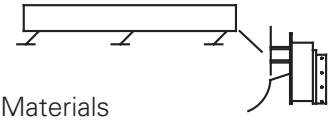
Horizontal Vibratory Feed

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.

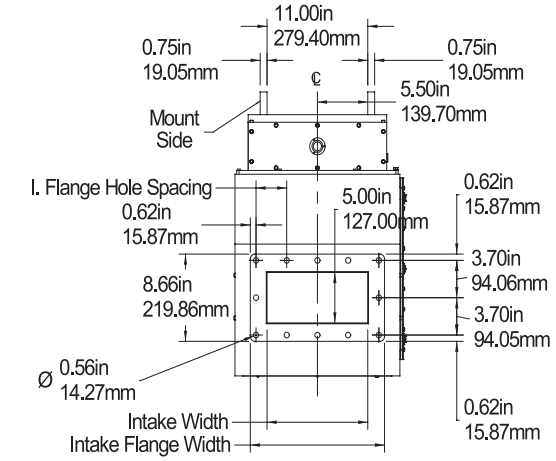
Reverse Direction Flow

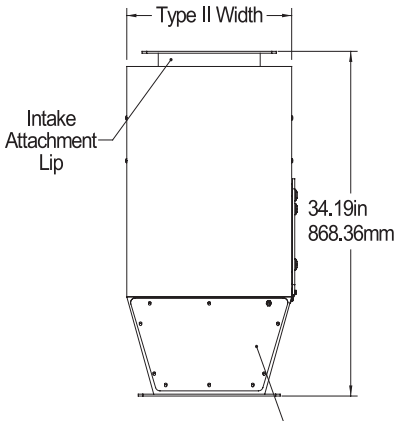


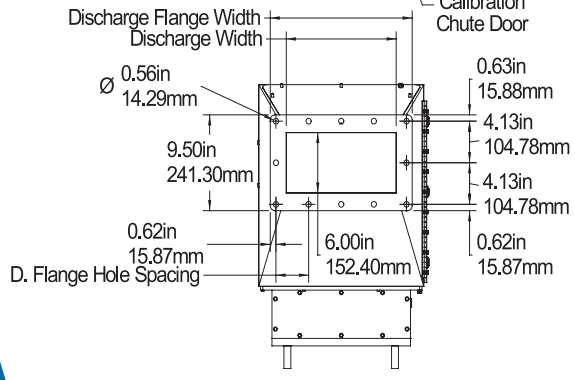
- Product Types: Slightly Sticky or Cohesive Materials, Fragile Materials
- Product Examples: Shredded Cheese, Frozen Vegetables, Dry Cereal, etc.

TYPE II SPECS

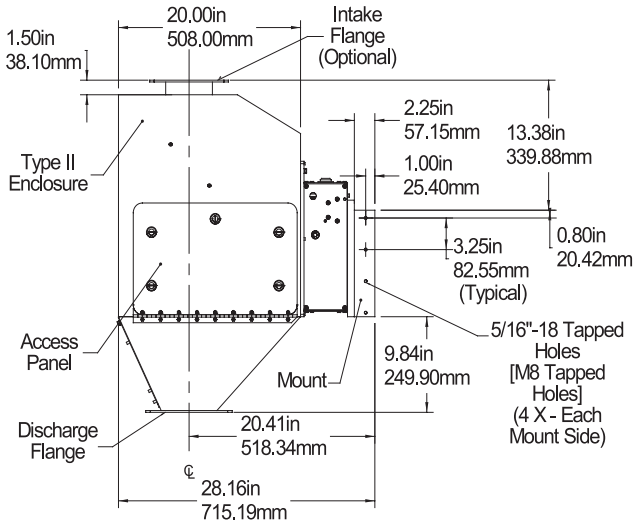
Type II – Volumetric Capacity				
	Minimum (ft^3/min)	Maximum (ft^3/min)	Minimum (m^3/min)	Maximum (m^3/min)
CFM-03	0.35 ft^3/min	3.5 ft^3/min	0.01 m^3/min	0.10 m^3/min
CFM-06	0.70 ft^3/min	7 ft^3/min	0.02 m^3/min	0.20 m^3/min
CFM-12	1.50 ft^3/min	15 ft^3/min	0.042 m^3/min	0.42 m^3/min
CFM-24	3.00 ft^3/min	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						



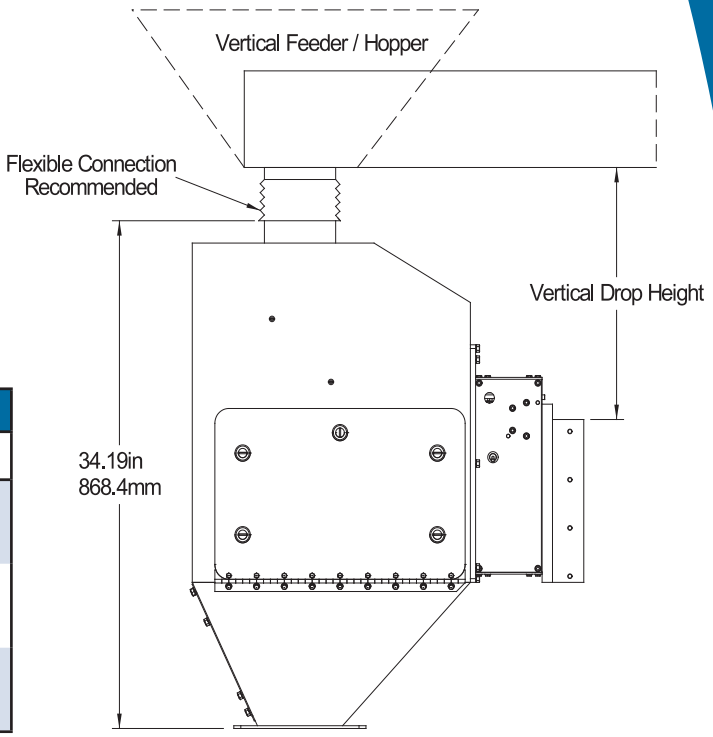
Material Specification

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 304 stainless steel.
4. Access panel is constructed of 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

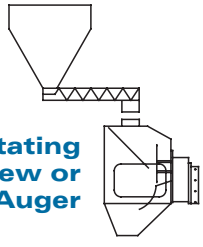
Vertical Feed

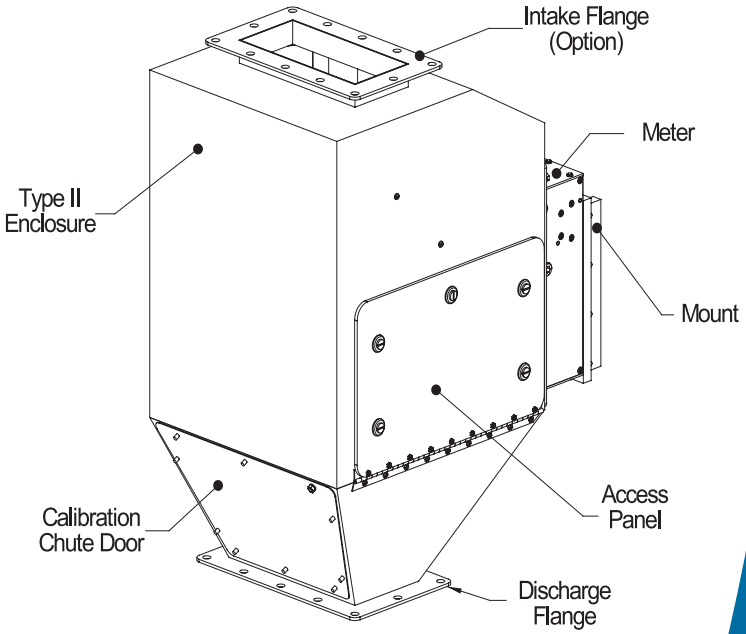
Type II-P (for Powders)

- 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

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
☐	– ☐	– ☐	– ☐	– ☐	– ☐	– ☐	– ☐	– ☐	– ☐	– ☐

M1 Base Meter Type and Module Size

CFM 3	0.18 – 3.5 ft³/min capacity
CFM 6	0.35 – 7 ft³/min capacity
CFM 12	0.75 – 15 ft³/min capacity
CFM 24	1.50 – 30 ft³/min capacity
CFM 36	2.25 – 45 ft³/min capacity
CFM 48	3 – 60 ft³/min capacity
LDM 6	6 – 30 ft³/min capacity
LDM 12	12 – 60 ft³/min capacity
LDM 24	24 – 120 ft³/min capacity
LDM 36	36 – 180 ft³/min capacity
LDM 48	48 – 240 ft³/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
2L	Type II Configuration with Lip Inlet
2F	Type II Configuration with Intake Flange
EO	Engineered-to-Order/Custom

M4 Additional Options for Type I Configuration

NA	Not Applicable (For Type II Configurations)
IT	In-Line Flow Transition
RT	Reverse Flow Transition
EO	Engineered-to-Order/Custom

M5 Additional Options for Type II Configuration

NA	Not Applicable (for Type I Configurations)
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

M6 Diverter Construction

NA	Not Applicable (For Type I Configuration)
OP	0.125" One-Piece 304 Stainless Steel Construction
SS	304 Stainless Steel Diverter w/ 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
EO	Engineered-to-Order/Custom

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
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
EO	Engineered-to-Order/Custom

M10 Tangential Guides

NA	Not Applicable (for One-Piece 304 Stainless Steel Construction)
AL	Aluminum Tangential Guides
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 International operations – Not available for 36, 48, or LDM sizes)
IA	Integrated Air Entrainment
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

Remote Electronics Packages

NEMA-4 White Painted Steel and the 304 Stainless Steel Package

The electronics for the CentriFlow® Meter is available in a NEMA-4 white painted steel or 304 Stainless Steel Enclosure. The Electronics Enclosure can be mounted indoors or outdoors when necessary precautions are used with NEMA-4 approved conduit. The Stainless Steel Configuration is also CE approved for use in Europe. It is available with an optional integrated power supply and an optional Ratemeter/ Totalizer. This allows for a local rate or total display and optional averaging analog flow signal.

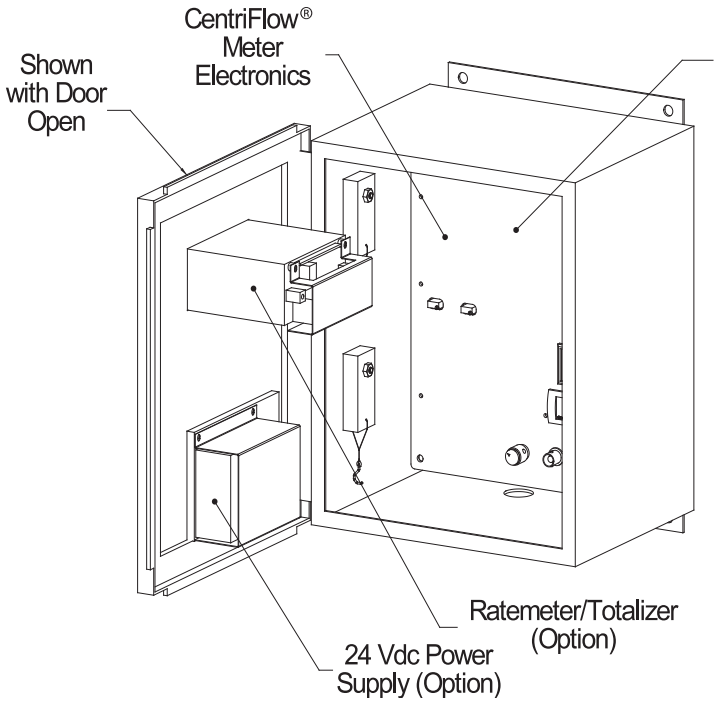
Corrosive Resistant/ Wash Down Remote Electronics Package
with EMI/RFI View Windows

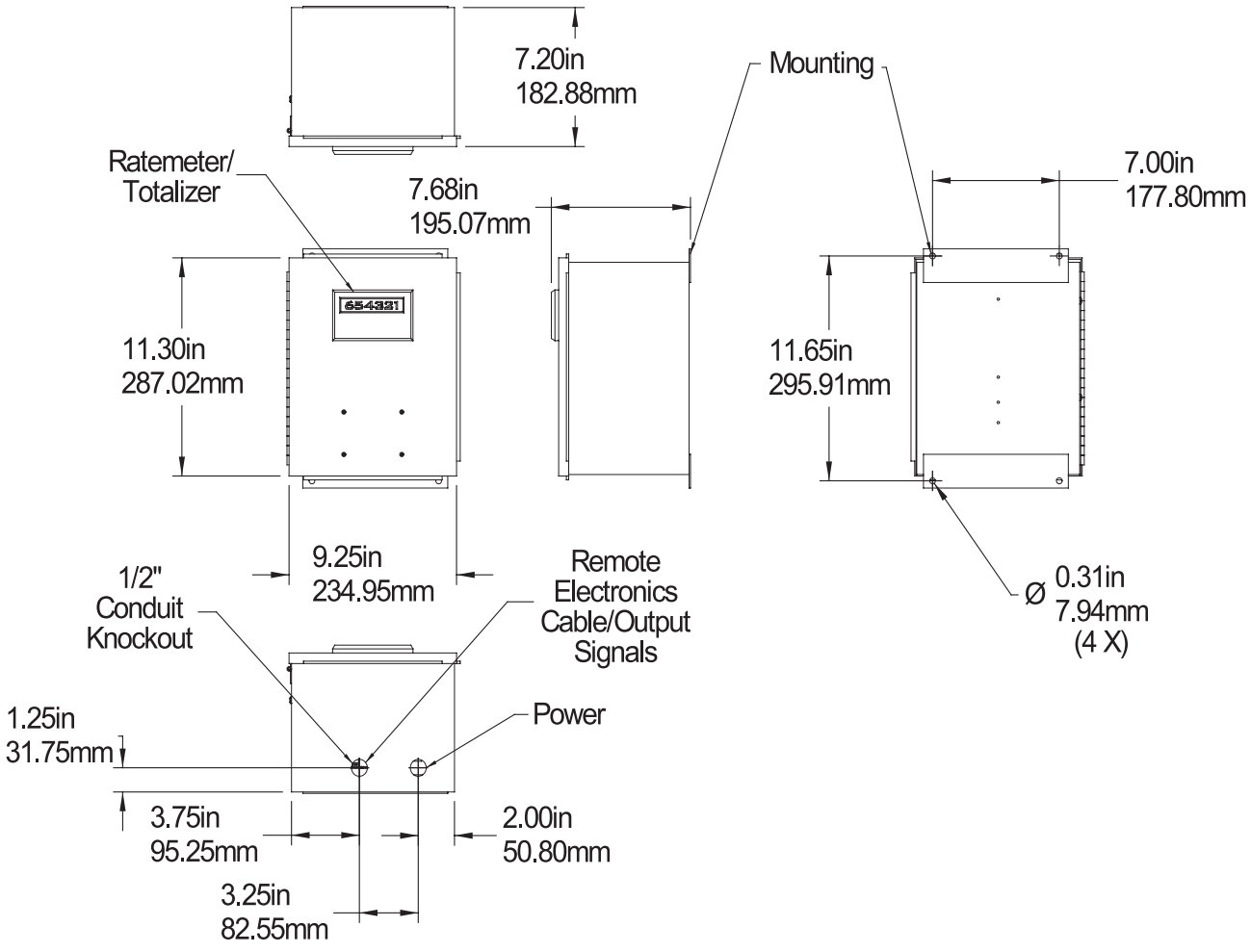
For applications such as food processing, chemical industry, and pulp and paper processing where equipment is subject to corrosive wash down, or direct spray, typically a NEMA-4X enclosure is utilized. When the environment also contains electromagnetic or radio frequency interference, an enclosure will need to protect the electronics from this interference. This option can be used to address both these environmental issues. It is constructed of 304 Stainless Steel and has all components integrated into the enclosure thus keeping the enclosure face clear of protruding devices.

CentriView™ Remote Electronics Package

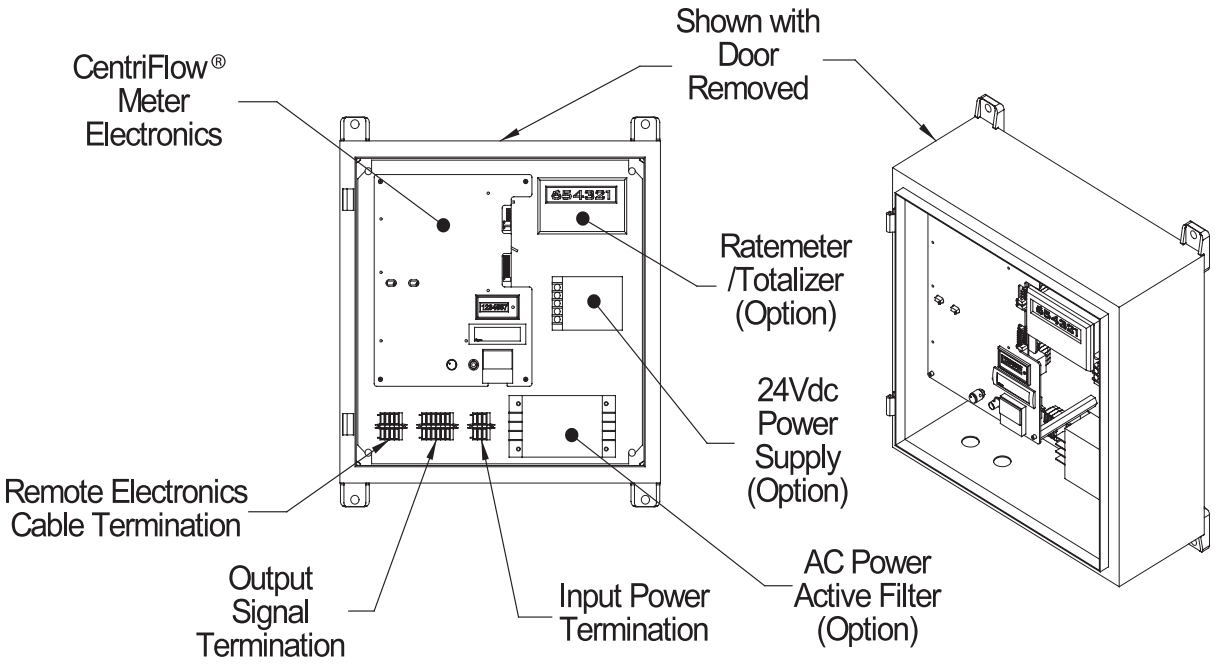
For applications such as food processing, chemical industry, and pulp and paper processing, the CentriView™ Electronics System is used with the CentriFlow® Meter to view process parameters and control common process functions such as batching and flow control both as separate functions as well as batching and flow control combinations. System choices range from small painted steel enclosures with rate and total readouts to corrosive resistant EMI/RFI shielded enclosures with color touchscreen HMI's controlling batching and flow control functions.

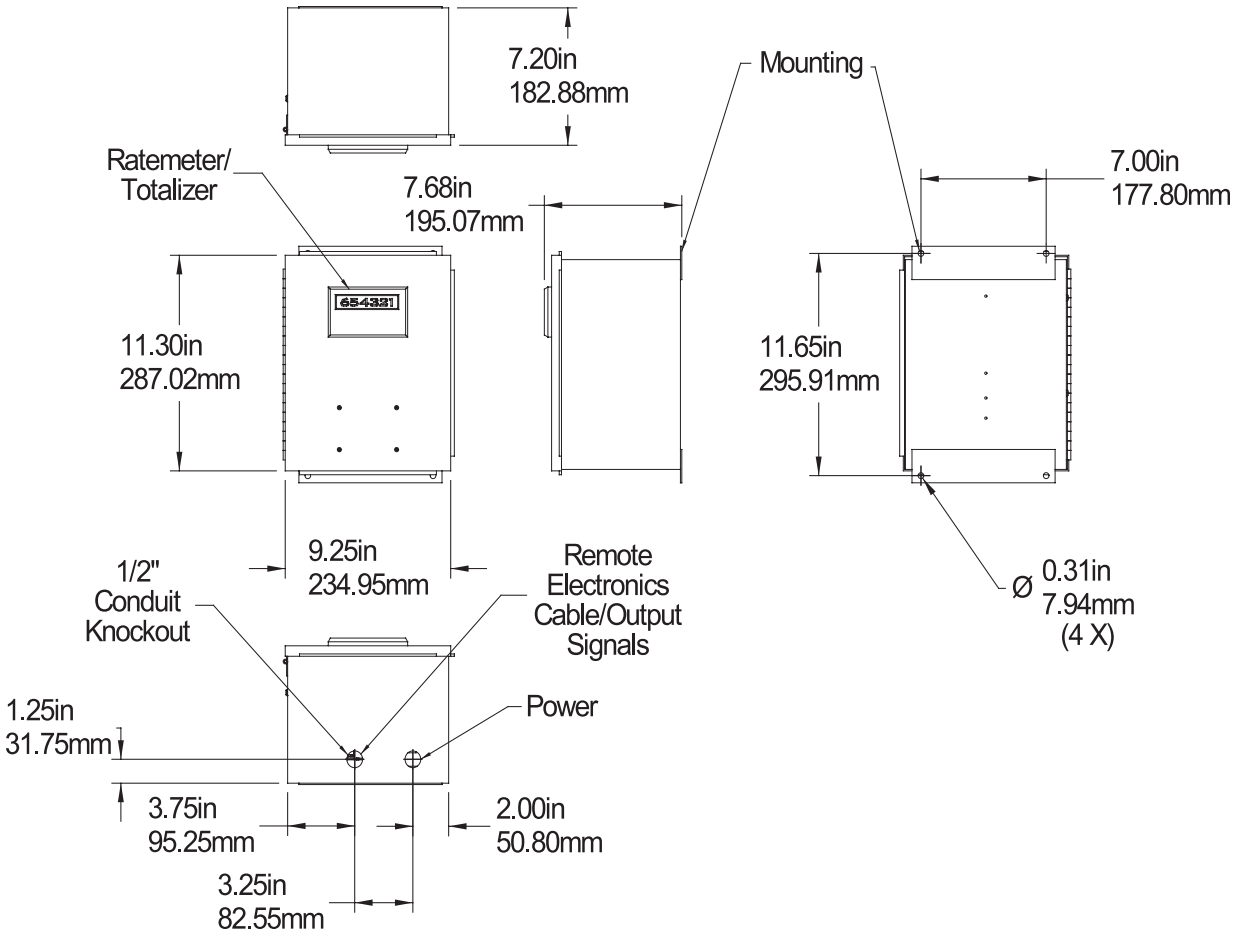
NEMA-4 PAINTED/STAINLESS PACKAGE





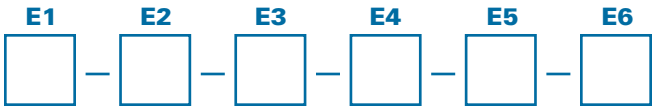
CORROSIVE-RESISTANT PACKAGE





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 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)
CV	Electronics Enclosure, Stainless Steel, NEMA 4-X (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)
BC	Batching Control, Off/Auto/Manual Switch, Start pushbutton with relay output control (for filling accurately to a preset value)
FC	Flow Rate Control, Local/Remote Switch, Auto/Manual Switch, Stop/Start pushbutton with PID loop control (for controlling process flows to precise rate by modulating feed device)
CC	Cascading Flow Rate Control, Local/Remote Switch, Auto/Manual Switch, Stop/Start pushbutton with dual PID loop control (for controlling process flows by modulating a course control device while simultaneously modulating feed device to achieve precise flow rate control over a large turndown ratio)
BF	Batching with Flow Rate Control, Local/ Remote Switch, Auto/Manual Switch, Stop/ Start pushbutton with PID loop control (for controlling process flows to precise rate by modulating feed device while filling accurately to a preset value)
BCC	Batching with Cascading Flow Rate Control, Local/Remote Switch, Auto/Manual Switch, Stop/ Start pushbutton with dual PID loop control (for controlling process flows by modulating a course control device while simultaneously modulating feed device to achieve precise flow rate control over a large turndown ratio while filling accurately to a preset value)
EO	Engineered-to-Order/Custom

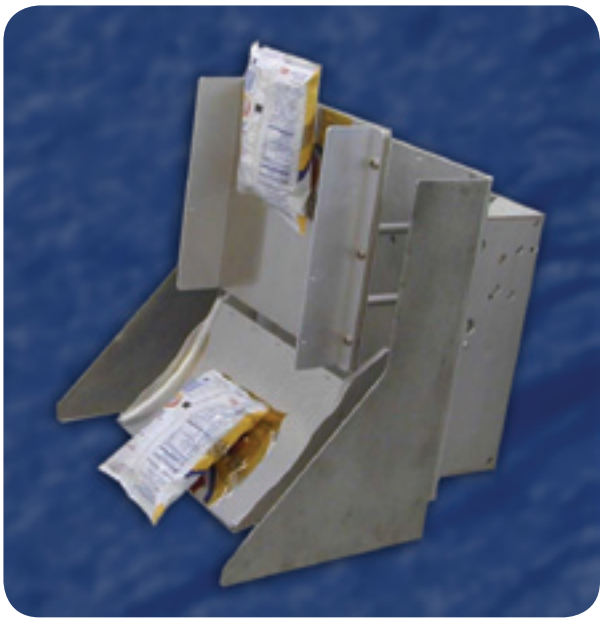
E6 Miscellaneous Options for Electronic Packages (Add as needed)

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
UL	UL Approval for Electronic Packages

FOR MORE INFO, CALL 910.392.2490

Engineered-to-Order Options

CentriFill™ and CentriWeigh™



The CentriFill™ uses the principles of centripetal force to meet the speed, accuracy, and reliability requirements for gravimetric filling applications utilizing dynamic measurement techniques. With high accuracy, fast divert times, flow rate control, and multiple configurations, the CentriFill™ is cost effective, simple to set up and operate. With integrated electronics, flow control valves, off-on valves, and diverters, the CentriFill™ provides the versatility necessary for today's industrial filling applications.

The CentriWeigh™ uses the principles of centripetal force and meets the speed, accuracy and reliability requirements for in-line checkweighing applications. Incorporating a high-resolution microprocessor and enhanced software technology, the CentriWeigh™ checkweigher will monitor, detect deviations, and alarm at line speeds up to 600 packages per minute. It is cost effective, simple to setup and operate, plus it is extremely compact, saving valuable packaging floor space.

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 120°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)

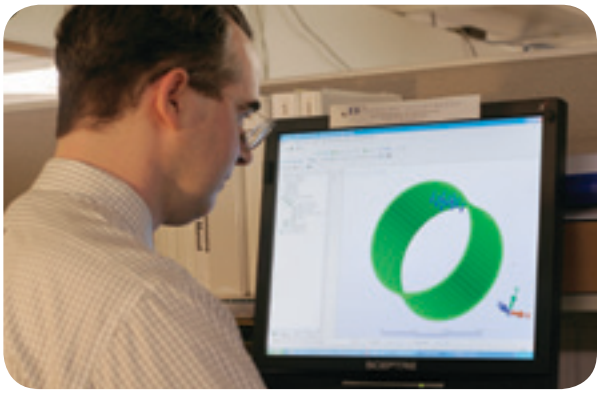
The Integrated Air Entrainment System was designed to deliver an even stream of air to the CentriFlow® Meter's Measurement Pan. Its continuous, dry air reduces build up and assists in the flow of product on the measurement surface without affecting the measurement readings.

Curved Tangential Feeder (CTF/BTF)

The CentriFlow® CTF and BTF Transition is ideal for product that is fed horizontally on a belt or vibratory conveyor as in a Type I Configuration. It facilitates the flow through the meter creating a tangential entry into the measurement pan, which increases accuracy and eliminates product breakage. It is a bolt-on accessory to the meter and takes up minimal vertical height. The CTF comes in two curvature radii and can have either low or high sides. The BTF comes in one radii and can have high or low sides. It can be made in a wide array of materials and be finished to optimize wear, minimize product residue, and meet sanitary specifications.

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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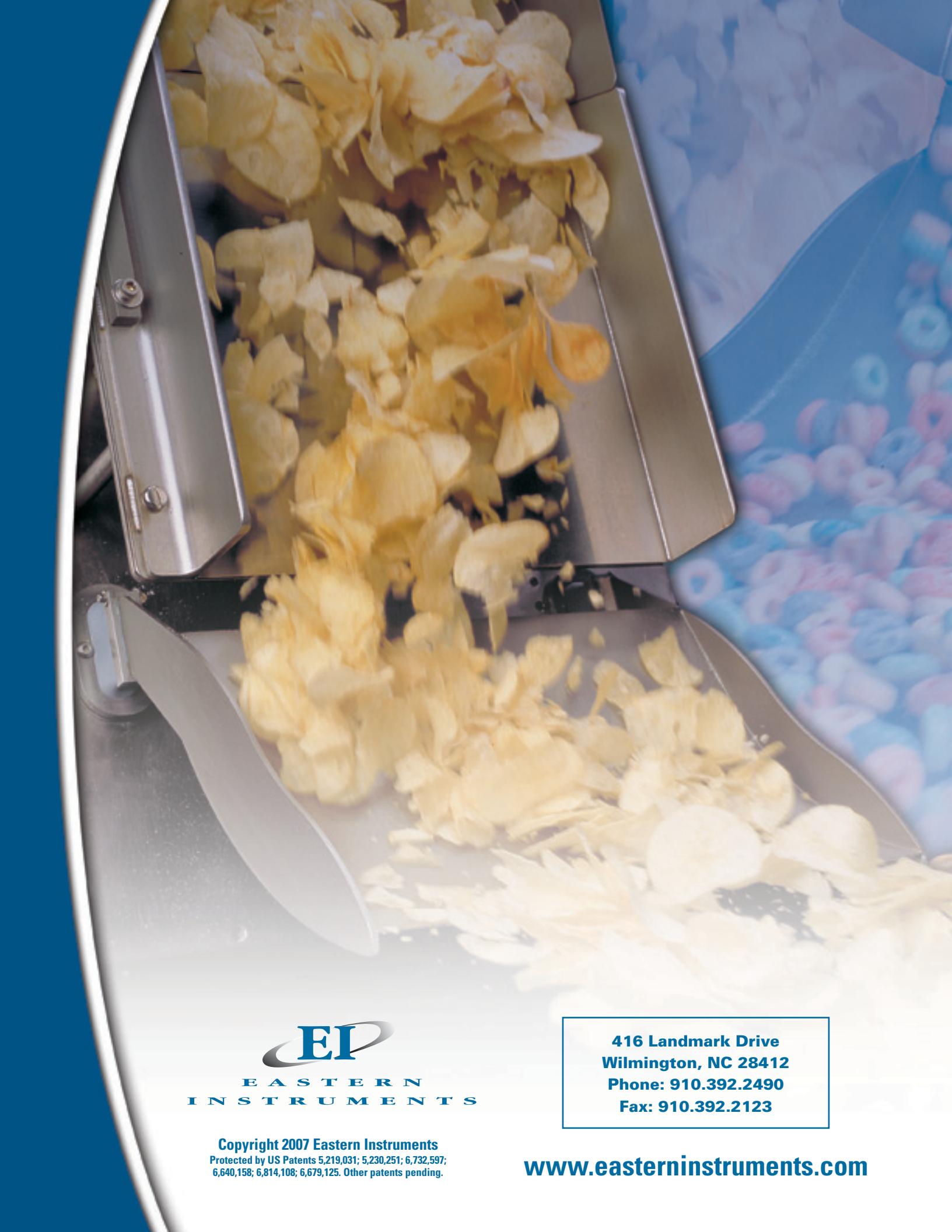
Index



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