TRANS-FLOW®

AERATION PRODUCTS

Engineered for
Better Performance
and Longer Life

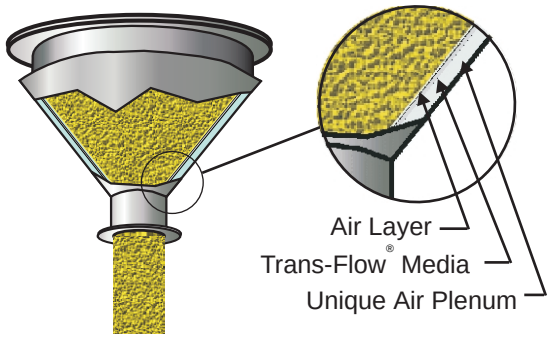
THE YOUNG® INDUSTRIES, INC.
Muncy, Pennsylvania 17756
PH: 570-546-3165 FAX: 570-546-1888
E-mail: mktinfo@younginds.com
www.younginds.com

BULLETIN 265-200-1

Trans-Flow® Aeration Devices for solving the problem of reliably handling and discharging difficult flowing materials.

Fine bulk powders very often cause discharge problems. In storage bins and silos these materials bridge, rat-hole and funnel flow. Some fine materials are very cohesive which causes additional problems in bins and silos as well as in downspouts and transitions. Using vibration to try to make fine powders flow normally makes the problem worse by further compacting the material.

A totally new concept in the design of aerator devices has been developed by The Young Industries, Inc. that solves the problem of reliably handling and discharging difficult flowing bulk materials. This new class of aeration device represents an important leap forward in the method of moving hard to handle bulk materials. The design of these devices is a culmination of years of research that resulted in Trans-Flow® fluidizing media and unique internal geometry. New production methods were also developed to transform design theory into tangible products. The end result is a new generation of aeration products that promotes reliable material flow with a life expectancy up to ten times longer than that of conventional aeration devices.



Basic Design of Trans-Flow® Aeration Devices

Trans-Flow® aeration media is constructed of porous 316 stainless steel with an ultra smooth finished contact surface. This produces an evenly distributed layer of air that separates the bulk material from the media. This bed of air makes it easy for the material to slide to discharge outlet. Trans-Flow® media is manufactured with a precise control of permeability and strength. The media is then incorporated into bin, hopper and silo cones. It can also be used for aeration pads, transitions and downspouts .

Trans-Flow® devices are used in areas where it has been impossible for other methods. They perform where other methods have failed. Trans-Flow® has been used in the chemical, paint and coating, plastic, food, bakery and pharmaceutical industries.

With Trans-Flow® products, you will be able to increase your process production because

1. You will get reliable and effective material flow. Trans-Flow® is useful for difficult application like pigments and sticky materials

2. You will get higher flow rates from your existing hoppers and silos

3. You will reduce your maintenance cost with the long lasting, durable corrosion and oxidation resistant media. Trans-Flow® media is also temperature resistant and abrasion resistance.

4. You will reduce your maintenance cost because Trans-Flow® has no moving parts

5. You will reduce your downtime because Trans-Flow® is easily cleaned.

6. You will reduce your operation cost because Trans-Flow® uses less compressed air or gas than other aeration devices.

Specifications for long lasting service

1. **Material:** AISI type 316 S/S fluidizing media
2. **Operating temperature:** Up to 1000 deg. F.
3. **Corrosion and oxidation resistance:** Excellent
4. **Strength:** Up to ten times stronger than other fluidizing media. Substantially better that cotton and fiberglass fiber composites or powder metal or plastic covered products

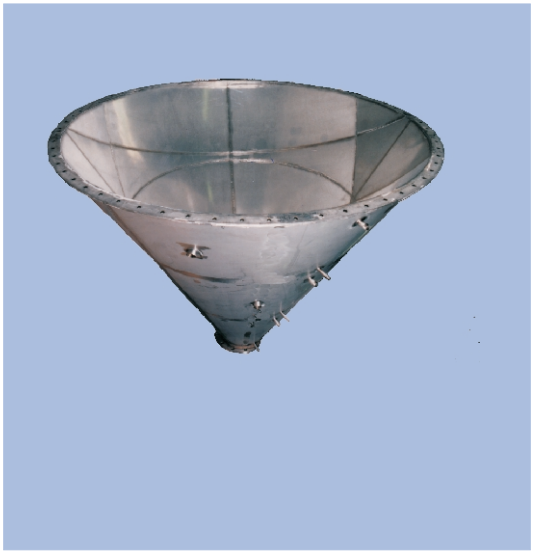
Uses less air or gas

Pressure of 3 to 5 PSIG is used on most applications. Maximum pressure recommended is 15 psig. The final operating pressure and consumption is dependent on the characteristic of the bulk materials. Unlike other aeration devices, the air can be shut off when fluidization is not required. We recommend starting fluidization a short time before the start of the material discharge.

A positive displacement blower is the most economical air supply. For applications using less than 200 SCFM plant compressed air or gas can be used as long as the air or gas is regulated, clean and dry.

Rigid Intermediate Bulk Container (RIBC) with Trans-Flow® cone for transportation and storage of minus 400 mesh powders

Trans-Flow® Aeration Products



Trans-Flow® Hoppers can make your difficult bulk materials flow.

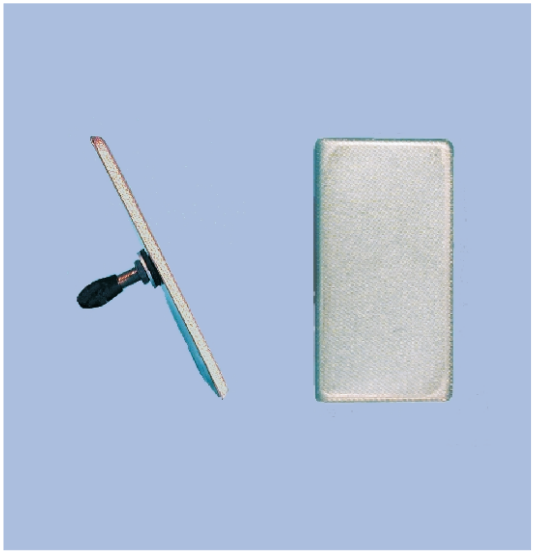
Your stored materials can be made to flow reliably out of bins, hoppers and silos with a Trans-Flow® bin discharger cone. The Trans-Flow® aeration media in the cone uniformly distributes and controls low-pressure air or gas to fluidize the stored powder product. The media top surface also produces an evenly distributed bed of air that significantly reduces the coefficient of friction between the bulk material and the cone surface.

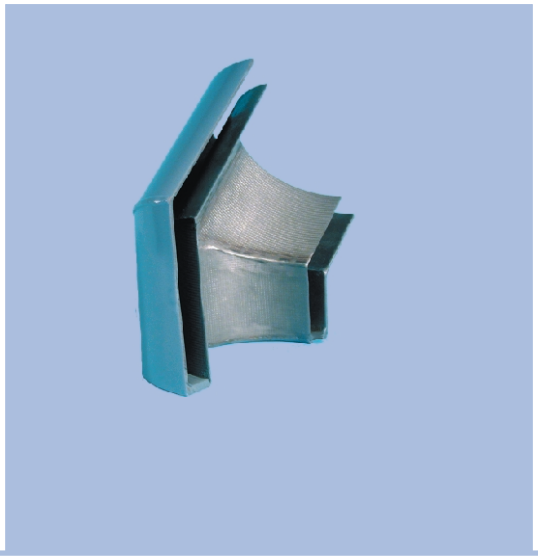
The material is partially or completely fluidized by the air passing through the Trans-Flow® media. The fluidizing air or gas is homogenized with the bulk material changing the response of the solid to the response of a liquid. This results in positive flow of the stored material. For more information see Product Specification Sheet 265-401-1

Trans-Flow® Aeration Pads are a new generation of aeration pads that promotes reliable material flow

A new class of aeration pads represents an important leap forward in the method of moving hard to handle bulk materials. Trans-Flow® Aeration pads are the culmination of years of research into fluidizing media, internal geometry and the design of each individual component. New production methods were also necessary to transform design theory into tangible products. The result is aeration pads that promote reliable material flow with a life expectancy up to ten times longer than that of conventional aeration devices.

The Trans-Flow® Pad is more efficient because of its internal baffles and all welded design. The fluidizing media is welded to the back plate. This provides 15% more surface area as compared to other crimped pad designs. For more information see Product Specification Sheet 265-402-1





Trans-Flow® Transitions and Downspouts solve material flow problems

Hang-up areas in gravity downspouts can be eliminated with custom engineered Trans-Flow® transitions and downspouts. Trans-Flow®devices can be designed for use in areas where other methods have failed.

Trans-Flow® downspouts can be made at a shallower angle allowing you to reduce the total height requirements of your system. You will get reliable and effective material flow, in many cases you will increase the output of the process. Custom designed Trans-Flow®downspouts and transitions are used for difficult applications like pigments, fine powders and other cohesive materials. For more information see Product Specification Sheet 265-403-1

Fine tune your process with product testing at our plant

Complete product testing facilities are available at our Muncy plant. Tests are conducted on your material by our trained Bulk Materials Handling Engineers and Technicians. You are welcome to view the demonstration of equipment at work on your own product.

Other Young Industries bulk materials handling equipment is available to analyze your pneumatic conveying, mixing, blending, size reduction, size classification, sifting and air quality problems.

For more information, call 570-546-3165 or fax 570-546-1888 or e-mail mktinfo@younginds.com

Some Commonly Handled Product Applications

ABS Compound
Acetate
Activated Carbon
Adipic Acid
Alumina
Aluminum Oxide
Ammonium Nitrate
Antimony Oxide
Antomite
Aspirin Powders
Bleach
Borax
Cab-O-Sil
Calcium Carbonate
Calcium Chloride
Carbon Black
Cellulose Powder
Cement
Cereals
Citric Acid
Clay Powders
Cocoa Powers
Copper, Powered
Corn Flour
Detergent Powders
Diatomaceous Earth
Dolomite
Feldspar
Ferrite Powder
Fertilizers
Fly Ash
Fumed Silica
Gilsonite
Gluten Meal
Gypsum
Hydrol
Iron Oxide
Kaolin Clay
Lime
Limestone Dust
Magnesium Sulfate
Metal Powders
Milk (Powdered)
Nylon
Oat Flour
Pebble Lime
Phenolic Resin
Phosphates
Pigments
Polymers
Potash
Pumice
PVC Powder
Quartz Dust
Sawdust
Silica Flour
Silicone Powders
Soap (Detergents)
Soda Ash
Sodium Bicarbonate
Sodium Phosphates
Sodium Sulfate
Spices
Starch
Sugar
Talcum
Tea
Titanium Dioxide
Urea
Whiting
Zinc Oxide

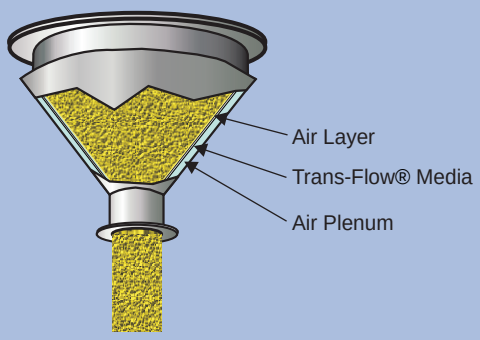
Specifications Subject to change without notice

Trans-Flow® Bin Dischargers make your difficult bulk materials flow reliably out of bins, hoppers and silos

Application

Trans-Flow® Bin Dischargers are used to solve the problem of handling and discharging difficult flowing bulk materials. Bulk materials that are cohesive but fluidizable, like white pigments, carbon black and calcium stearate, can be reliably and effectively discharged into your process.

Trans-Flow® Bin Dischargers can be furnished as part of a bin or silo and can be supplied for new or existing storage vessels. Cone angles of 60°, 45°, 30° as well as special designs can be supplied to match your requirements.



Design of Trans-Flow® Hoppers

Design

The Trans-Flow® Bin Discharger consists of a hopper cone with the interior fully lined with Trans-Flow® aeration media. This media uniformly distributes and controls low-pressure air or gas and fluidizes the stored powder product. The media top surface also produces an evenly distributed bed of air that significantly reduces the coefficient of friction between your bulk material and the cone surface.

The material is partially or completely fluidized by the Trans-Flow® media. The fluidizing air or gas homogenizes with the bulk material changing the response of the solid to the response of a liquid. This results in positive flow of the stored material.

Features/Benefits

You will be able to increase your process production with a Trans-Flow® Bin Discharger because of:

Reliable and effective material flow. Trans-Flow® Bin Dischargers are used for difficult application like pigments and other cohesive materials

Higher flow rates out of your existing hoppers and silos

Reduced maintenance cost with the long lasting, durable, corrosion resistant, oxidation resistant, high temperature resistant and abrasion resistance media.

Reduced maintenance cost because Trans-Flow® Bin Dischargers have no moving parts

Reduced downtime because Trans-Flow® Bin Dischargers are easily cleaned.

Reduced operation cost because Trans-Flow® Bin Dischargers use less low-pressure compressed air or gas

Optional Additions

Air or gas piping system with controls

Compressor or PD Blower units

Special Painting

Pneumatic or mechanical conveying system or components

Custom designs

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Specifications for long lasting service

Material: Carbon Steel or 304 Stainless Steel where product contacts. Fluidizing media constructed of AISI type 316 stainless steel

Operating temperature: Up to 1000 degrees F.

Corrosion and oxidation resistance: Excellent

Strength: Resists abrasion and puncture.

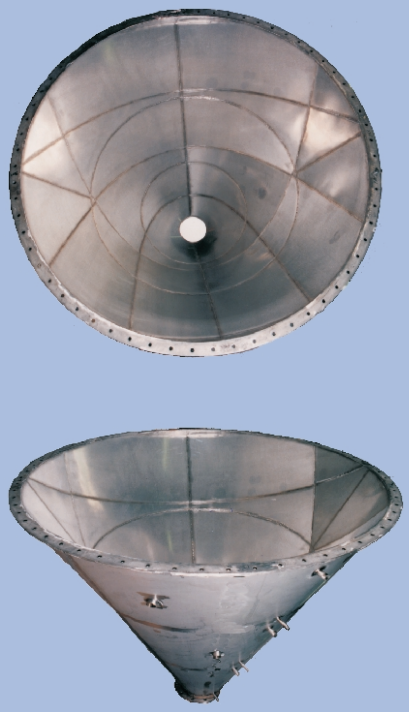
Welding: All welders are qualified to Section IX ASME Code.

Interior and exterior finishes: Class 2 per Y.I. Spec. 185.200

Air supply requirements

For Trans-Flow® Bin Discharger cones, pressure of 3 to 5 PSIG is used for most applications. The maximum pressure recommended is 11 psig. The characteristics of the bulk stored materials determine the operating pressure and consumption. When fluidization is not required, fluidizing air can be shut off. We recommend that fluidization be started a short time before the start of the material discharge.

A positive displacement blower is the most economical air supply. For applications using less the 40 SCFM plant compressed air or gas can be used as long as the air or gas is regulated, clean and dry.



Trans-Flow® hoppers can be furnished up to 8 feet diameter for new applications and to replace existing storage silo cones . The flange connection can be designed to match any silo connection. The interior is fully lined with Trans-Flow® fluidizing media.

Cleanability

Trans-Flow® Bin Dischargers can the cleaned by ordinary water and detergent or by using high-pressure steam or chemically cleaned using standard methods. The material is non-migrating. No danger of lint contamination caused by fiber abrasion. Quick drying. It does not retain moisture.

Free application engineering assistance

Simple as Trans-Flow® devices are, knowledge, experience and planning are needed to make your bin discharging reliable and efficient. The Young Industries, Inc. engineering staff can design bin dischargers to solve your problem. We maintain a 9,000-sq. ft. research and test lab area in our Muncy, PA plant with a full time staff to analyze and provide solutions to discharging problems. We developed the Trans-Flow® products into proven methods for reliable material flow. In doing so, we've gained knowledge that can be used to solve your hopper discharge problems.

How to order Trans-Flow® Bin Dischargers

First, we need a description or a sample of the product that is to be handled and the silo or bin dimensional information. Next, we review the application and prepare a written quotation. We send you this quotation for your review and it is the basis for an order for the components.

For addition information on ordering Young Industries, Inc. products you can contact us by telephone 570-546-3165 or fax 570-546-1888 or e-mail mktinfo@younginds.com

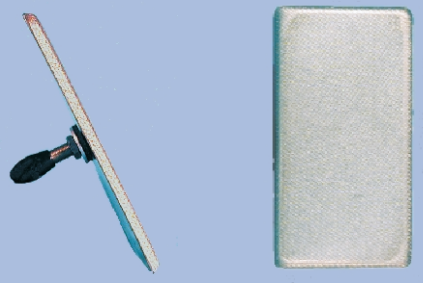
Trans-Flow® Aeration Pads are a new generation of aeration pads that promotes reliable material flow.

Application

Trans-Flow® Aeration Pads are used to fluidize fine powdered bulk materials to start and maintain flow out of hoppers, bins and silos. These pads distribute air or gas uniformly causing positive flow of the stored material. Materials that have sluggish flow characteristics like lime, flour, soda ash, bran, clay, carbon black, sawdust, detergents and resins can be successfully handled by Trans-Flow® Aeration Pads.

Design

The air pad is constructed with The Young Industries, Inc. Trans-Flow® aeration media. This media is constructed of multi layer wire mesh with finished contact surface that produces a smooth evenly distributed airflow. This finished layer also produces a layer of air that separates the bulk material from the media making it easy for the material to slide.



Trans-Flow® Aeration Pads are more efficient because of Trans-Flow's® contact surface finish, internal baffles and all welded design. The Fluidizing media is continuously welded to the back plate by certified welders making the pads almost indestructible

The Trans-Flow® Pad is more efficient because of its internal baffles and all welded design. The fluidizing media is welded to the back plate. This provides 15% more surface area compared to crimped pad designs. Trans-Flow® pads are long lasting. In fact, they are almost indestructible.

Unlike other aeration devices that use cotton or fiberglass diffuser material, Trans-Flow® Aeration Pads can be cleaned chemically or with steam. And they dry quickly. Unlike aeration devices that use plastic or rubber boots and covers, Trans-Flow® Aeration pads do not flake, chip or degrade. Trans-Flow® Aeration Pads are abrasion and corrosion resistant.

Features/Benefits

You will be able to increase your process production with Trans-Flow® Aeration Pads because of:

- Reliable and effective material flow.
- Higher flow rates out of your existing hopper and silos
- Reduced maintenance cost with long lasting, durable corrosion resistant, oxidation resistant, high temperature resistant and abrasion resistant media.
- Reduced maintenance costs because Trans-Flow® Aeration Pads have no moving parts
- Reduced downtime because Trans-Flow® Aeration Pads are easily cleaned.
- Reduced operation costs because Trans-Flow® Aeration Pads use less low-pressure compressed air or gas
- Reduced maintenance cost because Trans-Flow® Aeration Pads have a life time warranty.

Optional Additions

- Air or gas piping system with controls
- Compressor or PD Blower units
- Pneumatic or mechanical conveying system or components
- Custom designs

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General Specifications

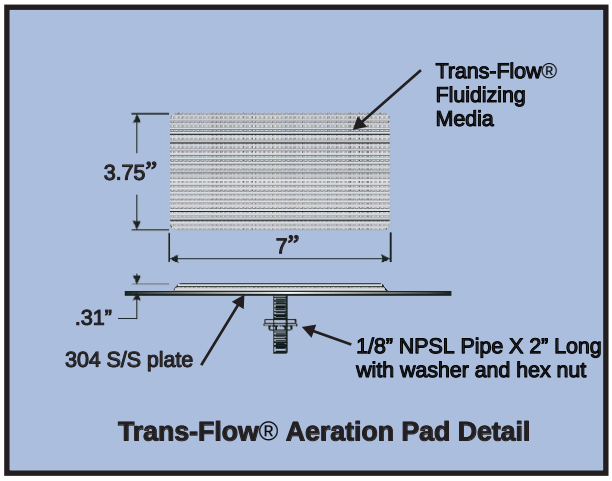
Material: AISI type 316 stainless steel fluidizing media with AISI type 304 stainless steel back and plated steel threaded pipe.

Operating temperature: Up to 1000 degrees F.

Corrosion and oxidation resistance: Excellent

Strength: Up to ten times stronger than other fluidizing media. Resistant to abrasion and puncture. Substantially better than cotton and fiberglass fiber composites or powder metal or plastic covered products

Size: 3.75" wide x 7" long x .31" high complete with 1/8" thread pipe, 2" long.



Trans-Flow® Aeration Pad Detail

Cleanable

Trans-Flow® can be cleaned by ordinary water and detergent, high pressure steam or chemically cleaned using standard methods. The pad material is non-migrating. No danger of lint contamination caused by fiber abrasion. Quick drying-does not retain moisture.

Air supply requirements

Each pad requires 5 to 10 SCFM of compressed air or gas. Pressure of 3 to 15 PSIG is recommended and used on most applications. The maximum pressure recommended is 50 psig. The final operating pressure and consumption will be a result of the characteristics of the bulk materials. The air can be shut off when fluidization is not required. We recommend that fluidization be started a short time before the start of the material discharge.

Installation

Depending on the characteristics of the material that is being handled and the slope of the discharge hopper, two or more pads are required to efficiently fluidize the stored material. If two pads are used they should be mounted across from each other. If four pads are required they should be equally spaced and in either case located near the edge of the discharge opening. Additional pads are spaced in a straight row above the first row of pads.

For handling most powders the pads should be spaced no closer than 12” on center. For applications involving a difficult handling material or less sloped hopper, the pads will need to be located closer to each other.

Trans-Flow aeration pads are simple to install. Drill a 7/16" hole in the selected location. Insert the pad from inside the bin with the long axis of the pad in the vertical position. From the outside, place the rubber washer and flat washer on the threaded pipe and secure with the hex nut. Attach the compressed air components and piping.

Free application engineering assistance

Simple as Trans-Flow® devices are, knowledge, experience and planning are needed to make your bin discharging reliable and efficient. The Young Industries, Inc. engineering staff can assist you in determining the best location for the pads. We maintain a 9,000-sq. ft. research and test lab area in our Muncy, PA plant with a full time staff to analyze and provide solutions to discharging problems. We developed the Trans-Flow products into proven methods for reliable material flow. In doing so, we've gained knowledge that you can use to solve your discharging problems.

How to order Trans-Flow® Aeration Pads

To order Trans-Flow® Aeration Pads contact us by telephone at 570-546-3165 or by fax at 570-546-1888 or by e-mail at mktinfo@younginds.com.

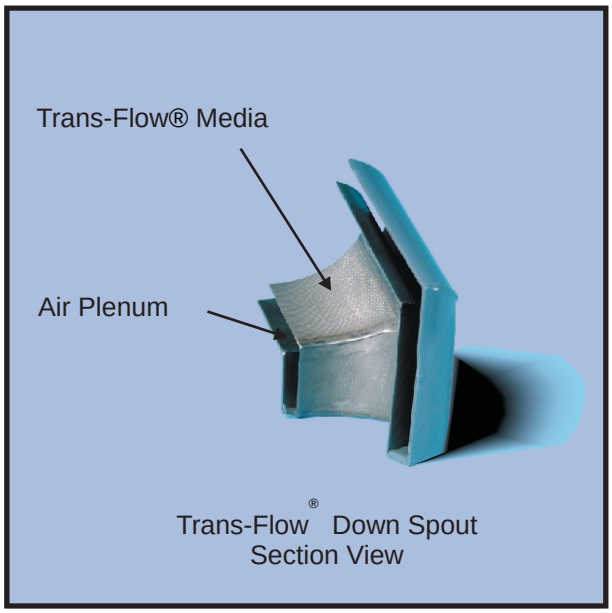
We need information about your product or a sample of the product. In addition, we require the silo or bin dimensional information. With this information, we will prepare a written quotation. This quotation is sent to you for your review and basis for an order.

Trans-Flow® Transitions and Downspouts solves material flow problems

Application

Trans-Flow® Transitions and Downspouts are used to solve the problem of transporting difficult flowing bulk materials.

Custom designed Trans-Flow® downspouts and transitions are used for difficult products like pigments, fine powders and other cohesive materials. Trans-Flow® down spouts can be made at a shallower angle allowing you to reduce the total height of your installed equipment.



Trans-Flow® Down Spout
Section View

Design

Trans-Flow® Transitions and Downspouts consist of fabrications with the interior lined with Trans-Flow aeration media. This media uniformly distributes and controls low-pressure air or gas and fluidizes the powder product. The media top surface also produces an evenly distributed bed of air that significantly reduces the coefficient of friction between your bulk material and the transition or downspout surface.

The material is completely or partially fluidized by the TransFlow® media. The fluidizing air or gas homogenizes with the bulk material changing the response of the solid to the response of a liquid. This results in positive flow of the bulk material.

Features/Benefits

You will be able to increase your process production with TransFlow® Transitions and Downspouts because you get:

- Reliable and effective material flow. TransFlow® Transitions and Downspouts are used for difficult application like pigments - Sluggish materials
- Higher flow rates out of your transitions and downspouts
- Reduced maintenance costs with the long lasting, durable, corrosion resistant, oxidation resistant, high temperature resistant and abrasion resistant media.
- Reduced maintenance costs because TransFlow® Transitions and Downspouts have no moving parts
- Reduced downtime because Transflow® Transitions and Downspouts are easily cleaned.
- Reduced operation costs because TransFlow® Transitions and Downspouts use less low-pressure compressed air or gas

Optional Additions

- Air or gas piping system with controls
- Compressor or PD Blower units
- Special Painting
- Pneumatic or mechanical conveying system or components
- Custom designs

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Specifications for long lasting service

Material: Carbon Steel or 304 Stainless Steel where product contacts. Fluidizing media constructed of AISI type 316 stainless steel

Operating temperature: Up to 1000 degrees F.
Corrosion and oxidation resistance: Excellent

Strength: Resists abrasion and puncture.

Welding: All welders qualified to Section IX of the ASME Code.

Interior and exterior finishes: Class 2 per YI Spec. 185.200

Air supply requirements

For Trans-Flow® Transitions and Downspouts, pressure of 3 to 5 PSIG is used for most applications. The maximum pressure recommended is 11 psig. The characteristics of the bulk materials determine the final operating pressure and consumption. When fluidization is not required, fluidizing air can be shut off. We recommend that fluidization be started a short time before the start of the material discharge.

A positive displacement blower is the most economical air supply. For applications using less than 40 SCFM plant compressed air or gas can be used as long as the air or gas is regulated, clean and dry.

Cleanability

Trans-Flow® Transitions and Downspouts can the cleaned by ordinary water and detergent or by using high-pressure steam or chemically cleaned using standard methods. The material is non-migrating. No danger of lint contamination caused by fiber abrasion. Quick drying. It does not retain moisture.

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How to order Trans-Flow® Down spouts and Transitions

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To start, we need information about your product or a sample of the product. In addition, we need dimensional information showing the required piece. With this information, we will prepare a written quotation. This quotation is sent to you for your review and basis for an order.