BULLETIN 211-201

TRANSVAIR®

PNEUMATIC CONVEYING SYSTEMS & EQUIPMENT

THE YOUNG® INDUSTRIES, INC.

TRANSVAIR®

Transporting Bulk

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TransVair® Pneumatic Conveying Systems... reliable, clean, most economical method of material handling for most dry, free-flowing materials.

Pneumatic conveying is the modern way to efficiently and economically transfer bulk materials from pressure differential trucks, railcars, or other containers into bulk storage tanks; transfer materials from one to several locations or from multiple locations to a single location; and transfer products from storage tanks to process use points.

The pneumatic conveying system provides a **closed environment**...isolating product from foreign materials which may contaminate. A pneumatic system enhances working conditions.

Air does the work. Pneumatic conveying minimizes the need for expensive manual labor and replaces high maintenance, space consuming mechanical conveying equipment. Pneumatic system components can be remotely located, and the compact ducting is easy to install and occupies minimum space.

Young TransVair Pneumatic Systems provide a fast, clean and economical method of material handling for most dry, bulk products. Operation is efficient and provides complete product recovery, while virtually eliminating dust and contamination problems.

Pneumatic conveying is ideal, and the preferred method, for handling pellets, powders, flakes, crystals, chips, granules and cubes. The closed environment makes pneumatic conveying adept at handling various products, and ideal for handling problem materials which require an inert gas atmosphere. TransVair Systems are designed for handling most standard industrial products, toxic products, and sanitary products such as food and drug ingredients.

Young can provide complete process systems including those requiring liquid additives, such as used for PVC Compounding.

Pneumatic conveying is applicable to virtually any industry, any size plant, and any dry, bulk material conveying requirement. It can be used in conjunction with truck, railcar or ship delivery systems. It can be coordinated with existing material handling systems, or can accommodate the entire range of processing services from unloading raw materials through loading of finished products.

Young TransVair Pneumatic Systems can be designed for totally new applications or, to minimize initial cost, can sometimes utilize existing component items where available. Electrical control of the pneumatic systems can be as simple as manual start-stop push-button stations or as sophisticated as programmable mini-computers, punch card systems, etc.

(left) Uni-Cage V/C Product Collector discharges into holding bin mounted below. Part of a TransVair Pneumatic System.

(above) Three roof-mounted Uni-Cage V/M Product Collectors receive product from storage silos in the background.

PNEUMATIC CONVEYING SYSTEMS

Products by Air

WILL A TRANSVAIR SYSTEM SAVE YOU MONEY?

Definitely.

If you handle dry material in volume, a Young TransVair Pneumatic Conveying System will save you money. Initial savings result from purchasing materials in bulk quantities; reduced labor costs for handling, maintenance, and housekeeping; and improved overall efficiency. Secondary savings result from maintaining constant product quality, automation, and ease of expansion. Other benefits, often overlooked, include: lower employee turnover, cleaner and more pleasant work environment, and lower insurance rates. When all factors are taken into consideration, a TransVair System results in significant cost savings.

ADVANTAGES OF TRANSVAIR PNEUMATIC CONVEYING SYSTEMS

- LOWER MATERIAL COSTS — Bulk storage permits volume purchases at lower costs.
- INCREASES VALUABLE PLANT SPACE — Cost-efficient storage silos free plant space for production applications.
- LOWERS LABOR COSTS — Reduces normally high manual labor requirement for material handling to virtually no labor requirement.
- CONSISTENT PRODUCT QUALITY — The closed environment of a pneumatic conveying system provides clean, controlled handling and prevents product adulteration or contamination.
- LOWERS MAINTENANCE COSTS — Rugged, long life components and ease of maintenance reduce costs. The enclosed system is virtually self-cleaning.
- IMPROVES PLANT HOUSEKEEPING — Unlike conventional material handling systems, pneumatic conveying is exceptionally clean.
- AUTOMATED PRODUCTION CONTROL — Provides centralized control and automated delivery.
- EASILY EXPANDED — The pneumatic system is flexible and adaptable.

To assist you in defining your application, request the following check lists:

- PNEUMATICS 211-201
- FILTER-COLLECTORS ... 230-900
- GRAVITY BLENDERS 842-202
- RIBBON MIXERS 813-200
- MAXILIPSE SCREENER . 620-301

WHY YOUNG?

Young Industries, Inc. is a pioneer and leader in pneumatic conveying systems and equipment. In fact, the name TransVair is almost synonymous with pneumatic conveying. Young TransVair Systems have solved material handling problems for most industries: Chemicals, Plastics, Pharmaceuticals, Food, Mining, Manufacturing, Warehousing, and others.

Young Industries is both an engineering and manufacturing company. Because of this, we offer complete system responsibility. We are often called in at the beginning by our customers, to help develop the system concept and specifications. As required, we provide system engineering, system fabrication, installation drawings, and start-up assistance. Our company is noted for its excellent customer service.

Major pneumatic components are manufactured by Young Industries, and are of such high quality and dependability that they are also used by competitive system suppliers in their pneumatic conveying systems. Young also manufactures a broad line of process equipment often required with new systems, such as: rotary valves, diverter valves, ribbon mixers, gravity blenders, filter-receivers and dust collectors, knife cutters, attrition mills, saw tooth crushers, brush sifters and gyro sifters.

Young's pneumatic systems engineers have the in-depth knowledge, acquired through years of experience in this field, to design systems capable of high volume, continuous operation. We utilize the latest technology to assure the design most applicable to the customer's requirements.

TransVair PNEUMATIC SYSTEMS CHECK LIST

When considering or specifying a pneumatic conveying system, certain key information is required. The following check list information will aid Young engineers in determining your specific requirement so that recommendations can be made.

A. Product Characteristics

1. BULK DENSITY (lbs. per cu. ft.). Include all known conditions such as loose, packed, aerated, settled, etc.
2. ANGLE OF REPOSE.
3. TEMPERATURE AT INLET.
4. MOISTURE CONTENT.
5. IS MATERIAL HEAT SENSITIVE?
6. IS MATERIAL ABRASIVE?
7. IS MATERIAL CORROSIVE?
8. IS MATERIAL HYGROSCOPIC?
9. IS MATERIAL TOXIC?
10. IS MATERIAL EXPLOSIVE?
11. IS MATERIAL FREE FLOWING?
12. DOES MATERIAL AERATE?
13. DOES MATERIAL BRIDGE?
14. WHAT IS PARTICLE SIZE DISTRIBUTION?
15. OTHER KNOWN CHARACTERISTICS.

B. System Requirements

1. PRODUCT TO BE CONVEYED. If more than one, provide a complete list.
2. QUANTITY OF PRODUCT (lbs. per hr.).
3. HORIZONTAL RUN (ft.).
4. VERTICAL LIFT (ft.).
5. CONVEY LINE ELBOWS (90° or equiv.).
6. CLEAN/DISCHARGE AIR LINE (ft. total).
7. PRODUCT INLET. How will product enter system; from what equipment?
8. BULK RAILCAR UNLOADING. If for this application, list all car types, and size and type of discharge.
9. CONVEY GAS. If other than air, specify.
10. AMBIENT CONVEY GAS CONDITIONS.
11. ALTITUDE AT INSTALLATION SITE.

C. System Type

1. TYPE. If known, show Positive, Negative, Combination, Closed Loop, etc.
2. MATERIAL OF CONSTRUCTION. If known, show carbon steel, stainless steel, aluminum, or other.
3. ELECTRICAL REQUIREMENTS. Include motor enclosures, voltage available (rating, phase, hertz), control panels required, motor starters, etc.
4. ADDITIONAL DESIGN INFORMATION. Include existing storage bins and method of discharge, successful handling methods, difficulties experienced with existing equipment, etc.

TRANSVAIR®
PNEUMATIC CONVEYING

Positive Pressure Systems

TransVair Positive Pressure Pneumatic Systems are usually specified for conveying product from a single entry point to one or more destinations. The positive system uses a minimum air quantity to move a given amount of product. Material can be transported over a relatively long distance using positive pressure pneumatics.

A Positive Pressure Power Package uses a positive displacement blower to create the movement of air through the conveying system. Product is introduced to the convey line through Rotary Feeder/Airlock Valves, Blow Tanks, or other devices. In some cases, Rotary Valves are placed in series, such as under a row of Storage Silos, so that product can be introduced from more than one point. The Rotary Valve serves as the airlock to seal the positive pressure airstream while admitting product, through the Inlet Manifold, to the conveying system.

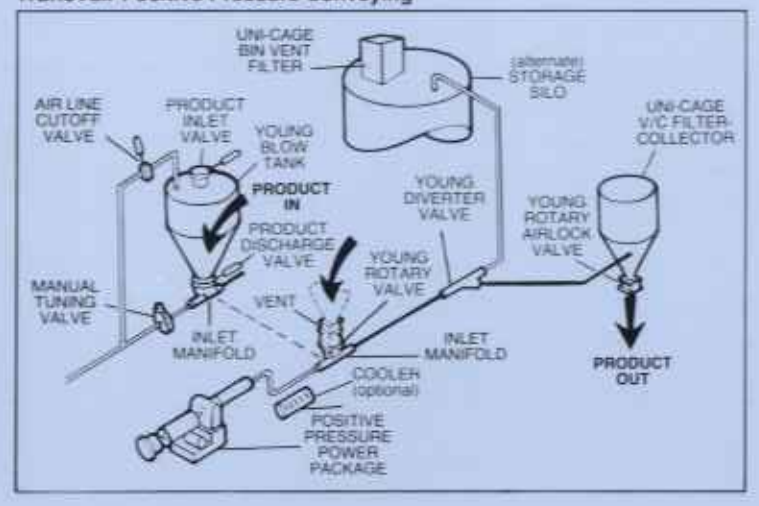
Convey line Diverter Valves automatically direct the product to the correct discharge point. At the discharge, product can be removed from the airstream by: a Uni-Cage Filter-Collector, a TransVair Cyclone Collector, or a Receiver Hopper with venting through a Bin Vent Filter. A manual switch station also can be used to direct the product to selected outlets.

A positive pressure system **pushes** air and product from source to destination. Normal TransVair design allows a system pressure differential to 15 PSIG. Special systems can be designed for higher pressures.

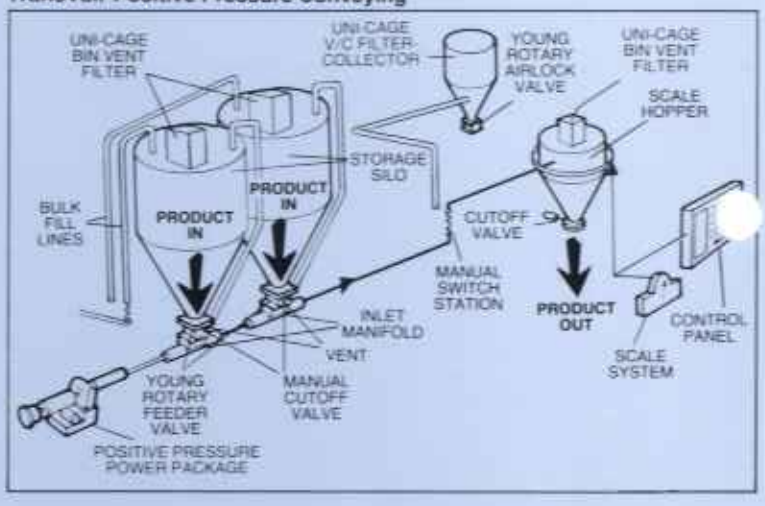
Features of TransVair Positive Pressure Pneumatic Conveying

- MINIMUM AIR QUANTITY REQUIRED
- TRANSPORTATION OF PRODUCT OVER RELATIVELY LONG DISTANCES
- SINGLE OR MULTIPLE INLETS TO SINGLE OR MULTIPLE OUTLET POINTS
- DIFFERENTIAL PRESSURE TO 15 PSIG STANDARD
- PRODUCT IS PUSHED THROUGH THE SYSTEM TO ITS DESTINATION

TransVair Positive Pressure Conveying



TransVair Positive Pressure Conveying



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A. Typical bulk storage silos used with positive pressure conveying. Uni-Cage Bin Vent Filters are seen atop the units.

B. Photo shows a portion of a positive pressure TransVair System. In the left foreground is a Young Rotary Feeder Valve with vent and vent line above. The Positive Pressure Power Package is behind the valve. Inlet Manifold and convey line are in the foreground.

C. Shown is a Positive Pressure Power Package delivering air to the TransVair Conveying System.

TransVair Negative Pressure Pneumatic Systems are well suited for conveying bulk material from any number of inlet points, such as unloading railcars, transporting and discharging product into a single point. The Negative Pressure Power Package includes a positive displacement blower, and is located on the exhaust side of the receiver, so that the pressure source is negative (vacuum). The Power Package **pulls** rather than pushes the air and material through the conveying system. The Power Package is usually preceded by a Uni-Cage Filter-Collector. A Young Inline Filter is a protective device recommended for installation between the Filter-Collector and the Power Package.

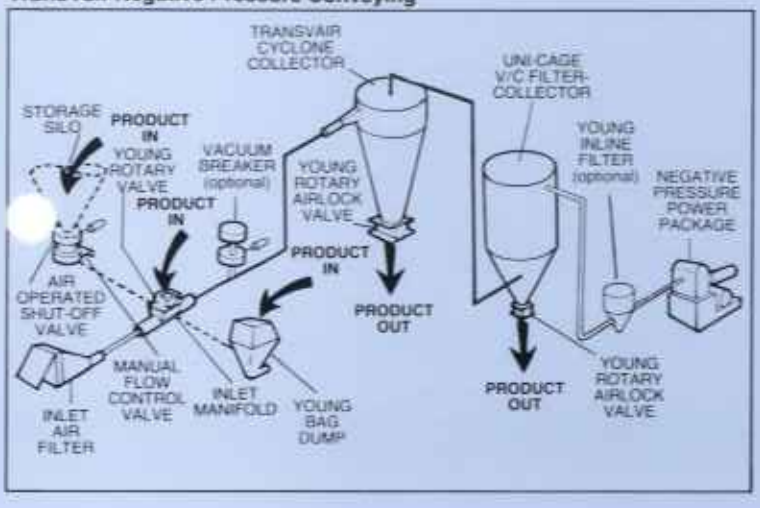
Material can automatically enter the airstream by gravity feed, orifice feed, air feeder, or mechanical feeders such as rotary valves. Vacuum systems allow material to be introduced through manual pick-up nozzles, drum unloading nozzles, or other devices. The negative pressure assists product flow into the system. Negative pressure pneumatic systems are almost always recommended when toxic materials are being handled.

TransVair Negative Pressure design permits standard system design to 15" Hg. Special designs to 22" Hg are available. Depending on the application, various types of receivers that are specially designed for vacuum service can be used. These include: filter-collectors, cyclone collectors, scale hoppers and storage tanks.

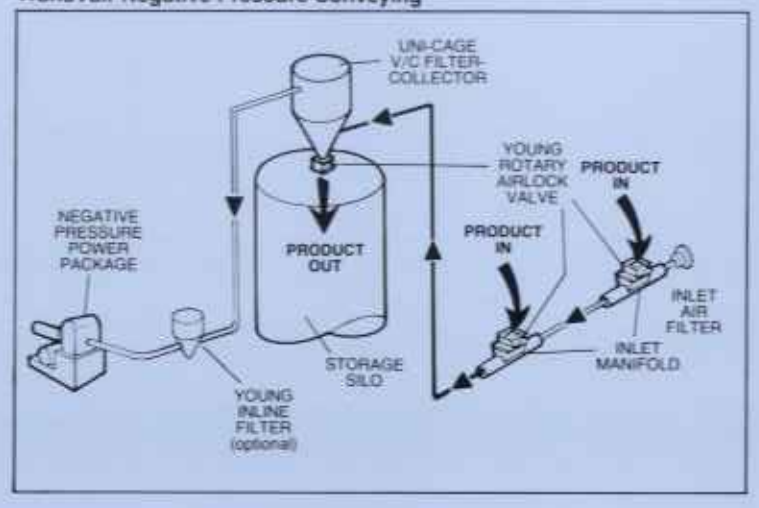
Features of TransVair Negative Pressure Pneumatic Conveying

- INPUT BY GRAVITY FEED, ORIFICE FEED, AIR FEEDER, OR MECHANICAL FEEDER
- SYSTEM LEAKS WILL BE INWARD
- MULTIPLE INLETS TO SINGLE OUTLET POINT
- USED FOR TOXIC MATERIALS
- STANDARD DESIGN WITH VACUUM TO 15" HG
- PRODUCT IS DRAWN THROUGH THE SYSTEM TO ITS DESTINATION

TransVair Negative Pressure Conveying



TransVair Negative Pressure Conveying



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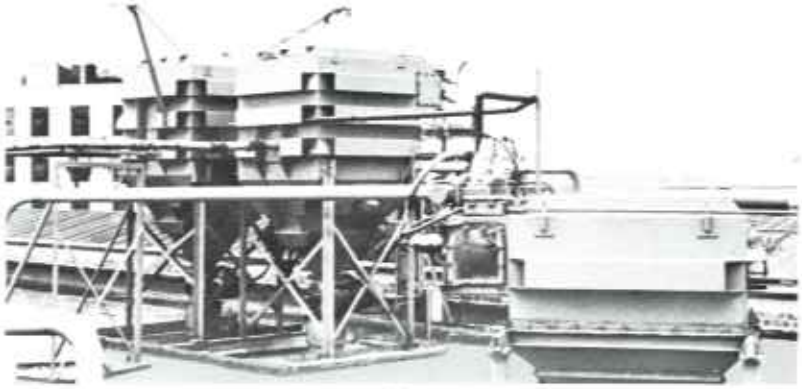

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D. TransVair Negative Pressure Railcar Unloading System is shown. To the left is the material storage silo with filter-receiver and airlock.

E. Air and product entry into a Negative Pressure TransVair System. Manual shutoff valve can be seen above Young Drop-Thru Rotary Valve.

F. Negative Pressure System being fed by orifice control Knife Gate Valves.

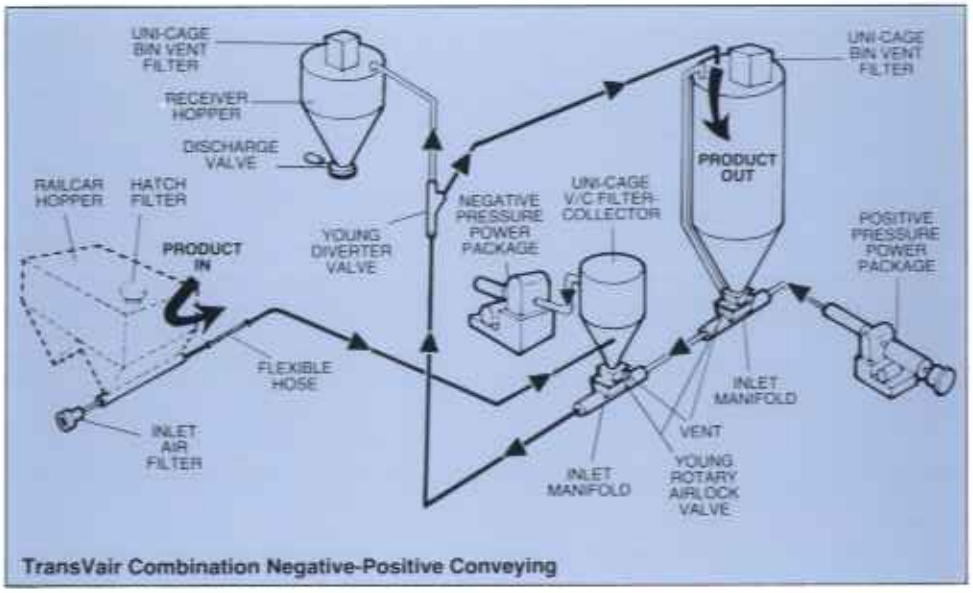
G. Shown is a Young Inline Filter complete with differential pressure switch. Unit protects Negative Power Package.

H. Young Uni-Cage Filter-Collectors serve as material receivers, terminating negative pressure conveying system.

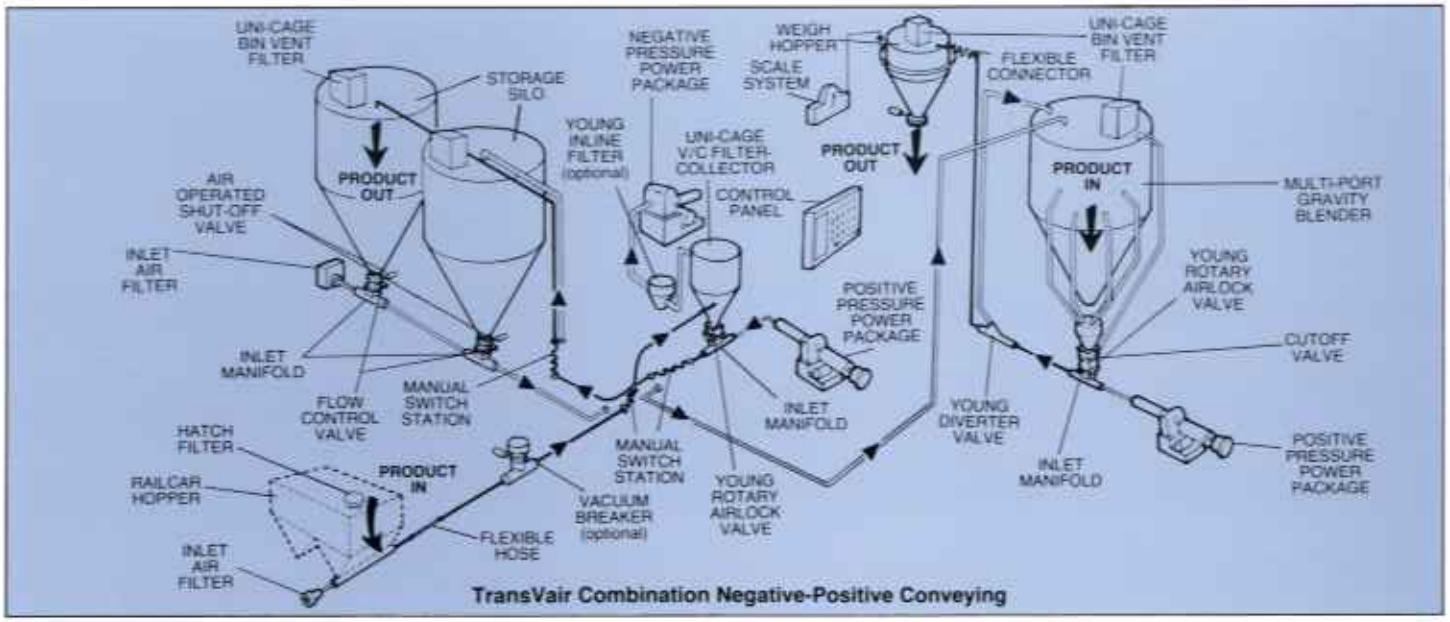
Combination Negative-Positive Pressure Systems

The Combination Negative-Positive (Pull-Push) System incorporates the advantages and benefits of both negative and positive pressure arrangements in a single system. Young TransVair Combination Systems are used where there are multiple material entry points, and multiple delivery points. Typical applications include: drawing materials from several points for batching before entering process; and unloading from several points, such as railcars, and delivering to bulk storage tanks.

The negative pressure (vacuum) portion of the system is generally used to unload material from storage. Product is drawn to an intermediate receiving station, from which it is discharged into the positive side of the system. Material from the receiver is conveyed to single or multiple distribution points.

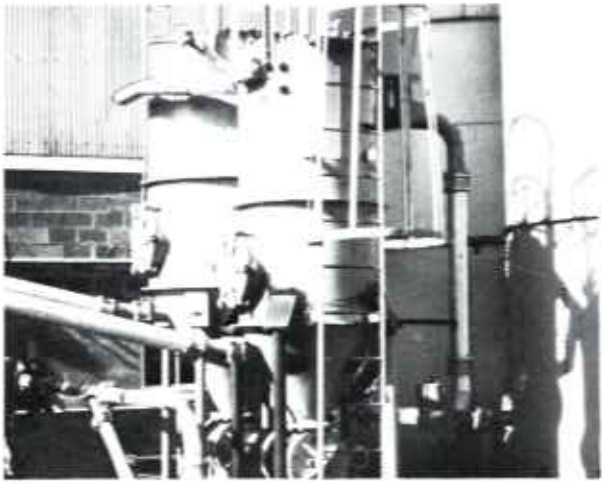


TransVair Combination Negative-Positive Conveying



TransVair Combination Negative-Positive Conveying

A



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A. Silos used for bulk storage of PVC resins received from bulk railcar and truck shipments. Part of a TransVair Negative-Positive Pressure Pneumatic Conveying System.

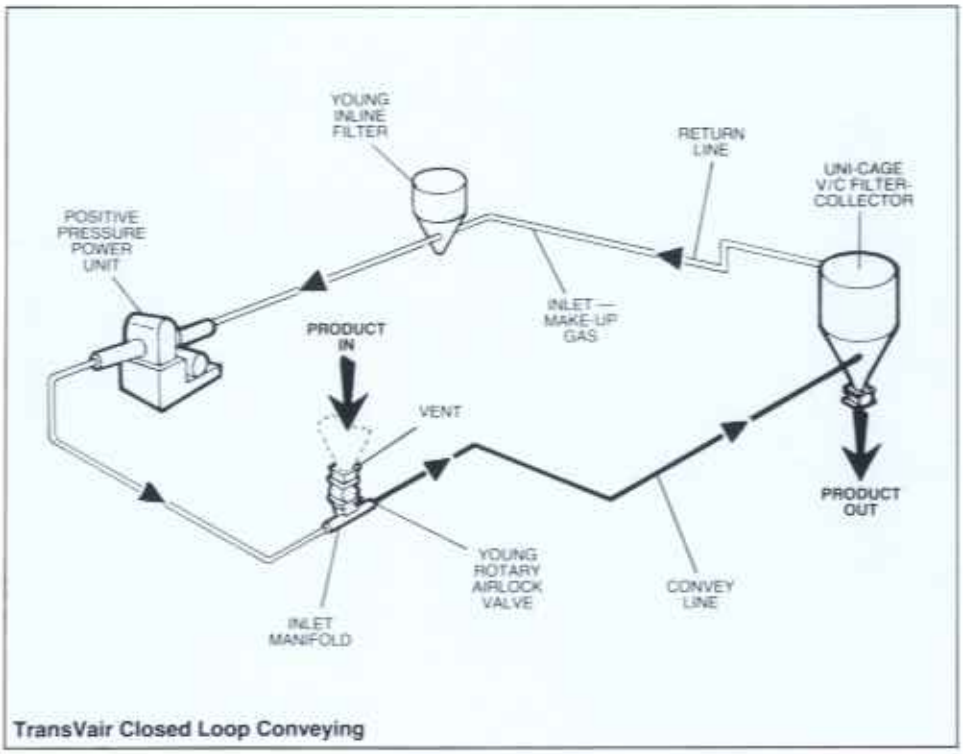
B. Photo shows two Uni-Cage Vertical/Cylindrical Product Collectors with negative pressure lines coming in on the left. Positive pressure lines are under the Young Rotary Feeder Valves.

TransVair Closed Loop Pneumatic Systems are used for handling hazardous chemicals, hygroscopic materials, and dusty products. Products such as TPA, caustic soda, and IPA require protection from atomosphere and particularly oxygen. These materials may be transported pneumatically in a Closed Loop System using an inert gas as the conveying medium. Other closed loop systems are used for products requiring controlled air conditions — dry air, cooled air, dehumidified air, and others.

Rather than venting the convey gas to atmosphere, it is recycled through the system by closing the loop. Since a minimal amount of convey gas is lost to atmosphere, a constant make-up supply is required.

Both negative and positive pressure conveying systems are adaptable to closed loop design.

The design of a closed loop system is more critical than conventional pneumatic systems. Additional mechanical and electrical controls are required to protect the product, conveying medium, and system components.



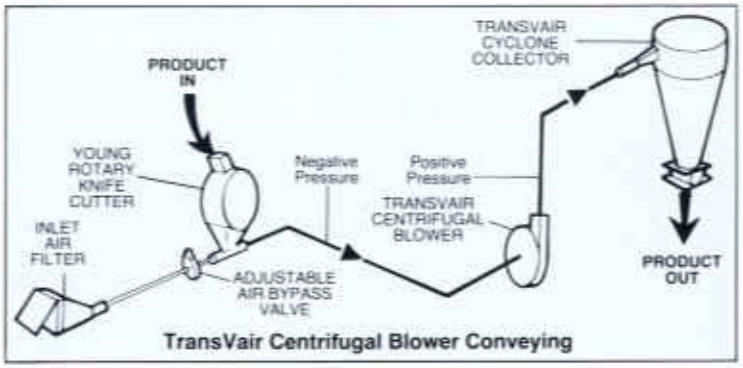
TransVair Closed Loop Conveying

TRANSVAIR® Centrifugal Blower Conveying

TransVair Centrifugal Blower Systems can be positive pressure, negative pressure, combination negative-positive pressure, or closed loop systems. Similar to other TransVair Pneumatic Systems, except that Centrifugal Blowers replace the positive displacement power packages.

Centrifugal Blowers provide the positive and/or negative pressure used for material conveying. Single or dual stage Centrifugal Blowers can be used in a system.

The design of this type system is limited in static pressure capability, and usually to relatively short distances. In the case of a through-the-fan, Pull-Push Centrifugal Blower System, the product must be adaptable to passing through the blower. They are, however, especially adaptable to edge trim conveying applications, and for use in conjunction with rotary knife cutters, reduction mills, and similar process machinery which require an air draw for proper operation.



TransVair Centrifugal Blower Conveying


Typical Positive Power Package


Typical Negative Power Package

Typical TransVair Centrifugal Blower Installation.

TransVair 350 HP Power Package

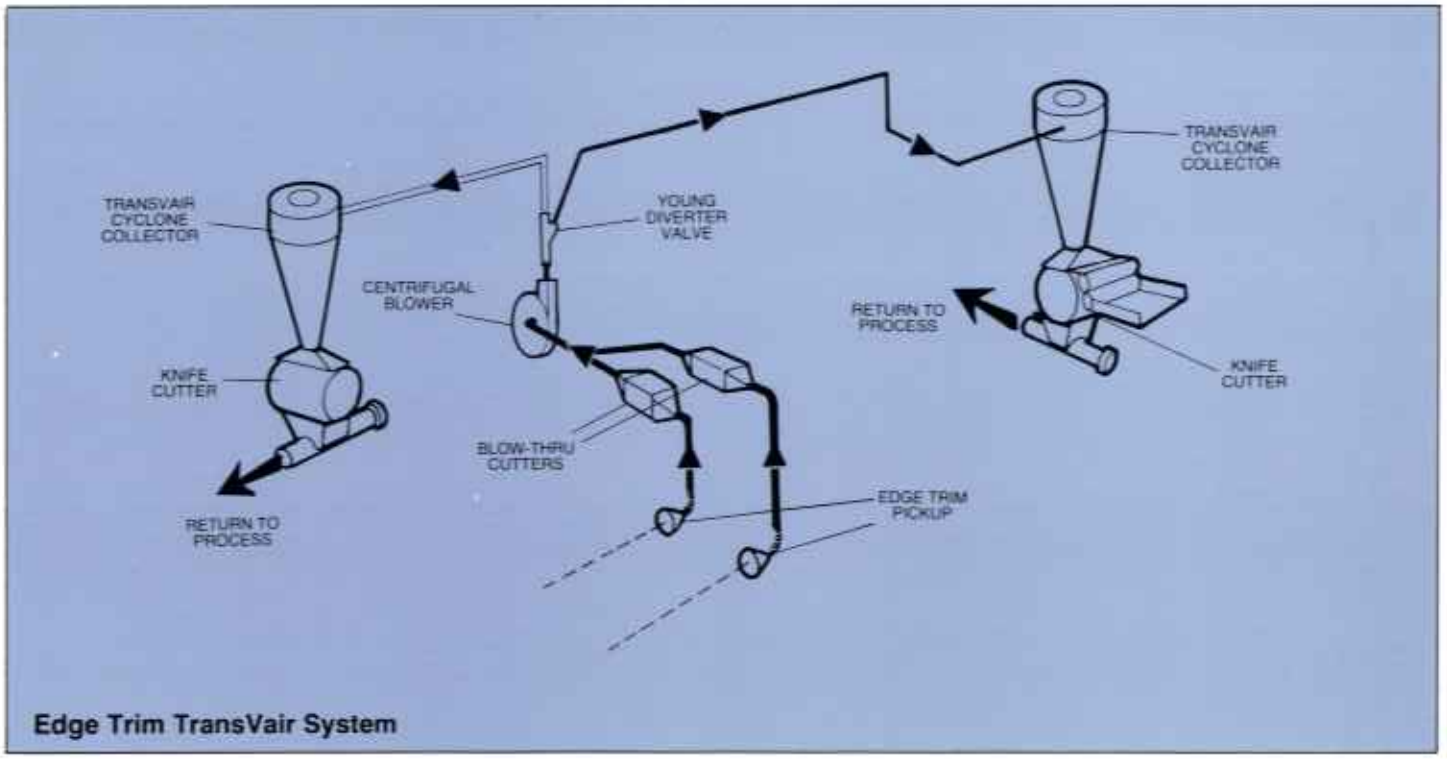
TRANSVAIR® Power Packages

TransVair Positive Pressure, and Negative Pressure Power Packages use positive displacement blowers, sized for each application to provide the most cost-efficient operation. Power Packages are available in all sizes, including models for high pressure and vacuum service. Units such as the 350 HP Power Package shown on this page are not uncommon. Packages are complete with silencers, check and pressure relief devices, and motors with safety guards. Packages are self-contained on a rigid fabricated base.

PVC Compounding Systems & Edge Trim Systems

Storage facilities for a Young TransVair PVC Compounding Conveying System are shown. Liquid plasticizer tanks are to the left, PVC storage silos to the right.

PVC Compounding TransVair System



Edge Trim TransVair System

Blow Tank Systems

Scale-mounted Blow Tank for a batching application. Product is received from a vacuum-receiver mounted above.

TransVair Blow Tank Systems are widely used to admit product into a positive pressure pneumatic conveying system. Ideal for many difficult-to-handle dry materials, particularly those that are abrasive, heat sensitive or friable. Blow Tanks replace rotary airlocks and feeders for products that tend to agglomerate in these devices, or wear them out.

TransVair Blow Tank Systems provide a dependable method of handling difficult products for either batch or continuous operation. Products handled include: PVC resins, cement, ore and alumina. Because the system has no rotating parts, it provides continuous, low maintenance service. Operation can be manual, semi-automatic, or automatic. Blow Tank Systems can be designed for continuous filling and discharge...or for alternate filling and discharge.

Standard units are available in sizes of 7½ to 500 cubic foot capacity, designed for a maximum working pressure of 15 PSIG. Units are constructed of carbon steel, carbon steel epoxy coated, stainless steel, and aluminum. Other sizes and specifications can be provided when required.

BATCH-TYPE BLOW TANK SYSTEMS

The batch system uses a single TransVair Blow Tank and is ideal for smaller operations where a constant flow of material into process is not needed.

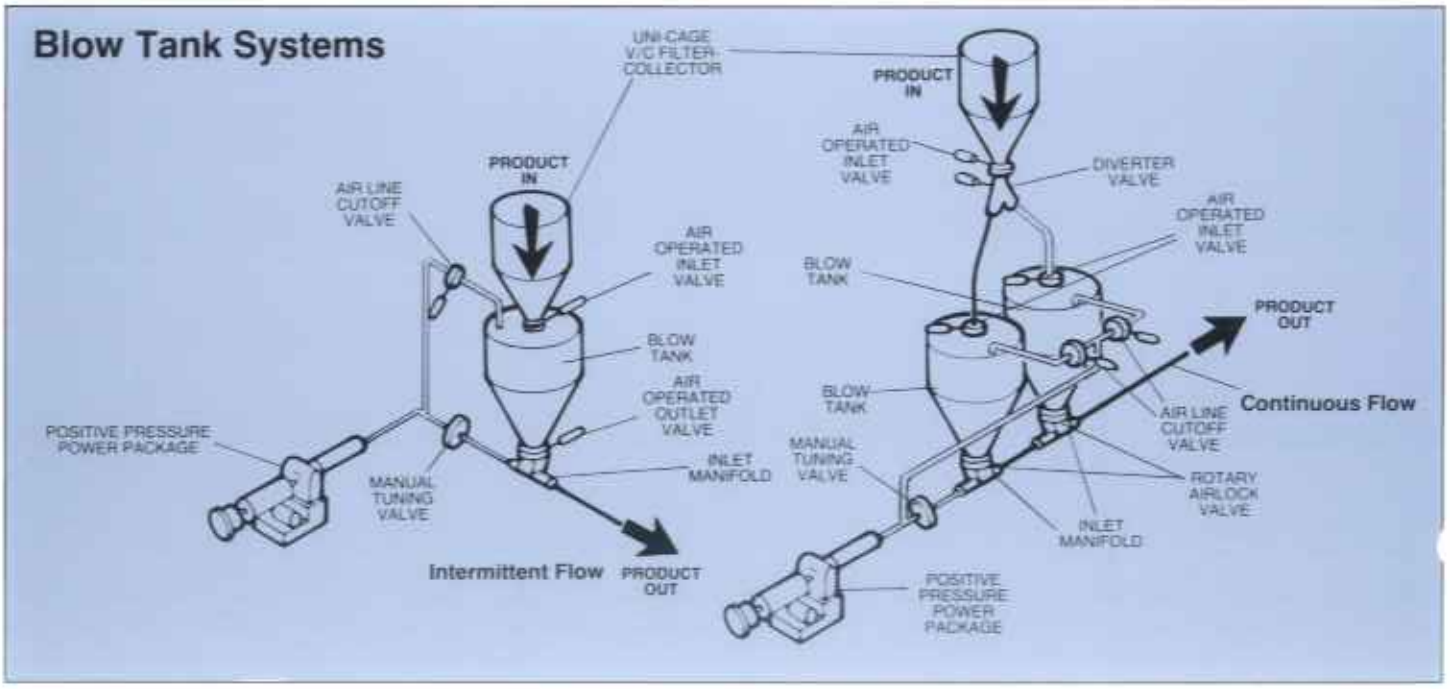
In operation, the Blow Tank is gravity-filled to the desired level or capacity. Fill level can be controlled by weigh scales, level controls, or by a time cycle. When the tank is filled to the desired level, the Inlet Valve is closed and the Blow Tank energized through the Equalizing Air Line and Valve. Pressure is provided by the system's Positive Pressure Power Package. The Discharge Valve is opened and the material flows rapidly into the conveying line for transport to storage or process.

During discharge from the Blow Tank, pressure is equalized above the product and in the conveying line. This prevents "blow back". When the Blow Tank is empty, the Discharge Valve is closed, the tank depressurized, and then refilled. Product flow is interrupted during the filling cycle.

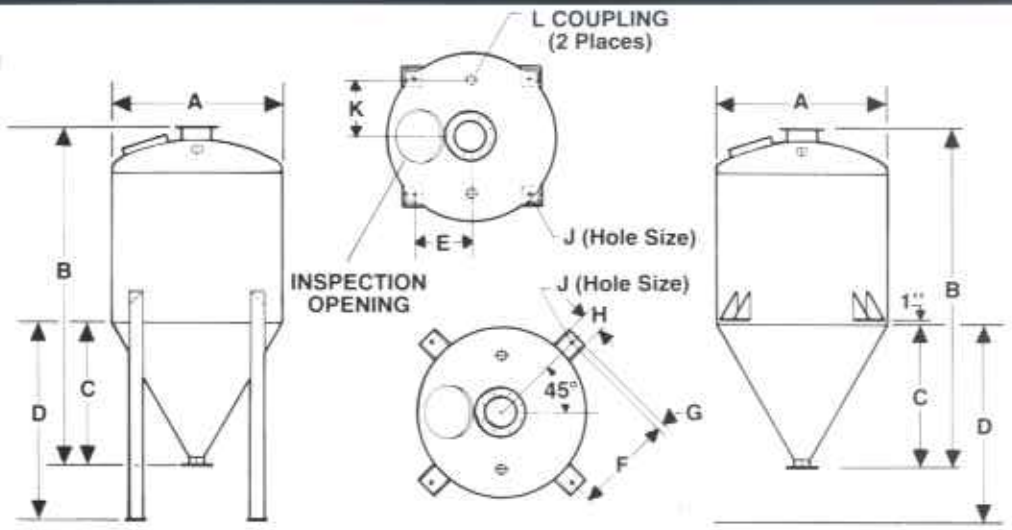
CONTINUOUS BLOW TANK SYSTEMS

Continuous flow of material into process is achieved by a dual Blow Tank arrangement. As one tank is filled, the other discharges into the conveying system. When the discharging tank is emptied, the other tank has filled and is ready to be switched over to maintain product flow into the conveying system. The cycle then repeats.

A Young Diverter Valve alternately fills the two Blow Tanks. In continuous systems, the entire operation is automatic, assuring a constant flow of material into the positive pressure pneumatic conveying system. Cycling between tanks is usually on a timed basis with Inlet and Discharge Valves shifting on a pre-determined interval. The time cycle is adjustable depending on the flow characteristics of the product, tank size, and system capacity. Both Blow Tanks discharge into a common convey line, and the air source is a Positive Pressure Power Package.



Blow Tank Systems



STANDARD TANK MOUNTING

ALTERNATE TANK MOUNTING

Typical TransVair Blow Tank System used for batch-type applications where a constant flow of material into process is not required.

SPECIFICATIONS — Blow Tanks

CAPACITY (cu. ft.)	DIMENSIONS (inches)											INSPECTION OPENING (inches)	INLET DIA. (in.)	OUTLET DIA. (in.)	APPROX. WEIGHT (lbs.)
	A	B	C	D	E	F	G	H	J	K	L				
7½	30	54¾	24	39½	9¾	19	2	6	1⅛	11	2	6 × 8	4	4	380
15	36	64	29½	45	12	22	2	6	1⅛	14	2	6 × 8	6	4	490
30	42	82¼	35	50½	14	25	2	6	1⅛	14	2	11 × 15	6	4	645
50	48	95	40	55½	16¼	28	2	6	1⅛	16	2	11 × 15	8	4	840
100	60	117¼	49½	65½	20½	34	2	8	1⅛	16	2	20 DIA.	8	5	1230
150	72	135¼	60	76	24¾	40	2	8	1⅛	20	2	20 DIA.	10	5	1700
200	84	147¼	70	86	29	47	2½	8	1⅛	20	3	20 DIA.	10	5	2450
250	84	158¼	69	85½	29	47	2½	8	1⅛	20	3	20 DIA.	10	6	2600
300	90	170½	74½	91	31	50	2½	10	1⅛	20	3	20 DIA.	10	6	3150
350	96	176¼	80	96½	33¼	53	2½	10	1⅛	24	3	20 DIA.	12	6	3700
400	102	180¼	83	102¼	35½	56	2½	10	1⅛	24	3	20 DIA.	12	8	4000
450	102	192¾	83	102¼	35½	56	2½	10	1⅛	24	3	20 DIA.	12	8	4200
500	108	199	88½	107¾	37½	59	2½	10	1⅛	24	3	20 DIA.	12	8	4540

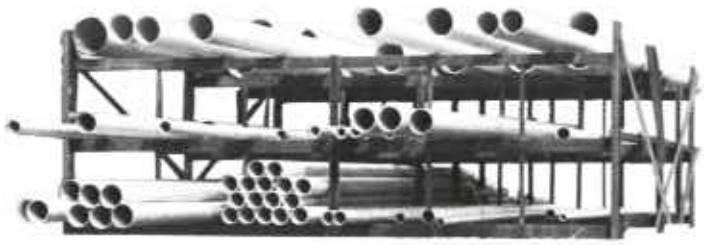
NOTE: Weights shown are for single tanks complete with legs and inlet and outlet valves.

TRANSVAIR®
PNEUMATIC CONVEYING

Pneumatic Components

INLET AIR FILTERS

Young provides a complete line of Inlet Air Filters for applications up to 5,250 CFM. Used on negative pressure these filters admit dustfree air into the system. Uses standard filter elements. Carbon steel and aluminum construction.



CONVEY DUCT

We stock a wide range of tubing and pipe for use as air lines, convey ducts, gravity spouting, and other pneumatic uses. Standard tubing sizes and Schedule 5, 10, 40, or 80 pipe. Carbon steel, stainless steel, or aluminum. Popular sizes are stocked at the Young plant for quick delivery.

CONVEY ELBOWS

Convey line elbows with long radius, and mitered air line elbows are available in standard sizes for pneumatic systems. Available in carbon steel, stainless steel, or aluminum.

Pneumatic Components

COUPLINGS

Dresser and Morris couplings are widely used to connect convey line segments. Morris couplings available in two, three and four bolt types. Economical and easy to install. Interior gasket seals convey line against leakage. Sizes to meet all standard requirements.

RAILCAR UNLOADING ATTACHMENTS & ADAPTERS

Young offers a complete line of attachments and adapters for railcar unloading pneumatic systems. Most are available in standard sizes constructed of carbon steel, stainless steel, or aluminum.

MANUALLY OPERATED AIR FEEDER PICKUP NOZZLES

For barrel or drum unloading into a pneumatic system, Young offers Air Pickup Nozzles in sizes from 2 to 8-inch diameter. Construction is of carbon steel, stainless steel, or aluminum.

RAILCAR SWIVEL ELBOW LOADERS

One method of loading railcars is through the use of a Young Swivel Elbow Loader. Positive Pressure Pneumatic Systems with line sizes from 2" through 8" can utilize this device.

BUTTERFLY VALVE, AIR OPERATED

KNIFE GATE, MANUAL

KNIFE GATES & BUTTERFLY VALVES

Butterfly Valves, automatically operated, are used for a variety of flow control applications in pneumatic conveying systems. A variety of sizes and constructions is available. Operators can be air, electric or other, depending on system requirements. Knife Gates, such as the one shown above are mainly used in gravity fall applications. Manual or automatic operation. Young stocks most widely used sizes.

MANUAL SWITCH STATIONS

We manufacture Manual Switch Stations in various configurations, line sizes, and number of stations to meet specific customer requirements. Often this is the most practical and economical method of selecting the storage or process area to which product is to be diverted.

SCALE HOPPERS

With emphasis on single source responsibility for complete pneumatic system manufacture and design, Young offers Scale Hoppers, Weigh Scales, Controls and Instrumentation.

HOPPERS

Young can accommodate applications requiring either standard or non-standard hoppers. Special designs are welcome. Hoppers can be constructed of carbon steel, carbon steel epoxy coated, stainless steel, or aluminum to meet specific process conditions.

INLINE FILTERS

Often used in negative pressure systems to protect the power package in the event of a ruptured bag in the filter-collector. Young manufactures Inline Filters in sizes up to 6,400 CFM. Units are available constructed of carbon steel, carbon steel epoxy coated, and stainless steel.

YOUNG INDUSTRIES TRUSTED FOR QUALITY

At Young Industries, we look back over thirty years of pneumatic systems experience. We have designed TransVair Systems for handling dry bulk material in virtually every industry...Chemical, Plastics, Pharmaceutical, Food, Milling, Mining, Woodworking, and others.

Our systems have a reputation for quality and reliability. Young pneumatic components are also available for modernization, modification, and expansion of existing systems. We will be pleased to discuss your particular material handling requirement.

Young is an in-depth manufacturer of air pollution control and process equipment — filter-collectors, blenders and mixers, rotary valves, diverter valves, sifters/screeners, attrition mills, knife cutters, and crushers.

May we hear from you...your inquiry will be answered promptly.

WARNING NOTICE

Some machines in this bulletin are shown with guards or covers removed, or partially disassembled for the purpose of illustration. Machines must not be operated with guards, covers, or other protective devices removed or disabled. Machines must not be operated in a partially disassembled condition.

The photographs, illustrations, drawings and descriptions contained in this publication are not intended to depict actual operating conditions or to suggest operating procedures. They are included only for the purpose of portraying the features of the machinery. The manufacturer's installation, operation and maintenance instructions and recommended safety procedures must be expressly followed during installation, operation or maintenance of the equipment.

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TransVair® Dilute Phase Pneumatic Conveying

Negative Pressure Pneumatic Conveying Systems gently handles plastic caps and spouts

The West Company, located in Williamsport, PA, uses Young Industries designed and manufactured conveying systems to gently handle 700 million closure devices per year. The Williamsport facility makes plastic caps, spouts, and "closure devices" for all sorts of consumer packages.

Young Industries, Inc. supplied fourteen separate conveying systems to handle the plastic screw-on caps and spouts made for paper juice cartons. Each system conveys each piece over a maximum horizontal distance of 60 feet with 20 feet vertical lift and through three 90 ° elbows. The caps are conveyed at a rate of 22,560 pieces per hour. The systems can convey the spouts at a rate of 19,200 pieces per hour.

Caps and spouts are conveyed through a non-scuff hose at rates of 22,560 and 19,200 pieces per hour, repectively.

To prevent damage to the product, the systems are designed to float the caps and spouts at the lowest possible speed. Because the product is picked up at the molding machine discharge, the plastic is still soft. This makes control of the conveying air speed even more critical to eliminate any scuffing or nicking of the product. An AC Inverter, mounted on the receiving unit, controls the conveying air velocity by adjusting the fan motor speed.

Used on juice cartons to preserve freshness after being opened, caps and spouts must be conveyed gently to prevent damage.

Before the West Company installed the new systems, all the caps and spouts were manually

placed into cardboard boxes, which were loaded onto a pallet. They moved the pallet to the assembly area where each box was manually emptied into the assembly machine hopper. This was a labor intensive operation. Even with the hand loading, caps and spouts were damaged. Because of the new automated conveying systems, this customer is saving money by reducing the required labor even as the demand for their product has grown.

Each of the negative pressure receiving units consists of 24" diameter, five cu. ft. holding hopper, 1 ½ HP fan, vacuum breaker butterfly valve, knife gate discharge valve, air piping, filter bag, and electrical control panel. All of the components mount on a support frame. The support frame has casters to make it ease to position the unit over the customer's assembly machine hopper.

The caps and spouts are conveyed through a flexible line to the receiving unit's five cubic foot holding hopper. The product fills the hopper for a preset time. Then, a vacuum breaker valve opens, the discharge valve opens and the caps or spouts discharge into the assembly machine hopper. The valves then close and the product starts to convey. The cycle repeats until an operator stops the system.

Young Industries Engineers worked closely with West Company Engineers to design these material handling systems. The custom designed systems solved an expensive problem. These systems have been in service since September 1995 and are continuously paying back in labor savings. The West Company maintenance electricians have told us that this equipment requires less attention in comparison to all their other equipment.

Receiving unit is self-contained and mounted on a frame for easy positioning over the customers' assembly machines. The units were completely assembled and tested before shipping to the plant.

Young Industries has been solving bulk materials handling problems like the one described above for over 50 Years. Contact us, we can probably help you. You can call us at 570-546-3165 or fax us your requirements at 570-546-1885. Our email address is mktinfo@younginds.com or visit our web site at http://www.younginds.com.