



**REDEFINING THE STANDARDS
OF
BULK HANDLING**

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In an industry like Bulk Materials Handling, there have not been many things that stand out as “cutting edge” or exciting. Lets face it, we are not in the most glamorous field of engineering and seldom get the chance to get hyped up about anything.

But I have come here today to tell you about one of the most innovative technologies I have come across, even after more than 38 years of being in this line of work. This technology has the ability to change for the better the way we work, the environment we work in, the costs of the work we do, even cure the common cold! OK, so maybe not cure the common cold, but surely write a new chapter in the history of Bulk Materials Handling.



Air Supported Belt Conveyors... To some of you, the term contrives visions of material being blown around through tubes. Others think of large plates, inundated with holes like an air hockey table. Other people roll their eyes and say, “Yeah, I’ve seen it. It doesn’t work”!

Well, I am here to dispel the myths, try and answer all your questions, and tell you that this IS a better mouse trap!

First of all, this is not a new technology. The earliest known patent for air supported belt conveyors was filed by Frederick G. Corning in 1892. The patent describes an ore concentrating devise consisting of a belt on a flat perforated bed plate. In 1904, James Dodge filed a patent for a perforated bed with holes drilled on a forward incline. Air blasts not only lifted the belt and load, but also propelled it forward.

It was not until the 1960’s that the air supported belt conveyor came into it’s own. Dr. Jonkers, a Dutch physicist at the University of Twente, researched lifting a belt and load in a trough and developed formulas to calculate a troughed belt conveyor in which low volume, low pressure air is introduced into a chamber **and** through a single line of holes located



along the centerline of the trough, the belt and load are lifted. Dr. Jonkers’ principles of design are still used by all air supported belt conveyor manufacturers today. Patents were filed both in the Netherlands and the U.S. A company called Sluis-Kodra was formed to market and manufacture the then, “Aerobelt” in Europe.



The air supported belt conveyor was introduced to North America in the mid 1970's. Unfortunately, the company who was licensed by Sluis-Kodra to market these conveyors in the U.S. did not employ conveyor design engineers. Many of the basic principles of conveyor design were neglected and several of the early air supported belt conveyors had problems.

As you **may or may not** know, the bible for conveyor design is the CEMA publication Belt Conveyors for Bulk Materials. This publication is continually upgraded by leading belt conveyor executives and engineers of CEMA's member companies. Although there is no mention of air supported belt conveyors presently, the next edition, due out sometime late this year, will include a section on air supported belt conveyors that will try to standardize on basic design principles.

The problems in the early air supported belt conveyors were mainly caused by design flaws such as:

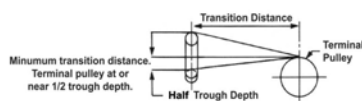


Table 5-3.A - Half trough recommended minimum transition distances.

Idle Angle	%Rated Tension	Fabric Belts	Steel Cable Belts
20°	Over 90	0.5b	2.0b
	60 to 90	0.8b	1.6b
	Less than 60	0.6b	1.0b
35°	Over 90	1.6b	3.4b
	60 to 90	1.3b	2.6b
	Less than 60	1.0b	1.8b
45°	Over 90	2.0b	4.0b
	60 to 90	1.6b	3.2b
	Less than 60	1.3b	2.3b

b = Belt width (transition distance will be in the same units as those used for b)

A - Improper transition distance design.

The transition distance is the distance from the last troughing idler to the centerline of the terminal pulley. If this distance is too short, the belt edges are stretched as tension is transferred to the outer edges. If this edge stress exceeds the elastic limit of the belt carcass, it causes belt mistraining. On the other hand, if the transition distance is too long, load spills occur.

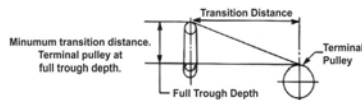


Table 5-3.B - Full trough recommended minimum transition distances.

Idle Angle	%Rated Tension	Fabric Belts	Steel Cable Belts
20°	60 to 90	1.6b	3.2b
	Less than 60	1.2b	2.8b
35°	Over 90	3.2b	6.8b
	60 to 90	2.4b	5.2b
	Less than 60	1.8b	3.6b
45°	Over 90	4.0b	8.0b
	60 to 90	3.2b	6.4b
	Less than 60	2.4b	4.4b

b = Belt width (transition distance will be in the same units as those used for b)

There are two ways to calculate the transition distance. Tables 5-3A and B are taken from the aforementioned CEMA manual. These charts show recommended minimum transition distances for half trough and full trough design.

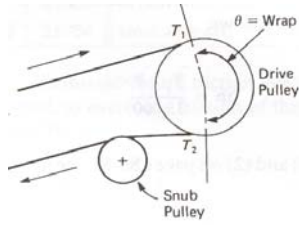


Figure 6.4 Inclined or horizontal conveyor, pulley driving belt.

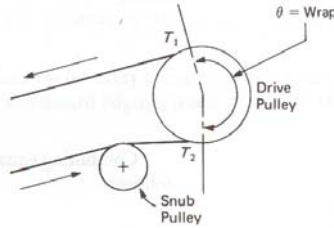


Figure 6.5 Declined conveyor. Lowering load with regeneration, belt driving pulley.

B – Lack of calculating pulley friction, skirtboard rubber friction, material friction on skirtboards, belt cleaner friction and the shear friction of material on material under a plugged condition. This caused drives to be undersized.

C - Improper belt wrap around the drive pulley to provide enough friction to keep the belt from slipping.

D - Not loading the belt centrally and designing proper chute angles to guide the flow of product into the direction of belt travel.

E - Not calculating proper belt material edge distances. Belts were either over or under loaded.

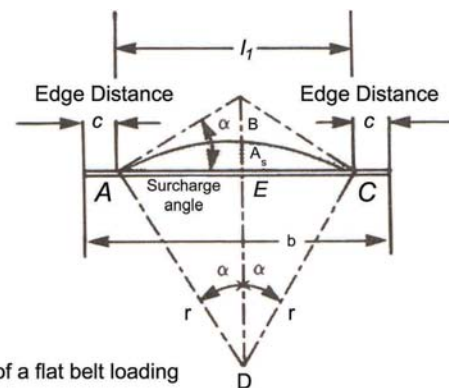


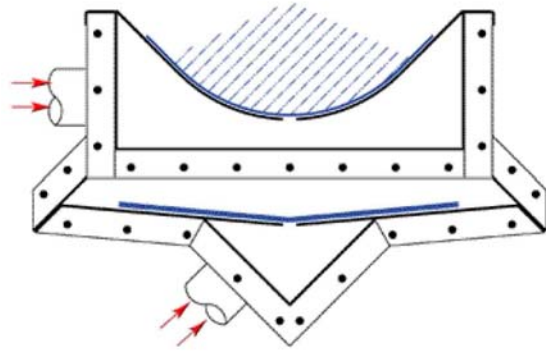
Diagram of a flat belt loading

F - Not calculating proper starting requirements under a loaded condition. As dictated by CEMA, the “locked rotor torque of the conveyor drive motor should exceed the sum of the torque required for twice friction over the idlers plus lift”.

G - There were even problems with air pressure requirements. Early formulas did not compensate for fan losses incurred for plenum length, dirty intake filters, duct length and the number of elbows between fan and plenum, **and** losses between fan intake silencer and inlet damper.

Unfortunately, some of the present air supported belt conveyor suppliers still have not corrected some of these items.

The principle of air supported belt conveyors is quite simple. Low volume, low pressure air is introduced into a chamber or plenum which runs for the entire length of the conveyor. The upper portion of the chamber is formed into a U or catenary shaped trough. Through a series of holes along the centerline of the trough, air is forced between the trough plate and belt which forms a thin film of air that lifts or floats the belt and load.



**Cross Section of a HoverGlide
Air Supported Belt Conveyor
with an Air Return**

A conveyor belt conforms naturally to a catenary curve as opposed to the sharp angles of conventional 35° or 45° troughing idlers. On air supported belt conveyors, the catenary shaped trough forms a material cross section equal to, or exceeding the cross section of a 35° or 45° troughing idler. The catenary curve also helps **increase** belt life because all idler pinch points are eliminated.

Depending on the width and handling capacity of the conveyor, air volumes may vary from 3-10 CFM per linear foot and pressures **may** range from 3-35 inches of water gauge. **However**, most air supported belt conveyors use pressures less than 1 PSI or 27.7" WG. Let's put this in perspective...A 100 foot conveyor, using 5 CFM / linear foot calculates to 500 CFM for the entire conveyor. Most exhaust fans over a kitchen stove require anywhere from 500-1000 CFM. Comparatively speaking, it takes no more air to run a air supported belt conveyor than it does to run a typical kitchen exhaust fan. Because this is NOT compressed air, the air is provided by fans which are off the shelf items from various fan manufacturers.

The air blown into the plenum is forced between the plenum bed plate and belt and escapes along the belt edges. This provides positive pressure at the belt edges which prevents material from being lodged between the belt and plenum bed. Air supported belt conveyors are generally furnished with a pressure switch interlocked with the conveyor drive motor. As the conveyor is activated, the fan is started first. When the correct pressure is reached, the pressure switch signals the conveyor drive to start. If, by chance, the fan is deactivated and pressure is lost, the conveyor **stops and** the belt settles down on the plenum bed and **blocks** the air holes from material contamination.

As with conventional conveyors, to properly calculate conveyor belt width, horsepower and air requirements, one must have the following basic information:

- material handled
- material lump size
- material density in LBS/CU FT
- material angle of repose
- material angle of surcharge on belt
- material moisture content
- material temperature
- ambient operating temperature
- elevation of plant
- handling capacity in TPH
- conveyor length
- conveyor lift
- preferred belt speed

There are many problems that can arise when operating a conventional idler supported belt conveyor and, I am sure, some of you in the audience can relate to them:



A- Spills at the load end. This is usually due to improper skirtboard rubber adjustment, belt sag between idlers or overloading.

B- Roll back due to improper conveyor incline, short transition distance from pulley to first idler and/or improper loading chute angles.

C- Dust generations and spills along the conveyor due to wave action of the belt going over the idlers.

D- Spills onto the return belt and carry back to tail/loading zone.

These conditions are vastly improved on an air supported belt conveyor.





1. **The belt is solidly supported** for the entire length of the conveyor. Wave action is eliminated, thus dust generations and spills along the conveyor and the return side are eliminated.

2. **The carrying side of the conveyor is covered with dust tight, water tight, gasketed hip roof covers.** It is impossible for material to fall from the troughing side to the return side.

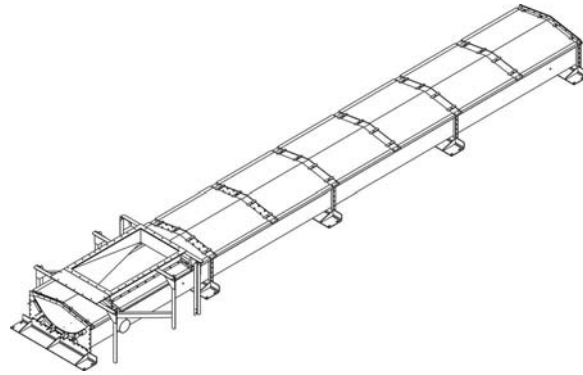


3. **A specially designed inlet loading section** and belt loader assures the material is centered on the belt and diverted into the direction of the belt travel.

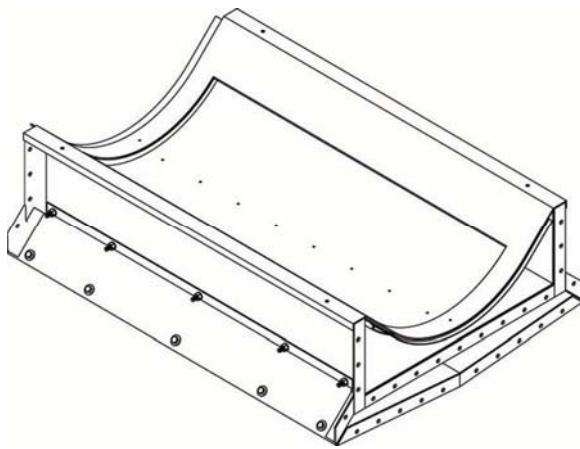
4. **Because the material is diverted** into the direction of belt travel, material roll back is minimized. The fact that material is transferred onto a solid section also helps prevent material roll back.

No special impact consideration is necessary for minus 2" size product on air supported belt conveyors.

This shows an air supported belt conveyor 60" wide handling 2500 MTPH of minus 2" petroleum coke. After about a year in operation, there is **no sign** of wear at the impact area. The original paint is still intact.



However, special consideration **should be given** at the impact area for larger lump sizes.



This is a section of a conveyor handling minus 4" bauxite with lumps up to 8". The material drop is about 7'-0". To absorb the impact, a one inch thick urethane pad is cast into the plenum section. The top of the impact pad has the same profile as the bed plate of the plenum. Air holes are cast into the impact pad, which enable the belt and load to continue to float.

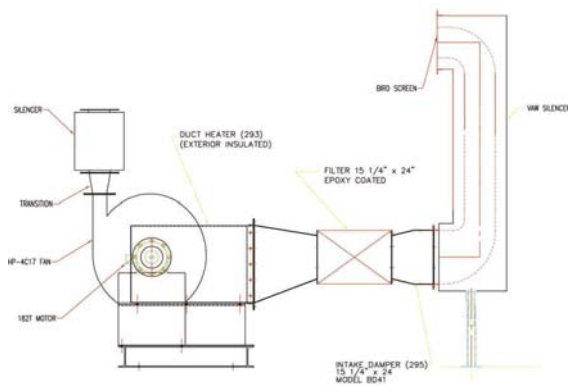
Concave vertical curves may also be incorporated into the air supported belt conveyor design when reclaiming from rail hoppers, silos or piles. The radius is calculated the same way as a conventional idler type conveyor. The object is **not** to lift the belt during starting or acceleration. Therefore a "**soft**" start, either through a fluid coupling or variable frequency drive, is usually recommended to minimize the starting tensions. It is also good practice to incorporate some type of torque limiting device for motor horse powers 75 and up.





Multiple inlets are not a problem. Again, the important factor is the **design of the belt loader**. Each loader should be designed to absorb the majority of the impact and direct the product flow into the direction of belt travel.

We are often asked about **extreme cold weather operation**. The specifications for a new aluminum smelter in northern Quebec, Canada called for operation of the conveyors at -30°C . The project consisted of a 24" and a 36" conveyor, each to handle petroleum coke, and (6) 48" conveyors of various lengths to handle alumina. All conveyors have totally enclosed air supported troughing and return sides.



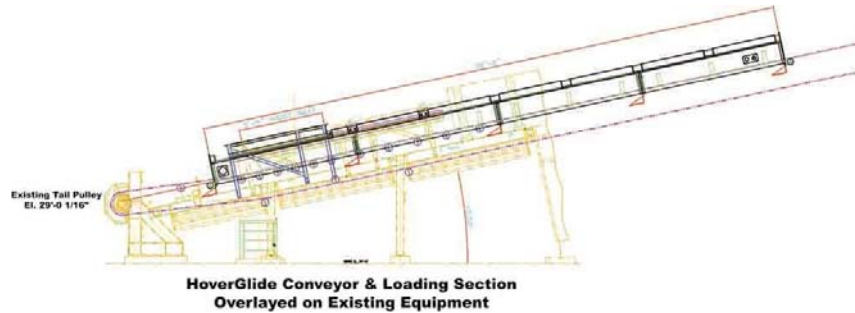
Duct heaters were incorporated into all fan arrangements, two speed motors were included on the drives and a temperature switch in the tail section of each conveyor was installed.

- At minus 5°C , the fans are activated and kept running
- With the fan still on, and at minus 10°C , the conveyor would be started at half speed
- At minus 15°C , the duct heaters would be activated

All three of these functions were controlled by the temperature switch.

After about four years of operation, only the fans and creep drives have been used. The duct heaters were deactivated after several weeks operation and were found to be unnecessary even in -30°C temperatures.

Recently, a popular option in lieu of an entire new conveyor, is to **convert the troughing side** of an existing idler type conveyor to an air supported conveyor, sometimes just the first 40 feet at the loading point.



This is an extremely cost effective way to eliminate spills and dust generations. The existing belt, pulleys, bearings, drives, take-ups and support steel of the existing conveyor are used, only the troughing idlers are removed and replaced with air supported upper plenum sections. If the entire conveyor is retrofitted, the capacity of the conveyor may be increased by 10-15% by replacing the troughing idlers with plenums **without** changing belt speed or drive. A conversion of the first 40 feet at the load point turns the loading section into a “dustless” transfer.

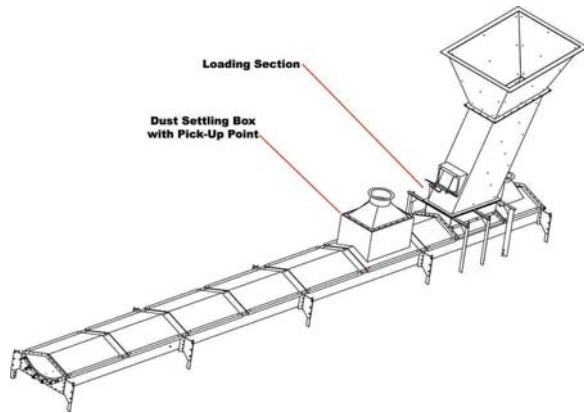
This brings up a good point...Is dust collection necessary? If air is injected into a stream, it must go some where. There are basically three (3) areas on a conveyor where dust is generated:



The first is at the load point where material drops a certain distance onto the belt.

The second is in between the load point and discharge where dust is generated by the wave action of the belt and load going over the idlers. Most conventional conveyors are designed with a 2% sag between the troughing idlers. As the belt travels from the low point between idlers to the high point, material is thrown upwards. When the material comes down, it creates dust.





The third point where dust is created is at the discharge when material impacts on the front or diverter plate.

On an air supported belt conveyor, the “idler” dust source is eliminated. The smooth shape of the trough eliminates disturbances of the load that would occur as the belt passes over the idlers. The elimination of this wave action is a distinct advantage to operators transporting fragile materials. Even when handling rugged materials such as crushed rock, ores or sand, the smooth motion reduces the disturbance of the load, minimizing the tendency of fines to settle at the bottom of the load. By reducing the concentration of fines in contact with the belt there’s little chance of carry over and consequently the work load on the belt cleaning system is lighter. This leaves only the load end and discharge to contend with. Although an air supported belt conveyor does not need covers to operate, most are provided with hip roof covers.

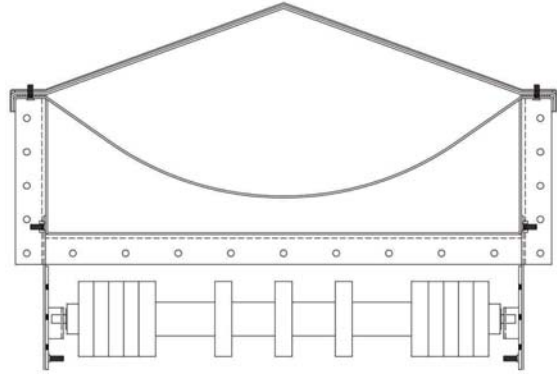
Therefore, if the load point is totally enclosed with gasketed covers, even around the belt loader and skirtboards, the dust and, as an added benefit, spills are contained.

Dust collection is really a misnomer. It is usually not good practice to collect dust since it is considered a loss in product. It is better to control dust and collect as little as possible. We generally recommend a “dust settling box”, placed approximately 3-4 feet in front of the loading zone of our air supported belt conveyors. As dust is generated by material falling onto the belt, the dust swirls up into this dust settling box where the heavier particles have a chance to settle back down, very much like a cyclone. A small dust pick-up point may be added to the top of this settling box to take off the fine dust.

Previously I mentioned that very little air is required to lift the belt and load and that this air, which is forced between the plenum plate and belt, escapes to both sides of the belt along it’s entire length.

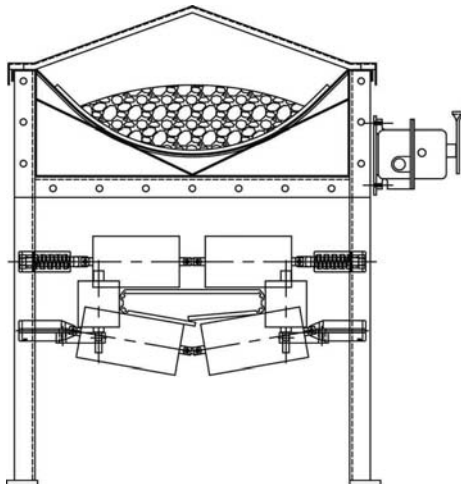
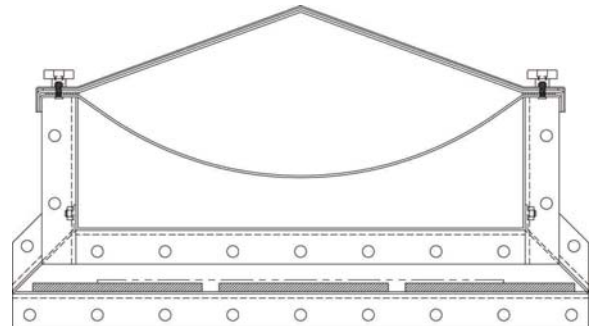
For the sake of argument, take a conveyor 100 feet in length, handling 750 TPH of material, with a required air volume of 500 CFM. Together with the load being handled at a belt speed of say, 500 FPM, the total CFM at the discharge calculates to be about 700. Since dust **is not** created within the conveyor, **this is clean air**. In most cases, all that is needed at the discharge is a vent to dissipate this air.

The air supported belt conveyor is generally offered with a choice of returns. The most economical choice is return idlers spaced on 8-10 foot centers, very much like a conventional conveyor.



Although it is economical, each return idler – especially the first several behind a discharge – act as belt cleaners and piles of carried back material is stockpiled beneath each idler.

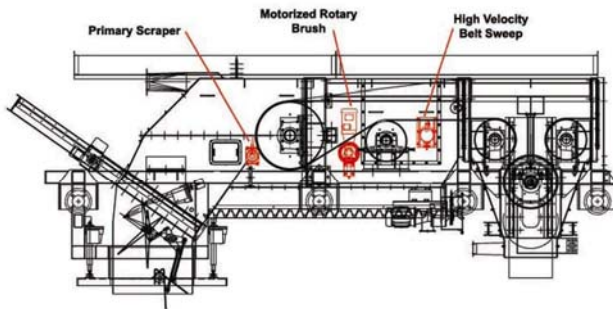
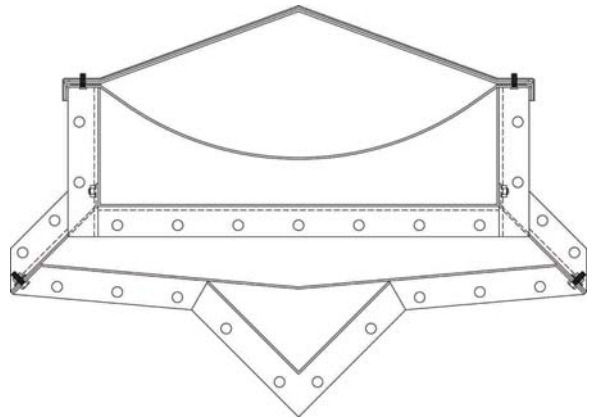
Another choice is a totally enclosed slider return. **With proper belt cleaning**, this works fairly well but due to increased friction, requires more horsepower on longer conveyors. **Also**, belt top cover wear can be an issue.



Recently an air supported belt conveyor was combined with an “Multifold” belt. The material handled contained all sorts of debris including oils and solvents that could not be removed with conventional belt cleaners. The conveyor crossed a roadway and several buildings. The client chose a combination of a totally enclosed air supported troughing side and “Multifold” belt return side.

The “Multifold” belt is unfolded on the carrying side. At the discharge and prior to entering the return side, the belt folds back on itself. This eliminates dribble of any material carried back.

A fourth choice is the air supported return. This works on the same principle as the troughing side. The considerations for an air supported return should be the **material specifications**, especially it's moisture content and stickiness to the belt.



An air return is usually no problem with dry materials as long as proper belt cleaning is considered. For some materials, as many as five belt cleaners are incorporated and may consist of a primary & secondary cleaners, tertiary air knife, a high velocity belt sweep as the fourth cleaner and a rubber belt wiper on both top and bottom of the belt before it enters the return plenum.

Now,... **what** about some of the safety issues? Air Supported Belt Conveyors can be supplied with heat detection cables running the full length of the conveyor. The troughing section can also be furnished with a sprinkler system. Explosion relief panels may also be incorporated.



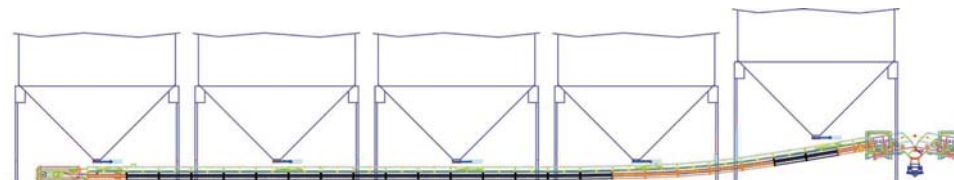
There is probably few other material with the same explosive potential as grain dust. Hot spots regularly occur in grain piles and silos, very similar to those conditions in coal stockpiles.

For many years, numerous air supported belt conveyors have successfully operated in the grain industry:



* in reclaim tunnels,

*beneath rail
hoppers,
and...



*withdrawing from
silos and
enclosed areas.

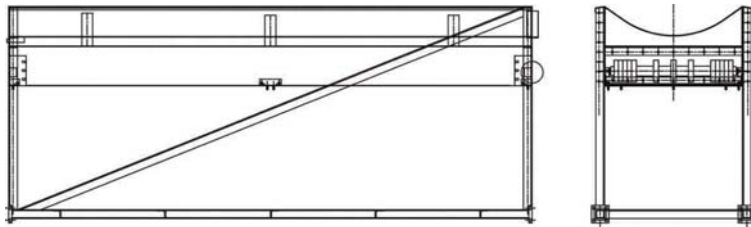
To my knowledge, not one air supported belt conveyor in the grain industry has ever been the cause of a fire or explosion. Since most moving parts of the conveyor have been eliminated, the air supported belt conveyor has been accepted in the grain industry as a much safer form of bulk material transportation.

Besides maintenance and safety issues and features, cost is a major item to consider. How much more is a totally enclosed air supported belt conveyor than a conventional idler type? The cost of pulleys, bearings, drives, and belting are approximately the same for both types of conveyors.

But since the air supported belt conveyor is a solid pan for the entire length of the conveyor and generally covered, the cost per foot is a little more than an idler type. **However**, when considering the supports and installation of air supported belt conveyors, that additional cost can easily be justified.

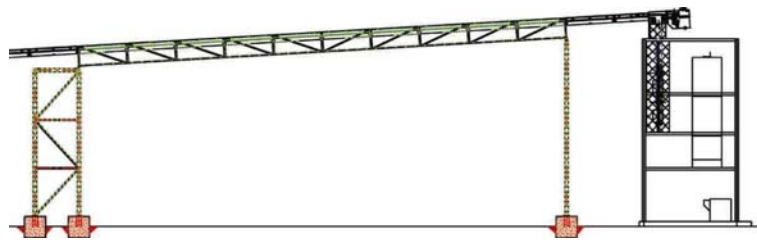


For instance, the plenum is a tubular box member and has inherent strength and, depending on the width of the conveyor and material handling rate, it is able to span 20-40 feet unsupported. Some clients have opted not to have a walkway beside the conveyor is not really required since there are no moving parts between the head and discharge. The elimination of the walkway can be a considerable savings to a project.



Since the plenum is a box and fabricated in 10 foot lengths, light tubular sections can be extended from the plenum to form a 10 foot section of a truss.

These 10 foot truss sections can be field bolted to form a span of 100 feet or more. Longer spans are possible with open galleries.



Since the conveyor is fabricated in modules, these modules may be field assembled into 40-60 foot lengths at grade level and then lifted into place, thus saving installation time.

The reduction of maintenance, increased belt life, reduction in power consumption and reduction in dust generations and spills can be translated into savings very quickly.

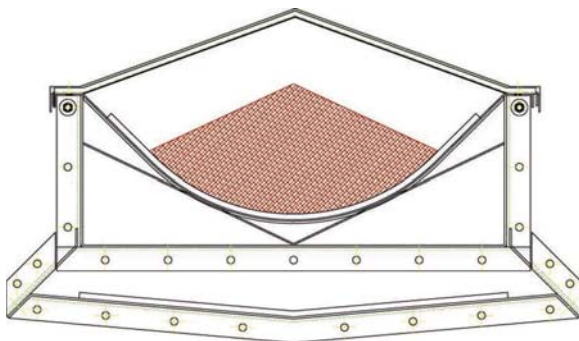
One of the greatest benefits of air supported belt conveyors is the elimination of all troughing idlers and the maintenance thereof. No more idler greasing, adjustment or replacement, no more idler inventory. The elimination of spills for the entire length of the conveyor can be converted into a savings in clean-up man power. Just the elimination of spills at the load point alone can save numerous man hours per year.



The reduction of dust generations along the entire conveyor can be converted into a savings in maintenance man power and product loss. No more vacuuming in the galleries **AND** dust collection can be either reduced, used for other purposes or even eliminated.

Eliminating the wave action over the belt idlers reduces internal stresses on the belt, **which in turn**, reduces power requirements and prolongs belt life. Horizontal air supported belt conveyors require considerably less power than conventional conveyors, especially in colder climates where idler roller friction increases in the winter. Due to the elimination of friction on air supported belt conveyors, the drives are smaller, pulley shafts and bearings are smaller and belts can be selected at a lower tension rating.

An increase in belt life is also enhanced by the smoothly curved shape of the trough removes the pinch points where the belt is forced to make the transition between angled rollers. For instance, there is an installation operating near Montreal, Canada of several 60" wide air supported belt conveyors where, for the past 18 years, not a **single** belt, bearing, pulley or drive has been changed.



The above items mostly reflect savings in maintenance man hours and elimination of parts and inventory. Air supported belt conveyors offer many **operational** benefits as well:

- Because there are no idlers to cause settling or compacting of product, **there is greater product stability** and a more homogeneous cross section is maintained.
- Because there is no product agitation or agitating action, **steeper conveyor incline angles** are possible.
- Because the belt rides on a cushion of air, **noise levels** are drastically reduced.
- Because the belt is self centering when loaded properly, **belt tracking** is improved. The belt tracking problems often encountered on reversing conveyors do not occur with air supported models. They have been found to track equally well in both directions, even on short conveyors.
- Because there are no moving parts between the discharge and tail terminals and the troughing side can be fully covered, **pull cord switches** along side the conveyor are no longer necessary. Without troughing idlers there are **no areas where injuries** to personnel may occur.
- Because the product is being handled more gently, **degradation** of the product is reduced.
- Because air supported belt conveyors can be totally enclosed and have no idler rolls, **belt speeds** may be increased. By increasing belt speed it may reduce the width of the conveyor **by one or two sizes or increase** the handling capacity for the same width conveyor.

Is this all too good to be true? Aren't there any draw backs to air supported belt conveyors? Why are there not more air supported belt conveyors operating in North America? After all, hundreds of conveyors have been operating in Europe, South Africa, Australia and New Zealand on all types of bulk materials.

One of the reasons air supported belt conveyors have not been readily accepted, especially in North America, is ineffective marketing. After it's initial introduction to North America in the 1970's, various companies and individuals with no working knowledge of bulk materials handling, have tried to market these conveyors with limited success. As previously mentioned, there were various problems with the first installed air supported belt conveyors, not so much with air volumes, but with the application and lack of **good, conveyor design**.



Another reason is the slow acceptance of ANY new innovation into the bulk materials handling industry. No one wants to be first. One of the first questions asked is “Are there any of your air supported belt conveyors working in our industry handling our product? What types materials can they convey?” We counter by asking if coal can be handled on a conventional idler conveyor. Can cement?, wood chips?, phosphate?, sand and gravel?, grain?, potatoes?, carrots? Of course they can, and, they can be handled on an air supported belt conveyor as well. Depending on the material, the **loading angles** may change, **discharges** may vary, but that is so on idler conveyors as well.

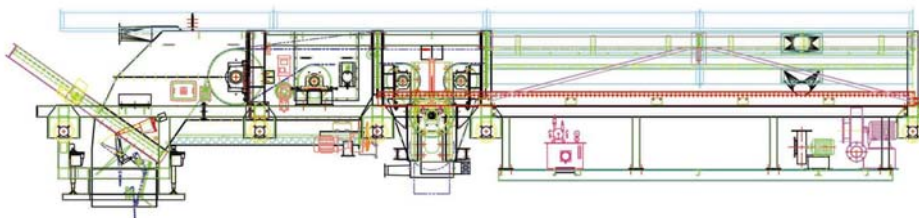
The main difference between an idler conveyor and an air supported belt conveyor is the means of supporting the belt, one on idlers and one on a film of air. The cross sections of both conveyors are similar in profile. Any material, and I mean any material, that can be handled on conventional belt conveyors, can be handled on air supported belt conveyors... only more efficiently.

There are two conveyor configurations which are challenges with air supported belt conveyors. One is a convex curve, where the conveyor goes from an incline to a horizontal. Generally, convex curves are designed with minimum radii. Because of the tension created at the curve, closely spaced idlers are installed. Due to the higher tensions and the small radius, plenum sections in this position are not recommended. We recommend a totally enclosed, low profile fixed tripper.

The other is a traveling tripper. Because of the uncovered section between the area where the belt lifts at the tail section of the tripper to where the belt is returned to the trough, too much air is lost to the atmosphere. However, we believe that this can be solved. The design for a traveling tripper, working together with an air supported belt conveyor, will be completed this year.

Other than those two examples, there are practically **no** limitations to handling **any type** of dry material with air supported belt conveyors, in **any type** of configuration.

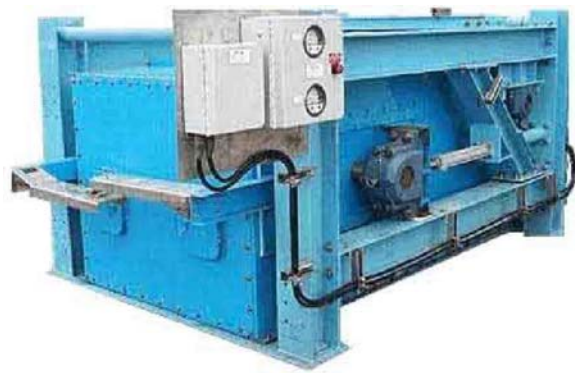
Let me show you examples of some very unique and difficult applications of totally enclosed, air supported belt conveyors **with** air returns.



This is the discharge side of a 285 foot long air supported, **reversing** shuttle conveyor loading 25,000 ton silos.

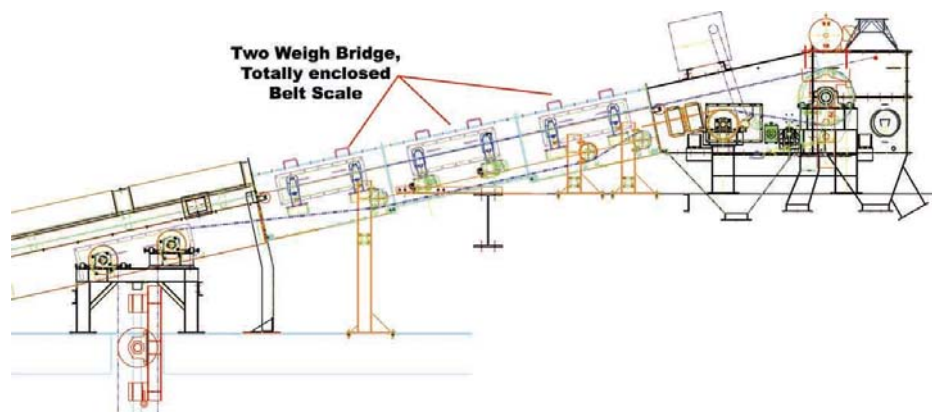
This shuttle is unique for it incorporates a 40 HP motorized drive pulley, as well as, a **patented** Hydraulic Take-up and Belt Alignment System.

This alignment system actually senses the movement of the belt on the pulley and automatically adjusts for any misalignment.

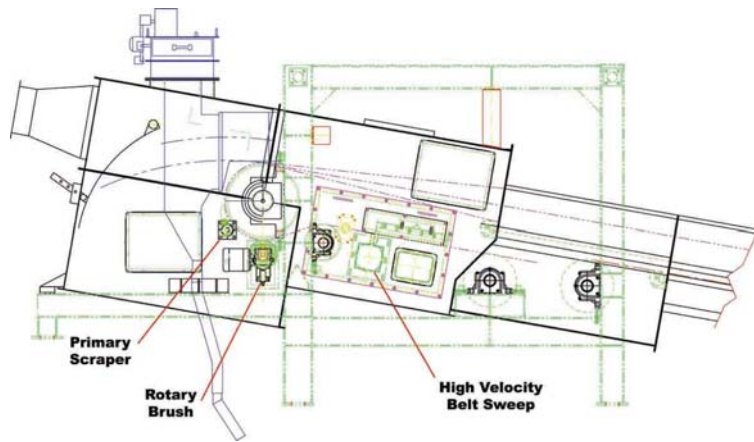


Here is a 126 foot long ship loading boom conveyor incorporating the same motorized drive pulley and Hydraulic Take-up System. This conveyor has a 180° slewing action and telescopes out over 100 feet.

Belt scales can be incorporated as well. This is a petroleum coke conveyor with a two weigh bridge, totally enclosed belt scale system.

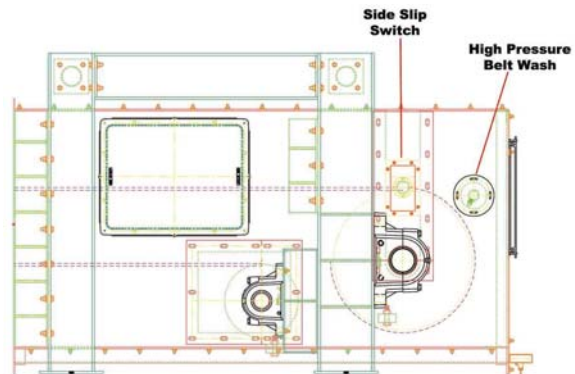


Proper belt cleaning has often been a problem. To properly clean the belt might require more than one or two belt scrapers, especially when the conveyor is furnished with an air supported return.



This is a discharge designed for a facility handling multiple products. Cross contamination of the products was not acceptable. The discharge incorporates a primary scraper, motorized rotary brush, a specially developed high velocity belt sweep which vacuums the dirty side of the belt and, before entering the air supported return there are two opposing rubber wipers.

A high pressure belt washing system was also installed in the totally enclosed tail section.



There are other features that may be added into the conveyor design such as side travel switches, in the discharge and tail, to detect mistraining of the belt. Regardless, a motion sensor or speed switch to detect belt slippage should be incorporated in any type conveyor purchased.



A magnetic separator may be installed either at the discharge or along the conveyor. If it is along the conveyor, the plenum section over which it is installed should be fabricated of stainless steel.

Here is a 60" wide conveyor acting as a belt feeder, metering the withdrawal of material directly from a 110 foot long rail hopper



that empties two railcars simultaneously. Material is dropped directly onto the conveyor, metered by baffles on the lower section of the hopper.



There are no limitations to conveyor lengths. Conveyors 1000 feet or longer are operating successfully all over the world. Depending on the plenum cross section, one fan is needed for every 600-1000 feet.

What these pictures and drawings indicate is that air supported belt conveyors **can be designed** and furnished with all the “bells and whistles” and safety features, presently incorporated into conventional conveyor systems.

So, what should you look for when considering an air supported belt conveyor? Not all manufacturers calculate or fabricate with the same level of competence or quality. A rose is not a rose, is not a rose when selecting a materials handling company. Do your homework.

1. Select a reputable company. Don't necessarily look at how long a company has been in business, but how **long** have they been associated with, and/or manufacturing air supported belt conveyors. A recent survey by my firm indicated that there are basically five companies in North America involved in the air supported belt conveyor business. Only two have 20 or more years experience in the calculations of air requirements and conveyor design and one of these two companies caters solely to the grain/feed/milling industries, not to the industrial market. The other three companies have been in the air supported belt conveyor business from several of months to 4 years.

2. Make sure that the company you select has experienced engineers with a background in conveyor design and bulk materials handling in general.
3. Request an installation list with names and telephone numbers and **call** these references. Does the installation list only indicate retrofits or, also complete conveyors and/or conveyor systems?
4. Air supported belt conveyor construction differs from manufacturer to manufacturer. Some have V cross sections and some box cross sections. Some use light gauge material for fabrication. Some fabricate utilizing stitch welding and some weld all joints continuously. Some use butt connections between plenums and some use male/female interlocking connections between plenums. Some are painted without priming. Some use powder coating.
5. We believe one of the most important, if not **the** most important way to select an air supported belt conveyor manufacturer is to develop bid specifications for your requirements. Spell out your paint requirements, gauges of construction, welding requirements. Spell out your requirements for transition distances, loading angles, belt edge distances and starting requirements. It is the only way to compare apples with apples.
6. Go visit air supported belt conveyor installations and talk with the operators and maintenance personnel. There is nothing like “kicking tires”.

I trust I have cleared up most of the “myths” about air supported belt conveyors, answered many of your questions and provided you with a little more working knowledge of air supported belt conveyors and their advantages.

The last several years have been difficult, especially after 9/11. It almost brought to a halt any industry spending. Although the economic outlook is “cautiously optimistic”, as economists and politicians like to call it, companies are, and will be emphasizing ways to reduce man power, parts inventory and cleaning up the working environment. Belt conveyors are an integral part of any plant handling materials in bulk. A totally enclosed, air supported belt conveyor will achieve all of these objectives. Reduction of parts, reduction in maintenance, environmentally friendly, increased equipment life, **all translate** into reduction of costs.

Just a little background, I have 38 years of conveyor design and bulk materials handling experience and I have been associated with air supported belt conveyors since 1978.

Also, please remember that the old saying about “you get what you pay for” is true.

Air supported belt conveyors are not expensive, they are priceless.