

BEST PRACTICES IN PNEUMATIC CONVEYING



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ARTICLE TAKEAWAY:

- Simplify pneumatic convey pipe line routing

An engineering friend of mine once told me that the only way to make sure concrete will never crack is to never pour it. He also told me that if I never want to maintain a door, don't put one in.

These seem like common and even sometimes humorous considerations but in all actuality, they are teaching us lessons in what engineering, planning and design work is all about. If you don't need to do something, then don't do it. This concept is very basic yes, but it is often lost in the deluge of daily work.

One of the many basic principals in sand conveyance is that with lengthened product convey distance often comes an increase in product speed. In a never ending attempt to get more sand to go further, it is often thought easy to merely turn up the pressure and allow the compressed air to do all the work. But what work is actually being done by turning up the pressure and flow in a pneumatic convey pipe line? Many times, the work done by this

increase in compressed air translates to wear in the convey pipe bends and degradation of the material being conveyed. Not quite the work one was hoping for and work that is not immediately identifiable, thus no further correction is initially deemed necessary until the unforeseen issues come to light.

Another basic principal to consider is pipe routing. Pipe routing often appears easier to the installer if the pipe is right up against the wall thus reducing the length of the supports needed and reducing the work the installer must provide to accomplish the task of hanging the pipe.

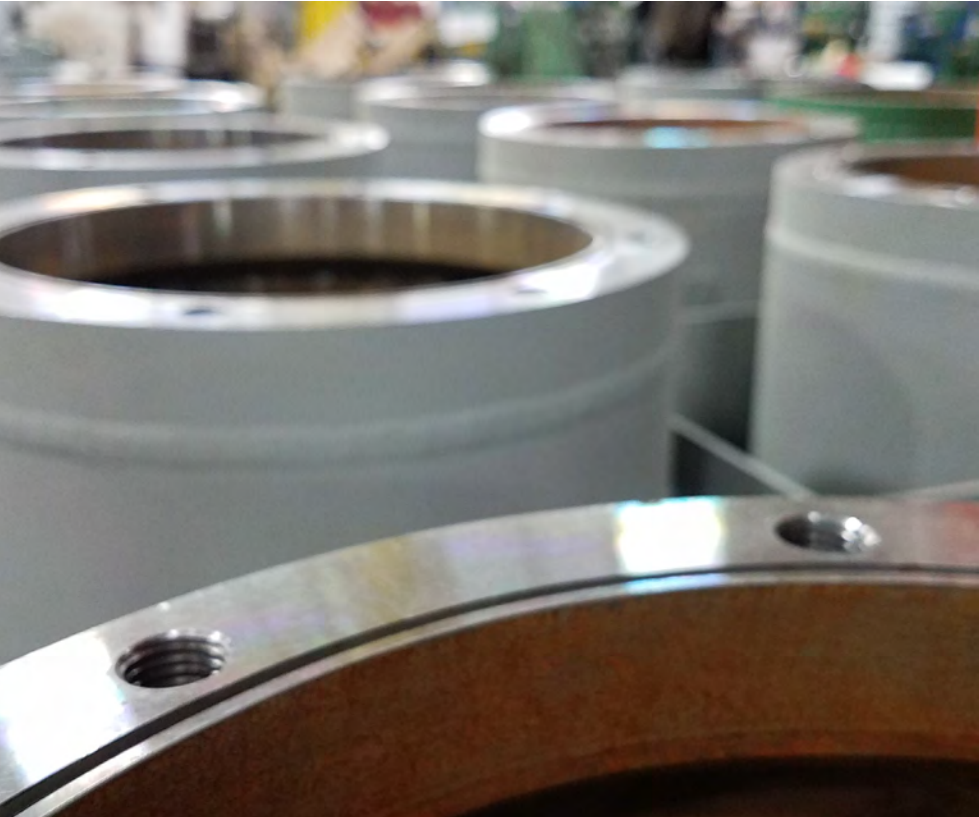
However, application of hanging the pipe right up against the wall time after time results in an additional pipe bend at the end of the pipe run

just before the convey line proceeds to the discharge fitting attached to the day tank.

For most companies that offer pipe installation services, adding an extra bend is considered of no consequence when these companies install piping for liquids or air as there may be no noticeable difference in the completed system operation with the extra fitting in place. However, moving sand is a bit different and that extra bend at the end of a pipe run can reduce transport rates, increase pipe resistance and provide a point for the product to wear against the pipe when it is traveling at its fastest rate.

Also consider what extra pipe bends and accompanying wear must be doing to the conveyed product. It is not only the cost of the product but also the specifications the product must meet when supplied to the customer and presented to the customers process. It is expensive to find that those purchased characteristics have been changed by conveying the product in a more torturous method, be it caused by increased compressed air usage or a final convey line bend that could have been avoided.

In a new facility where there are no obstructions to work with, the sky is the limit when it comes to routing a convey pipe path. The basics of pneumatic transport pipe layout can be easily applied and followed. However, these basic principles are often lost in an older facility where a tangle of pipe, dust collection, and wiring makes the task of identifying a pipe path daunting.



Our experience shows us that to stray from the basic principal of pipe layout regularly causes issues over time. In these cases the issue is usually corrected at a higher cost some time after installation and commissioning.

Having years of combined experience and historical job references, we often review past installations and can remember numerous installations where at the time of design and installation it was decided by the customer that, based on current cost and schedule, instead of moving a piece of equipment or creating a better pipe route the addition of a pipe bend at the end of a new run would be in their opinion acceptable. The customer truly believes they can take care of any future

maintenance concerns without issue as maintenance cost is generally identified as overhead already calculated into operation of their company. They in essence deem that last fitting to be a calculated consumable item and the customer feels that this will be acceptable.

None of this thinking is completely wrong. Many customers are willing to accept this calculated consumable fitting because for them at the time the initial cost is an acceptable “means to an ends.” Our historical experience finds us back at that same customer’s facility a few years later when replacement of that same customer designated consumable fitting is no longer an acceptable practice for the company. At this point, the customer is faced with rerouting a

convey pipe run, moving machinery or purchasing a special fitting. To relocate the convey line could have easily been accomplished during initial installation often for less total cost and a resultant increase in convey rate.

This goal of this article of course is not to chastise a customer’s decision as the customer knows best how their individual company needs to run. In turn, this article is a reminder that sometimes not adding that last fitting in an attempt to “just get it done” is a complication to a project that only needs another pass of observation where defining questions are asked as we go back to the basics for simple solutions that work.



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