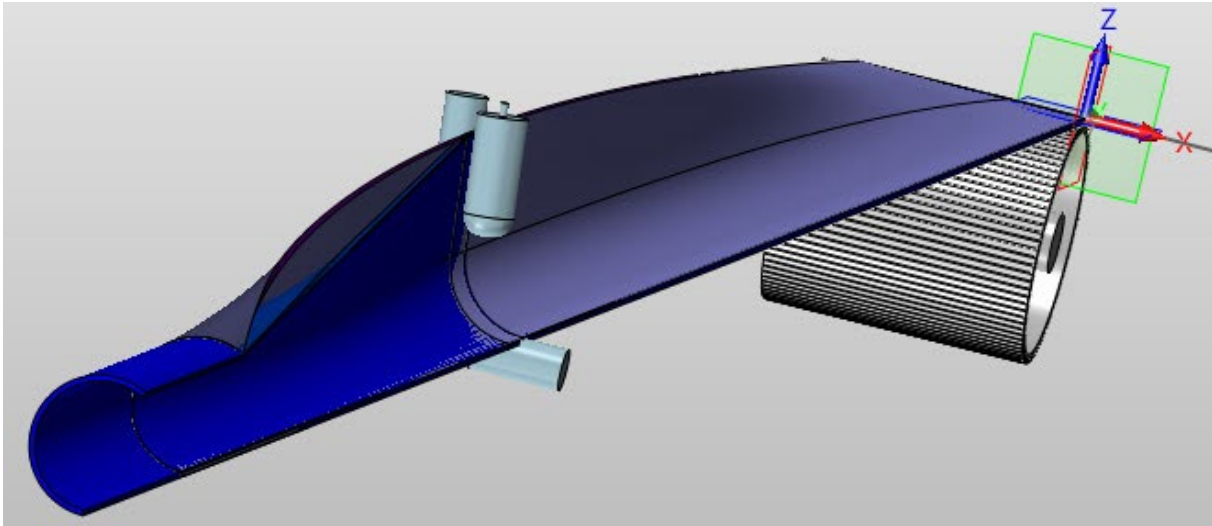


Belt Pipe Conveyors – Reliability & performance



This type of conveyor is not widespread, although it has existed for several decades. Probably its purchasing, operating and maintenance costs are an obstacle to its development; it is these elements of appreciation that characterize the value of the benefits of this technology.

As an example, I compared a tubular model to a conventional model for the same handling conditions, on a few elements:

Conveyor Description	Tubular or pipe	Conventional
Belt width	1400 mm	1000 mm
Profile	Tube Ø 400 mm	Auge 45°, 3 secteurs
Filling coefficient	80 % du Ø	85 % de l'ISO 5048
Material density	1.0	1.0
Material sloping angle	0°	20°
Belt speed	4.10 m/s	2.90 m/s
Output	1 170 t/h	1 170 t/h

To this, it is necessary to take into account the total roller mass to be used and other very important constraints that are found on the tubular model, such as the treading of the belt on the rollers, especially in curves. These constraints considerably increase the power absorbed; that is to say the direct cost of operation.

This article is not intended to denigrate the interest of pipe conveyors, but to clearly define the initial investment level so that the additional operating and maintenance costs remain at a reasonable level to justify the advantages of this technology.

In support of this point, my latest expertise, on a 560 m center-to-center pipe conveyor, a 15 m elevation, with 3 combined curves of 120 m radius, shows that to present the customer with a "reasonable" purchase price, a few dead ends were made on the design of the conveyor. These have resulted in a considerable increase in operating and maintenance costs, characterized by:

- an absorbed power much higher than the calculated value;

- a reduced longevity
 - of splices,
 - of the belt
 - of the rollers.

In this case, the challenge for our engineering was to make substantial modifications to adapt to the existing conveyor, in order to find reasonable operating and maintenance conditions.

By dealing with this expertise file, I noticed that there was a lack of documentation and standards on this type of machine and that certain technical criteria were the result of a transposition of rules established for common cases. In the same observation, the disorders confronting the operators remain discreet; which does not encourage progress.

You are the operator of a pipe conveyor and you are facing drifts in operating costs, maintenance, reliability and performance of your conveyor or any other disorders, then, I invite you to contact me; the idea, ultimately, is to publish a summary on this subject with recommendations, for the benefit of all.

Marc des Rieux / C3 Expert SAS / +33 623 960 209 / marc.desrieux@c3-expert.com