

Floveyor Operating Essentials

This document has been designed as a brief introduction to the essential working conditions that a Floveyor must be designed, installed, and operated under for new users of aero-mechanical conveyors.

The Floveyor should never be started or stopped under load:

By starting or stopping the Floveyor with product remaining in the internals, you will greatly shorten the operating life of the rope assembly, leading to premature failure & breakdowns.

- *The Floveyor should be turned on approximately 10seconds prior to the introduction of product into the system.*
- *For the correct shutdown sequence of the Floveyor, the supply of product should be stopped and the Floveyor allowed to continue operating until all product has left the system. It is advisable to allow 15-20seconds for the Floveyor to completely empty.*
- *A rotary valve, slide gate, pneumatic baffle, or screwfeeder can be added to the infeed equipment in order to control the feed of materials and allow for the correct shutdown procedures.*

Discharge chute / receiving hopper should be adequately designed to cater for the capacities conveyed:

If the Discharge Chute is not designed or sized to cope with the max flow rate of conveyed product, the Floveyor has a high probability of backfilling and recirculating with product. Alternatively if the receiving vessel is not fitted with appropriate high level sensors or has a risk of overflowing, this also causes the Floveyor to recirculate product. If recirculation of product occurs, this will cause premature failure of the lower bearings, seals, & rope assembly, and potential damage to the machine.

- *Each material intended to be conveyed should be considered for the minimum angle of repose required on the discharge chute, a minimum diameter of 180mm should also be allowed for.*
- *Floveyor usually recommends a minimum of 60deg angle and a 200mm (F3/F4) & 250mm (F5) diameter for the design of discharge chutes to adequately cope with material capacities to be conveyed.*
- *Incorrect selection of high level sensors, or incorrect placement of high level sensors, can additionally cause the Floveyor to recirculate product..The high level sensor should trigger the cut off product supply, with a buffer level to allow for the remainder product in the Floveyor to empty without overflowing the receiving vessel.*
- *Often an incorrectly designed or sized discharge chute will backfill a Floveyor causing stalling or damage to a rope and then empty itself once product supply has been cut, making it difficult to diagnose without experience.*

Vacuum / Dust Extraction should not be applied directly to the Floveyor:

A Dust Extraction system can be utilised with a Floveyor under strict restrictions. The Floveyor displaces air at an equivalent volume to the volume of product conveyed: therefore the extraction requirement is extremely small and should only be applied to the discharge or in feed equipment. No vacuum should be applied to the Floveyor itself.

When a vacuum is applied to the Floveyor, the suction of air affects the dynamics of the conveyor and will lead to prematurely rope failure. Under normal operating circumstances the materials aerate during conveyance and essentially 'float' between the flights on the rope assembly. When a vacuum is applied to the system, the materials no longer 'float' between the flights, instead they are 'dragged' up the tubes on the lower disc, putting excess stress on the rope assemblies.

If in doubt talk to your aero-mechanical consultant for the most suitable implementation of a dust extraction system for your application.

Large foreign contaminants should not be allowed to enter the system:

One of the biggest causes of rope damage is foreign contaminants entering the Floveyor, this could consist of knives, spanners, nuts & bolts, excessively larger hard product lumps, bulk bags etc.

- *While a safety grid is generally integrated in the in-feed equipment, care must be taken by operators to not drop contaminants into the system.*

Tension should be monitored on regular maintenance intervals:

The most important time to be particularly careful with rope tension is when the rope assembly is new. The greatest stretch occurs when the rope is new and it is during this stage that slack rope is so often neglected.

- *It is strongly recommended that rope tension be checked and adjusted, if necessary, at frequent intervals during the first hours of operation - at least after the 1st hour of operation, again after another 4 hours of operation and again after a further 8 hours operation. Rope tension must be regularly checked thereafter.*
- *Rope "stretch" is more significant on a longer and/or heavily loaded Floveyor.*

The Floveyor is not designed to convey wet or high moisture content products:

It is important to note that moisture content of materials can have a dramatic affect on the handling of various products during conveying. Moisture content of the sample must be as per the product intending to be conveyed.

It is important to recognise those materials which absorb moisture from the atmosphere. These are of two types - hygroscopic materials, which become damp by absorption of moisture, and deliquescent ones, which can form themselves into a syrup with the moisture they absorb.

- *Hygroscopic materials virtually change their condition, for example Sulfuric Acid is a relatively dry, free flowing powder at 4% moisture content and is eminently suitable to be handled in a Floveyor, but will become a slimy sludge and impossible to handle satisfactorily when the moisture content is allowed to rise, to say, 10%.*
- *Deliquescent ones, however, can be troublesome if the syrup dries out to form hard crystals or lumps. Provision should be made in the installation to deal with the lumps by sieving or prevention of them occurring.*

This document is not to be substituted for a Technical Instruction Manual, nor covers all engineering essentials for the design of potential layouts & installations.

Please contact your Floveyor representative for further advice, documentation or clarification on any of the listed points.

Under the correct operating and maintenance conditions the Floveyor will be an extremely efficient, economic and durable conveyor.