

- **Start up - Stop:** the start up and stop cause very wide and short oscillations over the agitator shaft. It is a transitory that gets quickly stabilized quickly, but in the initial instant an over effort is produced by the rotary parts due to its inertia.

We recommend minimizing as much as possible starts up and stops.

- **Work with empty deposits:** the agitator is designed so that its turbine works as a 3rd point of shaft subjection. If the deposit is empty or the product level is under the turbine, this subjection point is lost and causes a slight unbalance in the rotary parts. This can provoke wide oscillations on the shaft end, so that the shaft is easily broken.

We have to avoid these working conditions for the agitator. We recommend installing a level sensor in order to stop the agitator before the liquid level stops covering the turbine.

- **Vortex effect:** depending on the dimensions of the deposit it is possible that at a given level, even over the turbine, a concentric whirlpool appears, thus leaving the turbine partially uncovered. In this case the turbine takes air and wide oscillations are produced. As soon as the deposit level changes this effect disappears, so that problem is short and transitory.

In case we foresee the working of the agitator without level variation (the injection pump will not be working) we recommend checking that the deposit level does not coincide with the level in which the vortex is produced.

- **Subjection system:** all agitators vibrate and in case of long shaft agitators vibrations are bigger. If the subjection system is rigid, such as a clamp agitator fixed to a metallic and rigid structure, the produced vibrations will be absorbed by the different parts of the agitator (shaft, motor) and eventually they will produce breakdowns in the motor and the worn away of materials. If the agitator is directly fixed to a plastic deposit, vibrations will be absorbed by the deposit itself. If deposits are made of polyethylene or polypropylene this will not cause any problem, but in case of more rigid plastics – such as fiber glass – possibly the deposit will not endure the vibrations and will eventually break.

In case of big vibrations we recommend the use of a subjection system able to absorb the vibrations. If between the flange / clamp and the agitator support we place an elastic material such as rubber, this element will absorb the vibrations reducing the worn away of the agitator components and thus enlarging its life.

NOTE # 1: We suggest not mixing at the same time we are injecting the product in order to avoid the introduction of solid particles in the injection pump, which could provoke its quick wearing.

NOTE # 2: We would like to remind that a product dissolved in water will not precipitate if there is not pressure / temperature changes, so that in most cases it is only necessary to mix in the moment of preparing the mixture. Once the dissolution is prepared it is not necessary to go on mixing. If there are particles that are not properly dissolved it is better that they remain in the top of the deposit so that they do not reach the dosing pump

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TECHNICAL DOCUMENT