Mixing of Products in Powder Form: “V”-Type Blender

The process of mixing two or more solid products, with or without the addition of liquids, can be performed in three different skids depending on their grain size and the manufacturing process. The final product is always a homogeneous mixture of its components.

I INOXPA solution: "V"-type blender

This system can mix products that have virtually the same density, within a short period of time. It allows loading 50% of its total capacity.

The skid consists of a blender body suspended between two supporting frames. The skid must be surrounded by a guard rail that incorporates a safety system which stops the blender if the rail is opened while the blender is in operation. An alternative system consists in placing the blender in a special room for this purpose.

I Manufacturing process

The product to be mixed is introduced into the blender. This can be accomplished in three different ways:
1. In the case of a suction loading system, the loading port lid is replaced by a bag filter and connected to a vacuum system. On occasions, this filter can be independent, located separate from the skid. The purpose of the filter is to prevent product powder or dust from entering the liquid ring vacuum pump. When the vacuum is applied, the powder is sucked through a pipe that transports it to the interior of the blender.
2. A gravity loading system consists of a retractable, sealed sleeve connection which is fitted on the butterfly valve. Before loading the product, the blender is turned 180º so that the loading system is located at the highest point. Next, the retractable sleeve is extended and attached to a hopper, an auger or any other conveying system. The butterfly valve opens and the product is loaded into the blender. Once the loading is complete, the valve closes and the sleeve is retracted.
3. Manual loading of the product. In contrast to the previous options, the manual loading option can generate airborne dust.

Once loading is complete, the blender begins to turn in order to mix the product. A system for spraying liquids during the process can be incorporated into the interior of the blender, if necessary. It consists of a series of static spray nozzles connected to a pump that transfers the pressurised liquid to the interior of the blender.

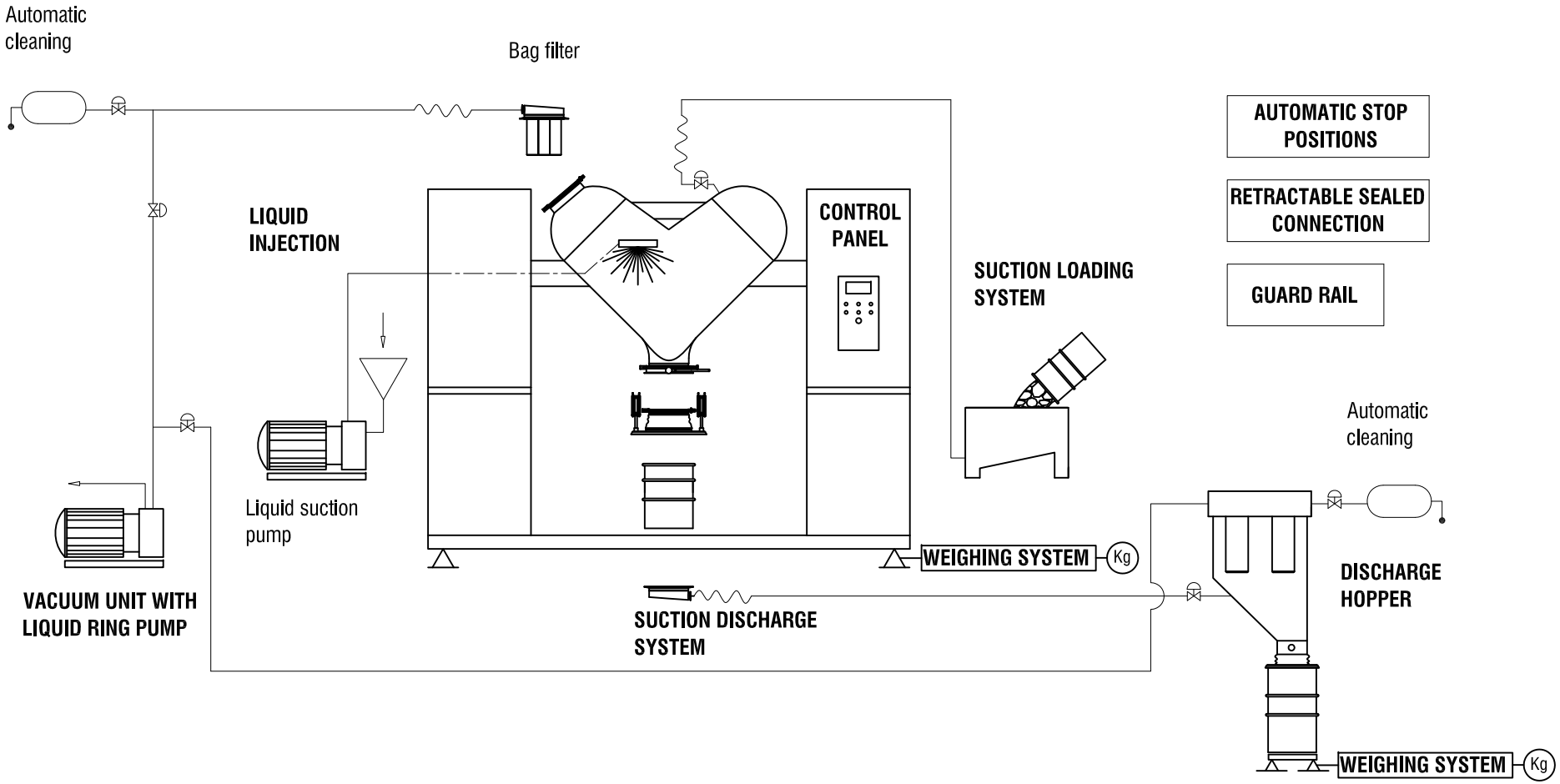
When the mixture is homogeneous, it is discharged using one of the following methods:

1. The suction discharge system is equipped with a small hopper located on the butterfly valve, an automatic bag filter with discharge hopper and a vacuum system. The discharge valve is connected to the hopper and this, in turn, is connected to the automatic bag filter with discharge hopper by means of a flexible connection. The filter bags are cleaned automatically at certain intervals by means of a counterflow system. In addition, the hopper incorporates a level monitoring system to discharge the product periodically.
2. Direct discharge into the package or container is possible using a retractable sealed connection on the butterfly valve.
Before discharging the product, the blender is turned to its discharge position so that the discharge system is located at the lowest point. Next, the retractable sleeve is extended and attached to the tank lid. The butterfly valve opens and volumetrically controls the discharge of the product. Once the discharge is complete, the valve closes and the sleeve is retracted.
3. Metered, manually operated gravity discharge.

It is possible to combine the different methods for loading and discharging the product. For example, loading may be performed by suction and discharging by gravity using the retractable connection.

The system can have three automatic stop positions: loading, discharging, and sampling or cleaning. For safety reasons, in order to avoid sudden shocks, before stopping at any one of these positions, the system decreases the speed of the blender during the last turn before it completely stops at the programmed position.

The double cone blender can be cleaned manually or by CIP.
In the case of manual cleaning, a hose is used to clean the skid with pressurised water and, if necessary, with detergent.



INOXPA®
SOURCE OF SOLUTIONS
BANYOLES (Girona) Spain

"V"-Type Blender Skid