

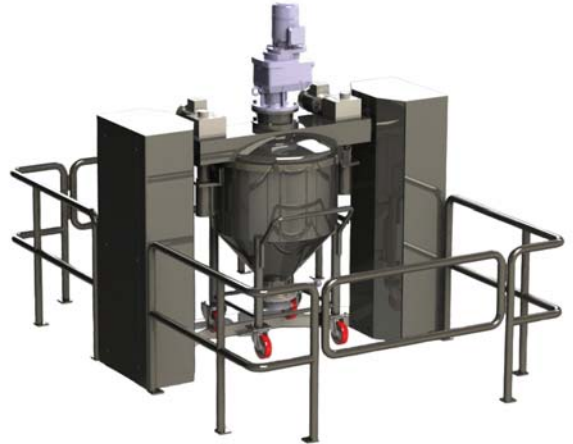
## Mixing of Products in Powder Form: Rapi-Mix Blender

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: RAPI-MIX blender

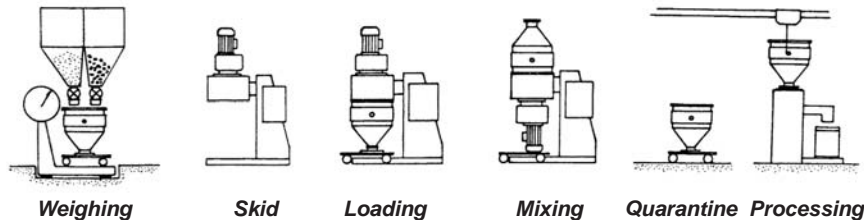
This system can mix products in powder or granular form, with equal or different densities, within a short period of time. It allows loading 65% of its total capacity.

The skid consists of two main components: an agitator head located between two frames and a mixing vessel which is connected to the agitator head to form a sealed unit. 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 diagram shows the different steps involved in the manufacturing process.



In the first step, the mixing vessel is placed on a separate weighing system. The products are individually loaded in the vessel by means of a hopper with airborne dust extraction. Another option is to load the solids manually but it has the disadvantage of generating airborne dust. The use of the hopper avoids this problem.

The mixing vessel is then transported to the blender, where it is placed underneath the agitator head. The mixing vessel is raised automatically by means of a lifting system and is connected to the agitator head. Once it is hermetically sealed, the mixing body rotates 180° to position itself in the mixing position. The motor drives the agitator to start the mixing process.

Once the mixing process is completed and the motor is stopped, the mixing body returns to its initial position, the mixing vessel is separated from the head and is automatically lowered.

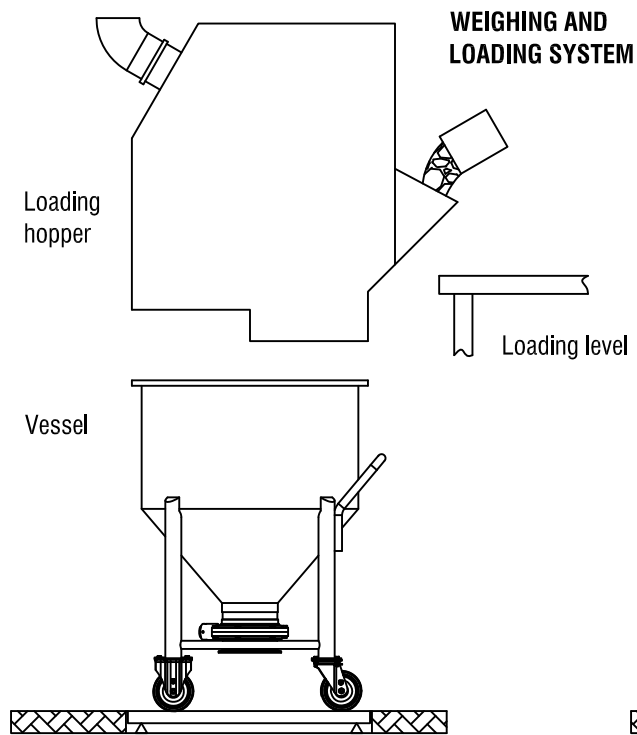
Once the mixing process is finished, the mixing vessel is removed from the skid to perform one of the following two options:

1. Quarantine storage consists in storing the vessel with the final product for a certain period of time, with the objective of using it in another process at a later stage.
2. The discharge system to the packaging machine or other equipment consists of a retractable tube with a sleeve. This system is located separate from the skid, on the floor. The vessel is secured by means of a centring system to prevent it from moving during the process. The retractable discharge tube is then raised by two pneumatic pistons and connected to the outlet valve of the mixing vessel. When the connection is made, the outlet valve opens (fully or in dosing mode) and the product is discharged. This discharge process is facilitated by a vibrator which is built into the centring system and which prevents any product residues from being left in the mixing vessel.

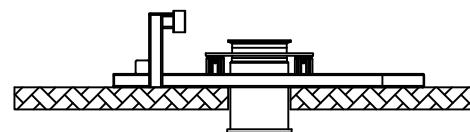
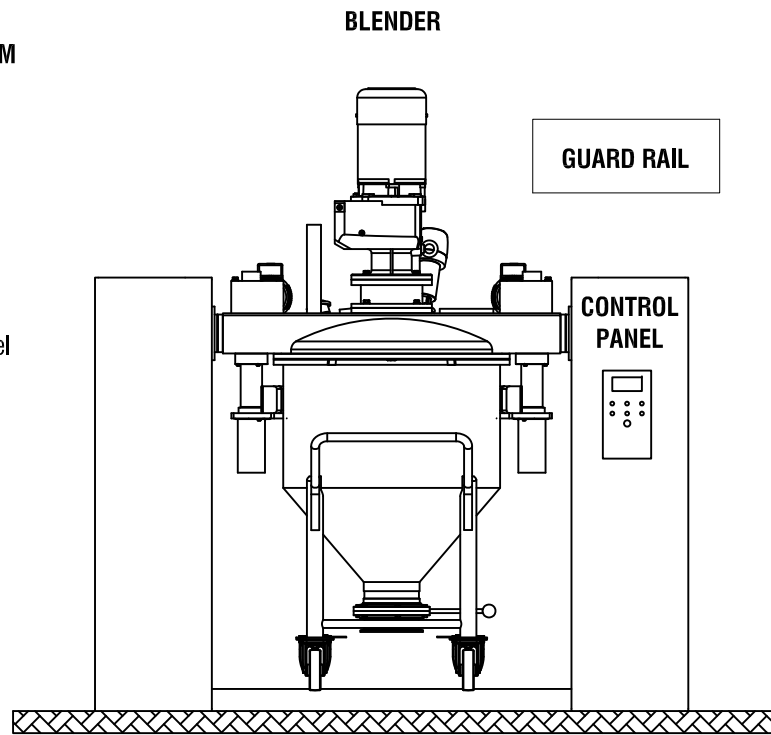
The advantage of this system is the use of independent mixing vessels, which allows for series production. While the mixing is under way, another vessel can be simultaneously prepared in the product loading and weighing area. In this way, another vessel will be ready when the mixing is complete. This speeds up the manufacturing process considerably, and improves the quality control.

The mixing vessel can be cleaned in two different ways:

1. A CIP cleaning system enables the automatic cleaning of the mixing vessels with pressurised water and detergent. It is equipped with a 360° rotating spray ball. The mixing vessel is hermetically sealed with a lid and a retractable system with a rotating spray ball at the end moves vertically inside the vessel to clean the inner walls.
2. Cleaning by means of a pressure lance and a pump. This process is completely manual.



Weighing system



**DISCHARGE SYSTEM**

