

## TECHNOLOGY BRIEF:

An inline rotor/stator mixer equipped for powder induction offers flexibility, capability and portability to serve multiple mix vessels of virtually any size. Its straightforward operation and convenience further maximize equipment utility while simplifying material handling.

# Select a powder induction mixer that can serve multiple mix tanks of virtually any size.

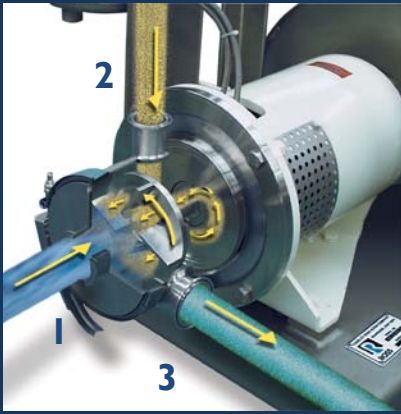


## Flexibility in an inline powder induction mixing device

Rotor/stator mixers specially designed to generate a powerful vacuum within the mix chamber are capable of inducing a wide variety of solids, from fine powders to friable pellets. Available in Ross mixers, this technology is called SLIM, short for Solids/Liquid Injection Manifold. One big advantage to the inline configuration of the SLIM is flexibility. An inline SLIM mixer can handle a 5,000-gal stirred tank as easily as it handles a 50-gal batch. It can be rolled up to an agitated tank, operated for only the powder induction portion of the overall cycle, then rolled to another vessel to perform a similar function. Thus, a single portable inline mixer can serve several tanks rather than sit idle in a fixed installation for a substantial portion of the batching cycle.

## Three-in-one eductor, mixer and pump

This new generation powder induction device combines the functions of an eductor, pump and mixer all into one machine. The inline rotor/stator mixer behaves like a centrifugal pumping device and can easily move liquid materials up to 10,000-20,000 cP. Dry solids enter from a different port and encounter the incoming liquid stream right where materials are instantly subjected to high shear and turbulent mixing. The rotor turns at tip speeds ranging from 3,000 to 4,000 fpm and expels the mixture out of the chamber through the holes of the stationary stator.



### How the SLIM technology works

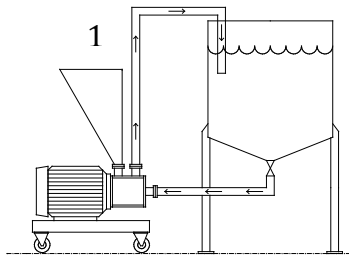
The above illustration shows how an inline SLIM mixer works. The liquid stream (1) enters the mixer and immediately encounters the powder addition. Drawn into the mixer by a powerful vacuum, the powder (2) is injected through the ported rotor directly into the high shear zone. The resulting dispersion (3) is expelled centrifugally through the stator openings at high velocity.

For more information on the SLIM:

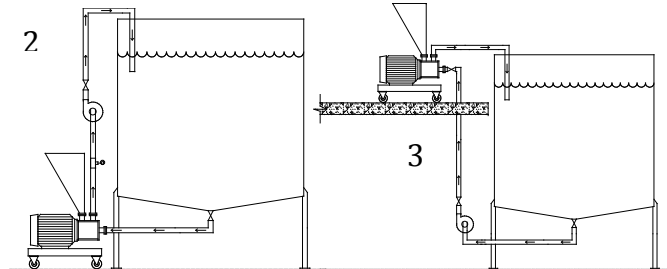
Click [here](#) to see a SLIM mixer in action.

Or visit the website :  
<http://www.highshearmixers.com/slim-models.html>

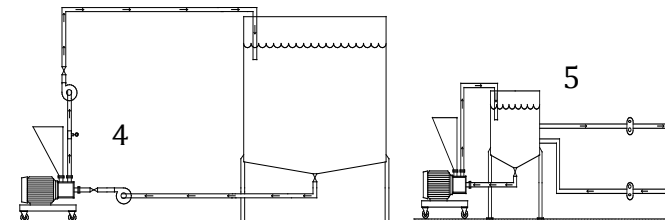
### Installation scenarios



Scenario #1 describes the inline SLIM system being used with a small (50 – 1000 gallon) recirculation vessel. The mixer is located on ground level and is as close to the outlet of the tank as possible. Discharge tubing is kept to the minimum possible length.



Scenario #2 describes the inline SLIM being used with a large (1000+ gallon) recirculation vessel. Since the discharge tubing is long, a centrifugal pump is used to minimize the backpressure on the discharge side. In Scenario#3, the mixer is located on an elevated mezzanine or upper level floor. It is not self-priming; therefore a centrifugal pump is used to help feed the inlet side.



Scenario #4 describes the inline SLIM being used with a recirculation vessel located at a considerable distance. Two pumps are used to feed the mixer and to minimize backpressure. In Scenario#5, the mixer is being used in a truly continuous process – solids are continually fed into the SLIM hopper and fresh liquid is continually pumped to the recirculation vessel while mixed product is being continually drawn out of the tank.



### SLIM Installation in a Nutritional Supplements Manufacturing Facility

In this installation, powdered glucosamine and chondroitin are inducted into filtered water using an inline SLIM. The mixer serves two 1500-gallon vessels. “The Ross SLIM mixer has played an important role in our success. It gave us the throughput increase we needed to serve our mass-market channel partners. And just as important, with a finer dispersion it has really helped us to perfect our Joint Movement Glucosamine product,” says Carl Sell, president and CEO of Botanical Laboratories.

