

APPLICATION SUMMARY:

Vitamin and mineral supplements in solid dosage forms undergo mixing, granulation and drying processes which have traditionally required multiple dedicated pieces of equipment. By combining these operations in a single Double Planetary Mixer designed for gentle blending, thorough granulation and fast drying, manufacturers are able to improve product quality and consistency, reduce processing time and simplify maintenance.

DOUBLE PLANETARY MIXING & DRYING OF Granulations for Vitamin & Mineral Supplements



Ross Sanitary Double Planetary Mixers

Ross Double Planetary Mixers are well-proven in the manufacture of many vitamin and mineral supplements. These machines blend dry ingredients by rotating two identical blades on their own axes as they orbit on a common axis. The stirrers contact virtually every point of the batch and continuously move new materials from the sidewalls to the center of the vessel. As a result, a completely homogenous mixture of the base carrier, vitamins, minerals, botanical extracts and other nutritional ingredients is achieved in a short period of time. This is followed by spraying an aqueous solution through a multi-nozzle manifold positioned in the hood of the mixer. A metering pump accurately controls the liquid flow rate while the agitated batch transforms into a wet granulated state. One main advantage of the planetary blades is their ability to impart a very thorough mixing action even when the product is dense or not free-flowing.

The final stage of the process is vacuum drying to remove excess moisture from the batch. As heat and vacuum are applied, the stirrers continue to mix the granulation but this time at lower speeds, just enough to ensure uniform temperature while maintaining the size of the granules.

Vitamin manufacturers that have successfully transferred their process from multiple pieces of equipment to a Ross Double Planetary Mixer benefited from significantly shorter cycle times, some by as much as 60%. In addition to simpler handling, cleaning and maintenance, the risks for product contamination and batch-to-batch inconsistencies are also greatly minimized.

Other sanitary applications of Ross Double Planetary Mixers:

- Bone Graft Substitutes
- Candy
- Collagen Solutions
- Cream Cheese
- Dental Composites
- Fiber Dispersions
- Gel Capsules
- Implant Materials
- Injectable Drugs
- Lightweight Composites
- Medical Pastes
- Pharmaceutical Gels
- Silicone Rubber
- Starch Doughs
- Syrups & Fillings
- Tissue Substrate
- Toothpaste

**For more information
on Ross Planetary Mixers**

Visit www.planetarymixers.com
or click [here](#) to download a
brochure.



Advantages of Ross Sanitary Double Planetary Mixers

- **Blade choices.** Three different styles of planetary stirrers are offered: Rectangular Blades, Helical Blades and Finger Blades. The classic Rectangular Blades are commonly used for granulations but the Helical and Finger Blades are also chosen depending on the flow characteristics of a particular formulation.
- **Cleanability.** There are no shaft seals, bearings, packing glands and stuffing boxes submerged in the product zone of the Double Planetary Mixer. Agitators are raised and lowered by an air/oil hydraulic lift allowing easy access for cleaning between batches. The discharge valve is flush with the vessel leaving zero “dead spots” where product can stagnate.
- **Change can design.** This feature further reduces the risk for cross-contamination between batches while allowing for semi-continuous operation when one mixer is used with multiple vessels.
- **Vacuum capability.** Vacuum-rated Double Planetary Mixers offer a fast and reliable method for drying heat-sensitive materials without fear of thermal degradation.
- **Value-add customizations.** Ross Double Planetary Mixers designed for food- and pharmaceutical-grade granulations can be equipped with a tilted vessel (for convenient discharge), atomizing spray manifold, sealed & purged gearbox, built-in vacuum pump, PLC controls and other customizable features.

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