

## TECHNOLOGY BRIEF:

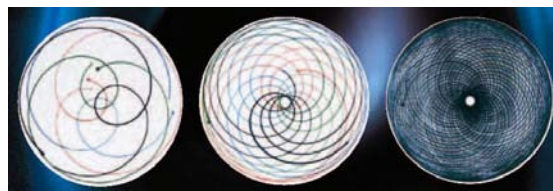
Traditional double planetary mixers equipped with rectangular-shaped paddles are prone to 'climbing' issues where product tends to ride up the blades and out of the mix vessel. Precisely angled helical planetary blades overcome this problem and promote better, cleaner mixing.

# Helical double planetary blades promote better and cleaner mixing.



### *Traditional double planetary mixers*

Double planetary mixers process a wide variety of high-viscosity products – from adhesives and battery pastes to molding compounds and pharmaceutical gels. Traditionally equipped with rectangular-shaped paddles, these mixers move material by rotating the blades on their own axes while they orbit on a common axis. The blades continuously advance along the periphery of the mix vessel, removing material from the walls and transporting it to the interior.



*Orbital blade motion in a double planetary mixer is predictable and efficient. Shown here are blade movements after 1, 3 and 36 revolutions wherein the blades have contacted virtually the entire batch.*

### *Limitations of rectangular stirrers*

Due to their geometry, rectangular stirrers rely on centrifugal forces and gravity to keep product within the mixing zone. As batch viscosity increases

## Double Planetary Mixer Blade Designs



**"HV" Blades**

US Patent No. 6,652,137



**Rectangular Blades**

(as what happens during filler addition, for example), some products will tend to climb the rectangular stirrers and out of the mix vessel. This characteristic migration of batch material reduces mixing efficiency, necessitates intensive clean-up and can even increase contamination risks.

### ***Helical planetary blades promote better mixing***

Helical planetary blades prevent the 'climbing' problem commonly experienced with traditional rectangular stirrers. High Viscosity "HV" blades offered on Ross Double Planetary Mixers feature a precisely angled helical contour which generates a unique vertical mixing action: the sweeping curve firmly pushes the batch material forward *and downward*, keeping it within the mixing zone at all times.

This enhanced control over batch level ultimately leads to improvements in mixing efficiency, clean-up time and product purity.

### ***More information on "HV" Blades***

Click [here](#) to see "HV" blades in action. Or view the website [www.planetarymixers.com](http://www.planetarymixers.com)



### ***Sample Application:***

When a manufacturer of silicone sealants decided to develop a new highly-filled sealant formulation, they encountered problems in making the product in their double planetary mixer with rectangular blades. The sticky nature of the viscous material results in the batch climbing up the blades and into the gearbox area where it is not being mixed.

They tested the "HV" Blades and found them to be very appropriate for their requirements. In the processing of this sealant, silicone polymer and other liquid components are loaded into the mix vessel. Silica powder and other fillers are added to the surface of the liquid in increments, as necessary. Vacuum is pulled on the batch prior to mixing. The finished product is a smooth air-free sealant with a viscosity of over 9million cps.

