

# S Series Spheronizer

## Pellets Making, Pelletize

### Uniform Spheronize pellets Process

#### Application & Process:

This machine is particularly designed for pharmaceutical, food and chemical laboratory small batch tests. Spheronizer enables uniform coating and accurate free flow filling into capsules drug applications within the pharmaceutical industry require consistent smooth surface particles, with a narrow size distribution.

Spheronization helps to eliminate dust within the agro-chemical, pigment, and catalyst industries. This can reduce the risk due to toxic, environmental, and explosive hazards. It also improves processing consistency and productivity by using consistent free-flowing product and to reduce product settlement in transport of powder products prior to packaging.

Spheronizer (also known as spheroizers) provide a spherical product that is a more attractive as well as higher performing final granular product form than unspheronized. The spheronizers are implemented to produce uniform spheres for a wide range of technical as well as marketing driven reasons. Spheronization can be used to improve the following:

- Limit dusting and fines generation
- Produce granule with a smooth surface
- Densify the surface for stability
- Minimize coating material necessary
- Increase flow ability
- Increase bulk density



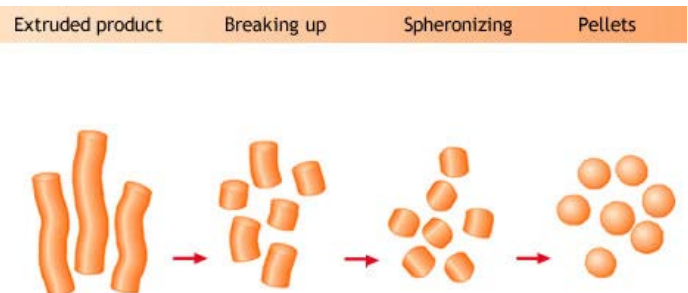
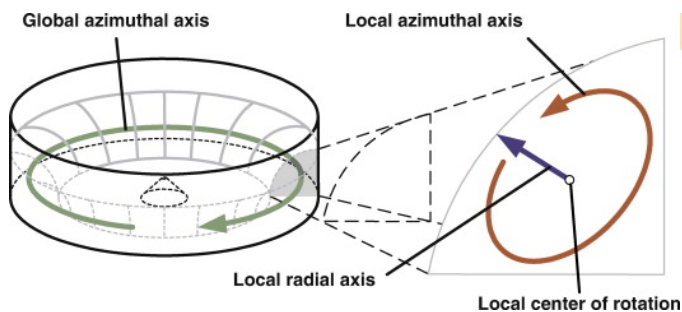
Narrow size distribution is controlled through the use of one of the extruders such as Axial Extrusion or Radial Extrusion to define the diameter of the feed material for the Spheronization Process.

Feed material to the Spheronizer falls onto the high speed rotating chequered plate within the walls of cylinder of Spheronize of pellets. This plate contains many small sharply edged pyramids which cut the feed granulated to length at approximately 1 to 1.5 times their diameter. Centrifugal and gravitational forces create a mechanically fluidized ring of these particles which are impacting not only the plate but also each other and the walls with great velocity. With these impacts, they are reformed into spheres with a slight surface densification. Fines which were generated during the process are worked back into the spheres themselves leaving a very low dusting process with spheres which tend not to dust because of their slightly harder exterior and lack of corners.

Variables for this Spheronization process include the formulation, the plate's pyramid sizes, the plate's rotational speed, and finally the time that the granules are allowed to stay inside the spheroizers.

Batch processing is typical for the requirements of pharmaceutical applications while the larger industrial Spheronization applications often employ the higher capacity cascade Spheronization method where granules are continuously moving through 2 or more Spheronizer bowls in a cascade layout to create the final spherical form required.

Pharmaceutical spheroizers are available with capacities from 0.5 Kg per batch to 30 Kg per batch.

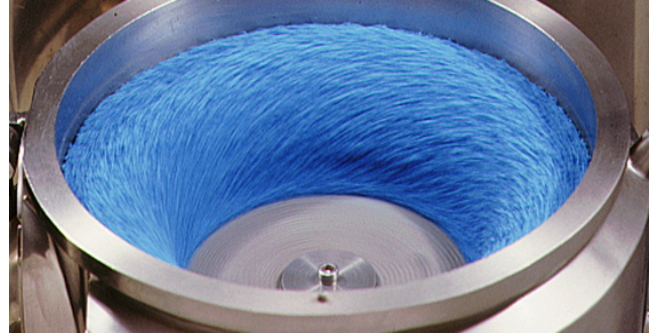


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### Salient Features:

- Capacities from 1Kg to 100Kg batch size for Industrial Productions.
- Designed as per cGMP –Current Good Manufacturing Practices & Non GMP STANDARD Model.
- Contact parts in AISI316, AISI304 as desired by customer.
- Chequered plates are available with different pitch.
- AC Frequency Variable drives for chequered plate.
- Precise clearance between bowl and plate.



### Safety Features:

- Total drive transmission system enclosed.
- Limit switch installed in the top lid ensure lid is closed.
- Air pressure switch installed to ensure pressure is in limit.
- Limit switch installed at discharge to ensure product container underneath of discharge.
- Overload relay Protection and Emergency stop button.



S-250 Spheronizer



S-450-700 Spheronizer

# S Series Spheronizer

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**S-1000 Spheronizer**



Main Technical Parameters		S-250	S-350	S-450	S-700	S-1000
Output(Kg/batch)		≤0.5	≤1.0	≤2.0	≤8.0	≤30.0
Time(Min/batch)		0.5-5.0				
Voltage/ Frequency(V/Hz)		380/50				
Motor power(Kw)		0.75	1.1	4	7.5	11
Fan power(Kw)		--	0.2	0.75	2.2	4
Rotate speed(r/min)		50-2380	50-1400	50-1200	50-1200	100-600
Compressed air	Pressure(Mpa)	0.4-0.6				
	Consumption (M <sup>3</sup> /min)	--	--	0.1-0.2	0.1-0.2	0.1-0.2
Return ratio of qualified products(%)		>90%	>90%	>90%	>90%	>90%
Noise(db)		<60	<60	<60	<60	<60
Equipped capacitor(Kw)		1.0	1.7	4.5	11	13
Outline dimension (L*W*H)mm		430 * 465 * 660	1000*620*1200	1280 * 650 *1230	1500 * 900 * 1300	1800 * 1200 * 1450
Net weight(Kg)		84	140	350	630	1500