



## 0.4 to 4 Liter Planetary Ball Mills



PQ-N Planetary ball mills may be used for mixing, homogenizing, fine grinding, mechanical alloying, cell disruption, small volume high-tech material production and even colloidal grinding. They are the ideal wet/dry milling tools for acquiring research samples with high efficiency and low noise. Vacuum jars may be used to process sample within a vacuum environment.

PQ-N planetary ball mills have four grinding stations arranged on the "Sun Wheel" of the planetary ball mill. When the Sun Wheel rotates, the grinding balls inside the jars are subject to superimposed rotational movements, known as Coriolis Forces. The difference in speeds between the grinding balls and jars produce an interaction between frictional and impact forces, which release high dynamic energies. Minimum granularity of the final product can be as small as 0.1 micron.

A timer controls running time from 1 to 999 minutes; it also controls jars' direction of rotation and intervals. We offer various sizes of grinding jars and grinding balls in different materials in our ball mill accessories section. Depending on your application, the material your grinding media is made from may be imperative to achieving accurate results.

### Features

- High uniformity and excellent repeatability
- Fast rotational speed, high efficiency and fine granularity
- Four samples with different sizes and materials in one experiment
- Leak-proof jars for wet grinding
- Large range of materials available for grinding media
- Gear-drive offers an effective solution to problems caused by belt driving, such as belt creep and belt abrasion
- Low center of gravity, good rigidity, compact structure, low noise, safe and reliable operation
- Adjustable height
- Safety switch ensures automatic shut down if cover is opened during operation

Model	PQ-N04	PQ-N2	PQ-N4
Electrical Requirements	110V or 220V 50/60Hz single phase, 370 watts	110V or 220V 50/60Hz single phase, 750 watts	110V or 220V 50/60Hz single phase, 2200 watts
Compatible Non-Vacuum Jars	100ml x 4	500ml x 4	1000ml x 4
Compatible Vacuum Jars	50ml x 4	250ml x 4	500ml x 4
Orientation Mode	2 or 4 grinding jars working simultaneously		
Maximum Feeding Capacity	2/3 capacity of the grinding jars		
Feeding Granularity	Soil materials $\leq$ 10mm, other materials $\leq$ 3mm		
Discharging Granularity	Down to 0.1 micron		
Maximum Continuous Operating Time	72 hours		
Planetary Jar Rotation Speed	600 rpm	580 rpm	530 rpm



## Large Scale Planetary Ball Mills

### Features

- Isolated controller for added security
- Powerful 480V 3Ph motors
- Transparent top cover for best visibility



Model	PQ-N12	PQ-N20
Electrical Requirements	480V 50/60Hz 3 phase, 4000 watts	480V 50/60Hz 3 phase, 5000 watts
Compatible Non-Vacuum Jars	3L x 4	5L x 4
Compatible Vacuum Jars	2L x 4	4L x 4
Orientation Mode	2 or 4 grinding jars working simultaneously	
Maximum Feeding Capacity	2/3 capacity of the grinding jars	
Sun Wheel VS Planetary Wheels speed ratio	1 : 1.9	1 : 1.5
Feeding Granularity	Soil materials $\leq$ 10mm, other materials $\leq$ 3mm	
Discharging Granularity	Down to 0.1 micron	
Maximum Continuous Operating Time	72 hours	
Planetary Jar Rotation Speed	440 rpm	270 rpm



## Desktop High Energy Ball Mill

VQ-N ball mills may be referred to as shaker mills, mixer mills or high-energy ball mills. They can be used for both wet and dry grinding as well as to mix a variety of solids, suspended liquids and pastes. This unit is ideal for preparing small batches of your sample efficiently.



### Features

- Quick, efficient pulverization and homogenization
- Short grinding time and high sample throughput
- Large range of materials available for grinding media
- Leak-proof jar for wet grinding

Model	VQ-N
Electrical Requirements	110V-220V 50/60Hz single phase, 180 watts
Jars Capacity	50ml – 80ml
Oscillation Speed	1,200 rpm
Timing Range	1-999 seconds
Discharging Granularity	Down to 0.1 micron
Grinding Jar Included	One 80ml stainless steel jar with stainless steel balls and o-ring. Additional grinding media in a variety of materials is sold separately.