

Vertical Laboratory Planetary Ball Mill



서울특별시 금천구 가산디지털1로84 에이스하이엔드타워8차 408호
한국코프로텍(주) Tel 02-6264-5745 / Fax 02-6264-5747
[www,korpro.com](http://www.korpro.com) / www.koreaprocess.com / www.korpromall.com

Overview

Vertical planetary ball mill is a necessary device of high-tech materials mixing, fine grinding, sample making, new product development and small batch production. Tencan planetary ball mill owns small volume, high efficiency, low noise and functional features which is a ideal equipment for R&D institution, university, enterprises laboratory to get samples (each experiment can get four samples at the same time). It gets powder samples under the vacuum state when equipped with vacuum ball mill tank.

SEMI-CIRCLE MODE



Fashion Design

3D Curve shape design,
elegance and fashion



Exquisite workmanship

delicate and precise



Special drive gear

special gear with low noise, lower about
15-20dB compared with common gear.
stable rotation speed.

SQUARE MODE



Professional Design Fashionable Appearance

The use of square design elements,
elegant and refined, high stability



Good stability lower noise

Distinct gear with noise of 15-20db
less than that of the same model.



Elegant process and fine workmanship

500 thousand high-end model
molding, 3 million precision machine
manufacturing, exquisite and durable.

PRODUCTION MODE



Design of Sliding Door

Sliding door is designed for the machine with 60L volume of jars or more with double polished rod sliding structure. It is more convenient for use.



Lifting and pouring device

Users friendly design, more easy and comfortable for operation with lifting and pouring device.



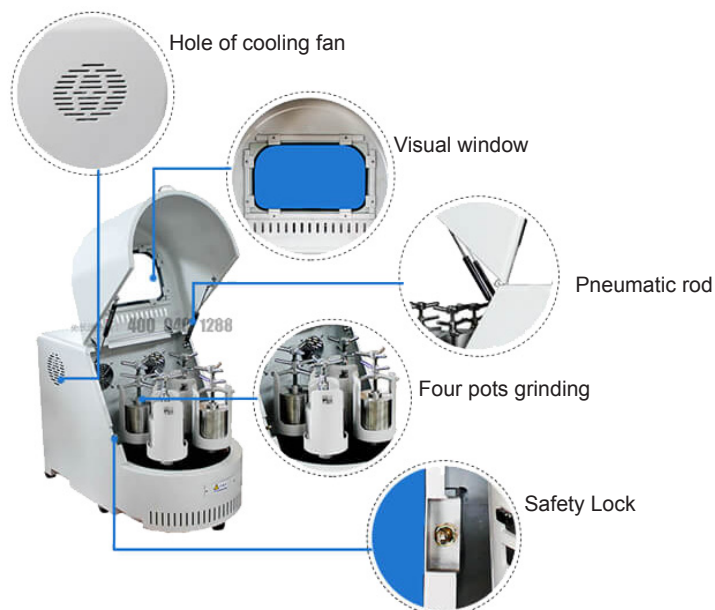
Frequency Control

According to your needs, You can select functions such as ideal rotate speed, pause, settings of different process for different stage.

Working Principle

Planetary Ball Mill has four ball grinding tanks installed on one turntable. When the turntable rotates, the tank axis makes planetary movements, the balls and samples inside the tanks are impacted strongly in high speed movement, and samples are eventually ground into powder. Various kinds of different materials can be ground by the mill with dry or wet method. Minimum granularity of ground powder can be as small as 0.1 μ m.

SEMI-CIRCLE MODE



SQUARE MODE



PRODUCTION MODE



Feature

- Stable revolving speed of the gear transmission ensures the consistency and repeatability of the experiment.
- Planetary movement principle is adopted in the machine, which has high speed, large energy, high efficiency, small Granularity.
- Four powder samples from different sizes and different materials can be produced at one time.
- The machine is controlled by frequency converter, you may choose ideal rotating speed according to expected experimental result. The converter is equipped with device of under voltage and over-current to protect the motor.
- The planetary ball mill has functions of timing power off, self-timing forward and reversal rotating. You may choose freely any operation modes of one-way direction, alternation, succession, time setting according to experimental needs, so as to improve efficiency of grinding.
- Technical features of Tencan Ball Mill: Low center of gravity, stable performance, compact structure, easy operation, reliable safety, lower noise, small loss.
- Safety switch is installed on the machine to prevent safety accident if the safety cover is opened while machine is running.

Application Cases of Planetary Ball Mill



Before grinding



After grinding

Material : Active carbon
 Material weight : 50g
 Mill Jar & Balls : Corundum mill jars and zirconia balls
 Grinding method : Dry grinding
 Rotation speed : 560rpm
 Applied equipment : Planetary ball mill Model No.XQM-0.4A
 Total volume : 1000mlx4=4000ml
 Grinding time : 2hours
 Granularity : 2 μ m



Before grinding



After grinding

Material : Kaolin
 Material weight : 500g
 Mill Jar & Balls : PTFE
 Grinding method : Dry grinding
 Rotation speed : 450rpm
 Total volume : 1Lx4=4L
 Spent time : 1hour 20 minutes
 Feed size : 2mm
 Granularity of output : 100 μ m



Before grinding



After grinding

Material : Green tea (dry)
 Material weight : 0.25kg
 Mill Jar & Balls : Stainless steel
 Grinding method : Dry grinding
 Applied equipment : Planetary ball mill Model No.XQM-2
 Total volume : 0.5Lx4=2L
 Spent time : 1hour

Technical Parameter

Semi-circle Mode

Drive Mode	Gear drive or belt drive
Operation Mode	Two or four grinding tanks working together
Max Load Capacity	Less than 2/3 of total volume of grinding jars
Feed Size of Materials	≤3mm
Output Granule	Minimum 0.1μm
Rotational Speed Ratio	1/2
Max.Continuous Operating Time	72 Hours
Materials of Jar	stainless steel,agate,nylon,corundum, zirconia,etc

Technical Parameter Table(I) of Vertical Square Planetary Ball Mill (Semi-circle Type)				
Type No	Specification	Volume of Each Matched Pot	Quantity	Remarks
KV-0.4	0.4L	50-500ml	4pcs	Matched with vacuum mill pots from 50ml
KV-2	2L	50-500ml	4pcs	Matched with vacuum mill pots from 50ml to 250ml
KV-4	4L	250-1000ml	4pcs	Matched with vacuum mill pots from 50ml to 1000ml
KV-8	8L	1-2L	4pcs	Matched with vacuum mill pots from 50ml to 1500ml
KV-10	10L	1-2.5L	4pcs	Matched with vacuum mill pots from 1L to 2L
KV-12	12L	1-3L	4pcs	Matched with vacuum mill pots from 1L to 2L
KV-16	16L	2-4L	4pcs	Matched with vacuum mill pots from 1L to 3L

Technical Parameter Table(II) of Vertical Square Planetary Ball Mill (Semi-circle Type)							
Model	Power (KW)	Voltage	Revolution Speed(rpm)	Rotation Speed(rpm)	Total Timing(min)	Alternating Run Time of Forward & Reversal Rotation (min)	Noise ≤db
KV-2	0.75	220V-60Hz	35-335	70-670	1-9999	1-999	60±5
KV-4	0.75	220V-60Hz	35-335	70-670	1-9999	1-999	60±5
KV-8	1.5	220V-60Hz	35-290	70-580	1-9999	1-999	60±5
KV-10	1.5	220V-60Hz	35-290	70-580	1-9999	1-999	60±5
KV-12	1.5	220V-60Hz	35-290	70-580	1-9999	1-999	60±5
KV-16	3	380V-60Hz.	30-255	60-510	1-9999	1-999	60±5

Technical Parameter Table(III) of Vertical Square Planetary Ball Mill (Semi-circle Type)				
Model	Power(KW)	Speed Control Mode	Net Weight (kg)	Dimension(mm)
KV-2	0.75	Frequency Control	80	750*470*590
KV-4	0.75	Frequency Control	80	750*470*590
KV-8	1.5	Frequency Control	132	880*560*670
KV-10	1.5	Frequency Control	132	880*560*670
KV-12	1.5	Frequency Control	132	880*560*670
KV-16	3	Frequency Control	203	950*600*710

Square Mode

Drive Mode	Gear drive
Operation Mode	Two or four grinding tanks working together
Max Load Capacity	Less than 2/3 of total volume of grinding jars
Feed Size of Materials	≤3mm
Output Granule	Minimum 0.1μm
Rotational Speed Ratio	1/2
Max.Continuous Operating Time	72 Hours
Materials of Jar	stainless steel,agate,nylon,corundum, zirconia,etc

Technical Parameter Table(I) of Vertical Square Planetary Ball Mill (Square Type)				
Type No	Specification	Volume of Each Matched Pot	Quantity	Remarks
KV-2S	2L	50-500ml	4pcs	Matched with vacuum mill pots from 50ml to 250ml
KV-4S	4L	250-1000ml	4pcs	Matched with vacuum mill pots from 50ml to 1000ml
KV-6S	6L	1-1.5L	4pcs	Matched with vacuum mill pots from 50ml to 1000ml
KV-8S	8L	1-2L	4pcs	Matched with vacuum mill pots from 50ml to 1500ml
KV-10S	10L	1-2.5L	4pcs	Matched with vacuum mill pots from 1L to 2L
KV-12S	12L	1-3L	4pcs	Matched with vacuum mill pots from 1L to 2L

Technical Parameter Table(II) of Vertical Square Planetary Ball Mill (Square Type)							
Model	Power (KW)	Voltage	Revolution Speed(rpm)	Rotation Speed(rpm)	Total Timing(min)	Alternating Run Time of Forward & Reversal Rotation (min)	Noise ≤db
KV-2S	0.75	220V-60Hz	35-335	70-670	1-9999	1-999	60db
KV-4S	0.75	220V-60Hz	35-335	70-670	1-9999	1-999	60db
KV-6S	0.75	220V-60Hz	35-335	70-670	1-9999	1-999	60db
KV-8S	1.5	220V-60Hz	35-290	70-580	1-9999	1-999	60db
KV-10S	1.5	220V-60Hz	35-290	70-580	1-9999	1-999	60db
KV-12S	1.5	220V-60Hz	35-290	70-580	1-9999	1-999	65db

Technical Parameter Table(III) of Vertical Square Planetary Ball Mill (Square Type)				
Model	Power(KW)	Speed Control Mode	Net Weight (kg)	Dimension(mm)
KV-2S	0.75	Frequency Control	93	750*470*564
KV-4S	0.75	Frequency Control	93	750*470*564
KV-6S	0.75	Frequency Control	93	750*470*564
KV-8S	1.5	Frequency Control	150	900*600*640
KV-10S	1.5	Frequency Control	150	900*600*640
KV-12S	1.5	Frequency Control	150	900*600*640

Production Mode

Drive Mode	Gear drive
Operation Mode	Two or four grinding tanks working together
Max Load Capacity	Less than 2/3 of total volume of grinding jars
Feed Size of Materials	Soft and Crispy material≤10mm,Other materials≤3mm
Output Granule	Minimum 0.1μm
Rotational Speed Ratio	1/2
Max.Continuous Operating Time	72 Hours
Materials of Jar	stainless steel,agate,nylon,corundum, zirconia,etc

Technical Parameter Table(I) of Vertical Square Planetary Ball Mill (Production Type)

Type No	Specification	Volume of Each Matched Pot	Quantity	Remarks
KV-20S	20L	2-5L	4pcs	Matched with vacuum mill pots from 2L to 4L
KV-40S	40L	5-10L	4pcs	Can be Matched with 5L Vacuum mill Pot
KV-60S	60L	10-15L	4pcs	Can be Matched with 10L Vacuum mill Pot
KV-100S	100L	20-25L	4pcs	Can be Matched with 20L Vacuum mill Pot

Technical Parameter Table(II) of Vertical Square Planetary Ball Mill (Production Type)

Model	Power (KW)	Voltage	Revolution Speed(rpm)	Rotation Speed(rpm)	Total Timing(min)	Alternating Run Time of Forward & Reversal Rotation (min)	Noise ≤db
KV-20S	4	380V-60Hz	25-215	50-430	1-9999	1-999	65db
KV-40S	5.5	380V-60Hz	20-195	40-390	1-9999	1-999	68db
KV-60S	7.5	380V-60Hz	27-174	40-260	1-9999	1-999	68db
KV-100S	11	380V-60Hz	27-160	40-240	1-9999	1-999	68db

Technical Parameter Table(III) of Vertical Square Planetary Ball Mill (Production Type)

Model	Power(KW)	Speed Control Mode	Net Weight (kg)	Dimension(mm)
KV-20S	4	Frequency Control	440	1200*760*920
KV-40S	5.5	Frequency Control	675	1400*850*1030
KV-60S	7.5	Frequency Control	875	1600*950*1120
KV-100S	11	Frequency Control	1100	1750*1100*1180

Accessory

Please Check the Parameter of Mill Jar and Mill Ball

Semi-circle Mode

Material	Volume of Mill Jar	Diameter of Mill Ball (mm)
Stainless Steel	50ml,100ml,250ml,500ml,1L,1.5L,2L,2.5L,3L,4L	1-30mm
Zirconia	50ml,100ml,250ml,500ml,1L,1.5L,2L,3L,4L	1-30mm
Alumina	50ml,100ml,250ml,500ml,1L,1.5L,2L,3L	1-50mm
Tungsten Carbide	50ml,100ml,250ml,500ml,1L,1.5L	3-10mm
Agate	50ml,100ml,150ml,250ml,300ml,400ml,500ml,1L,1.5L,2L	6-35mm
Iron Core PU	\	15-30mm
Nylon	50ml,100ml,250ml,500ml,1L,1.5L,2L,2.5L,3L,4L	\
PU	50ml,100ml,250ml,500ml,1L,1.5L,2L,2.5L,3L,4L	\
PTFE	50ml,100ml,250ml,500ml,1L,1.5L,2L,2.5L,3L,4L	\

Square Mode




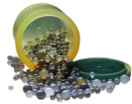
Material	Volume of Mill Jar	Diameter of Mill Ball (mm)
Stainless Steel	50ml,100ml,250ml,500ml,1L,1.5L,2L,2.5L,3L	1-30mm
Zirconia	50ml,100ml,250ml,500ml,1L,1.5L,2L,3L	1-30mm
Alumina	50ml,100ml,250ml,500ml,1L,1.5L,2L,3L	1-50mm
Tungsten Carbide	50ml,100ml,250ml,500ml,1L,1.5L	3-10mm
Agate	50ml,100ml,150ml,250ml,300ml,400ml,500ml,1L,1.5L,2L	6-35mm
Iron Core PU	\	15-30mm
Nylon	50ml,100ml,250ml,500ml,1L,1.5L,2L,2.5L,3L	\
PU	50ml,100ml,250ml,500ml,1L,1.5L,2L,2.5L,3L	\
PTFE	50ml,100ml,250ml,500ml,1L,1.5L,2L,2.5L,3L	\

Production Mode

Material	Volume of Mill Jar	Diameter of Mill Ball (mm)
Stainless Steel	2L,2.5L,3L,4L,5L,10L,15L,20L,25L	1-30mm
Zirconia	2L,3L,4L,5L	1-30mm
Alumina	2L,3L,5L,10L	1-50mm
Tungsten Carbide	\	3-10mm
Agate	2L	6-35mm
Iron Core PU	\	15-30mm
Nylon	2L,2.5L,3L,4L,5L,10L,15L,20L,25L	\
PU	2L,2.5L,3L,4L,5L,10L,15L,20L,25L	\
PTFE	2L,2.5L,3L,4L,5L,10L	\

Vertical Laboratory Planetary Ball Mill

We provide all kinds of mill pots in any matched size, which are made from following materials of agate, Alumina corundum ceramics, zirconia ceramics, silicon nitride ceramics, carborundum ceramics, stainless steel, high wear resistant steel, manganese steel, nylon, PU, cemented carbide, crystal glass, and etc.

Material	Volume of Mill Jar	Diameter of Mill Ball	
Stainless Steel	50ml,100ml,250ml,500ml,1L,1.5L,2L,2.5L,3L,4L	1-30mm	
Stainless Steel (for vacuum)	50ml,100ml,250ml,500ml,1L,1.5L,2L,3L,4L,5L	1-30mm	
Zirconia	50ml,100ml,250ml,500ml,1L,1.5L,2L,3L,4L	1-30mm	
Alumina	50ml,100ml,250ml,500ml,1L,1.5L,2L,3L	1-50mm	
Tungsten Carbide	50ml,100ml,250ml,500ml,1L,1.5L	3-10mm	
Agate	50ml,100ml,150ml,250ml,300ml,400ml,500ml,1L,1.5L,2L	6-35mm	
Nylon	50ml,100ml,250ml,500ml,1L,1.5L,2L,2.5L,3L,4L	\	
PU	50ml,100ml,250ml,500ml,1L,1.5L,2L,2.5L,3L,4L	\	
PTFE	50ml,100ml,250ml,500ml,1L,1.5L,2L,2.5L,3L,4L	\	