

## Horizontal Laboratory Planetary Ball Mill



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# Horizontal Laboratory Planetary Ball Mill

## Overview

KH series planetary ball mill has four ball grinding tanks installed on one turntable. When the turntable rotates, the tank axis makes planetary movements and the balls in the tanks grinds and mixes samples in high speed movement. The product can smash and blend various products of different materials and granularity with dry or wet methods. Minimum granularity of grinded products can be as small as 0.1 micron (i.e.)  $1.0 \times 10^{-4} \text{mm}$ .



### Elegant process and fine workmanship

Precise design of good outlook, with 90° turnover mechanism for labor.



### Ball Mill Structure

Horizontal single disk support structure solves sinking to the bottom for some materials..



### Distinct designed gear with good stability and lower noise.

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

## Working Principle

KH series 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. A variety of different materials can be ground by the mill with dry or wet method. Minimum granularity of ground powder can be as small as  $0.1 \mu\text{m}$ .



# Horizontal Laboratory Planetary Ball Mill

## Advantages of Horizontal Planetary Ball Mill

- Easy operation.
- Unique gear with low noise.
- Horizontal structure of the mill pot avoids materials sinking to the bottom.
- 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, and timing 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 $\mu$ 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 $\mu$ m



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

# Horizontal Laboratory Planetary Ball Mill

## Application Technical parameter

Drive Mode	Gear drive and belt drive
Operation Mode	Two or four grinding jars working together
Maximum Loading Capacity	2/3 of the capacity of milling jar
Feeding Size	Soil material≤10mm, other materials≤3mm
Output Granularity	Smallest granule reaches 0.1 μm
Rotational Speed Ratio	1/2
Max. Continuous Operating Time	72hours
Optional Modes of Speed Control	Frequency conveter and automatic timing control
Materials of Jar	Stainless steel, agate, nylon, corundum, zirconia, etc

## Technical Parameter Table

Parameters of Horizontal Planetary Ball Mill (Light Type)							
Model No	Power (KW)	Voltage	Dimension (mm)	Revolution Speed(rpm)	Rotation Speed(rpm)	Total Timing (min)	Alternating Run Time of Forward & Reversal Rotation(min)
KH-0.4	0.75	220V-60Hz	700*510*570	35-335	70-670	1-9999	1-999
KH-1	0.75	220V-60Hz	700*510*570	35-335	70-670	1-9999	1-999
KH-2	0.75	220V-60Hz	700*510*570	35-335	70-670	1-9999	1-999
KH-4	0.75	220V-60Hz	700*510*570	35-335	70-670	1-9999	1-999
KH-6	0.75	220V-60Hz	700*510*570	35-335	70-670	1-9999	1-999

Parameters of Horizontal Planetary Ball Mill (Heavy Type)								
Model No	Power (KW)	Voltage	Dimension (mm)	Revolution Speed (rpm)	Rotation Speed (rpm)	Total Timing (min)	Noise ≤db	Alternating Run Time of Forward & Reversal Rotation(min)
KH-2-6	1.5	220V-60Hz	1220x620x810	35-335	70-670	1-9999	60±5	1-999
KH-8	1.5	220V-60Hz	1320*670*920	35-290	70-580	1-9999	60±5	1-999
KH-10	1.5	220V-60Hz	1320*670*920	35-290	70-580	1-9999	60±5	1-999
KH-12	1.5	220V-60Hz	1320*670*920	35-290	70-580	1-9999	60±5	1-999
KH-16	3	380V-60Hz	1530*750*960	30-240	60-480	1-9999	60±5	1-999
KH-20	4	380V-60Hz	1620*840*1040	25-215	50-430	1-9999	60±5	1-999
KH-40	5.5	380V-60Hz	1770*1050*1100	25-215	50-430	1-9999	60±5	1-999
KH-60	7.5	380V-60Hz	1860*1050*1280	20-206	50-310	1-9999	60±5	1-999
KH-100	11	380V-60Hz	2100*1150*1370	35-193	50-290	1-9999	60±5	1-999

## Horizontal Laboratory Planetary Ball Mill


Measurement of Heavy Type HORIZONTAL Planetary Ball Mill				
Model No	Power(KW)	Speed Control Mode	Net Weight(kg)	Dimensions(mm)
KH-2-6	1.5	Frequency Control	256	1220x620x810
KH-8	1.5	Frequency Control	370	1320x670x920
KH-10	1.5	Frequency Control	370	1320x670x920
KH-12	1.5	Frequency Control	370	1320x670x920
KH-16	3	Frequency Control	440	1220x620x810
KH-20	4	Frequency Control	700	1620x840x1040
KH-40	5.5	Frequency Control	760	1770x860x1100
KH-60	7.5	Frequency Control	1020	1860x1050x1280
KH-100	11	Frequency Control	1160	2100x1150x1370

Available Size of Mill Jar for Horizontal Planetary Ball Mill (Heavy Type)				
Model No	Specifications	Volume of each matched pot	Quantity	Remarks
KH-2-6	2-6L	0.5-1.5L	4pcs	Can be matched 0.5-1L vacuum mill jar
KH-8	8L	1-2L	4pcs	Can be matched 0.5-1.5L vacuum mill jar
KH-10	10L	1.2-5L	4pcs	Can be matched 1-2L vacuum mill jar
KH-12	12L	1-3L	4pcs	Can be matched 1-2L vacuum mill jar
KH-16	16L	2-4L	4pcs	Can be matched 1-3L vacuum mill jar
KH-20	20L	2-5L	4pcs	Can be matched 2-4L vacuum mill jar
KH-40	40L	5-10L	4pcs	Can be matched 3-5L vacuum mill jar
KH-60	60L	10-15L	4pcs	Can be matched 5-10L vacuum mill jar
KH-100	100L	15-20L	4pcs	Can be matched 10-15L vacuum mill jar

## Horizontal Laboratory Planetary Ball Mill

### Accessory

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	\	