Address: 419 Alegria St., Sta Mesa, Manila, PHILIPPINES tel no. +63 2 7151649 +63 2 7150180 fax no. +63 2 7145315 e-mail: humil@humil.net website: www.humil.net

## QUOTATION

Date

: March 24, 2021

Ref:21AED-020

## MARCELINA V. SERVAÑEZ

PSTC Director Department of Science and Technology – Romblon Odiongan, Romblon

Dear Ms. Servañez :

Thank you for your inquiry. We are pleased to guote as follows;

Item(s)	Qty	Model / Description	Unit Price
1.	1set	Automatic Particle Size Analyzer Standards: ISO13320-1: 1999, GB / T 19077, 1-2008, Q/ JWN001-2009 Principle: MIE scaterring principle Measuring Range: 0.1-300um Channel Nos: 39 pcs Accuracy error: < 1% Repeatability error: < % Light Source: High Performance HE –NE Laser Lifetime: >25000 hr Ultrasonic: Freq: 40khz Power: 50W; Time > 1S Stir: Revolution speed: 0-300 rpm adjustable Rated Flow: 8L / min Rated Power: 10W Volume: 350ml Micro Sample Volume: 19ml Operation mode: full automatic and manual control, freely choose Test speed: 2mins per time	P 1,532,050.00
2.	1set	Planet Lab Roller Ball Mill Grounding Jar Volume: 1L x4 Material of Grinding Jar: Stainless Max Loading Cap of Jar: no more than 2/3 of of the jar volume Input Size: 10mm for crispy materials 3mm for other materials Output Size: 10 to 0.1 micron Rotation Speed: 335r/min / Rotation: 670r/min Way of speeding: inverter stepless speed reputation Way of drive: Gear drive Power; 750W/ 220V Way of Working: work with 2 or 4 jars simultaneously	P 605,000.00

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#### Parameter of the Lab machine 2.

Planetary ball mill is the necessary device for mixing, fine grinding, small sample preparation, nanometer material dispersion, new product development and small batch production of high-tech materials. The product is small in size with full functions, high efficiency, low noise, which is ideal for micro particles research sample (each experiment can get four samples) in scientific research units, institutions of higher learning, enterprises laboratory. With vacuum ball mill pot, grinding can goes on under vacuum. It is widely used in geology, mining, metallurgy, electronics, building materials, ceramics, chemical industry, light industry, medicine, cosmetic, environmental protection and other departments. Users can set speed and positive & negative alternating time according to the technical requirement, and the total milling time.

# **Principle**

In the planetary ball mill, the rotary table is equipped with 4 ball grinding jars, when the rotary table rotates, the jars move with the rotary table and spin around their own axis at the same time like a planetary motion. In the jar, grinding balls collide with each other in the high speed movement, grinding and mixing materials. The product can do dry and wet grinding, mixing products of different particle sizes and material.

# **Specifications**

Model	XQM-4	
Grinding Jar	Volume: 1L*4	
Material of Grinding Jar and Medium(balls)	Stainless Steel	
Max Loading Capacity of Jar	No more than 2/3 of the jar volume(including the material and the balls)	
Input Size	≤10mm for crispy materials; ≤3mm for other materials	
Output Size	10 to 0.1micron	
Rotation Speed	Revolution: 335r/min; Rotation:670 r/min	
Way of speeding	Inverter stepless speed regulation, speed precision is 0.2 r/min	
Way of Drive	Gear Drive	
Motor Power	750w, 220v,50Hz	
Way of Working	Work with 2 or 4 Jars simultaneously	
Input size	≤10mm	
Output Size	13-75 micron	
Maximum continuous working time	72h	

### **Product features:**

- 1. Gear transmission to stable rotation speed
- 3. Planetary motion to guarantee high efficiency of ball mill, fine granularity;
- 4. The frequency conversion control for selecting ideal speed according to the test results;
- 5. The inverter with under-voltage and over-current protection can protect the machine.
- 6. The whole body with functions of regular shutdown, automatic timing, reverse function, Users can according to needs choose one way, alternate, continuous, timing, and non-timing operation mode to improve the efficiency of grinding;
- 7. An experiment at the same time for four kinds of different sizes, different materials of samples;
- 8. The equipment is equipped with safety switch, which can prevent equipment from starting with the cover open.



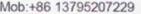














#### Introduction:

2000E laser diffraction particle size analyzer is an entry level and high efficient-cost with stable good performance model, working with principle of MIE Scattering to precisely determine the particle size distribution from 0.1 to 300 micrometer. It's classical model, widely used in universities research and company lab research

Main Specification:

viani Specification:				
Model Name		2000E		
Standard		ISO13320-1:1999, GB/T19077.1-2008, Q/JWN001-2009		
Principle		MIE scattering principle		
Measuring I	Range	0.1-300µm		
Channels N	umber	39 PCS		
Accuracy er	ror	<1% (National Standard Sample D50 )		
Repeatabilit	y error	<1% (National Standard Sample D50 )		
Light source		High performance He-Ne Laser (λ= 632.8nm, P>2MW) Lifetime>25000hour		
	Ultrasonic	Frequency:40KHz Power:50W, Time: ≥1S		
Dispersion	Stir	Revolutions Speed: 0-300RPM (Adjustable)		
Method	Circulate	Rated Flow:8L/min Rated Power:10W		
	Sample Pool	Volume:350mL		
	Micro-	Volume: 10mL ( Available)		
	Sample Pool			
Operation M	lode	Full automatic and manual control, freely choose		
Output para	meter	D10,D50,D90,D100,S/V referent parameters		
Optical	Calibration	Full automatic		
System				
Test Speed		<2mins per time		
Outer dimer	nsion	L88cm×W39cm×H46cm		
Net Weight		41Kg		
Warranty		2 years		

# 2, Main Features:

## 1) Advanced design of light path:

A patented technique of Fourier transform of converging light released the scattered light at largescattering-angles from the restriction of the aperture of the Fourier lens. The focal length is reduced to enhance the resolution of the instrument.

2, Built-in dispersion units: