



Technical resources

Non invasive material homogenizer

Model: TCMC

<https://www.tencanballmills.com/en/products/mixed-series/non-invasive-material-homogenizer.html>

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Non invasive material homogenizer

Model: TCMC

Non-intrusive homogenizer for high-viscosity materials. Uses planetary motion & vacuum to mix, disperse & eliminate bubbles efficiently.

Technical specifications

Container capacity	350~1500 ml, 1/2 vessel
Processing volume	120~750ml
Processing weight	150g~2kg

These specifications describe the series. Confirm the selected model, power supply and configuration before ordering.



Non-intrusive material homogenizer It is an efficient equipment that achieves material homogenization and defoaming through centrifugal force, vacuum system and compound motion. Its core design adopts a composite motion mode that combines "revolution" and "rotation", combined with vacuum degassing technology, and is suitable for dispersing, mixing and air bubble removal of high-viscosity materials (such as adhesives, inks, slurries, etc.). This equipment does not require direct contact with materials, and uses the synergy of centrifugal force and vacuum to complete processing to avoid cross-contamination. It is widely used in laboratories and industrial production.

研磨系列

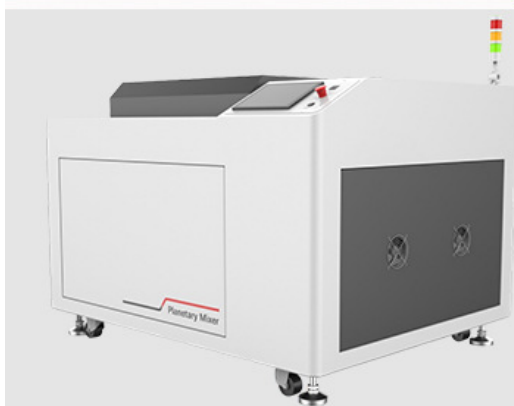
非介入式材料均质机



单、双杯可选

可选择单双杯

多段参数设置



适配器种类丰富

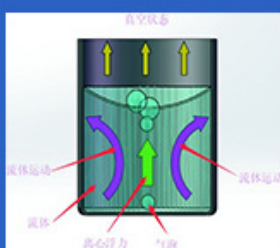
适用范围广、可研发、量产



研磨系列

均质机/运行原理

本机采用行星传动的方式(公转+自转),对载杯(或载具)内的物料施加相当于几百个材料本身重量的离心力,再结合公自转互相之间对材料的揉合,最终达到多组分材料的快速的均匀. 机器本身强大的离心作用力,材料内部的气泡在这一作用力挤压下从本体逸出.再辅以真空以达到快速脱除材料气泡的功能.



研磨系列

均质机效果对比

氧化铝粉体+树脂

Al₂O₃ Powder + Resin

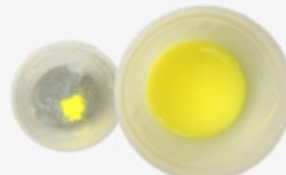


搅拌前
Before mixing

搅拌后
After mixing

光电材料

Photoelectric Materials



搅拌前
Before mixing

搅拌后
After mixing

双组份硅胶

Two component silica Gel



搅拌前
Before mixing

搅拌后
After mixing

电阻浆料

Electric Resistance



搅拌前
Before mixing

搅拌后
After mixing

医药制品

Medical product



搅拌前
Before mixing

搅拌后
After mixing

硅微粉+环氧树脂+固化剂

Micro silica+EPOXY Resin+curing Agent



搅拌前
Before mixing

搅拌后
After mixing

Non-intrusive homogenizers are mainly used in the following fields:

1. **High viscosity material handling** : Such as homogeneous dispersion of adhesives, coatings, and inks, eliminating bubbles and particle agglomeration in materials.
2. **Pharmaceuticals and Medical** : Homogenization and defoaming of drug suspensions, liposomes, and injections to improve drug stability and bioavailability.

3. **New energy and electronic industry** : Uniform mixing of battery slurry, conductive adhesive and other materials to ensure product performance consistency.
4. **Food and Cosmetics** : Homogenization of emulsions and pastes to improve texture and stability.
5. **Scientific research experiments** : Rapid dispersion and deaeration of laboratory-grade small batch samples.

Technical parameters

Device name	Non-intrusive material homogenizer		
Product model	TCMC-180HV	TCMC-200V	TCMC-350VS
use	Mixing industrial adhesives, metallic or non-metallic slurries	Mixing industrial adhesives, metallic or non-metallic slurries	Mixing industrial adhesives, metallic or non-metallic slurries
Configuration	Container capacity: 350ml, single cup Actual material handling capacity: 120ml, planetary mixer Maximum material handling weight: 150g, planetary mixer	Container capacity: 350ml, single cup Actual material handling capacity: 175ml, planetary mixer Maximum material handling weight: 200g, planetary mixer	Container capacity: 350ml*2 cups Actual material handling capacity: 175ml*2 cups, planetary mixing Maximum material handling weight: 250g*2 cups, planetary mixing
set up	Multi-segment parameter group, 0-8 groups (can be set)	Multi-segment parameter group, 0-8 groups (can be set)	Multi-segment parameter group, 0-5 groups (can be set)
operate	touchscreen	touchscreen	touchscreen
Speed	130-3600RPM, actual motor speed	130-2000RPM, actual motor speed	Revolution:130-3000RPM; Rotation: 130-3000RPM, both are actual motor speeds
Protect	Door cover, vibration, overload, vacuum leakage, emergency stop	Door cover, vibration, overload, vacuum leakage, emergency stop	Door cover, vibration, overload, vacuum leakage, emergency stop
vacuum	7.2m ³ /h, about -99kpa (relative to 0 meter altitude)	7.2m ³ /h, about -99kpa (relative to 0 meter altitude)	20m ³ /h, about -100kpa (relative to 0 meter altitude)
Specification	L585*W405*H630mm	L585*W405*H650mm	L730*W510*H800mm
power supply	Single phase, AC220V, 50Hz; Power: 1.5KW	Single phase, AC220V, 50Hz; Power: 1.5KW	Single phase, AC220V, 50Hz; Power: 1.75KW
weight	About 80kg	About 80kg	About 135kg
Accessories	6 standard plastic cups (350ml); Transmission belt: 1 piece	6 standard plastic cups (350ml); Transmission belt: 1 (spare)	Standard plastic cups (350ml), 6 pieces, weight 250g
Device name	Non-intrusive material homogenizer		

Product model	TCMC-580HV	TCMC-700VS	TCMB-4000VS
use	Mixing industrial adhesives, metallic or non-metallic slurries	Mixing industrial adhesives, metallic or non-metallic slurries	Mixing industrial adhesives, metallic or non-metallic slurries
Configuration	Container capacity: 1000ml*1 cup Maximum material handling weight 500g, planetary mixing	Container capacity: 700ml*2 cups Actual material handling capacity: 350ml*2 cups, planetary mixing Maximum material handling weight: 500g*2 cups, planetary mixing	Container capacity: 1500ml*2 cups Actual material processing capacity: 750ml*2 cups, planetary mixing Maximum material handling weight: 2kg*2 cups, planetary mixing
set up	Multi-segment parameter group, 0-8 groups (can be set)	Multi-segment parameter group, 0-5 groups (can be set)	Multi-segment parameter group, 0-5 groups (can be set)
operate	touchscreen	touchscreen	touchscreen
Speed	100-2700RPM	Revolution:130-3000RPM; Rotation: 130-2000RPM, both are actual motor speeds	Revolution:150-1440RPM; Rotation: 150-1440RPM, both are actual motor speeds
Protect	Door cover, vibration, overload, vacuum leakage, emergency stop	Door cover, vibration, overload, vacuum leakage, emergency stop	Door cover, vibration, overload, vacuum leakage, emergency stop
vacuum	20m ³ /h, about -100kpa (relative to 0 meter altitude)	20m ³ /h, about -100kpa (relative to 0 meter altitude)	28m ³ /h; About -100kpa (relative to 0 meters altitude)
Specification	L700*W500*H770mm	L730*W510*H790mm	L880*W625*H850mm
power supply	Single phase, AC220V, 50Hz; Power: 2.3KW	Single phase, AC220V, 50Hz; Power: 1.8KW	Three-phase five-wire, AC380V, 50Hz; Power: 4KW
weight	About 115kg	About 130kg	About 210kg
Accessories	Standard plastic cups (1000ml), 6 pieces;	Standard plastic cups (700ml), 6 pieces, weight 500g	Standard plastic cup (1500ml), 6 pieces, 2kg weight

This machine uses planetary transmission (revolution + rotation) to exert a centrifugal force equivalent to hundreds of weights of the material itself on the material in the cup (or carrier). Combined with the combination of the revolution and rotation to knead the material, it ultimately achieves rapid uniformity of multi-component materials.

Due to the powerful centrifugal force of the machine itself, the bubbles inside the material are squeezed out of the body by this force. This is supplemented by vacuum to achieve the function of quickly removing bubbles from the material.

- **revolution motion** : The carrier rotates around the central axis of the equipment at high speed, generating centrifugal force to squeeze the material downward and discharge the internal air bubbles.

- **rotational motion** : The carrier itself rotates at high speed, and cooperates with the revolution to form a vortex flow, which enhances the mixing effect.
- **defoaming stage** : The vacuum system forms a negative pressure in the cavity, completely extracting the bubbles squeezed to the surface by centrifugal force, while reducing the risk of material oxidation.
Through the above composite effect, the material can be evenly dispersed and bubble-free in a short time.
- **Composite motion design** : The speed of revolution and rotation can be adjusted independently, which can adapt to the processing needs of materials with different viscosities and achieve efficient mixing and deaeration.
- **Vacuum degassing technology** : Quickly extract air bubbles through the vacuum system (-99kPa to -100kPa) to improve material density.
- **Temperature rise control** : Optimize motion parameters to reduce frictional heat generation and avoid the impact of high temperature on heat-sensitive materials.
- **Strong compatibility** : Supports various material types such as liquid, solid, powder, viscous liquid, etc.
- **Easy to operate** : Equipped with human-computer interaction interface, supports multi-parameter programming and simplifies the operation process.
- **Easy to clean and maintain** : Modular design, contact parts are easy to disassemble and clean, and comply with hygiene standards.

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Before operation, review the selected model's instructions and the material requirements.