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Planetary ball mill (semi-circular model)

XQM-A series

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A four-position benchtop planetary mill for laboratory grinding, mixing and sample preparation.

Overview

A four-position benchtop planetary mill for laboratory grinding, mixing and sample preparation. The XQM-A family provides a choice of jar volumes without treating the mill's nominal capacity as the usable sample load.

How it works

The planetary disc revolves while each jar rotates about its own axis. The resulting impact and friction between the media, sample and jar produce the grinding action. The A-series name refers to the machine housing; it does not mean that the grinding jars are semicircular.

Key features

- Four jar positions for balanced operation and parallel sample preparation.

- Variable-frequency speed control, timed operation and reversing settings are listed for the series.
- The specification tables distinguish planetary-disc speed from jar rotation speed and show the different electrical supplies of individual models.

Specifications

Published catalog references are reproduced below. Nominal volume is not a sample-mass rating. Confirm the selected model, material grade, electrical supply and complete supplied configuration in the quotation.

Model specifications — 1

Model	Nominal capacity	Compatible jar volume	Jar positions	Compatible vacuum jar volume	Machine mass (kg)
XQM-0.4A	0.4L	25-100mL	4	50mL vacuum jar	29
XQM-1A	1L	50-250mL	4	50-100mL vacuum jar	85
XQM-2A	2L	50-500mL	4	50-250mL vacuum jar	85
XQM-4A	4L	250-1000mL	4	50-500mL vacuum jar	85
XQM-6A	6L	1-1.5L	4	50-1000mL vacuum jar	85
XQM-8A	8L	1-2L	4	1-1.5L vacuum jar	150
XQM-10A	10L	1-2.5L	4	1-2L vacuum jar	150
XQM-12A	12L	1-3L	4	1-2L vacuum jar	150
XQM-16A	16L	2-4L	4	1-3L vacuum jar	205

Model specifications — 2

Model	Dimensions (mm)
XQM-0.4A	500×300×340
XQM-1A	760×470×600
XQM-2A	760×470×600
XQM-4A	760×470×600
XQM-6A	760×470×600
XQM-8A	880×560×642
XQM-10A	880×560×642
XQM-12A	880×560×642

Model	Dimensions (mm)
XQM-16A	950×600×710

Model specifications — 3

Model	Electrical supply	Supply phase	Motor power (kW)	Speed control	Programmable run time (min)
XQM-0.4A	220V 50Hz	Single phase	0.25kW	Variable-frequency control	1-9999
XQM-1A	220V 50Hz	Single phase	0.75kW	Variable-frequency control	1-9999
XQM-2A	220V 50Hz	Single phase	0.75kW	Variable-frequency control	1-9999
XQM-4A	220V 50Hz	Single phase	0.75kW	Variable-frequency control	1-9999
XQM-6A	220V 50Hz	Single phase	0.75kW	Variable-frequency control	1-9999
XQM-8A	220V 50Hz	Single phase	1.5kW	Variable-frequency control	1-9999
XQM-10A	220V 50Hz	Single phase	1.5kW	Variable-frequency control	1-9999
XQM-12A	220V 50Hz	Single phase	1.5kW	Variable-frequency control	1-9999
XQM-16A	380V 50Hz	Three phase	3kW	Variable-frequency control	1-9999

Model specifications — 4

Model	Reversing interval (min)	Planetary disc speed (rpm)	Jar rotation speed (rpm)	Revolution : rotation ratio	Published noise level (dB)
XQM-0.4A	1-999	0-435	0-870	1:2	58±5
XQM-1A	1-999	0-405	0-810	1:2	60±5
XQM-2A	1-999	0-405	0-810	1:2	60±5
XQM-4A	1-999	0-405	0-810	1:2	60±5
XQM-6A	1-999	0-335	0-670	1:2	60±5
XQM-8A	1-999	0-290	0-580	1:2	60±5
XQM-10A	1-999	0-290	0-580	1:2	60±5
XQM-12A	1-999	0-290	0-580	1:2	60±5
XQM-16A	1-999	0-255	0-510	1:2	65±5

Applications

Materials development, ceramic and mineral sample preparation, powder blending and exploratory milling methods.

Suitability depends on the actual sample, process and analytical requirements; a listed application is not a guaranteed final-particle-size result.

Accessories and options

Discuss jar materials, a model-compatible vacuum jar and the required control arrangement. Air cooling or other process assistance requires an engineering check for the selected base machine.

- Jar and media: confirm material, volume, holder fit and the complete working load.
- Vacuum or gas requirements: specify the complete jar, lid and seal arrangement; no pressure rating is assumed.
- Utilities and supply scope: state voltage, frequency, phase, destination and required documents; confirm included versus optional items.

[Compare milling jars](#) · [Compare grinding media](#) · [Low temperature planetary grinding machines](#) · [Ultrasonic planetary ball mills](#)

Selection guidance

Start with sample mass, density and the number of parallel samples. Match the jar to the exact XQM-A model, then check the media mass, permitted working load and required electrical supply.

[Work through the selection guide](#) · [Request a configuration quotation](#)

Trials and comparisons

Explicit model record

Copper powder

XQM-0.4A · Wet milling

- Sample: 51 g
- Jar: 100 mL
- Recorded sampling / duration: 60 min

Recorded observations

Observation	Sampling time	D50 (μm)	D90 (μm)
Recorded sample	60 min	9.88	15.28

The exact XQM-0.4A model is identified; this does not validate every XQM-A capacity. The exact XQM-0.4A model is recorded. No starting distribution or measurement method is supplied. D90 15.28 μm does not demonstrate that all particles were below the requested 10 μm limit.

Explicit model record

Copper paste

XQM-0.4A · Wet milling

- Sample: 100 g
- Jar: 100 mL
- Recorded sampling / duration: Two recorded 4 min samples

Recorded observations

Observation	Sampling time	D50 (μm)	D90 (μm)
Starting sample	Before milling	7.79	12.61
Recorded run 1	4 min	7.79	12.39
Recorded run 2	4 min	8.23	13.70

The exact XQM-0.4A model is identified; this does not validate every XQM-A capacity. These two short-run observations do not show consistent size reduction. The summary does not establish identical sampling or dispersion conditions, and its overall 36 min entry is not assigned to either individual 4 min sample.

How to plan a fair comparison

Compare the same sample at agreed sampling times with an unchanged jar, media charge and measurement method. Record both D50 and D90 rather than judging the result by appearance.

These anonymous records are not operating instructions. Measurement and dispersion methods are not fully specified in the test summaries; results apply to the reported samples and conditions.

Discuss a matched sample evaluation

Plan your milling configuration.

TENCAN develops and manufactures planetary milling equipment, with application support in Changsha and a production base in Wushi, Hunan. Share your material, batch size, target particle size and contamination limits. Our team can help confirm the mill, jars, media and electrical requirements, or arrange a sample grinding evaluation.

Reference information applies to the described models and conditions. Confirm the final specification and supplied accessories with TENCAN before ordering.

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Product page <https://www.planetaryballmill.com/planetary-ball-mills/planetary-ball-mill-semi-circular-model.html>

Sample grinding www.planetaryballmill.com/sample-testing/