

Freeslate jr.

Powder dispense system

The freeslate jr. powder dispense system is an automated powder dosing system that enables precise, traceable, and accurate weighing and dispensing of sub-milligram to gram quantities of a wide range of materials. The powder dispense technology ensures powders are delivered with high accuracy and precision. An adaptive learning algorithm monitors and optimizes dosing parameters to compensate for variability in powder properties during the filling process.

Applications

- Biomass feedstock screening
- Dispensing catalysts and supports
- Repackaging bulk powders
- Solubility testing
- Polymorph screening
- Forced degradation testing
- Compound management
- Walk-up sample preparation
- Reference standard preparation

Key features

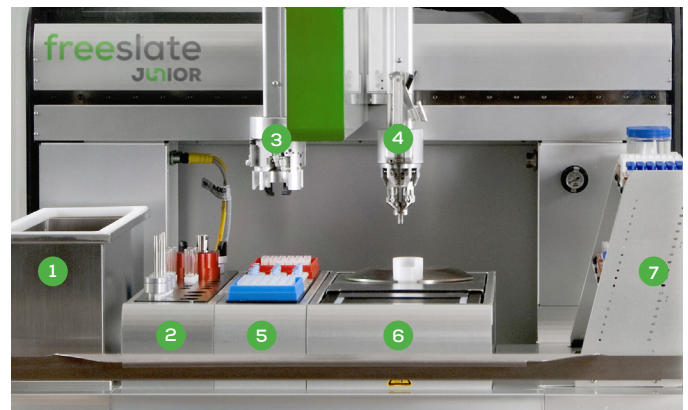
- Compatibility with a wide range of powders with diverse properties
- Compatibility with almost any receiving container
- Consistent and accurate powder dispensing with RSDs typically between 1% and 5%
- Unattended operation which allows overnight dispensing
- Precise and accurate dispensing of sub-milligram to gram quantities of material
- A learning algorithm, which dynamically monitors and automatically controls dispense rate to compensate for variability in powder properties for accurate dispenses
- Precise delivery of small amounts of powder without cross-contamination with patented SV valve caps



freeslate jr. configured for solid dispense



freeslate jr. delivering a plate from shoulder hotel to balance



- | | |
|--------------------------------------|----------------------------------|
| 1 Waste bin | 4 Vial/plate gripper |
| 2 Powder dispense hopper rack | 5 Tip rack |
| 3 Viscous liquid and solid dispenser | 6 Balance with integrated camera |
| | 7 Vertical plate hotel |

Available options

Vial/plate gripper

Plate handling:

- **Maximum plate weight:** 1000 g with grooves

Vial handling:

- **Minimum vial diameter:** 8 mm
- **Maximum vial diameter:** 60 mm

Solid dispense

Dispense technology: Dispense algorithm dynamically controls the dispensing head to adjust for powders with different densities, particle sizes, particle shapes and static charges

- **Classic powder dispense:** Traditional stirrer dispense mechanism
 - **Hopper volume range:** 10–100 mL
- **Storage vial (SV) powder dispense:** Unique vibratory dispensing mechanism for highly precise dispensing of small amounts as low as 0.5 mg
 - **Hopper volume:** 4 mL

Viscous liquid dispense

Technology: Positive displacement tip (PDT)

Disposable tips: 10–10,000 µL, from Eppendorf and Rainin

Viscosity: 1–1,000 cP

Balance with integrated camera

Maximum weight:

- **Standard:** 1200 g
- **High-sensitivity option:** 220 g

Sensitivity:

- **Standard:** 0.1 mg
- **High sensitivity option:** 0.01 mg

Resolution:

- **Standard:** 0.1 mg
- **High-sensitivity option:**
 - 0.01 mg (0–110 g)
 - 0.1 mg (110–220 g)

Repeatability (std dev):

- **Standard:**
 - **High weight (measured >200 g):** 0.25 mg
 - **Low weight (measured up to 200 g):** 0.15 mg
- **High-sensitivity option:**
 - **High weight (measured at 200 g):** 0.15 mg
 - **Low weight (measured at 10 g):** 0.04 mg

Response time: <22 s

Camera resolution: 1032 pixels (max wide) x 779 pixels (tall)

Hotel storage capacity (microtiter format plates)

Maximum storage 1 mL plates: 15
Maximum storage 2 mL plates: 15
Maximum storage 4 mL plates: 12
Maximum storage 8 mL plates: 12
Maximum storage 20 mL plates: 12
Maximum storage 40 mL plates: 9
Maximum storage 125 mL plates: 9
Maximum storage Rainin PDT boxes: 6
Maximum storage shallow well plates: 15

Deck storage powder source materials

Maximum number of SV hoppers: 24
Maximum number of Classic (10 mL) hoppers: 8
Maximum number of Classic (25, 50, 100 mL) hoppers: 12

Facilities requirements

Physical:

With integrated enclosure:

167 cm W x 91 cm D x 200 cm H ~ 150 kg

Electrical:

85–264 VAC, 50–60 Hz

Compressed dry air: 0.5 MPa to 0.9 MPa (70–130 psi), 16 L/min (8 mm hose)



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