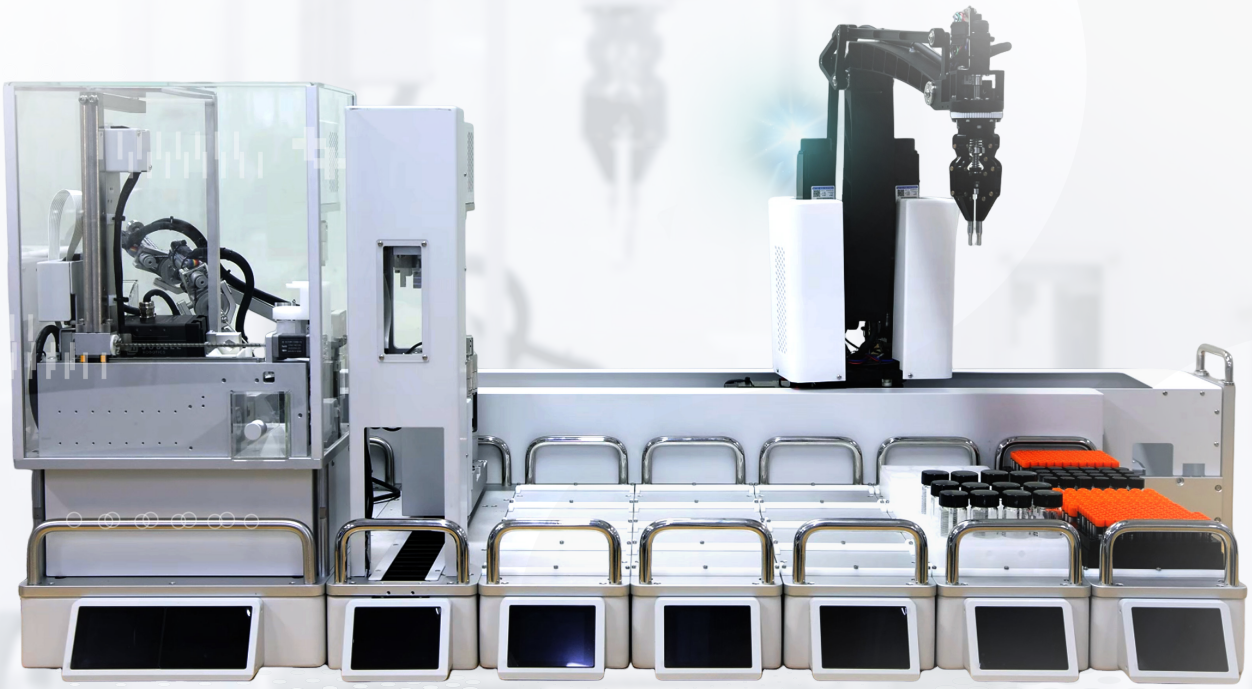
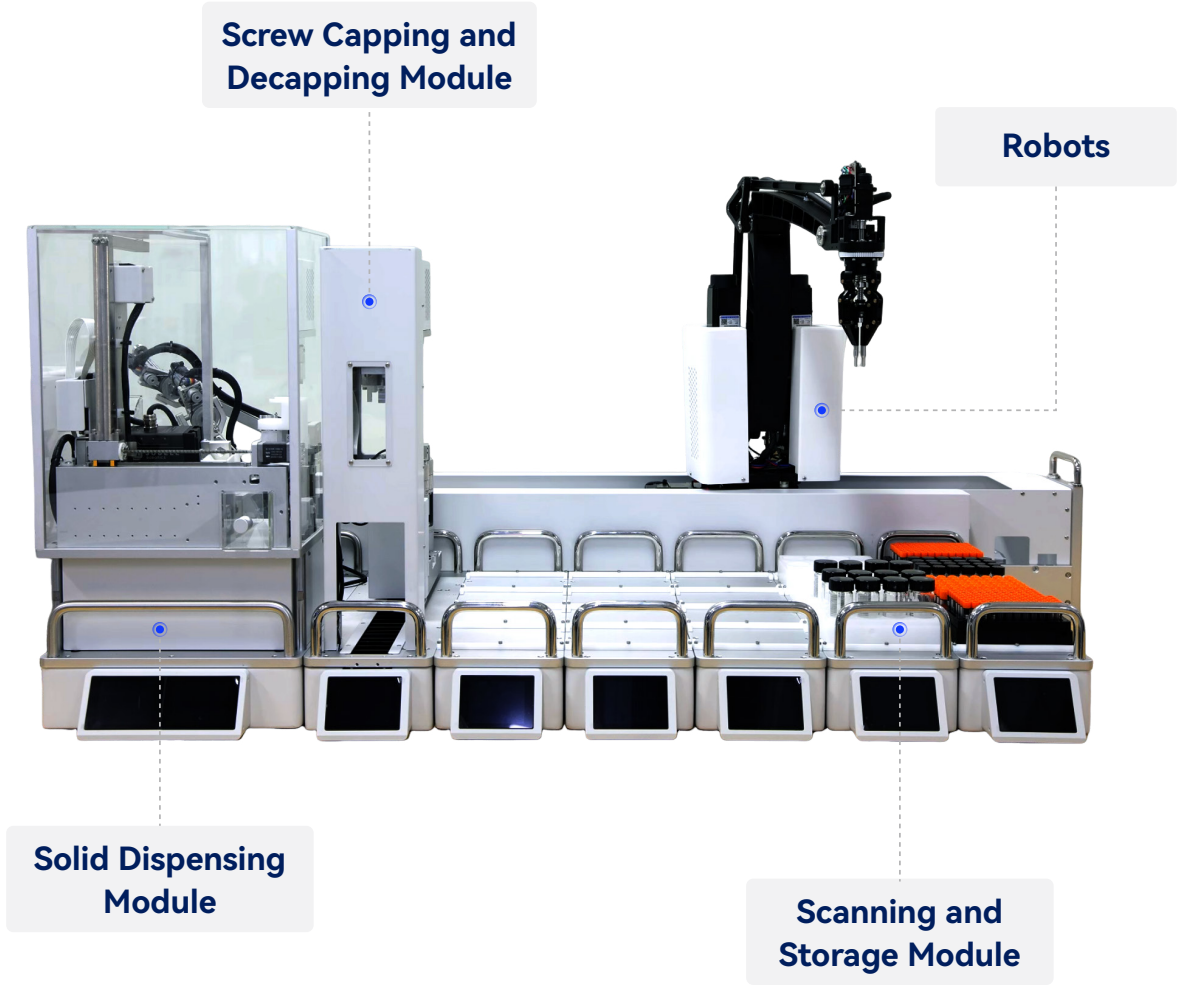
XtalPi

NeoDispenser Micro-Powder Dispensing System



Product Introduction

XtalPi **NeoDispenser** is an automated workstation specifically designed for compound management and micro-powder dispensing in synthetic workflows. It addresses the technical challenge of accurately dispensing powder samples below 5 mg. By emulating manual operations and integrating an intelligent vision system with a high-precision balance, the instrument ensures precise measurement of diverse powder types. It is particularly well-suited for handling expensive or limited-quantity samples, effectively minimizing material loss.

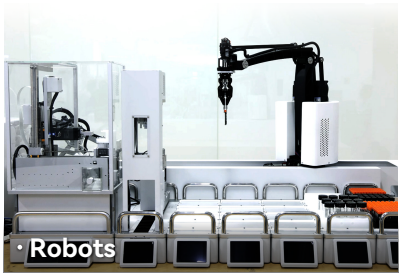


Application

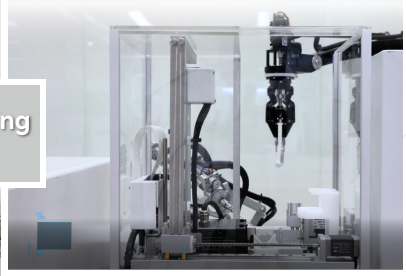
Compound Management

Micro-Powder Dispensing

NeoDispenser Module



· Solid Dispensing Module



Workflow

Submit the Experimental Task

Open the Powder Source Vial

Open the Target Vial

Position the Weighing Spatula

Close the Powder Source Vial

Close the Target Vial

Dispense Powder Samples

Features

Redefining the Standard for Automated Micro-Powder Dispensing

—— Embodied Intelligence Solutions for Next Generation of Highly-Efficient Research

Intelligent Operation to Overcome Dispensing Challenges

- **Reliable Weighing Performance**
  Equipped with a high-resolution balance, supporting both 0.1mg and 0.01mg precision balance to ensure consistent and reliable weighing results
- **Precise Pick-and-Place Positioning**
  Enabled by a machine vision camera, this technology achieves breakthrough precision in sub-5 mg powder dispensing

Optimized Material Efficiency Through Loss-Reduction Designs

- **No Pre-Treatment Required**
  Enables direct powder retrieval from source vials, minimizing waste of precious samples from the initial handling stage
- **Wall-Scraping Design**
  Ensures complete powder recovery with minimal dead volume
- **Reusable Core Component**
  The spatula is designed for repeated use, effectively lowering operational expenses and promoting environmental sustainability

Versatile Applications with Excellent Compatibility

- **Broad Sample Compatibility**
  Capable of handling materials from fine powders to larger granules, including coarse, fluffy, poor-flowing, and static-prone powders
- **Multi-Specification Container Support**
  The multi-functional end effector with four-fingered gripper is designed to handle 1-8 mL vials across a wide range of specifications

Flexible Functional Architecture for Diverse Applications

- **Broad Applications**
  Supports integrated operation inside the glove-box for experiments involving air- or water-sensitive reagents
- **Enhanced Configuration Flexibility**
  The number of dispensing modules and reactors can be customized to accommodate diverse throughput and scale requirements

Chemist-Centric Software, Intuitive & Flexible

- **Intuitive Interaction**
  With the graphical interface and real-time 1:1 2D platform layout, the device status and experiment progress are clear at a glance, enabling WYSIWYG (What You See Is What You Get) interactive control
- **Flexible Configuration**
  Supports modular protocol setup, enabling rapid customization, adjustment, and validation based on experimental requirements for agile adaptation and efficient deployment
- **Data Integrity**
  Features automated data acquisition and complete process recording to ensure data integrity and full traceability
- **Closed-Loop Process**
  Enables end-to-end digital management by integrating experimental design, task execution, and result consolidation to form a highly efficient and reliable R&D cycle

Technical Parameters

Product Name	NeoDispenser
Volume of Target Containers	1 mL ~ 8 mL
Number of Target Containers	20 racks in total 1 mL × 96 / rack 4 mL × 24 / rack
Experimental Throughput	150 vials / day
Solid Weighing Range	0.5 mg ~ 100 mg
Weighing Resolution	0.01 mg / 0.1 mg（optional）
Weighing Accuracy	±0.3 mg（Subject to final testing results）
Barcode Scanning	Both racks and vials are equipped with barcode scanning capability
Dimensions	1500 × 700 × 800 mm（L × W × H）

Testing Data

Compatible with challenging powders, including:

- Large Granules
- Fluffy Materials
- Poor-Flowing Powders
- Static-Prone Substances

Compound	Features	Source Vial	Target Vial	Target Amount /mg	Average Amount /mg	Dispensing Time/s
Sodium Bicarbonate	Fine Powder	Max. Volume: 25 mL Compatible Dimensions: 70 mm (H) x 26 mm (D)	Max. Volume: 8 mL Compatible Dimensions: 60 mm (H) x 16 mm (D)	1.0	1.1	100
				5.0	5.1	100
				20.0	20.1	130
				50.0	50.1	160
Potassium Hydroxide	Flake Form			10.0	14.9	120
				20.0	23.7	120
				50.0	55.4	140
				100.0	103.2	170
Synthetic Powder	Granular			10.0	18.3	80
				20.0	27.9	80
				50.0	57.4	120
				100.0	111.2	170
6-Bromoindole	Cohesive Powder			5.0	4.9	280
				10.0	10.2	300
				20.0	20.2	310
				50.0	49.9	350
Zinc Powder	High-Density			0.5	0.7	300
				0.7	0.8	300
				0.9	1.0	300
				1.1	1.2	300

* The data were obtained using spatula of the specified sizes; quantitative efficiency may vary between different spatula specifications.

* The average dispensing amount of potassium hydroxide is determined by the individual unit weight, with a ± 5 mg average setting error.

* The average dispensing amount of synthetic powder is determined by the individual unit weight, with a ± 10 mg average setting error.

* The data presented reflect only the results of the current experiment and are for reference only. Actual performance may vary due to factors such as compound properties, weighing targets, and precision requirements etc.

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