



— Gentle P-Pac™ —

High-precision Automated Fill & Finish System



Fully closed and automated



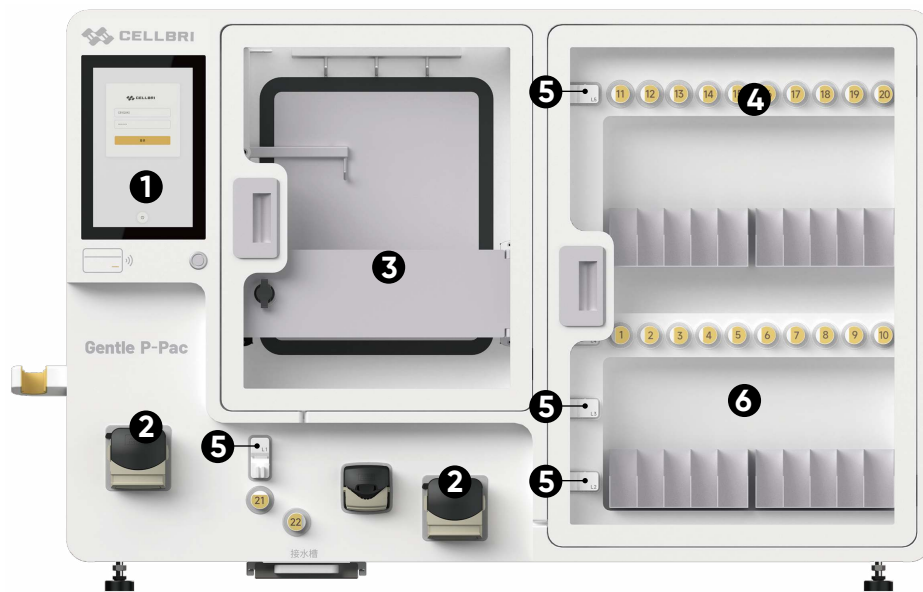
Precise, reliable, high-throughput



Regulation compliant

Product Overview

Gentle P-Pac™ is a fully closed, automated, and high throughput fill & finish system for cell and virus dispensing with high precision. The Gentle P-Pac™ reduces labor cost and variability compared to manual processes while maintaining high cell viability, uniformity of concentrations across cell/virus bags, and maintains proper product temperature. The Gentle P-Pac™ provides a user-friendly tubing set that allows for process flexibility up to 20 bags in a single run, a user friendly installation process, an environmentally friendly design to reduce waste, and ultimately reduces run times through a faster liquid allocation process.



1 Enhanced GUI Touchscreen

Operating interface, including process running and basic operating

2 Peristaltic Pumps

Control flow rate and direction of liquids

3 Temperature controlled mixing compartment

Mixing sample at 2-8 C

4 Tube clamp valves

Control the automatic opening and closing of the tubing and liquid flow path

5 Liquid Sensor

Identify the gas-liquid state in the tubing for monitoring the process status and process control

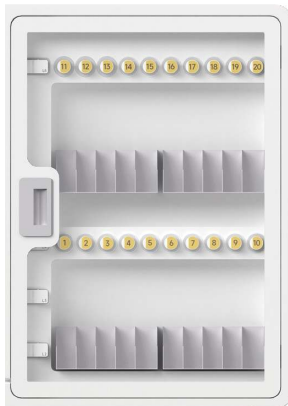
6 Preparation dispensing module

Final product bag placement and packaging area

Functional Parameters

Sample Processing Volume	150mL - 3,000mL	
Maximum dispensing volume in single cycle	20 bags(2mL - 150mL/bag)	
Dispensing volume	Dispensing Volume	Deviation
	2mL-3mL	within $\pm 0.3\text{mL}$
	3mL-10mL	within $\pm 0.5\text{mL}$
	10mL-50mL	within $\pm 1\text{mL}$
	50mL-150mL	within $\pm 2\%$
Cell concentration difference per bag	Cell Diameter	Concentration Difference
	6-12 μm	within 5%
	12-20 μm	within 10%
Cell viability difference	$\leq 5\%$	
Air removal	Auto	
Mixing Temperature	2 $^{\circ}\text{C}$ - 8 $^{\circ}\text{C}$	

Precise, Reliable and High Throughput



- Intelligent algorithms to analyze real-time data to ensure precise fluid flow controls, and automatically adjust pump flow rates to ensure filling precision.
- 2 peristaltic pumps for different packaging volumes, each bag can be flexibly set 2-150mL volume.
- Maximum 20 bags in a single dispensing cycle, greatly reducing labor and time cost.
- Compatible with storage bags and liquid storage bags from different manufacturers.

Intelligent Temperature Control and Flexible Mixing

- Simulated manual extrusion mixing: Automatically matching mixing frequency according to mixing volume to maximize cell activity. The concentration deviation of the same batch is within 5% (6-12 μm cell diameter).
- Single processing sample volume 0.15-3L
- Low temperature control of 2-8 $^{\circ}\text{C}$ to maintain cell activity



Auto Air Removal

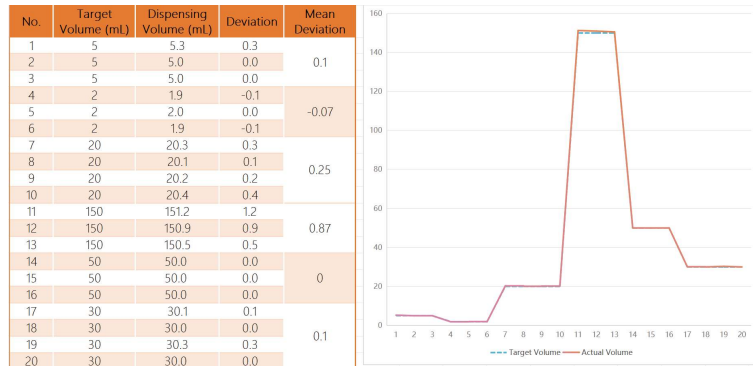
- Automated air removal after dispensing. Exhaust effect is equivalent to that of manual process.
- Air removal time is 10 times faster than manual process.



Gentle P-Pac Application Cases

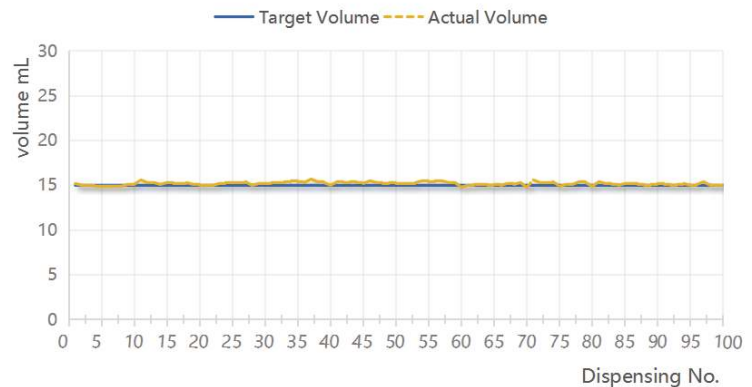
- Different volumes in a single batch:**

The average overall volume deviation is < 5%, meeting requirements of cell products for different volumes in a single batch.



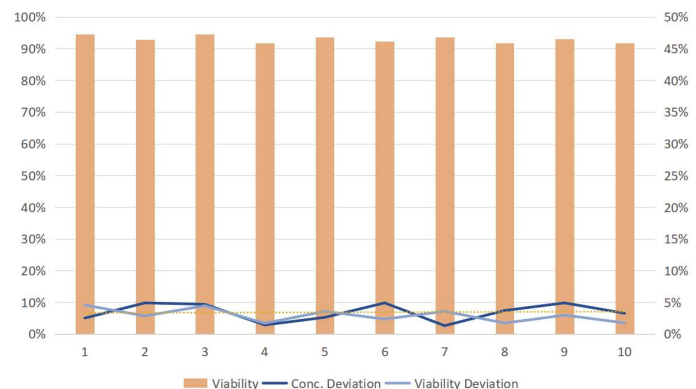
- Equal volume in multiple batches:**

For a process with 100 bags at 20 bags/batch, the volume deviation for each batch is <3%, meeting requirements of cell product for the same volume in multiple batches.



- Mixing effect of different bags:**

Cell products were filled into 10 bags at 50mL/bag. Deviation of cell concentration and viability is < 5% compared to pre-dispensing data.



Order Information

Cat#	Size	Description
01020214	P20-500	500mL mixing bag and 20x15mL freezing bags
01020215	P20-3L	3L mixing bag and 20x50mL freezing bags
01020216	P20-5L	5L mixing bag and 20x250mL freezing bags
01020217	Pac-L	Universal empty tubing
01020218	Pac-L-02	Enhanced 01020217 tubing
01020219	Pac-A-01	Enhanced 01020251 tubing
01020251	Pac-A	Extended empty tubing (Supplementary 01020217 tubing)
01020229	PJ-010	500mL liquid storage bags
01020230	PJ-011	3L liquid storage bags
01020231	PJ-012	5L liquid storage bags

Product Specifications

Specification

Size 19.3X49.6X31.3 in.

Weight 220.5lb

Power

Power Supply 100-240 VAC, 50/60 Hz

Power 150W

Port

USB USB2.0x2

Ethernet port RJ-45

Main Body

Monitor 10.1-inch TFT capacitive touch screen

Mixing refrigeration cabinet 2-8 °C, Mixing parameters can be adjusted

Sensor Pressure sensor, liquid sensor, temperature sensor, and Hall sensor

Liquid Transfer 5mL/min-300mL/min adjustable

Tubing Single-use closed consumable

Software Linux operating system, with a variety of built-in standard protocols

Cell and Gene Therapy Productivity Transformer

E-mail: marketing@cellbri.com

Web: www.cellbri.com/EN

