



A Geno Technology, Inc. (USA) brand name

# Vacuum Manifolds

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**Cat. No. BT2102, BT2103, BT2104**

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Before using the instrument, please read the operation instruction handbook carefully. We recommend that all the components and accessories be cleaned with a suitable laboratory cleaner and rinsed thoroughly with distilled water before use. Store the Vacuum Manifolds in a cool and dry location

## INTRODUCTION

BT Lab Systems' Vacuum manifolds are designed for high throughput applications, such as nucleic acid extraction, solid phase extraction, protein precipitation and Oligo Synthesis, compatible with 48/96/384 well plates and luer-inlet spin columns. The use of negative pressure avoids repeated pipetting and centrifugation and simplifies the nucleic acid extraction process.

Made of integrated anti-corrosion material and firm design, the Vacuum manifolds have excellent stability, flow rate and reproducibility. The following models are available:

- **Universal Vacuum Manifolds** are applicable to nucleic acid purification, solid phase extraction, QuEChERS, protein precipitation, and removal of matrix such as phospholipids.
- **Double-Layer Vacuum Manifolds** enable filtration and extraction at the same time, applicable to nucleic acid purification, solid phase extraction, protein precipitation and removal of matrix such as phospholipids
- **Luer-Inlet Vacuum Manifolds** applicable to large-volume nucleic acid purification.

## SUPPLIED PARTS

Component	Universal Vacuum Manifold (BT2102)	Double-Layer Vacuum Manifold (BT2103)	Luer Inlet Vacuum Manifold (BT2104)
Vacuum Manifold Base	1	1	1
Waste Reservoir	1	1	1
Plate Support	1	2	-
6mm Pad	1	1	-
15mm Pad	1	1	-
12-Position Spin Column Lid	-	-	1
12-Position Tube Rack	-	-	1
Connecting Tube	-	-	12
Sealing Plugs	-	-	12
Vacuum Gauge	1	1	1
Connecting Pipe 1	1	1	1
Connecting Pipe 2	1	1	1

## ASSEMBLY ILLUSTRATIONS

### Universal Vacuum Manifold

#### Filtration

(With Waste Reservoir)



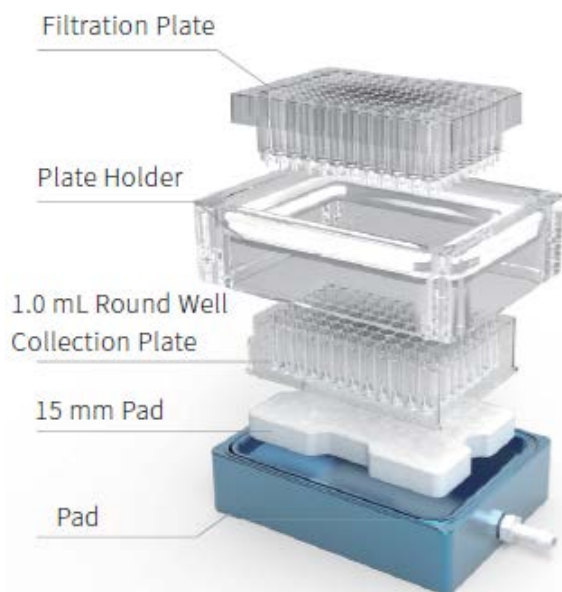
#### Collection

(With 2.0mL Round Well Collection Plate)



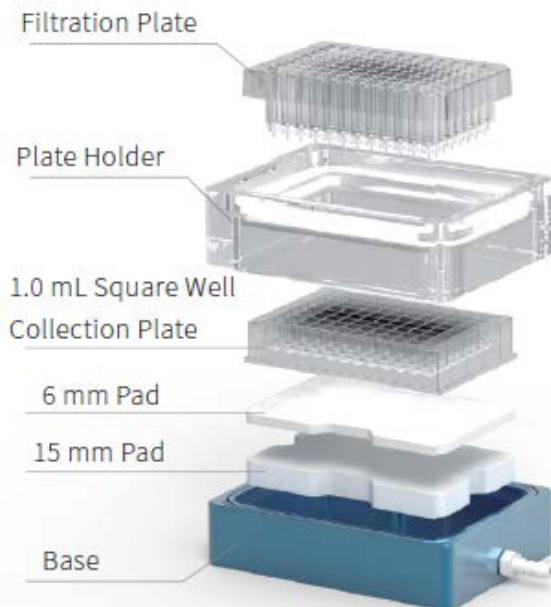
#### Collection

(With 1.0mL Round Well Collection Plate)

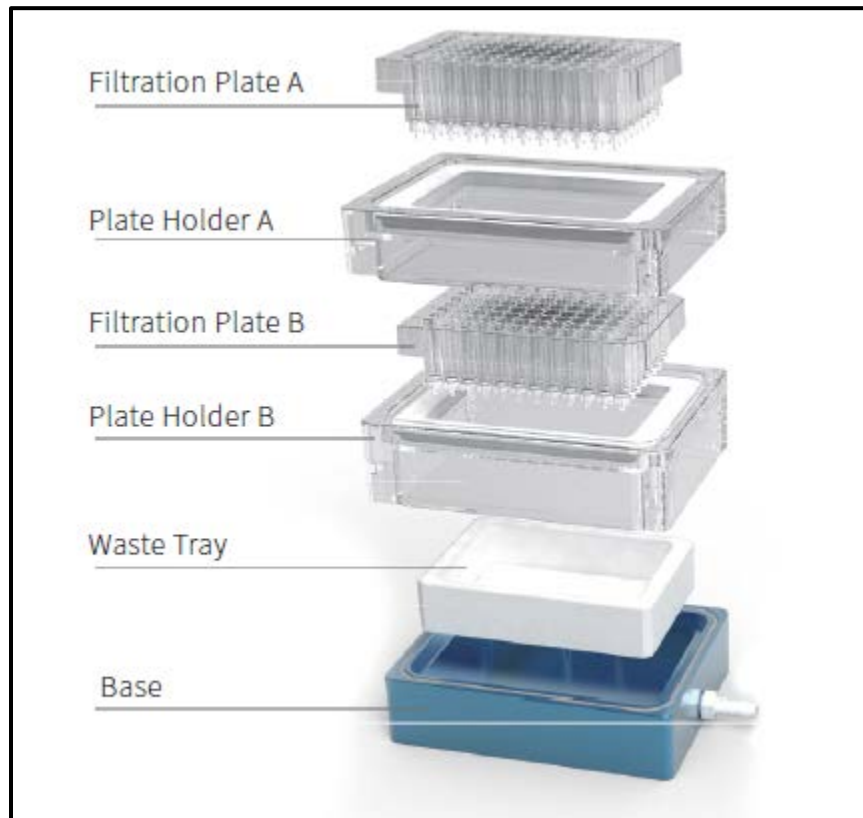


#### Collection

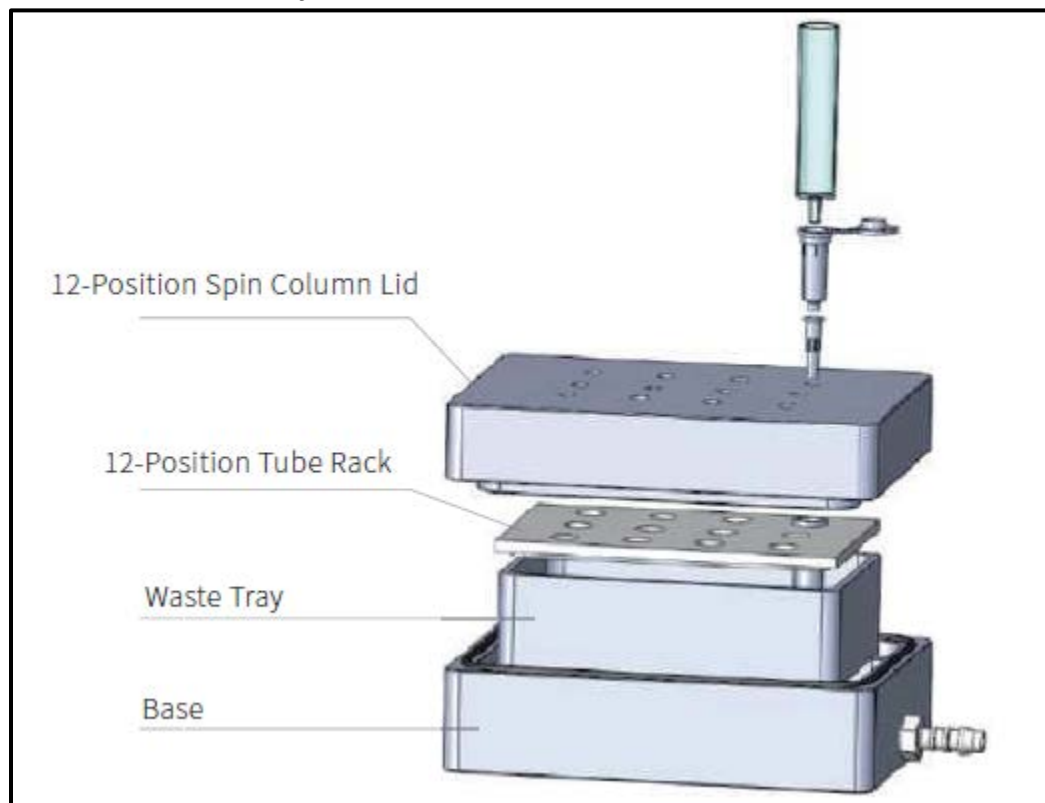
(With 1.0mL Square Well Collection Plate)



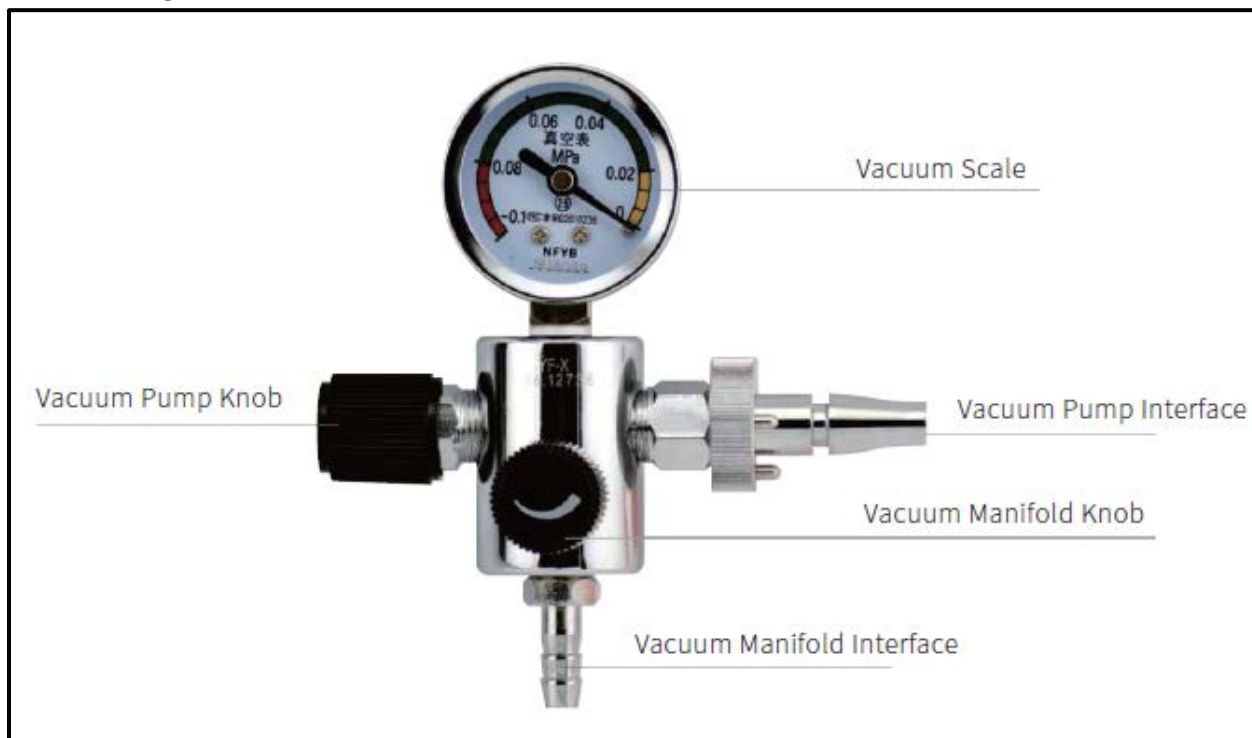
### ***Double-Layer Vacuum Manifold***



### ***Luer-Inlet Vacuum Manifold***



## Vacuum Gauge



## OPERATING INSTRUCTIONS

### ***Connection of the Vacuum Manifold and vacuum pump***

Below are 2 methods to connect the manifold to vacuum pump.

1. Connect the vacuum manifold directly to the pump using connecting pipe 1 or 2  
Or
2. Connect the vacuum gauge to the pump
  - a. Connect the Vacuum Pump Interface on the gauge to the pump using connecting pipe 1
  - b. Connect the Vacuum Manifold Interface on the gauge to the Vacuum Manifold using connecting pipe 2
  - c. Adjust the Vacuum Pump Knob to control the internal pressure of the Vacuum Manifold.  
Use the Vacuum Manifold Knob to release pressure  
**NOTE:** The vacuum manifold internal pressure can be monitored by the vacuum gauge.  
By adjusting vacuum gauge, the extraction process can be better controlled to achieve the best effect.

### ***96-Well Plate Filtration***

This is mainly applicable to the washing process of nucleic acid extraction. This process can be operated with the **Universal Vacuum Manifold (BT2102)** or **Double-Layer Vacuum Manifold (BT2103)**.

1. Place the Waste Tray into the Base and Plate Holder over the Base
2. Place the 96-well extraction plate on the Plate Holder. Ensure the 96-well plate is firmly connected with the Vacuum Manifold
3. Add the wash buffer to the extraction plate and turn on the pump. When the solution is completely filtered, turn off the pump. Keep the extraction plates for subsequent operations
4. Discard the flow-through and wash all parts with clean water, then dry them

### ***96-Well Plate Filtration and Binding***

This is mainly applicable to the filtration and binding process of nucleic acid extraction. This process can be operated with the **Double-Layer Vacuum Manifold (BT2103)**.

1. Place the Waste Tray into the Base
2. Put the 96-Well Extraction Plate on Plate Holder A, then place on the Base
3. Put the 96-Well Filtration Plate on Plate Holder B, then place on Plate Holder A. Ensure the 96-well plates are firmly connected with the Vacuum Manifold
4. Add the lysis solution to the filtration plate, then turn on the pump. When the solution is completely filtered, turn off the pump. Remove the filtration plate and keep the extraction plate for subsequent operations
5. Discard the flow-through and wash all parts with clean water, then dry them

### ***96-Well Plate Elution***

This is mainly applicable to the elution process of nucleic acid extraction.

1. Place the 96-Well Collection Plate and 6mm or 15mm Pad into the Base
2. Put the 96-Well Extraction Plate on the Plate Holder, then place on the Base. Ensure the 96-well plate is firmly connected with the Vacuum Manifold
3. Add the elution buffer to the extraction plate, then turn on the pump. When the solution is completely filtered, turn off the pump. Remove the extraction plate and keep the collection plate for subsequent operations
4. Discard the flow-through and wash all parts with clean water, then dry them

### **Spin Column Filtration**

This is mainly applicable to the rinsing process of nucleic acid extraction

1. Place the Waste Tray into the Base and the 12-Position Spin Column Lid over the Base
2. Connect the spin column with the connector. Closely observe to avoid cross-contamination
3. Add rinsing solution into the spin column, then turn on the pump. When the solution is completely filtered, turn off the pump. Keep the spin column for subsequent operations
4. Discard the flow-through and wash all parts with clean water, then dry them

### **CLEANING & MAINTENANCE**

- Keep Vacuum manifold dry and clean. All parts can be washed with clean water and dried with clean tissue or towel.
- Vacuum manifold is not resistant to alcohols reagents such as ethanol and methanol. Do not put the acrylic material parts (such as top plate support, bottom plate support and waste reservoir) in alcohols for long time in case erosion and cracking. The manifold base is not resistant to phenol or chloroform, please wash it with water if these reagents fall on it.
- To ensure the performance of Vacuum manifold, do not use silicon resin or vacuum grease on any part of the manifold

### **CHEMICAL COMPATIBILITY**

<b>Chemical</b>	<b>Solvent Compatibility</b>
Chlorine bleach (12%)	Compatible
Hydrochloric acid	
Sodium chloride	
Sodium hydroxide	
Urea	
Acetic acid	Not Compatible
Acetone	
Chromic acid	
Phenol	
Concentrated alcohols	
Benzene	
Chloroform	
Ethers	
Toluene	



## RECOMMENDED VACUUM PRESSURE

Application	Vacuum Pressure	
	mbar	mm Hg
<i>Luer-Inlet Vacuum Manifold</i>		
Plasmid Miniprep	800-900	600-675
<i>Universal Vacuum Manifold</i>		
Ultrapure Plasmid Miniprep	200-300	150-225
High-purity Plasmid Miniprep	40-200	30-150
Routine Plasmid Miniprep	200-300	150-225
PCR Cleanup	100-600	75-450
RNA Miniprep	800-900	600-675

## WARRANTY

Our company guarantees that this unit is warranted against defective material and workmanship for a period of one year from the date of shipment. We will repair or replace the defective equipment returned during the warranty period free if the equipment has been used under normal laboratory conditions and in accordance with the instruction in this manual. The following defects are specifically excluded:

1. Damage caused by accident, misuse, or abuse
2. Damage caused by disaster
3. Repair or modification by anyone else without our authorization
4. Corrosion due to the use of improper solvent or sample
5. Defects caused by improper operation
6. Use of fittings or other spare parts supplied by different manufacturers

This warranty does not apply to platinum wire and all the accessories.

A return authorization must be obtained from us before returning any product for repair on a freight prepaid basis.

For any inquiry or request for repair service, please contact BT Lab Systems via the email below.

E-Mail: [info@BTLabSystems.com](mailto:info@BTLabSystems.com)

## TECHNICAL SUPPORT

BT Lab Systems offers technical support for all of its products. If you have any questions about the product's use or, operation, please contact BT Lab Systems at the following info.

E-Mail: [info@BTLabSystems.com](mailto:info@BTLabSystems.com)