

## Custom Products Gallery

**KEY HIGH VACUUM PRODUCTS, INC.**, willingly customizes its standard product line to meet individual customer specifications. Customized products include but are not limited to, valves, manifolds, half and full nipples, flanges, adapters, flexible couplings, spool or transition pieces, crosses, elbows, tees, feedthroughs, high vacuum systems as well as custom chambers.

**KEY HIGH VACUUM PRODUCTS, INC.**, promptly quotes and fabricates these items with a fast response and a timely delivery. Frequently all that is required is a "rough print" and a description for this purpose.

Please feel free to contact us with your specific requirements.



**Custom Manifolds**



**Custom Chambers**



**Custom Valves**

Please call Key High at 631-360-3970 or email us at [info@KeyHigh.com](mailto:info@KeyHigh.com) for the most up-to-date listing of products and for pricing information.



## Vacuum Systems

**KEY HIGH VACUUM PRODUCTS, INC.** designs and manufactures production, laboratory/research high vacuum systems.

Our **CP-401 / 501** sputtering systems and **KV-301** evaporation systems are bell jar type systems, which are used in deposition processes and provide excellent value for thin film research. These highly adaptable tools that can be used for a wide variety of thin film applications and are extremely versatile.

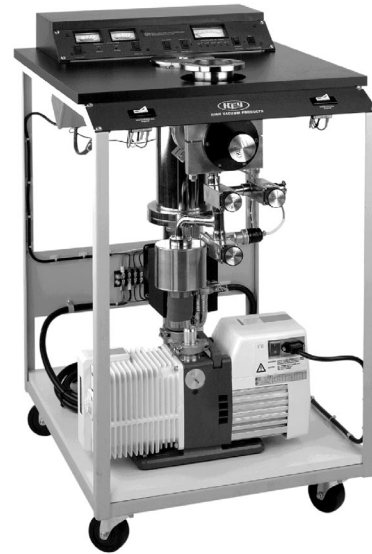
Our standard systems are offered with a variety of options such as turbo, cryo and diffusion pumped models, as well as a host of possible instrumentation and source packages.

The systems listed on the following pages are integrated units and are delivered turnkey ready for use.



## Portable Diffusion Pumping Stations

- Compact accessible design
- 7 CFM dual stage mechanical pump
- Ionization gauge controller with dual thermocouples
- All bellows sealed valves
- Low loss 8 hour liquid nitrogen trap
- Easy operation and maintenance



### Description:

The portable 2" and 3" pumping systems are fully equipped durable performance units which are designed to give the greatest value per dollar of any pumping system available. These portable systems are delivered as turnkey units. Completely tested at our factory for operation, quality and ultimate pressure. A truly portable unit that just wheels into position and plugs into any standard 110 VAC duplex outlet.

### Portable pumping station operating characteristics

Specifications	2" System	3" System
Pumping Speed	185 liters / Second for Air	285 Liters / Second for Air
Ultimate Pressure	5 x 10 <sup>-8</sup> torr	5 x 10 <sup>-8</sup> torr
Backstreaming Rate	Less than 0.0009 mg/ cm <sup>2</sup> /min	Less than 0.0009 mg/cm <sup>2</sup> /min
Maximum Forepressure	.060 torr	.060 torr
Warm-Up Time	10 minutes normal	10 minutes normal
Power Requirements	110 VAC, 10 AMP	110 VAC, 10 AMP

### Portable pumping station ordering information as per data sheet

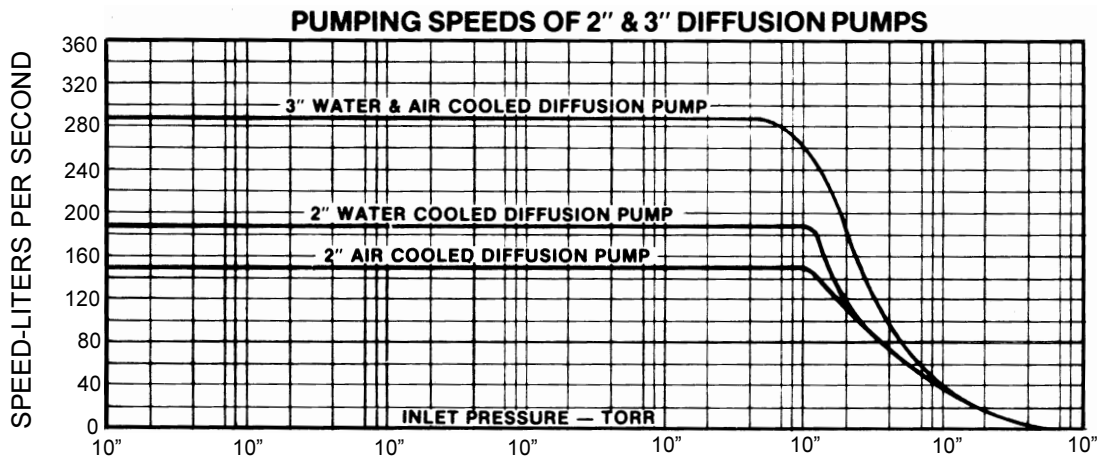
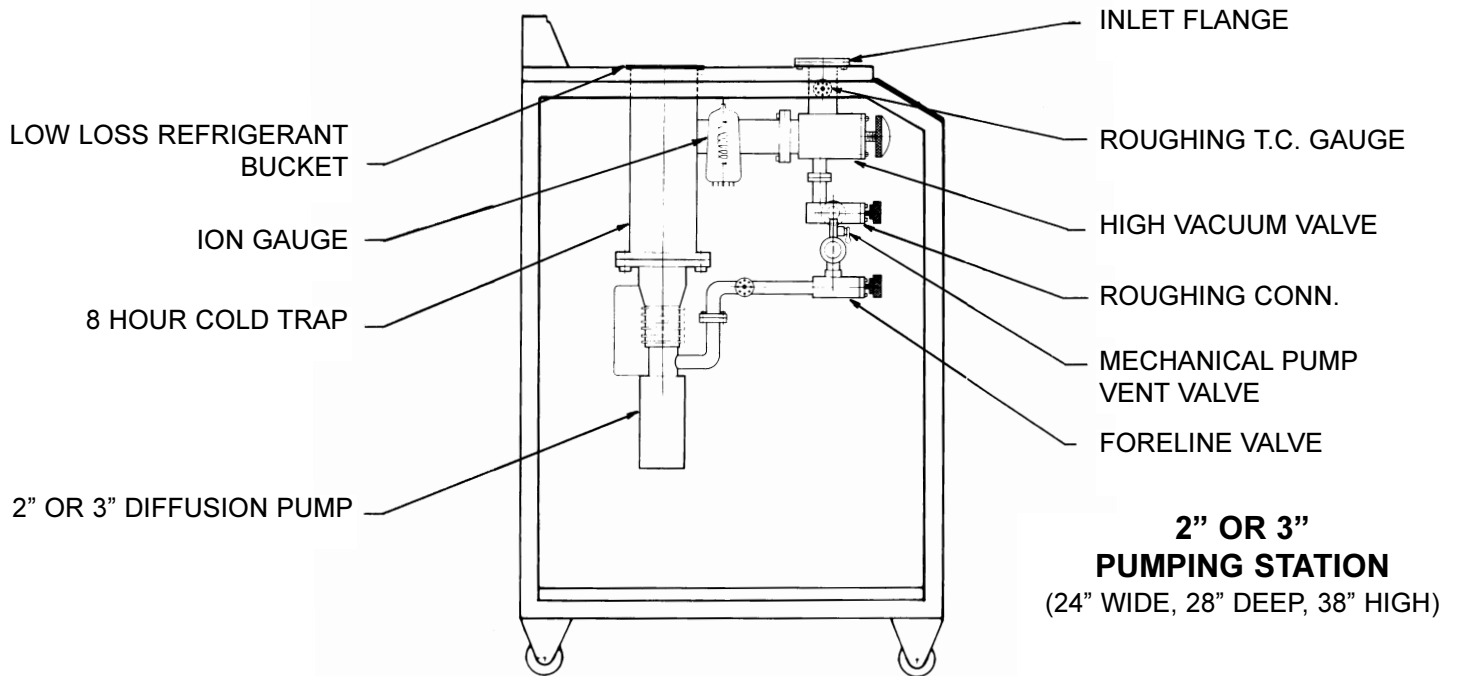
Part Number	Description
P2AC-BM	2" pumping system, chrome plated brass manifold
P2AC-SM	2" pumping system, high vacuum side stainless steel
P3AC-BM	3" pumping system, chrome plated brass manifold
P3AC-SM	3" pumping system, high vacuum side stainless steel



# Portable Diffusion Pumping Stations

## Options:

- Water cooled diffusion pump
- Baseplate
- Custom chamber or manifold
- Bell jar: Pyrex® or stainless steel
- Automatic valve and pump control
- Semi auto single lever control
- Contact factory directly for all available options

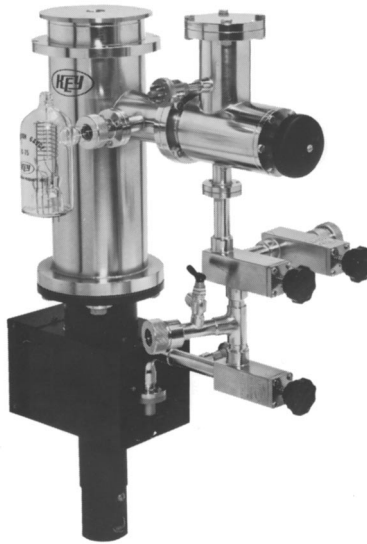


# Diffusion Pumping Stacks

## 2" & 3" Diffusion Pumping Stacks

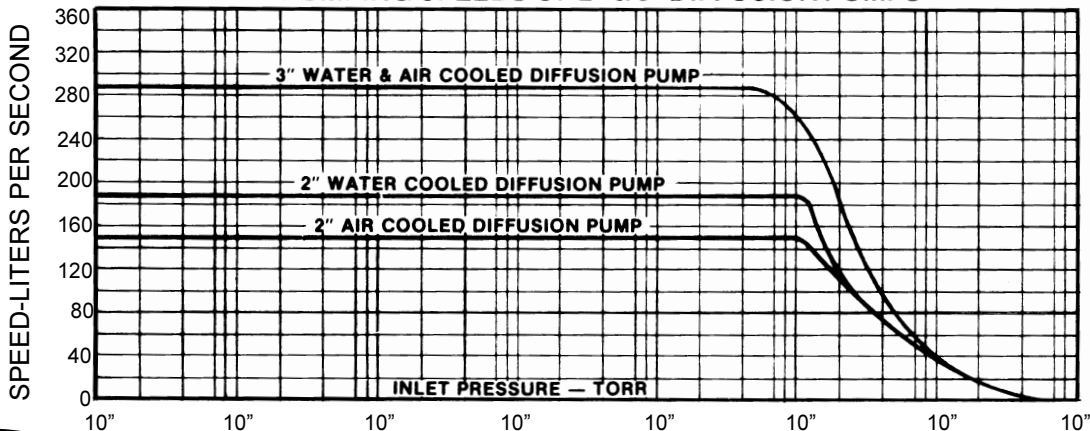
- Completely assembled and leak tested systems. Ready for mounting to your chamber
- Low - Loss 8-Hour liquid nitrogen trap
- Connections for foreline, roughing, thermocouple and Ionization gauge tubes
- All bellows sealed valves, manually operated

These stacks are complete and feature bellows sealed valves, low loss liquid nitrogen trap (to minimize backstreaming), foreline trap, and gauge ports. These stacks are reliable and easy to connect to a vacuum chamber. Each system will operate in the  $10^{-7}$  to  $10^{-8}$  torr range. Each stack is shipped "dry" with a separate charge of DC-704 diffusion pump fluid.

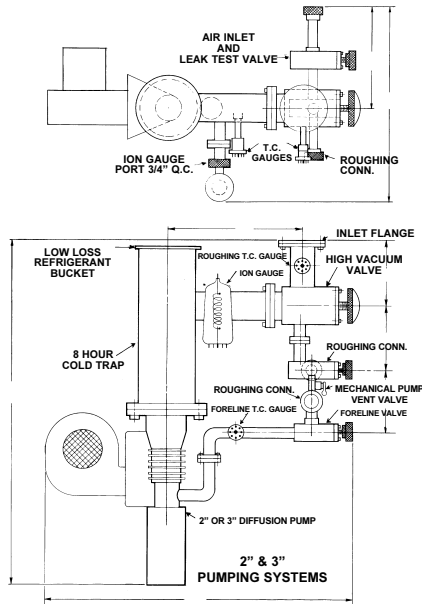


Specifications	2" System	3" System
Pumping Speed	185 Liters/Second for Air	285 Liters/Second for Air
Ultimate Pressure	$5 \times 10^{-8}$	$5 \times 10^{-8}$
Backstreaming Rate	Less than 0.0009 mg/cm <sup>2</sup> /min	Less than 0.0009 mg/cm <sup>2</sup> /min
Maximum Forepressure	.060 Torr	.060 Torr
Warm-up Time	10 minutes (Normal)	10 minutes (Normal)
Power	120 VAC	120 VAC
Recommended Forepump	2 CFM Throughput up to 0.400 Torr L/Sec	2 CFM Throughput up to 0.400 Torr L/Sec

**PUMPING SPEEDS OF 2" & 3" DIFFUSION PUMPS**



# Diffusion Pumping Stacks



## 2" Air Cooled Diffusion Pump Stacks

Part Number	Description
2AC-BM	2" pumping stack, chrome plated brass high vacuum side, manual valves
2AC-BP	2" pumping stack, chrome plated brass high vacuum side, pneumatic valves
2AC-SM	2" pumping stack, stainless steel high vacuum side, manual valves
2AC-SP	2" pumping stack, stainless steel high vacuum side, pneumatic valves

## 2" Water Cooled Diffusion Pump Stacks

Part Number	Description
2WC-BM	2" pumping stack, chrome plated brass high vacuum side, manual valves
2WC-BP	2" pumping stack, chrome plated brass high vacuum side, pneumatic valves
2WC-SM	2" pumping stack, stainless steel high vacuum side, manual valves
2WC-SP	2" pumping stack, stainless steel high vacuum side, pneumatic valves

## 3" Air Cooled Diffusion Pump Stacks

Part Number	Description
3AC-BM	3" pumping stack, chrome plated brass high vacuum side, manual valves
3AC-BP	3" pumping stack, chrome plated brass high vacuum side, pneumatic valves
3AC-SM	3" pumping stack, stainless steel high vacuum side, manual valves
3AC-SP	3" pumping stack, stainless steel high vacuum side, pneumatic valves

## 3" Water Cooled Diffusion Pump Stacks

Part Number	Description
3WC-BM	3" pumping stack, chrome plated brass high vacuum side, manual valves
3WC-BP	3" pumping stack, chrome plated brass high vacuum side, pneumatic valves
3WC-SM	3" pumping stack, stainless steel high vacuum side, manual valves
3WC-SP	3" pumping stack, stainless steel high vacuum side, pneumatic valves

### Options:

- Conduction-cooled baffle is available

# High Vacuum Evaporator

## MODEL KV-301

- 3" stainless steel pumping system operates at  $2 \times 10^{-7}$  Torr or better
- 8 hour low loss liquid nitrogen trap
- 14" diameter stainless steel base plate
- 12" diameter x 18" Pyrex® bell jar and implosion guard
- 7 CFM dual stage mechanical pump
- 3" air cooled diffusion pump, 285 l/s for air
- 1 KVA manually controlled evaporation power supply with two high current feedthrus

### DESCRIPTION:

The **KEY MODEL KV-301** portable high vacuum evaporator is a complete turnkey high-speed diffusion pumping thermal evaporation system. Designed to give reliable performance with simplicity of operation and ease of maintenance.



Part Number	Description
KV-301	With all features listed on data sheet

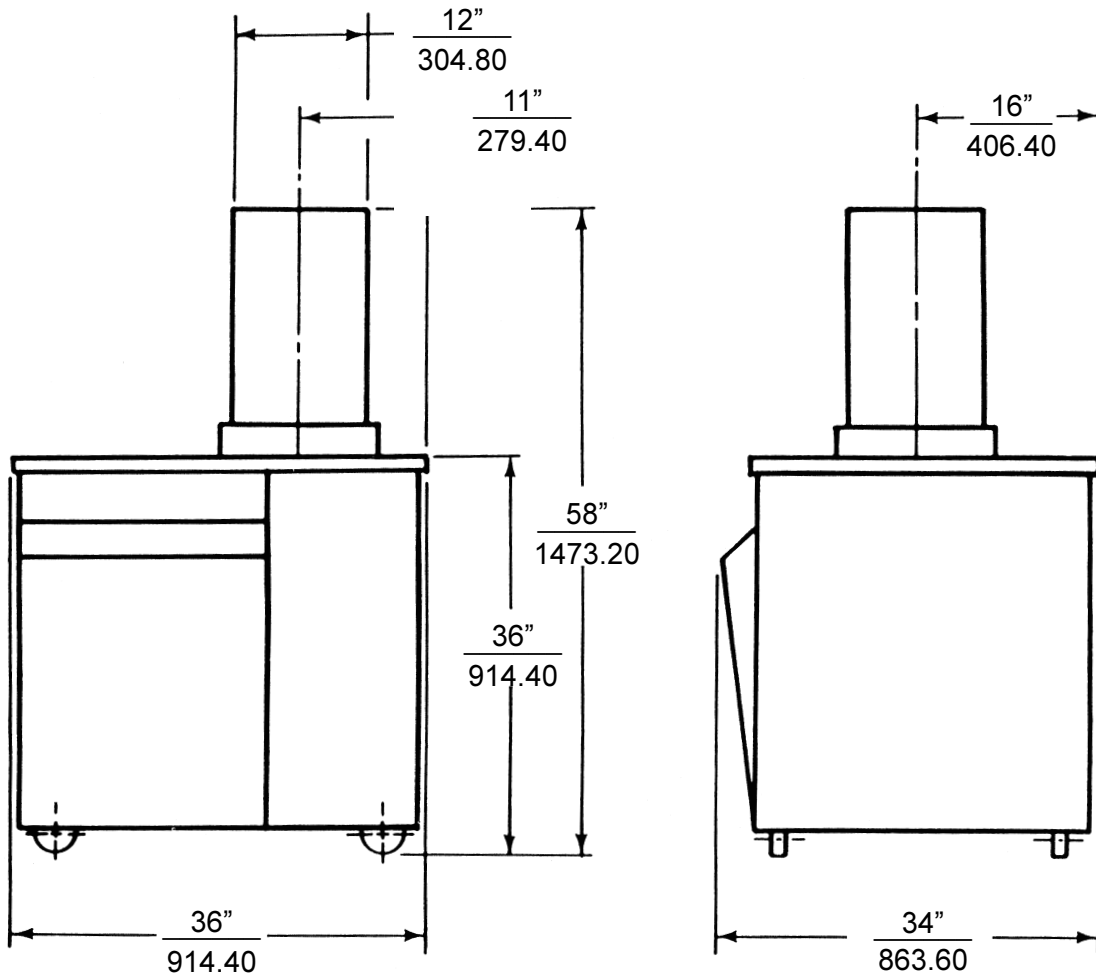
### OPTIONS:

- ADP-3500 automatic valve and pump controller
- 11 CFM dual stage mechanical pump
- Selector switch to allow switching between multiple evaporation sources
- Base plate or bell jar as per requirement
- Custom chamber
- 2 KVA power supply
- Automated deposition control
- Source shutter
- Thin film deposition monitor and controllers
- Turbo pumping

Contact the factory for a complete range of options



# High Vacuum Evaporator



## **DIMENSIONS:**

- 36" Wide, 34" Deep, 36" High



## MODELS KV-601-S, KV-601-E

### Description:

The **KV-601 Series** are highly versatile systems, which are an effective production research and development tool and provide maximum flexibility to laboratory thin film deposition applications. The **KV-601 Series** are offered in a sputtering and electron beam configurations and are offered as a complete package. These systems are offered in manual and automated versions, with several baseplate and feedthru options. Applications include but not limited to optical coating, decorative coatings, metallurgical studies, etc...

### Standard Common Features of the KV-601-S, KV-601-E

- Ionization and thermocouple gauge controller
- 6" diffusion pump with a pumping speed of 2400 l/s or a cryopump with a pumping of 1500 l/s
- Liquid nitrogen trap (diffusion pumped models only)
- Stainless steel gate valve for high vacuum pump isolation
- 11 CFM drive mechanical pump with mist eliminator
- 20" OD stainless steel baseplate with 12 each 1" diameter feedthrough holes
- 18" x 30" Pyrex® bell jar with an implosion guard
- Counterbalanced manual hoist



### KV-601-S (Sputtering) Features:

- 3" magnetron sputtering source
- 3 kW RF power supply
- Auto tuning network
- Manual throttle valve
- Manual gas flow valve
- 3 kW DC power supply

### KV-601-E (Evaporation) Features:

- 3 pocket E-Beam gun
- 3 kW power supply
- Stainless steel feedthrough collar

## Sputtering and E-Beam Systems



Part Number	Description	Price
<b>KV-601-E</b>	E-Beam Gun System	\$ * POR
<b>KV-601-S</b>	Sputtering System	\$ * POR

\* Price on request

### Optional Equipment

- Single lever valve control
- Automatic valve sequencer
- Thickness film monitor/controller
- Quartz lamp substrate holder
- Substrate holder
- Automatic or manual shutter assembly
- Automatic throttle valve
- Gas flow instrumentation and control
- Stainless steel bell jar
- Motorized hoist
- 1 or 2 KVA evaporation power supply with 2 each high current feedthroughs
- Filament top switch allowing changes between sources
- Open frame cabinet
- 27 CFM mechanical roughing pump
- Stainless steel feedthrough collar
- Electrical feedthroughs

# Cryopumped Systems

## MODELS CP-401 AND 501

### Description:

The **CP-401 and 501 Series** systems bring almost unlimited flexibility with a variety of standard options to the R & D lab environment. Rugged construction with the proven high-speed pumping design of the CT-8 cryopump. Cryopumps have the highest unmatched pumping speed available for water vapor, which typically is the largest gas load in a system. Direct benefits of a cryopumped system are; clean work environment, dependable performance and reduced utility rates. The **CP-401** features automated controls for all valves and the regeneration mode, while the **CP-501** has manual valves and controls. Both systems feature stainless steel base plates and typical pump-down to base pressure is less than 30 minutes in a clean nitrogen vented system. All systems are delivered turnkey and ready for use. Our systems are ideal for research, development and production applications. Applications include but are not limited to ion implantation, sputtering, optical coating, automotive metallization and industrial evaporation.

Price is dependent upon customer-defined configuration and options. Final price quotes are generated after customer provides all specifications. Contact factory directly for written price quotes.

### Standard common features of the 401 and 501 series cryopump systems:

- CT-8 cryopump and compressor
- 8" gate valve
- 11 CFM direct drive mechanical pump
- GP 270 ionization and thermocouple gauge controller
- 18" x 30" Pyrex® bell jar with implosion guard
- 20" OD baseplate with 12 each 1" diameter feedthrough holes
- Foreline trap
- All bellows sealed foreline valves
- All stainless steel construction on high vacuum side
- Chrome plated brass construction on roughing side

### 8" Cryo Pump Pumping Speeds

Water	4000 liters/sec
Air	1500 liters/sec
Hydrogen	2500 liters/sec
Argon	1200 liters/sec
Argon throughput	700 scc/min

### 8" Cryo Pump Capacity

Argon	1000 standard liters
Hydrogen	12 standard liters at 5x10 <sup>-6</sup> torr
Cross over	150 torr liters
Cold to cold regeneration	2 hours 15 minutes typical

### CP-401 Features

- Automatic valve controller (ACP-3000)
- Open frame construction with "skins"

### CP-501 Features

- Manual valves and controls
- Open frame construction

### Options:

- Roughing/foreline pumps: molecular drag, scroll, diaphragm, and other "dry" pumps upon request
- Stainless steel bell jar
- 20" OD feedthru collar 8 port
- Electron beam source
- Deposition controller; crystal monitor
- Cold cathode discharge gauges
- Magnetron sputtering source
- Manual deposition shutter
- DC power supplies, RF power supplies
- Custom high vacuum chambers as per request
- Other options are available; contact factory for price schedule
- CP-401 and CP-501 quoted per customer requirement



# Cryopumped Systems

## Model CP-401/CP-501 Systems

