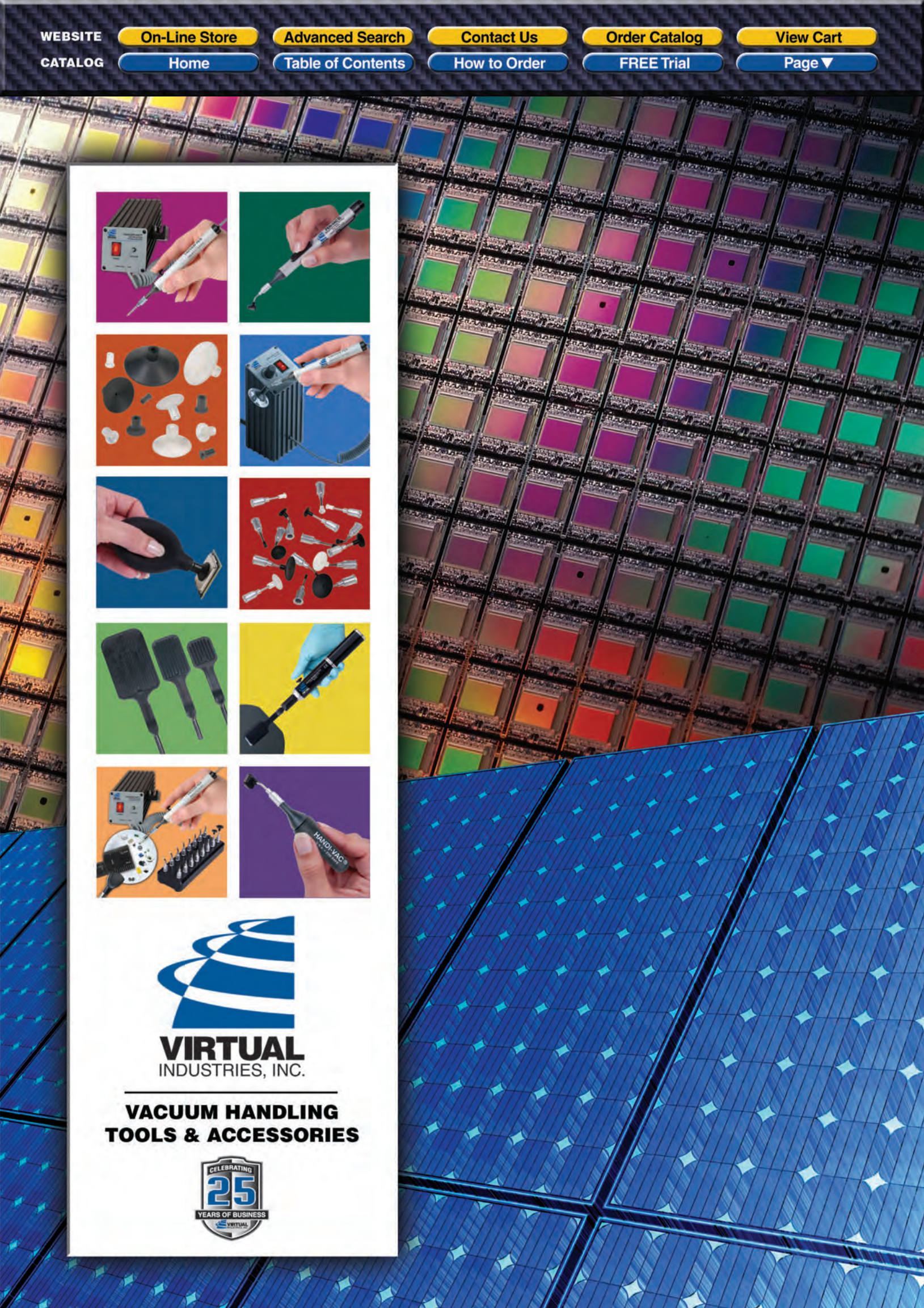




VACUUM HANDLING TOOLS & ACCESSORIES





For our complete line of tools and accessories, visit our online store at www.virtual-ii.com

HOW TO ORDER

By Telephone

Our sales department is available from 7:00 AM to 5:00 PM (MST), Monday through Thursday at 1-800-530-8377. For fast and efficient service, please have a list of quantities and part numbers ready when ordering.

Customer service representatives are available from 7:00 AM to 5:00 PM, Monday through Thursday (MST) to assist you at 1-800-590-2829.

By Fax: (719) 572-5504

Our fax lines are open 24 hours a day, 7 days a week. Orders received by fax after normal business hours will be processed promptly the next business day. Please be sure to include your phone number in case of questions regarding the order.

By E-Mail: sales@virtual-ii.com, please add your purchase order number to the subject line.

By Internet: www.virtual-ii.com, credit cards only accepted - American Express, Discover, MasterCard and VISA

By Mail

Simply mail your order to: Virtual Industries, Inc. 2130 Victor Place, Colorado Springs, CO 80915 ATTN: Sales Dept.

Payment Methods

Several convenient payment options are available: Check drawn on U.S. funds, American Express, Discover, MasterCard, VISA, C.O.D. and wire transfer of funds (preferred for foreign orders). Net 30 terms are available with approved credit.

Overseas orders under \$500.00 are asked to pre-pay by credit card, or orders over \$500.00 can be prepaid with a wire transfer.

All past due invoices are subject to 1.5% monthly service charge.

Trial and Evaluation Program

Contact your local distributor or call Virtual Industries for details about product demonstrations and/or evaluations. Refer to page 3 for more information. For continental USA only.

Minimum Order

A minimum order of \$50.00 is required. All orders under \$50.00 will be charged a low order fee of \$10.00.

Shipping Methods

UPS Prepaid & Add is our main shipping method. FOB Point: Colorado Springs, CO. However, Federal Express is available with your collect account number.

Return Policy

All returns require a RMA number. Please contact our Customer Service Department to obtain a return authorization number.

Product Warranties

Unless otherwise stated, all Virtual Industries products are warranted against manufacturer defects for a period of 90 days after receipt of product.

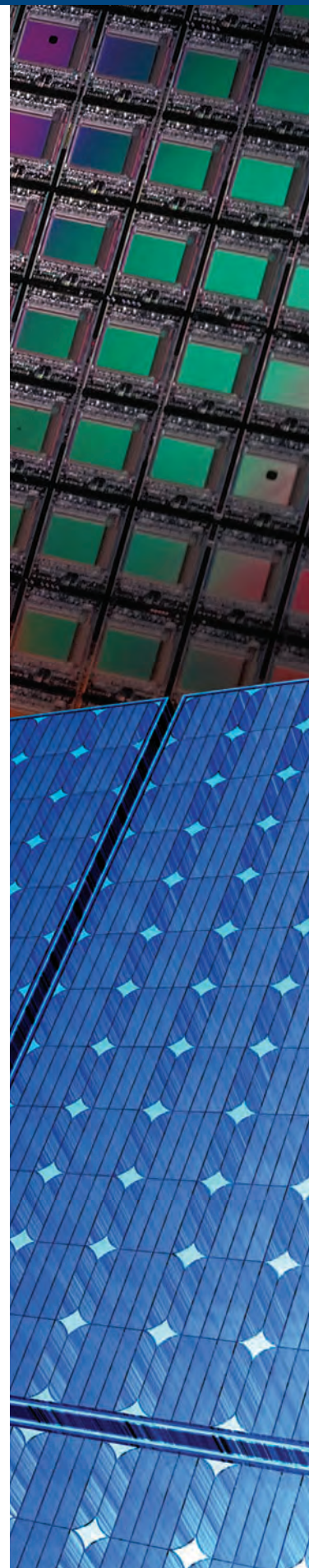
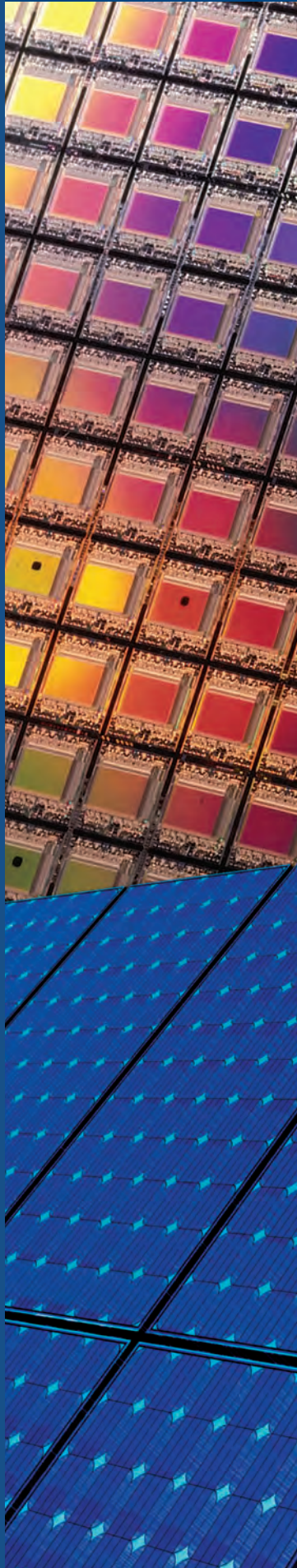


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For our complete line of tools and accessories, visit our online store at www.virtual-ii.com



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For Continental USA Only

10 DAY TRIAL Demo Program

Vacuum Handling Solutions

We offer several methods for our customers to evaluate our products before purchasing them for your application:

1. The first option is to send samples of your part(s), along with a brief description of your application to our Technical Applications Department at:

Virtual Industries, Inc.

Attn: Technical Applications Department

2130 Victor Place

Colorado Springs, CO 80915

Virtual Industries, Inc. will respond with a detailed recommendation for your personal application. Most applications can be accomplished with our wide selection of vacuum tools and tips, and occasionally we will need to fashion a custom tip for an application.

2. The second option and most popular method is to request a "Trial Unit" to be sent to your location. This will give your technical staff **10 DAYS** to determine if our tools will work in your application. A new unit will be sent to you for the trial so it is easy to purchase if it will work in your application. Below are the requirements.

Requirements

1. A valid credit card OR trial purchase order number with a hard copy faxed must be submitted showing the full value of the order.
2. Full name and phone number of the person(s) testing the unit(s).
3. If not a current customer, credit references must be provided (unless a credit card number is provided).

Conditions

1. The trial period will begin once the unit has been physically received at your location as noted by carrier receipt.
2. Virtual Industries' MUST receive a phone call, fax or e-mail stating whether the unit(s) will be purchased or returned within the ten day trial. (RMA # Required for ALL returns, return shipping is paid by customer)
3. If the unit(s) is not returned in an acceptable amount of time, the customer will be billed for the full value of the order **including shipping charges.**
4. If the unit(s) is damaged or abused in any way, the cost for the repair of the unit(s) will be the sole responsibility of the customer.
5. If an extension is needed, please notify Virtual Industries prior to shipment or before the end of the trial period for approval.

See our instructional product videos at www.virtual-ii.com

SELF CONTAINED PEN-VAC® ESD-SAFE Vacuum Handling Tools

Standard Size (5 3/4") **With Static Dissipative Non-Marking
Buna-N Cups** Temperature Range (-5°F to 250°F) (-20°C to 120°C)



These vacuum pens are ideal for SMT assembly or for handling any parts that have a non-porous surface. No batteries or hoses necessary. The vacuum cups are Static Dissipative and non marking.

STANDARD SIZE
5 3/4" (146mm) long
1/2" (12.7mm) diameter

Rear storage
cap for probes
and cups.

Available on
standard unit
only

Pocket clip

Silver
aluminum
body

Vacuum
push button



Cups can be
mounted
directly to tool



VBM-3



PEN-VAC® Kit With 4 Probes + Cups

PEN-VAC® with three bent probes with 1/8" (3.18mm), 1/4" (6.35mm), 3/8" (9.53mm), diameter vacuum cups, one straight probe with 1/4" (6.35mm) diameter vacuum cup.

PRICE EACH

V8901-A-B Standard PEN-VAC®, Static Dissipative Buna-N Cups

BUY IT NOW \$ 57.70



PEN-VAC® Kit With 6 Probes + Cups

PEN-VAC® with two of each size cup on one bent and one straight probe. Cup sizes are 1/8" (3.18mm), 1/4" (6.35mm), 3/8" (9.53mm) diameter.

PRICE EACH

V8901-LMS-B Standard PEN-VAC®, Static Dissipative Buna-N Cups

BUY IT NOW \$ 62.30



PEN-VAC® Kit With 6 Probes + Cups

PEN-VAC® with two of each size cup on one bent and one straight probe. Cup sizes are 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) diameter.

PRICE EACH

V8901-HLM-B Standard PEN-VAC®, Static Dissipative Buna-N Cups

BUY IT NOW \$ 62.30



PEN-VAC® Kit With 10 Probes + Cups

PEN-VAC® with two of each size cup on one bent and one straight probe. Cup sizes are 1/8" (3.18mm), 3/16" (4.76mm), 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) diameter.

PRICE EACH

V8901-TEN-B Standard PEN-VAC®, Static Dissipative Buna-N Cups

BUY IT NOW \$ 69.30



PEN-VAC® Without Probes Or Vacuum Cups

PRICE EACH

PEN-VAC® only. You order the probes and cups that you need. See pages 8 and 9 for details.

V8901-X-ESD Standard PEN-VAC®

BUY IT NOW \$ 49.60

No Probes or Cups.

Vacuum Pen Holder

Bench mount holder with posts to accommodate up to eight of our luer slip vacuum tips. The holder can be used to hold any of our vacuum handles or vacuum pens and helps protect the vacuum tips when not in use.

PRICE EACH

VBM-3 Bench mount holder, holds up to eight luer slip vacuum tips

BUY IT NOW \$ 56.00

PEN-VAC® Kit With 8 Probes + Cups And Vacuum Pen Holder

PEN-VAC with five bent probes mounted with cup sizes 1/8" (3.18mm), 3/16" (4.76mm), 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) diameter. Three straight probes mounted with cup sizes 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) diameter. Includes Vacuum Pen holder with eight locations for holding your probes and cups.

PRICE EACH

V8901-KIT-B Standard PEN-VAC®, Static Dissipative Buna-N Cups, VBM-3 Vacuum Pen Holder

BUY IT NOW \$ 120.00

V8901-KIT-ESD Standard PEN-VAC®, Conductive Silicone Cups, VBM-3 Vacuum Pen Holder

BUY IT NOW \$ 120.00



Prices subject to change without notice.

Standard Size (5 3/4") **With Conductive Silicone Cups**
Temperature Range (-65°F to 445°F) (-55°C to 230°C)

SELF CONTAINED PEN-VAC® & VACULA 3 ESD-SAFE Vacuum Handling Tools

PEN-VAC® Kit With 4 Probes + Cups

PEN-VAC® with three bent probes with 1/8" (3.18mm), 1/4" (6.35mm), 3/8" (9.53mm), diameter vacuum cups, one straight probe with 1/4" (6.35mm) diameter vacuum cup.

PRICE EACH

V8901-A-ESD Standard PEN-VAC®, With Conductive Silicone Cups

BUY IT NOW \$ 57.70



PEN-VAC® Kit With 6 Probes + Cups

PEN-VAC® with two of each size cup on one bent and one straight probe. Cup sizes are 1/8" (3.18mm), 1/4" (6.35mm), 3/8" (9.53mm) diameter.

PRICE EACH

V8901-LMS-ESD Standard PEN-VAC®, With Conductive Silicone Cups

BUY IT NOW \$ 62.30



PEN-VAC® With 6 Probes + Cups

PEN-VAC® with two of each size cup on one bent and one straight probe. Cup sizes are 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) diameter.

PRICE EACH

V8901-HLM-ESD Standard PEN-VAC®, With Conductive Silicone Cups

BUY IT NOW \$ 62.30



PEN-VAC® Kit With 10 Probes + Cups

PEN-VAC® with two of each size cup on one bent and one straight probe. Cup sizes are 1/8" (3.18mm), 3/16" (4.76mm), 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) diameter.

PRICE EACH

V8901-TEN-ESD Standard PEN-VAC®, With Conductive Silicone Cups

BUY IT NOW \$ 69.30



PEN-VAC® Without Probes or Vacuum Cups

PRICE EACH

PEN-VAC® only. You order the probes and cups that you need. See pages 8 and 9 for details.

V8901-X-ESD Standard PEN-VAC®

BUY IT NOW \$ 49.60

No Probes or Cups.

VACULA 3 Kit With 3 Cups

Our most powerful ESD-safe self contained tweezer designed to handle parts when moving them into and out of burn-in trays, test sockets or other component transfer operations. The plunger in the rear of the tool activates the vacuum. The VC-3 is provided without or with three vacuum cups, 1/2" (12.7mm), 5/8" (15.88mm) and 3/4" (19.05) diameter, that slip onto a dual barbed fitting. The barbed fitting provides extra lifting power.

PRICE EACH

VC-3-B With 3 Cups -Dual Barbed Fitting/Luer Slip Tip - With a 1/2" (12.7mm), 5/8" (15.88mm) and 3/4" (19.05mm) diameter Static Dissipative Buna-N Cups

BUY IT NOW \$ 63.50

VC-3-ESD With 3 Cups -Dual Barbed Fitting/Luer Slip Tip - With a 1/2" (12.7mm), 5/8" (15.88mm) and 3/4" (19.05mm) diameter Conductive Silicone Cups

BUY IT NOW \$ 63.50

VC-3-X Tool Only, No Cups or Probes

BUY IT NOW \$ 59.40



VACULA 3 Kit With Barbed Anti-Wobble Fitting And 1 Cup

Our most powerful ESD-safe self contained tweezer designed to handle parts when moving them into and out of burn-in trays, test sockets or other component transfer operations. The plunger in the rear of the tool activates the vacuum. The VC-3-AW is provided with one vacuum cup 3/4" (19.05) diameter, that slip onto a barbed anti-wobble fitting. The barbed fitting provides extra lifting power.

PRICE EACH

VC-3-075-AW-B With barbed anti-wobble fitting & 3/4" (19.05mm) diameter Static Dissipative Buna-N Cup

BUY IT NOW \$ 68.50

VC-3-075-AW-ESD With barbed anti-wobble fitting & 3/4" (19.05mm) diameter Conductive Silicone Cup

BUY IT NOW \$ 68.50



Our PEN-VAC® line offers a replacement for SMD tweezers. The soft suction cup material will not scratch your parts or damage delicate leads. This is an excellent tool for pick-and-place of many standard and odd size SMT components.

STANDARD SIZE
5" (139.7mm) long
3/8" (9.53mm) diameter

Vacuum push
plunger

Black
aluminum
body

Dual barbed
cup retainer

Quick
change
vacuum cup



Prices subject to change without notice.

PRO-SERIES PEN-VAC® Vacuum Handling Tools

Light Weight ESD-Safe Plastic Body With Static Dissipative Non-Marking Buna-N Cups Temperature Range (-5°F to 250°F)
(-20°C to 120°C)



The all plastic Static Dissipative body of the PRO-SERIES tools provides a lower cost vacuum handling tool for PCB assembly operations. A good addition to your tweezer tool kit.

PRO-SERIES PEN-VAC®
5" (127mm) long
1/2" (12.7mm)
diameter

Pocket clip

Black or
gray plastic
body

Vacuum
push
button

Quick
change
luer probe
+ cup

Cups can be
mounted
directly to tool



PRO-SERIES PEN-VAC® Kit With 4 Probes + Cups

PRO-SERIES PEN-VAC® with three bent probes with 1/8" (3.18mm), 1/4" (6.35mm), 3/8" (9.53mm), diameter vacuum cups, one straight probe with 1/4" (6.35mm) diameter vacuum cup.

PRICE EACH

V8910-9BK-B	Black Body, Static Dissipative Buna-N Cups	BUY IT NOW	\$ 38.10
V8910-9GR-B	Gray Body, Static Dissipative Buna-N Cups	BUY IT NOW	\$ 38.10



PRO-SERIES PEN-VAC® Kit With 6 Probes + Cups

PRO-SERIES PEN-VAC® with two of each size cup on one bent and one straight probe. Cup sizes are 1/8" (3.18mm), 1/4" (6.35mm), 3/8" (9.53mm) diameter.

PRICE EACH

V8910-BK-LMS-B	Black Body, Static Dissipative Buna-N Cups	BUY IT NOW	\$ 43.20
V8910-GR-LMS-B	Gray Body, Static Dissipative Buna-N Cups	BUY IT NOW	\$ 43.20



PRO-SERIES PEN-VAC® Kit With 6 Probes + Cups

PRO-SERIES PEN-VAC® with two of each size cup on one bent and one straight probe. Cup sizes are 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) diameter.

PRICE EACH

V8910-BK-HLM-B	Black Body, Static Dissipative Buna-N Cups	BUY IT NOW	\$ 43.20
V8910-GR-HLM-B	Gray Body, Static Dissipative Buna-N Cups	BUY IT NOW	\$ 43.20



PRO-SERIES PEN-VAC® Kit With 10 Probes + Cups

PRO-SERIES PEN-VAC® with two of each size cup on one bent and one straight probe. Cup sizes are 1/8" (3.18mm), 3/16" (4.76mm), 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) diameter.

PRICE EACH

V8910-BK-TEN-B	Black Body, Static Dissipative Buna-N Cups	BUY IT NOW	\$ 50.80
V8910-GR-TEN-B	Gray Body, Static Dissipative Buna-N Cups	BUY IT NOW	\$ 50.80



PRO-SERIES PEN-VAC® Without Probes or Vacuum Cups

PRICE EACH

PRO-SERIES PEN-VAC® only. You order the probes and cups that you need. See pages 8 and 9 for details.

V8910-BK-X	Black Body	BUY IT NOW	\$ 29.20
V8910-GR-X	Gray Body	BUY IT NOW	\$ 29.20

No Probes or Cups.

Vacuum Pen Holder

Bench mount holder with posts to accommodate up to eight of our luer slip vacuum tips. The holder can be used to hold any of our vacuum handles or vacuum pens and helps protect the vacuum tips when not in use.

PRICE EACH

VBM-3	Bench mount holder, holds up to eight luer slip vacuum tips	BUY IT NOW	\$ 56.00
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PRO-SERIES PEN-VAC® Kit With 8 Probes + Cups and Vacuum Pen Holder

PRO-SERIES PEN-VAC® with five bent probes mounted with cup sizes 1/8" (3.18mm), 3/16" (4.76mm), 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) diameter. Three straight probes mounted with cup sizes 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) diameter. Includes Vacuum Pen holder with eight locations for holding your probes and cups.

PRICE EACH

V8910-BK-KIT-B	Black Body, Static Dissipative Buna-N Cups, VBM-3 Vacuum Pen Holder	BUY IT NOW	\$ 105.50
V8910-GR-KIT-B	Gray Body, Static Dissipative Buna-N Cups, VBM-3 Vacuum Pen Holder	BUY IT NOW	\$ 105.50
V8910-BK-KIT-ESD	Black Body, ESD Safe Conductive Silicone Cups, VBM-3 Vacuum Pen Holder	BUY IT NOW	\$ 105.50



Prices subject to change without notice.

Squeeze Bulb Design
Works Like a Tweezer

LOW COST ESD-SAFE Vacuum Handling Tool Kits

HANDI-VAC® Kit With 5 Probes + Cups

A low cost, ESD-safe vacuum handling tool. The HANDI-VAC® kit is delivered to you with or without five vacuum cups and probes. The kit includes with one bent probe with 1/8" (3.18mm) diameter vacuum cup, one bent probe with 3/16" (4.76mm) diameter vacuum cup, one bent probe with 1/4" (6.35mm) diameter vacuum cup, one straight probe with 3/8" (9.53mm) diameter vacuum cup and one straight probe with 1/2" (12.7mm) diameter vacuum cup.

HV-KIT-II-B	Static Dissipative With 5 Probes & Buna-N Rubber Cups	BUY IT NOW	\$ 20.80
HV-KIT-II-ESD	With 5 Probes and Conductive Silicone Cups	BUY IT NOW	\$ 20.80
HV-X	Tool Only, No Cups or Probes	BUY IT NOW	\$ 9.60

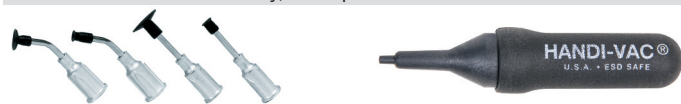


PRICE EACH

HANDI-VAC® Kit With 4 Probes + Cups

The HANDI-VAC® kit is delivered to you with four vacuum cups and probes. The kit includes one bent and one straight probe with 1/8" (3.18mm) diameter vacuum cups, one bent probe with 1/4" (6.35mm) diameter vacuum cup, and one straight probe with 3/8" (9.53mm) diameter vacuum cup.

HV-KIT-B	Static Dissipative With 4 Probes & Buna-N Rubber Cups	BUY IT NOW	\$ 18.00
HV-KIT-ESD	With 4 Probes and Conductive Silicone Cups	BUY IT NOW	\$ 18.00
HV-X	Tool Only, No Cups or Probes	BUY IT NOW	\$ 9.60



PRICE EACH

HANDI-VAC-2® With One Vacuum Cup

This improved HANDI-VAC-2 has a new and improved tip designed for better lifting capacity utilizing larger vacuum cups. This new tip can be purchased with one cup of your choice or the new anti-wobble tip (HV2-075-AW-ESD) for enhanced functionality and improved accuracy when picking and placing parts. The entire tool is constructed with ESD-safe materials.

* Handi-Vac with Non-marking Static Dissipative Buna-N vacuum cups

** Handi-Vac with Conductive Silicone vacuum cups

*HV2-038-B	BUY IT NOW	**HV2-038-ESD	BUY IT NOW	3/8" (9.53mm) Diameter Cup	\$ 10.80
*HV2-050-B	BUY IT NOW	**HV2-050-ESD	BUY IT NOW	1/2" (12.7mm) Diameter Cup	\$ 10.80
*HV2-062-B	BUY IT NOW	**HV2-062-ESD	BUY IT NOW	5/8" (15.88mm) Diameter Cup	\$ 12.10
*HV2-075-B	BUY IT NOW	**HV2-075-ESD	BUY IT NOW	3/4" (19.05mm) Diameter Cup	\$ 12.10
*HV2-075-AW-B	BUY IT NOW	**HV2-075-AW-ESD	BUY IT NOW	3/4" (19.05mm) Diameter Cup	\$ 17.10
HV2-X-AW	BUY IT NOW	HV2-X-AW	BUY IT NOW	Tool Only, No Cups	\$ 14.60
HV2-X	BUY IT NOW	HV2-X	BUY IT NOW	Tool Only, No Cups	\$ 9.60

PRICE EACH



HV2-050



HV2-075-AW



HV2-X

BULB-VAC™ With One Vacuum Cup

This handling tool is for the user who needs minimal placement accuracy. The entire tool is constructed with ESD-safe materials. A plastic tip will hold the vacuum cup in place.

* Bulb-Vac with Non-marking Static Dissipative Buna-N vacuum cups

** Bulb-Vac with Conductive Silicone vacuum cups

*BVJ-038-B	BUY IT NOW	**BVJ-038-ESD	BUY IT NOW	3/8" (9.53mm) Diameter Cup	\$ 15.20
*BVJ-050-B	BUY IT NOW	**BVJ-050-ESD	BUY IT NOW	1/2" (12.7mm) Diameter Cup	\$ 15.20
*BVJ-062-B	BUY IT NOW	**BVJ-062-ESD	BUY IT NOW	5/8" (15.88mm) Diameter Cup	\$ 16.50
*BVJ-075-B	BUY IT NOW	**BVJ-075-ESD	BUY IT NOW	3/4" (19.05mm) Diameter Cup	\$ 16.50
*BVJ-075-AW-B	BUY IT NOW	**BVJ-075-AW-ESD	BUY IT NOW	3/4" (19.05mm) Diameter Cup	\$ 23.20
*BVJ-X-AW	BUY IT NOW	**BVJ-X-AW	BUY IT NOW	Tool Only, No Cups	\$ 19.90
BVJ-X	BUY IT NOW	BVJ-X	BUY IT NOW	Tool Only, No Cups	\$ 14.00

PRICE EACH

Designed for use with 3/8" or larger vacuum cups.



BVJ-050



BVJ-075-AW



BVJ-X

Prices subject to change without notice.



Our vacuum-bulb type tools are the lowest cost pick-and-place tools available. These tools operate very similar to a tweezer. Simply squeeze the vacuum bulb, place the soft suction cup to the part to be handled, then relax your squeeze and the part is firmly gripped. A second squeeze releases the part.

HANDI-VAC® KIT
2 3/4" (69.85mm) long
1/2" (12.7mm) diameter

Squeeze bladder for suction

Black Static Dissipative rubber



Cups can be mounted directly to tool

BULB VAC™
3.5" (88.9mm) long
1.56" (39.62mm) diameter

Black Static Dissipative rubber

Easy Squeeze bladder for suction



VACUUM CUPS

ESD-Safe and
NON-ESD-Safe



We offer a wide selection of vacuum cups to meet your handling needs. Our vacuum cups can handle electronic components, glass lenses, hot components in the soldering/rework process and certain medical applications.

Here's a tip...

Cups can be cleaned easily with clean water or Isopropyl Alcohol.



3/32"
V9009-*



1/8"
V9013-*



3/16"
V9018-*



1/4"
V9025-*



3/8"
V9038-*



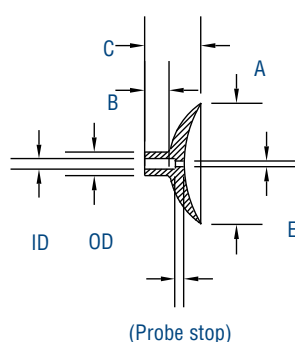
1/2"
V9050-*



5/8"
V9062-*



3/4"
V9075-*



Buna-N Static Dissipative non-marking Black Vacuum Cups

PRICE EACH

V9009-B	3/32" (2.38mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9013-B	1/8" (3.18mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9018-B	3/16" (4.76mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9025-B	1/4" (6.35mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9038-B	3/8" (9.53mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9050-B	1/2" (12.70mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9062-B	5/8" (15.88mm) diameter vacuum cup	BUY IT NOW	\$ 3.60
V9075-B	3/4" (19.05mm) diameter vacuum cup	BUY IT NOW	\$ 3.60
V9000K8-B	Kit of one each of the above vacuum cups (8 total)	BUY IT NOW	\$ 16.90

ESD-Safe High-temperature Conductive Silicone Black Vacuum Cups

PRICE EACH

V9013-ESD	1/8" (3.18mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9018-ESD	3/16" (4.76mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9025-ESD	1/4" (6.35mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9038-ESD	3/8" (9.53mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9050-ESD	1/2" (12.70mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9062-ESD	5/8" (15.88mm) diameter vacuum cup	BUY IT NOW	\$ 3.60
V9075-ESD	3/4" (19.05mm) diameter vacuum cup	BUY IT NOW	\$ 3.60

NON ESD-Safe High-temperature Silicon Clear Vacuum Cups

PRICE EACH

V9009-C	3/32" (2.38mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9013-C	1/8" (3.18mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9018-C	3/16" (4.76mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9025-C	1/4" (6.35mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9038-C	3/8" (9.53mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9050-C	1/2" (12.70mm) diameter vacuum cup	BUY IT NOW	\$ 1.80
V9062-C	5/8" (15.88mm) diameter vacuum cup	BUY IT NOW	\$ 3.60
V9075-C	3/4" (19.05mm) diameter vacuum cup	BUY IT NOW	\$ 3.60
V9000K8-C	Kit of one each of the above vacuum cups (8 total)	BUY IT NOW	\$ 16.90

NON ESD-Safe non-marking PureAClean Blue Vacuum Cups

PRICE EACH

V9013-PUR	1/8" (3.18mm) diameter vacuum cup	BUY IT NOW	\$ 3.60
V9018-PUR	3/16" (4.76mm) diameter vacuum cup	BUY IT NOW	\$ 3.60
V9025-PUR	1/4" (6.35mm) diameter vacuum cup	BUY IT NOW	\$ 3.60
V9038-PUR	3/8" (9.53mm) diameter vacuum cup	BUY IT NOW	\$ 3.60
V9050-PUR	1/2" (12.70mm) diameter vacuum cup	BUY IT NOW	\$ 3.60
V9062-PUR	5/8" (15.88mm) diameter vacuum cup	BUY IT NOW	\$ 7.20
V9075-PUR	3/4" (19.05mm) diameter vacuum cup	BUY IT NOW	\$ 7.20

Prices subject to change without notice.

Dimensions in Inches (millimeters)										Lifting Capacity in Grams @ 6" of Mercury
PART #	SIZE	A	B	C	OD	ID	PS	E		
V9009-*	3/32	0.094(2.38)	0.140(3.56)	0.160(4.06)	0.078(1.98)	0.040(1.02)	0.045(1.14)	0.020(0.51)		5
V9013-*	1/8	0.125(3.18)	0.160(4.06)	0.180(4.57)	0.100(2.54)	0.060(1.52)	0.055(1.40)	0.035(0.89)		10
V9018-*	3/16	0.188(4.76)	0.175(4.45)	0.200(5.08)	0.130(3.30)	0.060(1.52)	0.055(1.40)	0.035(0.89)		25
V9025-*	1/4	0.250(6.35)	0.160(4.06)	0.200(5.08)	0.120(3.04)	0.060(1.52)	0.055(1.40)	0.035(0.89)		60
V9038-*	3/8	0.375(9.53)	0.190(4.83)	0.250(6.35)	0.125(3.18)	0.060(1.52)	0.055(1.40)	0.035(0.89)		150
V9050-*	1/2	0.500(12.70)	0.190(4.83)	0.300(7.62)	0.160(4.06)	0.060(1.52)	0.055(1.40)	0.035(0.89)		250
V9062-*	5/8	0.625(15.88)	0.175(4.45)	0.315(8.00)	0.160(4.06)	0.060(1.52)	0.055(1.40)	0.035(0.89)		400
V9075-*	3/4	0.750(19.05)	0.140(3.56)	0.320(8.13)	0.160(4.06)	0.060(1.52)	0.055(1.40)	0.035(0.89)		600

*-B to order the black Buna-N Static Dissipative non-marking material. (-5°F + 250°F) (-20°C + 120°C) 10¹¹ to 10¹² OHMS
 *-ESD to order the black high-temperature Conductive Silicone material. (-65°F + 445°F) (-55°C + 230°C) 10⁴ to 10⁶ OHMS
 *-C to order the high-temperature clear Silicone material. (-65°F + 480°F) (-55°C + 250°C) > 10¹³

Lifting force is directly proportional to the vacuum level and the area of the vacuum cup being used.

Prices subject to change without notice.

VACUUM PROBES & CUPS

ESD-Safe and
NON-ESD-Safe

Straight 1/2" (12.7mm) Metal Probe With Buna-N Static Dissipative non-marking Black Vacuum Cup

		PRICE EACH
V8903-D-S	Straight 1/2" (12.7mm) probe with 3/32" (2.38mm) vacuum cup	BUY IT NOW \$ 3.30
V8903-S-S	Straight 1/2" (12.7mm) probe with 1/8" (3.18mm) vacuum cup	BUY IT NOW \$ 3.30
V8903-P-S	Straight 1/2" (12.7mm) probe with 3/16" (4.76mm) vacuum cup	BUY IT NOW \$ 3.30
V8903-M-S	Straight 1/2" (12.7mm) probe with 1/4" (6.35mm) vacuum cup	BUY IT NOW \$ 3.30
V8903-L-S	Straight 1/2" (12.7mm) probe with 3/8" (9.53mm) vacuum cup	BUY IT NOW \$ 3.30
V8903-H-S	Straight 1/2" (12.7mm) probe with 1/2" (12.7mm) vacuum cup	BUY IT NOW \$ 3.30
V8903-J-S	Straight 1/2" (12.7mm) probe with 5/8" (15.88mm) vacuum cup	BUY IT NOW \$ 5.20
V8903-K-S	Straight 1/2" (12.7mm) probe with 3/4" (19.05mm) vacuum cup	BUY IT NOW \$ 5.20

Bent 1/2" (12.7mm) Metal Probe With Buna-N Static Dissipative non-marking Black Vacuum Cup

		PRICE EACH
V8903-D-B	Bent 1/2" (12.7mm) probe with 3/32" (2.38mm) vacuum cup	BUY IT NOW \$ 3.30
V8903-S-B	Bent 1/2" (12.7mm) probe with 1/8" (3.18mm) vacuum cup	BUY IT NOW \$ 3.30
V8903-P-B	Bent 1/2" (12.7mm) probe with 3/16" (4.76mm) vacuum cup	BUY IT NOW \$ 3.30
V8903-M-B	Bent 1/2" (12.7mm) probe with 1/4" (6.35mm) vacuum cup	BUY IT NOW \$ 3.30
V8903-L-B	Bent 1/2" (12.7mm) probe with 3/8" (9.53mm) vacuum cup	BUY IT NOW \$ 3.30
V8903-H-B	Bent 1/2" (12.7mm) probe with 1/2" (12.7mm) vacuum cup	BUY IT NOW \$ 3.30
V8903-J-B	Bent 1/2" (12.7mm) probe with 5/8" (15.88mm) vacuum cup	BUY IT NOW \$ 5.20
V8903-K-B	Bent 1/2" (12.7mm) probe with 3/4" (19.05mm) vacuum cup	BUY IT NOW \$ 5.20

Straight 1/2" (12.7mm) Metal Probe With ESD-Safe High-temperature Conductive Silicone Black Vacuum Cup

		PRICE EACH
V8904-S-S	Straight 1/2" (12.7mm) probe with 1/8" (3.18mm) vacuum cup	BUY IT NOW \$ 3.30
V8904-P-S	Straight 1/2" (12.7mm) probe with 3/16" (4.76mm) vacuum cup	BUY IT NOW \$ 3.30
V8904-M-S	Straight 1/2" (12.7mm) probe with 1/4" (6.35mm) vacuum cup	BUY IT NOW \$ 3.30
V8904-L-S	Straight 1/2" (12.7mm) probe with 3/8" (9.53mm) vacuum cup	BUY IT NOW \$ 3.30
V8904-H-S	Straight 1/2" (12.7mm) probe with 1/2" (12.7mm) vacuum cup	BUY IT NOW \$ 3.30
V8904-J-S	Straight 1/2" (12.7mm) probe with 5/8" (15.88mm) vacuum cup	BUY IT NOW \$ 5.20
V8904-K-S	Straight 1/2" (12.7mm) probe with 3/4" (19.05mm) vacuum cup	BUY IT NOW \$ 5.20

Bent 1/2" (12.7mm) Metal Probe With ESD-Safe High-temperature Conductive Silicone Black Vacuum Cup

		PRICE EACH
V8904-S-B	Bent 1/2" (12.7mm) probe with 1/8" (3.18mm) vacuum cup	BUY IT NOW \$ 3.30
V8904-P-B	Bent 1/2" (12.7mm) probe with 3/16" (4.76mm) vacuum cup	BUY IT NOW \$ 3.30
V8904-M-B	Bent 1/2" (12.7mm) probe with 1/4" (6.35mm) vacuum cup	BUY IT NOW \$ 3.30
V8904-L-B	Bent 1/2" (12.7mm) probe with 3/8" (9.53mm) vacuum cup	BUY IT NOW \$ 3.30
V8904-H-B	Bent 1/2" (12.7mm) probe with 1/2" (12.7mm) vacuum cup	BUY IT NOW \$ 3.30
V8904-J-B	Bent 1/2" (12.7mm) probe with 5/8" (15.88mm) vacuum cup	BUY IT NOW \$ 5.20
V8904-K-B	Bent 1/2" (12.7mm) probe with 3/4" (19.05mm) vacuum cup	BUY IT NOW \$ 5.20

Straight 1/2" (12.7mm) Metal Probe With NON ESD-Safe non-marking PureAClean Blue Vacuum Cup

		PRICE EACH
V8908-S-S	Straight 1/2" (12.7mm) probe with 1/8" (3.18mm) vacuum cup	BUY IT NOW \$ 5.10
V8908-P-S	Straight 1/2" (12.7mm) probe with 3/16" (4.76mm) vacuum cup	BUY IT NOW \$ 5.10
V8908-M-S	Straight 1/2" (12.7mm) probe with 1/4" (6.35mm) vacuum cup	BUY IT NOW \$ 5.10
V8908-L-S	Straight 1/2" (12.7mm) probe with 3/8" (9.53mm) vacuum cup	BUY IT NOW \$ 5.10
V8908-H-S	Straight 1/2" (12.7mm) probe with 1/2" (12.7mm) vacuum cup	BUY IT NOW \$ 5.10
V8908-J-S	Straight 1/2" (12.7mm) probe with 5/8" (15.88mm) vacuum cup	BUY IT NOW \$ 8.90
V8908-K-S	Straight 1/2" (12.7mm) probe with 3/4" (19.05mm) vacuum cup	BUY IT NOW \$ 8.90

Bent 1/2" (12.7mm) Metal Probe With NON ESD-Safe non-marking PureAClean Blue Vacuum Cups

		PRICE EACH
V8908-S-B	Bent 1/2" (12.7mm) probe with 1/8" (3.18mm) vacuum cup	BUY IT NOW \$ 5.10
V8908-P-B	Bent 1/2" (12.7mm) probe with 3/16" (4.76mm) vacuum cup	BUY IT NOW \$ 5.10
V8908-M-B	Bent 1/2" (12.7mm) probe with 1/4" (6.35mm) vacuum cup	BUY IT NOW \$ 5.10
V8908-L-B	Bent 1/2" (12.7mm) probe with 3/8" (9.53mm) vacuum cup	BUY IT NOW \$ 5.10
V8908-H-B	Bent 1/2" (12.7mm) probe with 1/2" (12.7mm) vacuum cup	BUY IT NOW \$ 5.10
V8908-J-B	Bent 1/2" (12.7mm) probe with 5/8" (15.88mm) vacuum cup	BUY IT NOW \$ 8.90
V8908-K-B	Bent 1/2" (12.7mm) probe with 3/4" (19.05mm) vacuum cup	BUY IT NOW \$ 8.90

Replacement Vacuum Tip Kits

This kit contains five bent probes with 3/32" (2.38mm), 1/8" (3.18mm), 3/16" (4.76mm), 1/4" (6.35mm), and 3/8" (9.53mm), as well as four straight probes with 1/8" (3.18mm), 1/4" (6.35mm), 3/8" (9.53mm) and 1/2" (12.70mm).

		PRICE EACH
VCS-9-B	Replacement probe/cup - Static Dissipative Buna-N Vacuum Cups	BUY IT NOW \$ 28.30



Vacuum probes are available with or without attached vacuum cups, which will fit most of your handling applications. The luer slip connector fits all of our vacuum handling tools. Custom probe lengths and bends are available upon request.

Here's a tip...

Cups can be cleaned easily with clean water or Isopropyl Alcohol.

STRAIGHT PROBES & CUPS



BENT PROBES & CUPS



Black ESD Safe

STRAIGHT PROBES & CUPS



BENT PROBES & CUPS



PureAClean Blue
NON ESD Safe Non marking

Probes and Cups not to scale

Prices subject to change without notice.

SMD-VAC™-HP

ESD-Safe
Vacuum Handling Systems



The SMD-VAC™ pick-and place tools provide a bench top vacuum generator. The whisper-quiet operation makes these the choice tools for many PCB assembly operations. Parts ranging in size from 0.0075" (0.19mm) up to 4" (102mm) can easily be handled.

SMD-VAC™-HP
3" X 2 1/2" X 6"
(76mm X 64mm X 152mm)



SMD-VAC
Tips
included

OPTIONAL FOOT SWITCH



SMD-VAC™-HP

Additional pick-up power for handling small to very large size components. The precision pump and motor generate over 15 inches of mercury. The compact tower design takes a up a very small footprint on the bench. An electric eye pen holder on the side automatically shuts the unit off when the vacuum pen is placed in it. A solenoid jack on the rear of the V8100A series allows use of the optional foot or hand switch to control vacuum during pick and place operations. The SMD-VAC™-HP comes complete with the following features:

- Quiet operation.
- 5 feet of coiled vacuum hose, (VCH-1/16-5).
- A set of nine vacuum tips, (VCS-9-B).
- A vacuum pick-up handle, (VVP-200).
- 12 volt DC power source.
- Automatic vacuum pump ON/OFF control.
- Rubber no-skid feet.
- ESD connection on rear of unit.
- Produces vacuum of over 15 inches of mercury.

PRICE EACH

V8100A	SMD-VAC-HP for 110 Volt	BUY IT NOW	\$ 450.50
V8100A-FS	SMD-VAC-HP with foot switch, for 110 Volt	BUY IT NOW	\$ 499.00
V8100A-220	SMD-VAC-HP for 220 Volt	BUY IT NOW	\$ 478.20
V8100A-FS-220	SMD-VAC-HP with foot switch, for 220 Volt	BUY IT NOW	\$ 526.70
V8100	SMD-VAC-HP, NO SOLENOID or foot/hand switch connection, for 110 Volt	BUY IT NOW	\$ 374.30
V8100-220	SMD-VAC-HP, NO SOLENOID or foot/hand switch connection, for 220 Volt	BUY IT NOW	\$ 402.00

Refer to pages 14-15 for small parts tips

SMD-VAC™-HP Small Parts Kit

SMD-VAC™-HP, runs on 12 VDC @ 500mA w/ solenoid. With a precision pump and motor that generates over 15 inches of mercury; this tool provides additional pick-up power for handling small to very large size components. This kit includes 5 feet of coiled vacuum hose 1/16" diameter (VCH-1/16-5), a set of nine ESD-Safe vacuum tips. (VCS-9-B), a push-button release vacuum pick-up handle. (VVP-200) Foot Switch & Vacuum Pen w/o control hole, (VFS-1), a set of ESD-Safe Delrin small parts tips (VSPT-TIPS-8-BD), a 16-position tip organizer/holder. (VTH-16), and a wall power supply for operation.

V8100A-SP8-BD	SMD-VAC-HP Small Parts Kit for 110 Volt	BUY IT NOW	\$ 698.80
V8100A-SP8-BD-220	SMD-VAC-HP Small Parts Kit for 220 Volt	BUY IT NOW	\$ 723.20

Foot Switch With Vacuum Pen

Can be used with V8100A tools that have the optional solenoid jack at rear of unit.

PRICE EACH

(This kit includes handle V3021 on page 25).

VFS-1	Foot switch	BUY IT NOW	\$ 57.20
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Vacuum Tips Holder

Table top luer slip vacuum tips holder with non-slip rubber feet. Posts will accommodate up to 16 of our luer slip vacuum tips.

PRICE EACH

VTH-16	Table top holder, holds up to 16 luer slip vacuum tips	BUY IT NOW	\$ 46.20
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Prices subject to change without notice.

ESD-Safe
Vacuum Handling Systems

SMD-VAC™-HP SMALL PARTS KITS

ESD Safe Delrin Deluxe Small Parts Kits

		PRICE EACH
V8100A-FS-DLX-D	SMD-VAC™-HP system (see page 10 for details) w/ solenoid, foot switch and an additional handle with no control hole, a selection of 9 rubber vacuum tips, a complete set of all 16 static dissipative delrin small parts tips, 16-position tip holder VTH-16 and 110 volt power supply	BUY IT NOW \$952.60
V8100A-FS-220-DLX-D	This SMD-VAC™-HP system's features are identical to the above but powered with a 220 volt power supply	BUY IT NOW \$977.00

High Temperature Brass Deluxe Small Parts Kits

V8100A-FS-DLX-B	SMD-VAC™-HP system (see page 10 for details) w/ solenoid, foot switch and an additional handle with no control hole, a selection of 9 rubber vacuum tips, a complete set of all 16 gold plated brass small parts tips, 16 position tip holder VTH-16 and 110 volt power supply	BUY IT NOW \$952.60
V8100A-FS-220-DLX-B	This SMD-VAC™-HP system's features are identical to the above a 220 volt power supply	BUY IT NOW \$977.00

ESD Safe Delrin Small Parts Kits

		PRICE EACH
VSPT-KIT-16-D	A kit of 16 bent and straight ESD safe delrin small parts tips in the range of VSTP1005 to VSPT8060 with tip holder (VTH-16)	BUY IT NOW \$424.00
VSPT-KIT-8-BD	A kit of 8 bent ESD safe delrin small parts tips in the range of VSTP1005 to VSPT8060	BUY IT NOW \$212.00
VSPT-KIT-8-SD	A kit of 8 straight ESD safe delrin small parts tips in the range of VSTP1005 to VSPT8060	BUY IT NOW \$212.00



VSPT-KIT-16-D



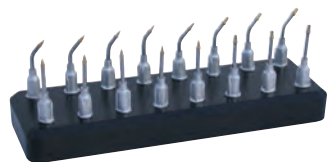
VSPT-KIT-8-BD



VSPT-KIT-8-SD

High Temperature Brass Small Parts Kits

VSPT-KIT-16-B	A kit of 16 bent and straight gold plated brass small parts tips in the range of VSTP1005 to VSPT8060 with tip holder p/n VTH-16	BUY IT NOW \$424.00
VSPT-KIT-8-BB	A kit of 8 bent gold plated brass small parts tips in the range of VSTP1005 to VSPT8060	BUY IT NOW \$212.00
VSPT-KIT-8-SB	A kit of 8 straight gold plated brass small parts tips in the range of VSTP1005 to VSPT8060	BUY IT NOW \$212.00



VSPT-KIT-16-B



VSPT-KIT-8-BB



VSPT-KIT-8-SB

Tip Holder For Vacuum Tips

VTH-16	Tip holder with 16 locations for holding our luer slip vacuum pick up tips. Vacuum tips not included	BUY IT NOW \$ 46.20
VTH-8	Tip holder with 8 locations for holding our luer slip vacuum pick up tips. Vacuum tips not included	BUY IT NOW \$ 38.50

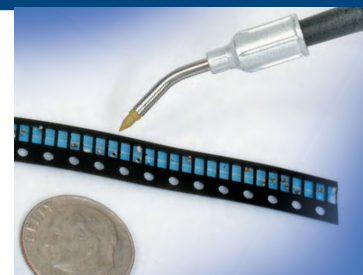


VTH-16



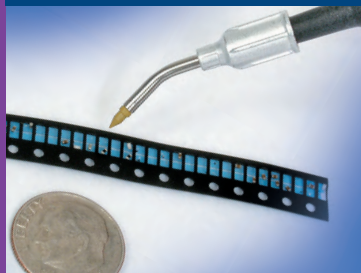
VTH-8

Prices subject to change without notice.

V8100A-FS-DLX-D
KITV8100A-FS-DLX-B
KIT

TV-1000 SMALL PARTS KITS

ESD-Safe
Vacuum Handling Systems



TV-1000



TV-1000-SP8-BD



TV-1000-DLX-B



TV-1000 TWEEZER VAC® Kits

This compact unit will handle a wide variety of parts used in industry today. The long-life diaphragm vacuum pump generates up to 10 inches of mercury with an open air flow of 2.3 lpm. The unit connects to ground automatically with a three-wire power cord. The TV-1000 comes complete with the following features:

- Available in 110 or 220 volt models.
- Lighted On/Off switch.
- Whisper-quiet operation.
- Long-life pump.
- Push-button release vacuum pick-up handle VVP-200.
- Produces vacuum of up to 10 inches of mercury.
- Rubber no-skid feet.
- Side mounted handle holder.
- Foot print measures 7-1/4" X 3" X 2-1/2"

PRICE EACH

TV-1000	The TWEEZER-VAC® 110 volt model comes complete with the following accessories/ features: 5 feet of coiled vacuum hose 1/16" diameter, (VCH-1/16-5), a set of nine ESD-Safe vacuum tips (VCS-9-B), and a push-button release vacuum pick-up handle VVP-200	BUY IT NOW \$ 238.80
TV-1000-220	The TWEEZER-VAC® 220 volt model comes complete with the following accessories/ features: 5 feet of coiled vacuum hose 1/16" diameter, (VCH-1/16-5), a set of nine ESD-Safe vacuum tips (VCS-9-B), and a push-button release vacuum pick-up handle VVP-200	BUY IT NOW \$ 238.80

ESD Safe Delrin TV-1000 TWEEZER VAC® Kits

TV-1000-SP8-BD	The TWEEZER-VAC® 110 volt model comes complete with the following accessories/ features: 5 feet of coiled vacuum hose 1/16" diameter, (VCH-1/16-5), a set of nine ESD-Safe vacuum tips (VCS-9-B), a push-button release vacuum pick-up handle (VVP-200), a set of ESD-Safe Delrin small parts tips (VSPT-TIPS-8-BD), a 16 position tip organizer/holder (VTH-16)	BUY IT NOW \$ 480.00
TV-1000-SP8-BD-220	The TWEEZER-VAC® 220 volt model comes complete with the following accessories/ features: 5 feet of coiled vacuum hose 1/16" diameter (VCH-1/16-5), a set of nine ESD-Safe vacuum tips (VCS-9-B), a push-button release vacuum pick-up handle (VVP-200), a set of ESD-Safe Delrin small parts tips (VSPT-TIPS-8-BD), a 16 position tip organizer/holder (VTH-16)	BUY IT NOW \$ 480.00
TV-1000-DLX-D	The TWEEZER-VAC® 110 volt model comes complete with the following accessories/ features: 5 feet of coiled vacuum hose 1/16" diameter (VCH-1/16-5), a push-button release vacuum pick-up handle (VVP-200), a set of ESD-Safe Delrin small parts tips (VSPT-KIT-16-D), including a 16 position tip organizer/holder (VTH-16)	BUY IT NOW \$ 684.00
TV-1000-DLX-D-220	The TWEEZER-VAC® 220 volt model comes complete with the following accessories/ features: 5 feet of coiled vacuum hose 1/16" diameter (VCH-1/16-5), a push-button release vacuum pick-up handle (VVP-200), a set of ESD-Safe Delrin small parts tips (VSPT-KIT-16-D), including a 16 position tip organizer/holder (VTH-16)	BUY IT NOW \$ 684.00

High Temperature Brass TV-1000 TWEEZER VAC® Kits

TV-1000-SP8-BB	The TWEEZER-VAC® 110 volt model comes complete with the following accessories/ features: 5 feet of coiled vacuum hose 1/16" diameter, (VCH-1/16-5), a set of nine ESD-Safe vacuum tips (VCS-9-B), a push-button release vacuum pick-up handle (VVP-200), a set of bent gold plated brass small parts tips (VSPT-TIPS-8-BB), a 16 position tip organizer/holder (VTH-16)	BUY IT NOW \$ 480.00
TV-1000-SP8-BB-220	The TWEEZER-VAC® 220 volt model comes complete with the following accessories/ features: 5 feet of coiled vacuum hose 1/16" diameter (VCH-1/16-5), a set of nine ESD-Safe vacuum tips (VCS-9-B), a push-button release vacuum pick-up handle (VVP-200), a set of bent gold plated brass small parts tips (VSPT-TIPS-8-BB), a 16 position tip organizer/holder (VTH-16)	BUY IT NOW \$ 480.00
TV-1000-DLX-B	The TWEEZER-VAC® 110 volt model comes complete with the following accessories/ features: 5 feet of coiled vacuum hose 1/16" diameter (VCH-1/16-5), a push-button release vacuum pick-up handle (VVP-200), a set of bent gold plated brass small parts tips (VSPT-KIT-16-B), including a 16 position tip organizer/holder (VTH-16)	BUY IT NOW \$ 684.00
TV-1000-DLX-B-220	The TWEEZER-VAC® 220 volt model comes complete with the following accessories/ features: 5 feet of coiled vacuum hose 1/16" diameter (VCH-1/16-5), a push-button release vacuum pick-up handle (VVP-200), a set of bent gold plated brass small parts tips (VSPT-KIT-16-B), including a 16 position tip organizer/holder (VTH-16)	BUY IT NOW \$ 684.00

Refer to pages 14-15 for small parts tips

Prices subject to change without notice.

ESD-Safe
Vacuum Handling Systems

PAC-VAC® & STEALTH-VAC™

PAC-VAC®

The PAC-VAC® is battery operated and self-contained, runs up to eight hours continuously on one 9 volt alkaline battery. This versatile unit can be clipped to your belt or pocket for one-handed portable operation. The PAC-VAC® is constructed with ESD safe materials and comes complete with the following features:

- Bright blue power on LED indicator light.
- A belt/pocket clip on the housing.
- 5 feet of coiled vacuum hose, VCH-1/16-5.
- A set of nine vacuum tips, VCS-9-B.
- A vacuum pick-up handle, VVP-200.
- 9 volt disposable alkaline battery.
- Lightweight - only 156 grams.
- Produces vacuum of up to 16 inches of mercury.

PRICE EACH

V3200	PAC-VAC kit	BUY IT NOW	\$ 223.70
V3200-CLN	PAC-VAC kit Clean room safe	BUY IT NOW	\$ 339.20
VCS-9-B	Replacement probe/cup kit	BUY IT NOW	\$ 28.30

Refer to pages 14-15 for small parts tips



The PAC-VAC is a portable continuous vacuum handling system that operates off a standard size 9 volt battery.



Bright blue
power on LED
indicator light

PAC-VAC

Belt/pocket
clip



STEALTH-VAC™

The STEALTH-VAC operates directly on compressed air or nitrogen. Simply place the vacuum tip on the part to pick it up and tap the control button to release the part.

PRICE EACH

VVSV-KIT	The normally open Stealth Vac Kit with a set of 9 vacuum tips, 6 feet of 1/16" coiled vacuum hose, a set of nine ESD-Safe vacuum tips (VCS-9-B), a (V3014-1/8NPT) 1/8" NPT to 1/16" barb adapter for the supply line, the vacuum generating handle and a (VBM-3) holder for the wand. Operates off of 30 to 70 psi compressed air or nitrogen. This tool grips the part without depressing the button. A slight tap of the button releases the part	BUY IT NOW	\$ 190.50
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VVSV-X	The normally open Stealth Vac vacuum generating handle. Includes 6 feet of 1/16" coiled vacuum hose, a (V3014-1/8NPT) 1/8" NPT to 1/16" barb adapter for the supply line and the vacuum generating handle. Operates off of 30 to 70 psi compressed air or nitrogen. This tool grips the part only while depressing the button. A slight tap of the button releases the part	BUY IT NOW	\$ 113.10
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STEALTH-VAC



STEALTH-VAC™ ELITE

The STEALTH-VAC operates directly on compressed air or nitrogen. Simply place the vacuum tip on the part to pick it up and press the control button to pick up the part and press the button again to release the part.

PRICE EACH

VVSV-NC-KIT	The normally closed Stealth Vac™ ELITE Kit with a set of 9 vacuum tips, 6 feet of 1/16" coiled vacuum hose, a set of nine ESD-Safe vacuum tips (VCS-9-B)a (V3014-1/8NPT) 1/8" NPT to 1/16" barb adapter for the supply line, the vacuum generating handle and a (VBM-3) holder for the wand. Operates off of 30 to 50 psi compressed air or nitrogen. This tool grips the part only while depressing the button. Releasing the button releases the part. Conserves factory air	BUY IT NOW	\$ 280.70
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VVSV-NC-X	The normally closed Stealth Vac ELITE vacuum generating handle. Includes 6 feet of 1/16" coiled vacuum hose, a (V3014-1/8NPT) 1/8" NPT to 1/16" barb adapter for the supply line and the vacuum generating handle. Operates off of 30 to 50 psi compressed air or nitrogen. This tool grips the part only while depressing the button. Releasing the button releases the part. Conserves factory air	BUY IT NOW	\$ 203.30
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STEALTH-VAC
ELITE

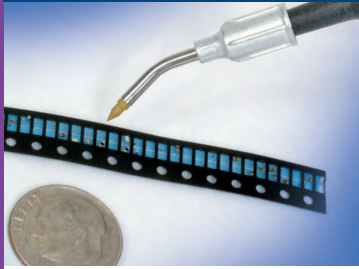


Operates on
compressed
air or nitrogen

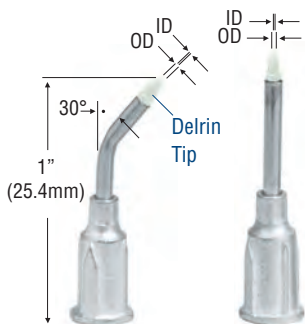
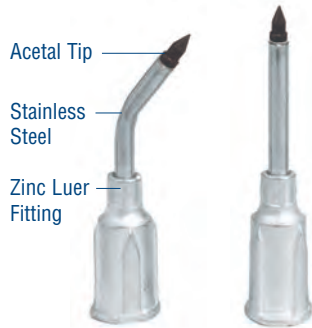
Prices subject to change without notice.

ESD SAFE DELRIN & ACETAL SMALL PARTS TIPS

Vacuum Handling Tool Accessories



Our machined small parts tips are designed to be used with a continuous vacuum source for handling parts as small as .006" (.152mm).



Small Parts Tips

These tips are designed for handling very tiny parts. Tips are available in ESD Safe Delrin plastic so there is no chance of static or mechanical damage. For a lower cost tip Non-ESD Safe Acetal is also available.

These tips must be used with continuous vacuum systems only.

- Beige Delrin - Static Dissipative temperature up to 212°F (100°C).
- Black Delrin/Acetal - Non ESD Safe temperatures up to 212°F (100°C).

PRICE EACH

Beige ESD Safe Delrin Small Parts Tips

VSPT1005-BD	Bent	0.010" (0.25mm) OD x 0.005" (0.13mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT2010-BD	Bent	0.020" (0.51mm) OD x 0.010" (0.25mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT2515-BD	Bent	0.025" (0.64mm) OD x 0.015" (0.38mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT3020-BD	Bent	0.030" (0.76mm) OD x 0.020" (0.51mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT4030-BD	Bent	0.040" (1.02mm) OD x 0.030" (0.76mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT6040-BD	Bent	0.060" (1.52mm) OD x 0.040" (1.02mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT7050-BD	Bent	0.070" (1.78mm) OD x 0.050" (1.27mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT8060-BD	Bent	0.080" (2.00mm) OD x 0.060" (1.52mm) ID	Delrin	BUY IT NOW	\$ 27.90

VSPT1005-SD	Straight	0.010" (0.25mm) OD x 0.005" (0.13mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT2010-SD	Straight	0.020" (0.51mm) OD x 0.010" (0.25mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT2515-SD	Straight	0.025" (0.64mm) OD x 0.015" (0.38mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT3020-SD	Straight	0.030" (0.76mm) OD x 0.020" (0.51mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT4030-SD	Straight	0.040" (1.02mm) OD x 0.030" (0.76mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT6040-SD	Straight	0.060" (1.52mm) OD x 0.040" (1.02mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT7050-SD	Straight	0.070" (1.78mm) OD x 0.050" (1.27mm) ID	Delrin	BUY IT NOW	\$ 27.90
VSPT8060-SD	Straight	0.080" (2.00mm) OD x 0.060" (1.52mm) ID	Delrin	BUY IT NOW	\$ 27.90

Black Non ESD Safe Acetal Small Parts Tips

VSPT1005-BA	Bent	0.010" (0.25mm) OD x 0.005" (0.13mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT2010-BA	Bent	0.020" (0.51mm) OD x 0.010" (0.25mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT2515-BA	Bent	0.025" (0.64mm) OD x 0.015" (0.38mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT3020-BA	Bent	0.030" (0.76mm) OD x 0.020" (0.51mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT4030-BA	Bent	0.040" (1.02mm) OD x 0.030" (0.76mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT6040-BA	Bent	0.060" (1.52mm) OD x 0.040" (1.02mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT7050-BA	Bent	0.070" (1.78mm) OD x 0.050" (1.27mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT8060-BA	Bent	0.080" (2.00mm) OD x 0.060" (1.52mm) ID	Acetal	BUY IT NOW	\$ 27.90

VSPT1005-SA	Straight	0.010" (0.25mm) OD x 0.005" (0.13mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT2010-SA	Straight	0.020" (0.51mm) OD x 0.010" (0.25mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT2515-SA	Straight	0.025" (0.64mm) OD x 0.015" (0.38mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT3020-SA	Straight	0.030" (0.76mm) OD x 0.020" (0.51mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT4030-SA	Straight	0.040" (1.02mm) OD x 0.030" (0.76mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT6040-SA	Straight	0.060" (1.52mm) OD x 0.040" (1.02mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT7050-SA	Straight	0.070" (1.78mm) OD x 0.050" (1.27mm) ID	Acetal	BUY IT NOW	\$ 27.90
VSPT8060-SA	Straight	0.080" (2.00mm) OD x 0.060" (1.52mm) ID	Acetal	BUY IT NOW	\$ 27.90

ESD Safe Small Parts Tips For As Small As 100 Microns (0.004")

VSPT0803-BD	Bent	0.008" (.203mm) OD x 0.003" (.076mm) ID	Delrin	BUY IT NOW	\$ 39.90
VSPT0803-SD	Straight	0.008" (.203mm) OD x 0.003" (.076mm) ID	Delrin	BUY IT NOW	\$ 39.90
VSPT0803-BA	Bent	0.008" (.203mm) OD x 0.003" (.076mm) ID	Acetal	BUY IT NOW	\$ 39.90
VSPT0803-SA	Straight	0.008" (.203mm) OD x 0.003" (.076mm) ID	Acetal	BUY IT NOW	\$ 39.90

Prices subject to change without notice.

Vacuum Handling Tool
AccessoriesHIGH TEMPERATURE
SMALL PARTS TIPS

Small Parts Tips

These tips are designed for handling very tiny parts. High temperature Torlon for soldering applications, or Brass for general handling applications, all attached to a metal probe.

These tips must be used with continuous vacuum systems only.

- Olive Torlon - non ESD Safe temperatures up to 475°F (232°C).
- Gold Plated Brass - Conductive, gold plated temperatures up to 500°F (260°C).

PRICE EACH

Olive Torlon Small Parts Tips

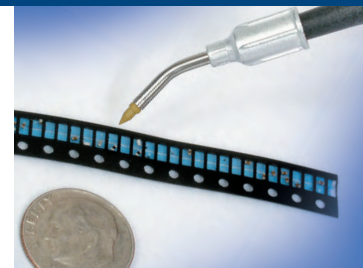
VSPT1005-BT	Bent	0.010" (0.25mm) OD x 0.005" (0.13mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT2010-BT	Bent	0.020" (0.51mm) OD x 0.010" (0.25mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT2515-BT	Bent	0.025" (0.64mm) OD x 0.015" (0.38mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT3020-BT	Bent	0.030" (0.76mm) OD x 0.020" (0.51mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT4030-BT	Bent	0.040" (1.02mm) OD x 0.030" (0.76mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT6040-BT	Bent	0.060" (1.52mm) OD x 0.040" (1.02mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT7050-BT	Bent	0.070" (1.78mm) OD x 0.050" (1.27mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT8060-BT	Bent	0.080" (2.00mm) OD x 0.060" (1.52mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90

VSPT1005-ST	Straight	0.010" (0.25mm) OD x 0.005" (0.13mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT2010-ST	Straight	0.020" (0.51mm) OD x 0.010" (0.25mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT2515-ST	Straight	0.025" (0.64mm) OD x 0.015" (0.38mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT3020-ST	Straight	0.030" (0.76mm) OD x 0.020" (0.51mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT4030-ST	Straight	0.040" (1.02mm) OD x 0.030" (0.76mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT6040-ST	Straight	0.060" (1.52mm) OD x 0.040" (1.02mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT7050-ST	Straight	0.070" (1.78mm) OD x 0.050" (1.27mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90
VSPT8060-ST	Straight	0.080" (2.00mm) OD x 0.060" (1.52mm) ID	High-Temp Torlon	BUY IT NOW	\$ 27.90

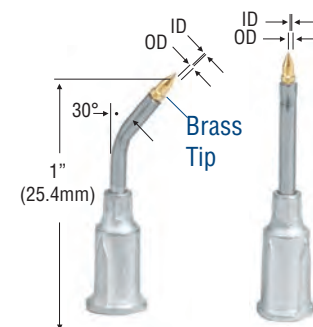
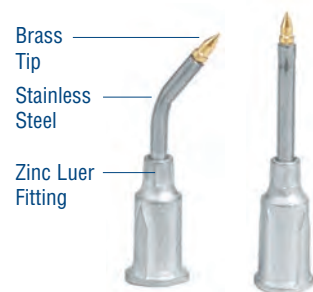
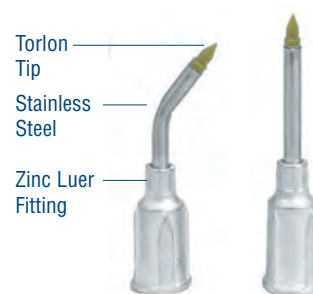
Gold Plated Brass Small Parts Tips

VSPT1005-BB	Bent	0.010" (0.25mm) OD x 0.005" (0.13mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT2010-BB	Bent	0.020" (0.51mm) OD x 0.010" (0.25mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT2515-BB	Bent	0.025" (0.64mm) OD x 0.015" (0.38mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT3020-BB	Bent	0.030" (0.76mm) OD x 0.020" (0.51mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT4030-BB	Bent	0.040" (1.02mm) OD x 0.030" (0.76mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT6040-BB	Bent	0.060" (1.52mm) OD x 0.040" (1.02mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT7050-BB	Bent	0.070" (1.78mm) OD x 0.050" (1.27mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT8060-BB	Bent	0.080" (2.00mm) OD x 0.060" (1.52mm) ID	Brass	BUY IT NOW	\$ 27.90

VSPT1005-SB	Straight	0.010" (0.25mm) OD x 0.005" (0.13mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT2010-SB	Straight	0.020" (0.51mm) OD x 0.010" (0.25mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT2515-SB	Straight	0.025" (0.64mm) OD x 0.015" (0.38mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT3020-SB	Straight	0.030" (0.76mm) OD x 0.020" (0.51mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT4030-SB	Straight	0.040" (1.02mm) OD x 0.030" (0.76mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT6040-SB	Straight	0.060" (1.52mm) OD x 0.040" (1.02mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT7050-SB	Straight	0.070" (1.78mm) OD x 0.050" (1.27mm) ID	Brass	BUY IT NOW	\$ 27.90
VSPT8060-SB	Straight	0.080" (2.00mm) OD x 0.060" (1.52mm) ID	Brass	BUY IT NOW	\$ 27.90



Our machined small parts tips are designed to be used with a continuous vacuum source for handling parts as small as .006" (.152mm).



Prices subject to change without notice.

PORTA-WAND® ELITE

Rechargeable Battery Pack Operated
Wafer Handling Tools



Every PORTA-WAND® is tested to meet Class 1 clean room particle contamination requirements. A serialized particle counter printout is provided with every tool.

PORTA-WAND® ELITE
110 Volt Kit



PORTA-WAND® ELITE
220 Volt Kit



Rechargeable battery



PORTA-WAND® ELITE 110 Volt Kit

The PORTA-WAND® ELITE kit comes with a detachable 9.6V NiMH rechargeable battery pack, an in-stand charger (VPW6000BQ-CHRG) and one wafer tip as listed below. The detachable battery pack (VPWE-150-SILVER) contains the rear exhaust filter for the entire tool to ensure better than Class 1 performance. The battery pack can be recharged when attached to the tool or when separated from the tool. Ideal for handling wafers, disk media, flat panels, or any item that has a flat hard surface. A power on indicator flashes when the battery pack needs to be recharged or interchanged with a fully charged battery pack. A PUSH-BUTTON provides easy on/off control with a lock to on position. An intake air filter (VPW6000-FIL-5) is replaceable from the front of the tool.

Optional Feature: The two pins at the front of the tool allow use of the optional anti-rotate adaptor.

This adaptor locks any of our molded wafer tips into one of eight rotational positions around the front of the wafer handling tool. See item number VMWT-ADAPT-AR on page 23 for a description of the operation.

PRICE EACH

VPWE7000AR-MW4	PORTA-WAND ELITE with PEEK wafer tip VMWT-A, up to 8" (200mm) wafers	BUY IT NOW	\$ 1238.80
VPWE7000AR-MW6	PORTA-WAND ELITE with PEEK wafer tip VMWT-B, up to 6" (150mm) wafers	BUY IT NOW	\$ 1238.80
VPWE7000AR-MW8	PORTA-WAND ELITE with PEEK wafer tip VMWT-C, up to 8" (200mm) wafers	BUY IT NOW	\$ 1238.80

PORTA-WAND® ELITE 220 Volt Kit

The PORTA-WAND® ELITE kit comes with a detachable 9.6V NiMH rechargeable battery pack, an in-stand charger (VPW6000BQ-CHRG-220) and one wafer tip as listed below. The detachable battery pack (VPWE-150-SILVER) contains the rear exhaust filter for the entire tool to ensure better than Class 1 performance. The battery pack can be recharged when attached to the tool or when separated from the tool. Ideal for handling wafers, disk media, flat panels, or any item that has a flat hard surface. A power on indicator flashes when the battery pack needs to be recharged or interchanged with a fully charged battery pack. A PUSH-BUTTON provides easy on/off control with a lock to on position. An intake air filter (VPW6000-FIL-5) is replaceable from the front of the tool. Provided with a CE approved 220 Volt power power supply.

Optional Feature: The two pins at the front of the tool allow use of the optional anti-rotate adaptor. This adaptor locks any of our molded wafer tips into one of eight rotational positions around the front of the wafer handling tool. See item number VMWT-ADAPT-AR on page 23 for a description of the operation.

PRICE EACH

VPWE7000AR-MW4-220	PORTA-WAND ELITE with PEEK wafer tip VMWT-A, up to 4" (100mm) wafers	BUY IT NOW	\$ 1264.20
VPWE7000AR-MW6-220	PORTA-WAND ELITE with PEEK wafer tip VMWT-B, up to 6" (150mm) wafers	BUY IT NOW	\$ 1264.20
VPWE7000AR-MW8-220	PORTA-WAND ELITE with PEEK wafer tip VMWT-C, up to 8" (200mm) wafers	BUY IT NOW	\$ 1264.20

Rechargeable Battery Pack

Rechargeable battery pack for the PORTA-WAND® ELITE hand tools. This 9.6V NiMH rechargeable battery pack (VPWE-150) also contains the rear exhaust filters for the entire tool to ensure better than Class 1 performance. The battery pack can be recharged when attached to the tool or when separated from the tool.

PRICE EACH

VPWE-150-SILVER		BUY IT NOW	\$ 190.00
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Anti Rotate Adaptor

This adaptor is used with any of our PORTA-WAND® "AR" series tools that have the pins protruding from the front end of the tool. The adaptor slides onto the front of the tool and engages the pins in one of eight possible positions to prevent rotation of the adaptor. Amolded wafer tip can now be inserted into the front of the PORTA-WAND® with the flat of the wafer tip engaging the slot in the adaptor. The wafer tip is now secure from rotating during wafer handling operations.

PRICE EACH

VMWT-ADAPT-AR	ESD-Safe Anti Rotate Tip Adaptor	BUY IT NOW	\$ 80.80
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Prices subject to change without notice.

SERIES 3 PORTA-WAND® ELITE

Rechargeable Battery Operated Wafer Handling Tools

SERIES 3 PORTA-WAND® ELITE Kit With 300mm Wafer Tip

The SERIES 3 PORTA-WAND® ELITE kit comes with a detachable 9.6V NiMH rechargeable battery pack, an in-stand charger (VPW6000-CHRG) and one 300mm Wafer Tip (VWT-5R page 19). The detachable battery pack (VPWE-150 page 17) contains the rear exhaust filter for the entire tool to ensure better than Class I performance. The battery pack can be recharged when attached to the tool or when separated from the tool. Ideal for handling wafers, disk media, flat panels, or any item that has a flat hard surface. The OPERATION INDICATOR turns on only when proper vacuum has been established to firmly grip the wafer. The same light flashes when the battery pack needs to be recharged or interchanged with a fully charged battery pack. A PUSH-BUTTON provides easy on/off control with a lock to on position. An internal air filter (VPW6000-FIL-5) is replaceable from the front of the tool.

Optional Feature: The two pins at the front of the tool allow use of the optional anti-rotate adaptor.

This adaptor locks any of our molded wafer tips into one of eight rotational positions around the front of the wafer handling tool. See item number VMWT-ADAPT-AR on page 23 for a description of the operation.

		PRICE EACH
VPWE7300AR-VWT5R-AR	SERIES 3 PORTA-WAND ELITE with 300mm Wafer Tip VWT-5R, handles up to 12" (300mm) wafers, 110 VOLT	BUY IT NOW \$ 1702.50
VPWE7300AR-VWT5R-220-AR	SERIES 3 PORTA-WAND ELITE with 300mm Wafer Tip VWT-5R, handles up to 12" (300mm) wafers, 220 VOLT	BUY IT NOW \$ 1727.90

SERIES 3 PORTA-WAND® ELITE Kit With MOLDED PEEK Wafer Tip

Same tool as described above except it is provided with a MOLDED PEEK wafer tip. Ideal for handling wafers, disk media or any item that has a hard, flat surface.

		PRICE EACH
VPWE7300AR-MW4	SERIES 3 PORTA-WAND ELITE with wafer tip VMWT-A, handles up to 4" (100mm) wafers, 110 VOLT	BUY IT NOW \$ 1511.90
VPWE7300AR-MW6	SERIES 3 PORTA-WAND ELITE with wafer tip VMWT-B, handles up to 6" (150mm) wafers, 110 VOLT	BUY IT NOW \$ 1511.90
VPWE7300AR-MW8	SERIES 3 PORTA-WAND ELITE with wafer tip VMWT-C, handles up to 8" (200mm) wafers, 110 VOLT	BUY IT NOW \$ 1511.90
VPWE7300AR-MW4-220	SERIES 3 PORTA-WAND ELITE with wafer tip VMWT-A, handles up to 4" (100mm) wafers, 220 VOLT	BUY IT NOW \$ 1537.40
VPWE7300AR-MW6-220	SERIES 3 PORTA-WAND ELITE with wafer tip VMWT-B, handles up to 6" (150mm) wafers, 220 VOLT	BUY IT NOW \$ 1537.40
VPWE7300AR-MW8-220	SERIES 3 PORTA-WAND ELITE with wafer tip VMWT-C, handles up to 8" (200mm) wafers, 220 VOLT	BUY IT NOW \$ 1537.40

Battery Charger System

This charger system is used with the VPW6000AR, VPW6300AR, VPWE7000AR and VPWE7300AR series PORTA-WAND® and PORTA-WAND® ELITE vacuum handling tools.

		PRICE EACH
VPW6000BQ-CHRG	for 110 VOLT operation, with Power Supply	BUY IT NOW \$ 317.70
VPW6000BQ-CHRG-220	for 220 VOLT operation, with Power Supply	BUY IT NOW \$ 343.10
VPW6000BQ-CHRG-XT	Charger only no Power Supply	BUY IT NOW \$ 285.90
VPW6000-TRANS	for 110 VOLT operation, Power Supply only	BUY IT NOW \$ 38.20
VPW6000-TRANS-220	for 220 VOLT operation, Power Supply only	BUY IT NOW \$ 63.60

Rechargeable Battery Pack

Rechargeable battery pack for the PORTA-WAND® ELITE hand tools. This 9.6V NiMH rechargeable battery pack (VPWE-150) also contains the rear exhaust filters for the entire tool to ensure better than Class I performance. The battery pack can be recharged when attached to the tool or when separated from the tool.

		PRICE EACH
VPWE-150-SILVER		BUY IT NOW \$ 190.00

Intake Air Filters

Five pack of replaceable 40 micron air filters for the PORTA-WAND®/and PORTA-WAND® ELITE.

		PRICE EACH
VPW6000-FIL-5		BUY IT NOW \$ 42.00



The Series 3 vacuum handling tools are key to handling up to 300mm wafers.



SERIES 3
PORTA-WAND®
ELITE Kit With 300
mm Wafer Tip

Charging base

Wall plug
power supply



SERIES 3
PORTA-WAND®
ELITE Kit With
Molded Peek
Wafer Tip

Charging base

Wall plug
power supply

Battery Charger System



Charging base

Power supply

Rechargeable battery



Prices subject to change without notice.

PORTA-VAC® II & PORTA-VAC Battery Packs & Accessories

Battery Operated Wafer Handling Tools



The PORTA-VAC® II wafer handling tool operates on a standard 9 volt alkaline battery or an optional rechargeable battery pack. This wafer tweezer replacement easily handles any size semiconductor wafer when equipped with the proper wafer tip.

PORTA-VAC® II with Molded PEEK Tip



Battery Pack and Charger System



In-stand charger

Wall power supply



PV2074-RE Battery pack

Intake Air Filters



PORTA-VAC® II Kit With Molded Peek® Wafer Tip

This wafer handling tool kit comes with one MOLDED wafer tip as listed below. Ideal for handling wafers, disk media or any item that has a flat, hard surface. Easily lifts over 500 grams. A disposable 9V battery is included. Rear exhaust of the pump air is standard on these units. The battery low indicator flashes red when the battery needs to be changed or recharged. A switch setting on the bottom of the tool allows selection of alkaline battery or NiMH battery discharge characteristics for the battery low indicator.

A large on/off switch provides easy on/off control. An internal air filter (PV4000-FIL-5) is replaceable from the front of the tool. The Class 1 exhaust filter ensures clean operation. An optional rechargeable battery pack and in-stand charger are also available for this tool (see below for details).

PRICE EACH

PV4000A-MW4	PORTA-VAC II with wafer tip VMWT-A, handles up to 4" (100mm) wafers	BUY IT NOW	\$ 890.00
PV4000A-MW6	PORTA-VAC II with wafer tip VMWT-B, handles up to 6" (150mm) wafers	BUY IT NOW	\$ 890.00
PV4000A-MW8	PORTA-VAC II with wafer tip VMWT-C, handles up to 8" (200mm) wafers	BUY IT NOW	\$ 890.00

PORTA-VAC® II Tool

Ideal for handling wafers, disk media or any item that has a flat, hard surface. Easily lifts over 500 grams. A disposable 9V battery is included. Rear exhaust of the pump air is standard on these units. The battery low indicator flashes red when the battery needs to be changed or recharged. A switch setting on the bottom of the tool allows selection of alkaline battery or NiMH battery discharge characteristics for the battery low indicator. A large on/off switch provides easy on/off control. An internal air filter (PV4000-FIL-5) is replaceable from the front of the tool. The Class 1 exhaust filter insures clean operation. A disposable battery is included. An optional rechargeable battery pack and in-stand charger is also available for this tool (see below for details).

PRICE EACH

PV4000A-X	PORTA-VAC II only	BUY IT NOW	\$ 825.90
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Battery Pack And Charger System

The in-stand NiMH battery pack and charger are designed to charge the battery pack while the PORTA-VAC® tool is in the stand. A micro-processor monitors the charge status and terminates the charge when the battery is at full capacity. Charge time for a depleted NiMH battery is two hours. LED indicators show status of the charge. The base is designed to sit on your work station surface or be mounted directly on a wall.

PRICE EACH

PV2070BQ-RE	9.6 volt in-stand battery charger with wall power supply and rear exhaust battery	BUY IT NOW	\$ 377.30
PV2070BQ-220-RE	9.6 volt in-stand battery charger with 220 volt wall power supply & rear exhaust battery	BUY IT NOW	\$ 402.80
PV2074-RE	9.6 volt in-stand rear exhaust battery pack only	BUY IT NOW	\$ 108.10

PRICE EACH

Intake Air Filters

PV4000-FIL-5	5 pack of replaceable 40 micron air filters for the PORTA-VAC®	BUY IT NOW	\$ 42.00
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Prices subject to change without notice.

Battery Operated Wafer Handling Tools

SERIES 3 PORTA-VAC®

Series 3 PORTA-VAC® Kit With 300mm Wafer Tip

This wafer handling tool kit comes with one machined wafer tip as listed below. Ideal for handling wafers, disk media or any item that has a flat, hard surface. Easily lifts 300mm wafers. A disposable 9V battery is included. Rear exhaust of the pump air is standard on these units. The OPERATION INDICATOR turns on only when proper vacuum has been established to firmly grip the wafer. The same light flashes when the battery needs to be replaced or recharged. A switch setting on bottom of the tool allows selection of alkaline battery or NiMH battery discharge characteristics for the battery low indicator. A large on/off switch provides easy on/off control. An internal air filter (PV4000-FIL-5) is replaceable from the front of the tool. The Class 1 exhaust filter ensures clean operation. An optional rechargeable battery pack and in-stand charger are also available for this tool (see page 18 for details).

		PRICE EACH
PV4300-VWT5R	Series 3 PORTA-VAC with wafer tip VWT-5R, handles up to 12" (300mm) wafers	BUY IT NOW \$ 1365.80
PV4300-X	Series 3 PORTA-VAC only, no wafer tip	BUY IT NOW \$ 1111.70



The Series 3 PORTA-VAC® vacuum handling tools are key to handling up to 300mm wafers. A safe vacuum level indicator illuminates only after vacuum is established between the wafer being handled and the wafer tip.

Series 3 PORTA-VAC® Kit With Molded Peek Wafer Tip

Same tool as described above except it is provided with a MOLDED PEEK wafer tip. Ideal for handling wafers, disk media or any item that has a hard, flat surface.

		PRICE EACH
PV4300-MW4	Series 3 PORTA-VAC with wafer tip VMWT-A, handles up to 4" (100mm) wafers	BUY IT NOW \$ 1175.30
PV4300-MW6	Series 3 PORTA-VAC with wafer tip VMWT-B, handles up to 6" (150mm) wafers	BUY IT NOW \$ 1175.30
PV4300-MW8	Series 3 PORTA-VAC with wafer tip VMWT-C, handles up to 8" (200mm) wafers	BUY IT NOW \$ 1175.30



SERIES 3
PORTA-VAC®
with disposable
9V battery



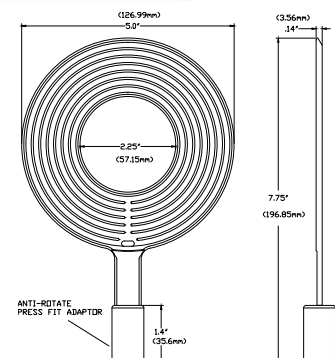
300mm Wafer
Handling Tip



300mm Wafer Handling Tip

Designed for safely handling 300mm wafers. The large five inch (127mm) outside diameter provides the support required to securely hold the large wafer. The center hole helps reduce the wafer tip weight and minimizes contact area. The dual press fit adapter provides both inner and outer o-ring gripping areas for added handling security. Now with anti-rotate tip.

		PRICE EACH
VWT-5R-AR		BUY IT NOW \$ 324.50



Prices subject to change without notice.

WAFER WANDS PUSH-BUTTON OR SLIDE SWITCH

ESD and
Clean Room Safe



Our clean room safe wafer wands and holders are designed to be used with a continuous or in-house vacuum system.



PUSH-BUTTON
WAFER
WAND KITS

WWP-500-2.5mm

Push-button release

Accepts Molded Peek Wafer Tips
See Page 23
For Sizes



PUSH-BUTTON
WAFER WAND



VBM-2 for
VWWB Series
Wands



SLIDE-SWITCH
WAFER WAND

VBM-5 for Push-
Button or Slide
Switch Wands

Push-Button Wafer Wand Kits

The lightweight push-button wafer wand is designed for connection to continuous vacuum systems. Operation is controlled by pushing the button. This tool can be used with an in-house vacuum system or with one of Virtual Industries high performance continuous vacuum systems. Can be used with all of our press-fit tips, adapters and vacuum hoses. Vacuum normally on – Push button to shut off vacuum and to release the wafer. Handling tool constructed from Static Dissipative Delrin. The source vacuum is shut off when the handle is placed in the holder. Kits include a wafer wand, 6' of coiled vacuum hose, a VBM-2 holder for the wafer wand and a wafer tip.

PRICE EACH

VWWB-2A-MW4-1/16	PUSH BUTTON KIT for 1/16" ID vacuum hose - Wafer Tip (VMWT-A) wafers up to 4"	BUY IT NOW	\$ 340.70
VWWB-2A-MW4-2.5mm	PUSH BUTTON KIT for 2.5mm ID vacuum hose - Wafer Tip (VMWT-A) wafers up to 4"	BUY IT NOW	\$ 342.70
VWWB-2A-MW4-1/8	PUSH BUTTON KIT for 1/8" ID vacuum hose - Wafer Tip (VMWT-A) wafers up to 4"	BUY IT NOW	\$ 348.30
VWWB-2A-MW6-1/16	PUSH BUTTON KIT for 1/16" ID vacuum hose - Wafer Tip (VMWT-B) wafers up to 6"	BUY IT NOW	\$ 340.70
VWWB-2A-MW6-2.5mm	PUSH BUTTON KIT for 2.5mm ID vacuum hose - Wafer Tip (VMWT-B) wafers up to 6"	BUY IT NOW	\$ 342.70
VWWB-2A-MW6-1/8	PUSH BUTTON KIT for 1/8" ID vacuum hose - Wafer Tip (VMWT-B) wafers up to 6"	BUY IT NOW	\$ 348.30
VWWB-2A-MW8-1/16	PUSH BUTTON KIT for 1/16" ID vacuum hose - Wafer Tip (VMWT-C) wafers up to 8"	BUY IT NOW	\$ 340.70
VWWB-2A-MW8-2.5mm	PUSH BUTTON KIT for 2.5mm ID vacuum hose - Wafer Tip (VMWT-C) wafers up to 8"	BUY IT NOW	\$ 342.70
VWWB-2A-MW8-1/8	PUSH BUTTON KIT for 1/8" ID vacuum hose - Wafer Tip (VMWT-C) wafers up to 8"	BUY IT NOW	\$ 348.30
VWWB-2A-MW12-1/16	PUSH BUTTON KIT for 1/16" ID vacuum hose - Wafer Tip (VMWT-D) wafers up to 12"	BUY IT NOW	\$ 353.40
VWWB-2A-MW12-2.5mm	PUSH BUTTON KIT for 2.5mm ID vacuum hose - Wafer Tip (VMWT-D) wafers up to 12"	BUY IT NOW	\$ 355.40
VWWB-2A-MW12-1/8	PUSH BUTTON KIT for 1/8" ID vacuum hose - Wafer Tip (VMWT-D) wafers up to 12"	BUY IT NOW	\$ 361.00

WWP-500 Push Button Wafer Wand - ESD Safe

Push-Button Wafer Pen with replaceable filter, for the clear 2.5mm ID hose barb. Normally open, push to release. This product requires a continuous vacuum source, either in house vacuum or our Tweezer-Vac TV-1000.

PRICE EACH

WWP-500-1/16	Push Button Wafer Wand	BUY IT NOW	\$ 76.50
WWP-500-2.5mm	Push Button Wafer Wand	BUY IT NOW	\$ 76.50
WWP-500-1/8	Push Button Wafer Wand	BUY IT NOW	\$ 76.50

Push-Button Wafer Wands

VWWB-2A-SD-1/16	For 1/16" (1.59mm) ID hose, wafer wand only	BUY IT NOW	\$ 171.50
VWWB-2A-SD-2.5mm	For 2.5mm (2.5mm) ID hose, wafer wand only	BUY IT NOW	\$ 171.50
VWWB-2A-SD-1/8	For 1/8" (3.18mm) ID hose, wafer wand only	BUY IT NOW	\$ 171.50

Push-Button Wafer Wand Holder

This series of holders for the VWWB series of wafer tweezer wands holds the wafer wand and turns off the vacuum air when not in use.

VBM-2	Bench mount wand holder	BUY IT NOW	\$ 120.70
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Slide Switch Wafer Wands

VWW-2-SD-1/16	For 1/16" (1.59mm) ID hose, wafer wand only	BUY IT NOW	\$ 171.50
VWW-2-SD-2.5mm	For 2.5mm (2.5mm) ID hose, wafer wand only	BUY IT NOW	\$ 171.50
VWW-2-SD-1/8	For 1/8" (3.18mm) ID hose, wafer wand only	BUY IT NOW	\$ 171.50

Push-Button Or Slide Switch Wafer Wand Holder

This holder for the VWW-2 series of wafer tweezer wands holds the wafer wand when not in use.

VBM-5	Bench mount holder. For use with any Push-Button or Slide Switch series wands	BUY IT NOW	\$ 108.00
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Prices subject to change without notice.

ESD and
Clean Room Safe

WAFER WANDS STEALTH-WAND™

STEALTH-WAND™ Kits

The Virtual Venturi Stealth-Wand™ vacuum generating handle with a wafer tip. The front connecting tip accepts all of our press fit wafer tips. Includes 6 feet of coiled (VCH-1/16-6) 1/16 inch vacuum hose, a (V3014-1/8NPT) 1/8 NPT to 1/16" barb adapter for the supply line, a wafer tip as specified below the vacuum generating handle, and a VBM-4 wafer wand holder. Operates off of 30 to 70 psi compressed air or nitrogen.

		PRICE EACH
VVSW-MW4	The above kit with the VMWT-A which handles wafers up to 4"	BUY IT NOW \$ 356.80
VVSW-MW6	The above kit with the VMWT-B which handles wafers up to 6"	BUY IT NOW \$ 356.80
VVSW-MW8	The above kit with the VMWT-C which handles wafers up to 8"	BUY IT NOW \$ 356.80
VVSW-MW12	The above kit with the VMWT-D which handles wafers up to 12"	BUY IT NOW \$ 369.50

* Normally open vacuum

VVSW-X	The Virtual Venturi Stealth-Wand™ vacuum generating handle, with 6 feet of 1/16 inch coiled vacuum hose, a 1/8 NPT to 1/16" barb adapter for the supply line. No wafer tip or holder.	BUY IT NOW \$ 189.40
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STEALTH-WAND™ ELITE Kits

The Virtual Venturi Stealth-Wand™ Elite vacuum generating handle with a wafer tip. The front connecting tip accepts all of our press fit wafer tips. Includes 6 feet of coiled (VCH-1/16-6) 1/16 inch vacuum hose, a (V3014-1/8NPT) 1/8 NPT to 1/16" barb adapter for the supply line, a wafer tip as specified below and a VBM-4 wafer wand holder. Operates off of 30 to 50 psi compressed air or nitrogen.

		PRICE EACH
VVSW-NC-MW4	The above kit with the VMWT-A which handles wafers up to 4"	BUY IT NOW \$ 445.90
VVSW-NC-MW6	The above kit with the VMWT-B which handles wafers up to 6"	BUY IT NOW \$ 445.90
VVSW-NC-MW8	The above kit with the VMWT-C which handles wafers up to 8"	BUY IT NOW \$ 445.90
VVSW-NC-MW12	The above kit with the VMWT-D which handles wafers up to 12"	BUY IT NOW \$ 458.60

* Normally closed vacuum

* Uses air only when button is pushed

VVSW-NC-X	The Virtual Venturi Stealth-Wand™ ELITE vacuum generating handle, with 6 feet of coiled (VCH-1/16-6) 1/16 inch vacuum hose, a (V3014-1/8NPT) 1/8 NPT to 1/16" barb adapter for the supply line. No wafer tip or holder	BUY IT NOW \$ 276.00
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VBM-5	Bench mount holder. For use with any Stealth Wand series vacuum wands	BUY IT NOW \$ 108.00
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Threaded Replacement Fitting

V3014-1/8NPT	Adapt to 1/16" ID hose, for compressed air applications	BUY IT NOW \$ 4.80
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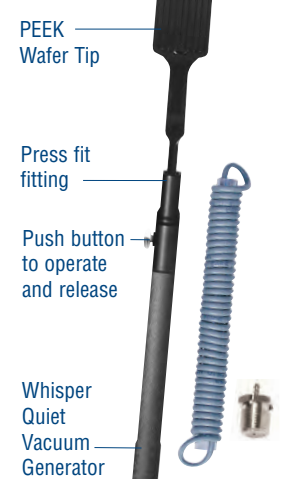


Our STEALTH-WANDS™ provide the highest level of pick-up-power. These compressed-air-powered wafer handling tools are whisper quiet and consume a minimal amount of compressed air or nitrogen.

STEALTH-WAND™



STEALTH-WAND™ ELITE



Prices subject to change without notice.

WAFER HANDLING SYSTEMS

Wafer Handling Tools and Accessories



WV-9000 WAFER-VAC System
WV-9000-MW6

WV-9000 WAFER-VAC System

This compact unit will handle a wide variety of parts used in industry today. The long-life diaphragm vacuum pump generates up to 10 inches of mercury with an open air flow of 2.3 lpm. The unit connects to ground automatically with a three-wire power cord. The WV-9000 comes complete with the following features:

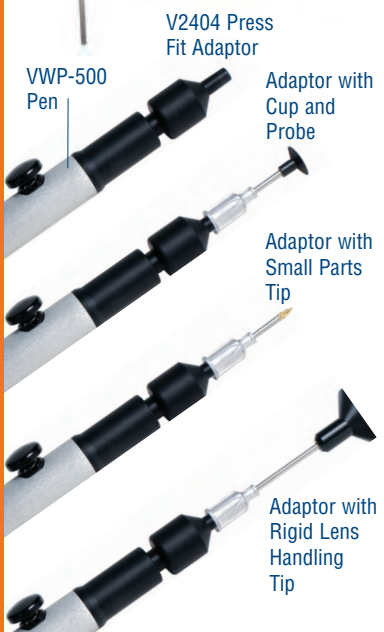
- Available in 110 or 220 volt models.
- Lighted On/Off switch.
- Whisper-quiet operation.
- Long-life pump.
- Class 100 Cleanroom Safe.
- Push-button wafer tip pen VWP-500-2.5mm.
- 6 foot clear coiled vacuum hose (VCH-2.5mm-6).
- Rubber no-skid feet.
- Top mounted handle holder.
- Foot print measures 7-1/4" X 3" X 2-1/2" (185mm X 76mm X 64mm).
- Produces up to 10 inches of mercury.

PRICE EACH

WV-9000-MW4	WAFER-VAC 110 volt system with 4 inch molded wafer tip (VMWT-A)	BUY IT NOW	\$ 315.30
WV-9000-MW6	WAFER-VAC 110 volt system with 6 inch molded wafer tip (VMWT-B)	BUY IT NOW	\$ 315.30
WV-9000-MW8	WAFER-VAC 110 volt system with 8 inch molded wafer tip (VMWT-C)	BUY IT NOW	\$ 315.30
WV-9000-MW4-220	WAFER-VAC 220 volt system with 4 inch molded wafer tip (VMWT-A)	BUY IT NOW	\$ 315.30
WV-9000-MW6-220	WAFER-VAC 220 volt system with 6 inch molded wafer tip (VMWT-B)	BUY IT NOW	\$ 315.30
WV-9000-MW8-220	WAFER-VAC 220 volt system with 8 inch molded wafer tip (VMWT-C)	BUY IT NOW	\$ 315.30



PAC-VAC Kit
V3200-CLN-MW6-2.5mm



V2404 Press Fit Adaptor

VWP-500 Pen

Adaptor with Cup and Probe

Adaptor with Small Parts Tip

Adaptor with Rigid Lens Handling Tip



WV-9000-MW6

PAC-VAC® Kit For Up To 8" Wafers And Substrates-Operates On A Nine Volt Battery

The PAC-VAC-CLN Cleanroom safe tool is battery operated and self-contained, runs up to eight hours continuously on one 9 volt alkaline battery. This versatile unit can be clipped to your belt or pocket for one-handed portable operation. This PAC-VAC® is constructed with ESD safe materials and comes complete with the following features:

- Bright blue power on LED indicator light.
- Class I Cleanroom Approved.
- A belt/pocket clip on the housing.
- 5 feet of coiled vacuum hose (VCH-2.5mm-5).
- A wafer/substrate handling tip for up to 8" substrates VMWT-C.
- A vacuum pick-up handle, VWP-500-2.5mm.
- One 9 volt disposable alkaline battery.
- Lightweight - only 156 grams.
- Produces vacuum of up to 16 inches of mercury.

PRICE EACH

V3200-CLN-MW4-2.5mm	PAC-VAC KIT with 4 inch molded wafer tip (VMWT-A)	BUY IT NOW	\$ 418.20
V3200-CLN-MW6-2.5mm	PAC-VAC KIT with 6 inch molded wafer tip (VMWT-B)	BUY IT NOW	\$ 418.20
V3200-CLN-MW8-2.5mm	PAC-VAC KIT with 8 inch molded wafer tip (VMWT-C)	BUY IT NOW	\$ 418.20

Press Fit Hub Adaptor ESD-Safe

Adaptor connects to VWP-500 Push-Button Wafer Pen or any of our wafer handling tools, also allows for use with vacuum cups with stainless steel probe and luer slip hub (see page 9 for details), small parts vacuum tips with stainless steel probe and luer slip hub (see page 14-15 for details) and delrin rigid lens handling tips with stainless steel probe and luer slip hub (see page 24 for details).

V2404 Press Fit Hub Adaptor

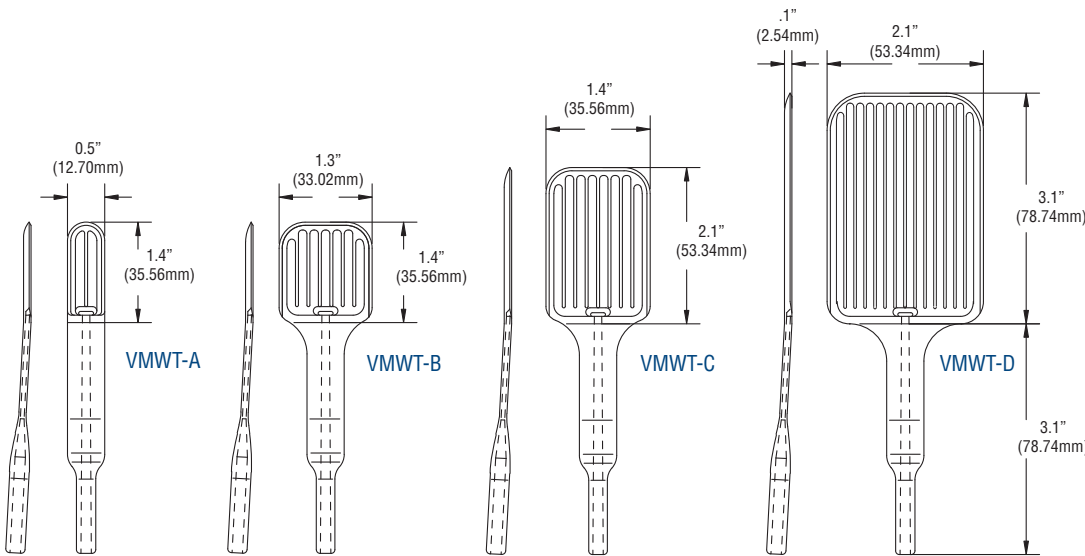
BUY IT NOW \$ 34.40



Prices subject to change without notice.

WAFER TIPS

Press-Fit
Molded Peek®



The PEEK® material selected for our molded wafer tips is an industry standard. They have excellent resistance to most chemicals. The non-sloughing carbon renders the wafer tips ESD safe. Excellent for applications up to 212°F (100°C).

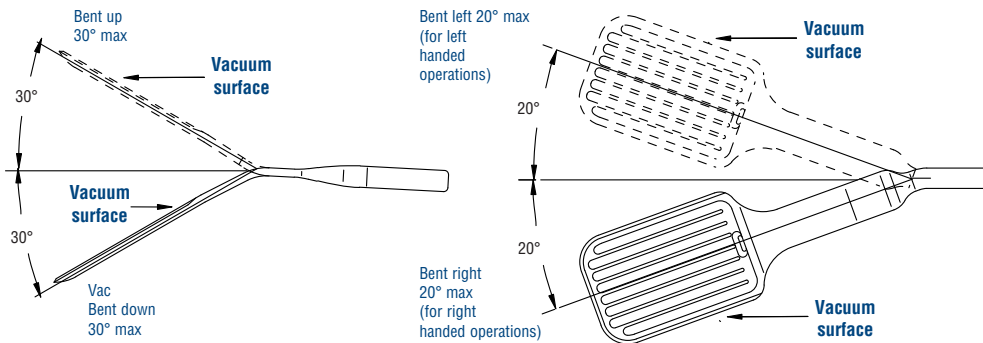
Molded Peek Wafer Tips

These Wafer Tips are molded from ESD safe PEEK plastic to handle wafers up to 100°C. The low profile of the wafer tip head provides easy access to wafers in industry standard boats. These tips attach to all of our wafer handling tools as well as competitive systems.

Model	Description	BUY IT NOW	PRICE EACH
VMWT-A	Recommended for handling up to 4" (100mm) wafers	BUY IT NOW	\$ 70.60
VMWT-B	Recommended for handling up to 6" (150mm) wafers	BUY IT NOW	\$ 70.60
VMWT-C	Recommended for handling up to 8" (200mm) wafers	BUY IT NOW	\$ 70.60
VMWT-D	Recommended for handling larger sized wafers, (no left/right angles available)	BUY IT NOW	\$ 83.30

For High-Temperature Hard Anodized Wafer Tips, visit our online store at www.virtual-ii.com

Prices subject to change without notice.



VMWT-C

VMWT-B20L

VMWT-C30D

Molded Wafer Tips VMWT-A, VMWT-B and VMWT-C are available with a 10°, 20° or 30° bend in the up or down direction as shown in the left drawing above. To order a tip with the up or down bend, add the angle plus a "U" for up or a "D" for down to the part number. *EXAMPLE: Part number VMWT-A20D is a VMWT-A Wafer Tip with a 20 degree bend in the down direction. Custom angles are available upon request. Pricing is as above.*

Molded Wafer Tips VMWT-A, VMWT-B and VMWT-C are available with a 10° or 20° bend in the left or right direction as shown in the right drawing above. To order a tip with the left or right bend, add the angle plus a "L" for left or an "R" for right to the part number. *EXAMPLE: Part number VMWT-C20R is a VMWT-C Wafer Tip with a 20 degree bend in the right direction. Custom angles are available upon request. Pricing is as above.*

Anti Rotate Adaptor

This adaptor is used with any of our PORTA-WAND "AR" series tools that have the pins protruding from the front end of the tool. The adaptor slides onto the front of the tool and engages the pins in one of eight possible positions to prevent rotation of the adaptor. A molded wafer tip can now be inserted into the front of the PORTA-WAND with the flat part of the wafer tip engaging the slot in the adaptor. The wafer tip is now secure from rotating during wafer handling operations.

VMWT-ADAPT-AR	ESD-Safe Anti Rotate Tip Adaptor	BUY IT NOW	\$ 80.80
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PRICE EACH

PORTA-WAND "AR" Series with pins.

Anti Rotate Adaptor slides on to front of tool engaging pins in one of eight positions of adaptor to prevent rotation.

Wafer tips flat surface engages into the slot of the adaptor to prevent any rotation.



Prices subject to change without notice.

RIGID VACUUM KITS AND TIPS FOR OPTICS OR SUBSTRATES HANDLING

Handle Concave, Convex and Flat Surfaces



These tips are perfect for handling optics. Custom sizes are available to match the outside perimeter of coated lenses to insure contamination free handling. The rigid construction securely holds parts for inspection or assembly operations.

Straight Or Bent Rigid Handling Tips

These tips are designed for easy handling of optic lenses of all shapes and must be used with a powered vacuum source. The deep cupped circular design will accommodate concave, convex and flat surfaces. Precision machined from Delrin insures contamination free lens handling.

For lenses or optics that are smaller than 3.18mm (1/8") see our Delrin small parts tips on page 14.

The following lens handling tips are mounted on a straight or bent 45° 1" (25.4mm) stainless steel probe with a luer slip hub.

PRICE EACH

These tips must be used with continuous vacuum systems only.

VRT-125-S	1/8" (3.18mm) lens tip straight probe	BUY IT NOW	VRT-125-B	1/8" (3.18mm) lens tip 45° bent probe	BUY IT NOW	\$ 24.50
VRT-188-S	3/16" (4.76mm) lens tip straight probe	BUY IT NOW	VRT-188-B	3/16" (4.76mm) lens tip 45° bent probe	BUY IT NOW	\$ 24.50
VRT-250-S	1/4" (6.35mm) lens tip straight probe	BUY IT NOW	VRT-250-B	1/4" (6.35mm) lens tip 45° bent probe	BUY IT NOW	\$ 24.50
VRT-375-S	3/8" (9.53mm) lens tip straight probe	BUY IT NOW	VRT-375-B	3/8" (9.53mm) lens tip 45° bent probe	BUY IT NOW	\$ 24.50
VRT-500-S	1/2" (12.7mm) lens tip straight probe	BUY IT NOW	VRT-500-B	1/2" (12.7mm) lens tip 45° bent probe	BUY IT NOW	\$ 24.50
VRT-750-S	3/4" (19.05mm) lens tip straight probe	BUY IT NOW	VRT-750-B	3/4" (19.05mm) lens tip 45° bent probe	BUY IT NOW	\$ 29.50
VRT-1000-S	1" (25.4mm) lens tip straight probe	BUY IT NOW	VRT-1000-B	1" (25.4mm) lens tip 45° bent probe	BUY IT NOW	\$ 29.50

RIGID HANDLING TIPS



TV-1000 Rigid Vacuum Kit

TV-1000-VRT-KIT8 The TWEEZER-VAC® 110 volt model comes complete with the following accessories/features: 5 feet of coiled vacuum hose 1/16" diameter, (VCH-1/16-5), four straight probes with luer slip hub mounted with delrin cup sizes 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) 3/4" (19.05mm) diameter, 4 bent probes with luer slip hub mounted with delrin cup sizes 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) 3/4" (19.05mm) diameter (VRT-KIT8), an 8-position tip organizer/holder. (VTH-8), and a push-button release vacuum pick-up handle VVP-200

BUY IT NOW \$ 457.50

V8100A Rigid Vacuum Kit

V8100A-VRT-KIT8 SMD-VAC™-HP, runs on 12 VDC @ 500mA w/ solenoid. With a precision pump and motor that generates over 15 inches of mercury; this tool provides additional pick-up power for handling small to very large size components. This kit includes 5 feet of coiled vacuum hose 1/16" diameter (VCH-1/16-5), four straight probes with luer slip hub mounted with delrin cup sizes 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) 3/4" (19.05mm) diameter, 4 bent probes with luer slip hub mounted with delrin cup sizes 1/4" (6.35mm), 3/8" (9.53mm), 1/2" (12.7mm) 3/4" (19.05mm) diameter (VRT-KIT8), an 8-position tip organizer/holder. (VTH-8), a push-button release vacuum pick-up handle (VVP-200), Foot Switch & Vacuum Pen w/o control hole, and a 110 volt wall power supply for operation

BUY IT NOW \$ 671.50



TV-1000-VRT-KIT8

V8100A-VRT-KIT8

Prices subject to change without notice.

ESD Safe

CONTINUOUS VACUUM PENS

Standard Push Button Vacuum Pen - ESD Safe

Lightweight aluminum 1/2" diameter handle for vacuum handling systems. This new vacuum pen allows you to immediately pick up a part by touching the vacuum tip to the surface of the part. A slight press of the button releases the part. The unique design eliminates internal O-rings for years of maintenance free operation. Available for 1/16" or 1/8" ID diameter vacuum hose. 5 1/4" (133.35mm) long, 1/2" (12.70mm) diameter.

Must be used with a continuous vacuum source.

Part Number	Description	BUY IT NOW	PRICE EACH
VVP-200-1/16	1/16" (1.59mm) ID hose barb	BUY IT NOW	\$ 50.80
VVP-200-2.5mm	2.5mm ID hose barb	BUY IT NOW	\$ 50.80
VVP-200-1/8	1/8" (3.18mm) ID hose barb	BUY IT NOW	\$ 50.80

PRICE EACH



For the customer who has existing plumbed vacuum systems. Our line of vacuum pens and hoses will provide parts handling capability.

Vacuum Pen With Control Hole

Lightweight aluminum 1/2" diameter handle for continuous air vacuum handling systems. A 1/16" or 1/8" inside diameter vacuum hose connects at the rear of the tool. Vacuum tips attach to the front of the tool. Covering and uncovering the hole enables the vacuum to grasp and release the part. 5-1/4" (133.35mm) long, 1/2" (12.70mm) diameter.

Must be used with a continuous vacuum source.

Part Number	Description	BUY IT NOW	PRICE EACH
V3020-RF-1/16	1/16" (1.59mm) ID hose barb	BUY IT NOW	\$ 28.00
V3020-RF-2.5mm	2.5mm ID hose barb	BUY IT NOW	\$ 28.00
V3020-RF-1/8	1/8" (3.18mm) ID hose barb	BUY IT NOW	\$ 28.00

PRICE EACH

Vacuum Pen Without Control Hole, No Filter

Lightweight aluminum 1/2" diameter handle for continuous vacuum handling systems. A 1/16" or 1/8" inside diameter vacuum hose connects at the rear of the tool. Vacuum tips attach to the front of the tool. Designed for external vacuum release. 5 1/4" (133.35mm) long, 1/2" (12.70mm) diameter.

Must be used with a continuous vacuum source.

Part Number	Description	BUY IT NOW	PRICE EACH
V3021-1/16	1/16" (1.59mm) ID hose barb	BUY IT NOW	\$ 28.00
V3021-2.5mm	2.5mm ID hose barb	BUY IT NOW	\$ 28.00
V3021-1/8	1/8" (3.18mm) ID hose barb	BUY IT NOW	\$ 28.00

PRICE EACH

Control Hole Vacuum Pen Kit

This kit is for the users who have an in-house vacuum system. This kit includes 5 feet of coiled vacuum hose (VCH-1/16-5), a set of 9 vacuum tips (VCS-9-B) and a vacuum pick-up handle with control hole (V3020-RF). *Must be used with a continuous vacuum source.*

Part Number	BUY IT NOW	PRICE EACH
VV-PEN-KIT	BUY IT NOW	\$ 60.10

PRICE EACH

Push Button Vacuum Pen Kit

This kit is for the users who have an in-house vacuum system. This kit includes 5 feet of coiled vacuum hose (VCH-1/16-5), a set of 9 vacuum tips (VCS-9-B) and a push button vacuum pick-up handle (VVP-200). *Must be used with a continuous vacuum source.*

Part Number	BUY IT NOW	PRICE EACH
VV-PEN-KIT-PB	BUY IT NOW	\$ 79.10

PRICE EACH

Push Button Vacuum Wafer Wand

Lightweight aluminum 1/2" diameter handle accepts any of our press fit tips for handling solar cells or semiconductor wafers. This normally open vacuum wafer pen allows you to pick up a wafer by touching the vacuum tip to the surface of the part. A slight press of the button releases the solar cell or wafer. The unique design eliminates internal O-rings for years of maintenance free operation. 5 1/4" (133.35mm) long, 1/2" (12.70mm) diameter.

Must be used with a continuous vacuum source.

Part Number	Description	BUY IT NOW	PRICE EACH
VWP-500-1/16	1/16" (1.59mm) ID hose barb	BUY IT NOW	\$ 76.50
VWP-500-2.5mm	2.5mm ID hose barb	BUY IT NOW	\$ 76.50
VWP-500-1/8	1/8" (3.18mm) ID hose barb	BUY IT NOW	\$ 76.50

PRICE EACH



VVP-200

Push-button release

V3020

Aluminum

Control hole

VV-PEN-KIT-PB

VWP-500

Push-button release

Accepts Molded Peek Wafer Tips
See Page 23 For Sizes

Prices subject to change without notice.

VACUUM HOSES

ESD and Cleanroom Safe



The Static Dissipative Polyurethane is available in two diameters and also either straight or coiled. The ESD safe Silicone hose provides high-temperature resistance.

1/16" Coiled Static Dissipative Hose



Custom lengths
Straight
1/16" Gray Static Dissipative Poly Hose

Gray Standard Lengths

The ESD-safe, Static Dissipative Polyurethane vacuum hoses are available in standard lengths either straight or coiled. The coiled hose is provided with a 6" (152.4mm) tail at each end.

	Inside diameter	Outside diameter	Extended length	Style	PRICE PER FOOT
VCH-1/16-5	1/16" (1.59mm)	1/8" (3.18mm)	5 ft.	coiled	BUY IT NOW \$ 13.10
VCH-1/16-6	1/16" (1.59mm)	1/8" (3.18mm)	6 ft.	coiled	BUY IT NOW \$ 15.70
VCH-1/16-8	1/16" (1.59mm)	1/8" (3.18mm)	8 ft.	coiled	BUY IT NOW \$ 20.90
VCH-1/8-5	1/8" (3.18mm)	1/4" (6.35mm)	5 ft.	coiled	BUY IT NOW \$ 26.10
VCH-1/8-6	1/8" (3.18mm)	1/4" (6.35mm)	6 ft.	coiled	BUY IT NOW \$ 31.30
VCH-1/8-8	1/8" (3.18mm)	1/4" (6.35mm)	8 ft.	coiled	BUY IT NOW \$ 41.70

Gray Custom Lengths

The ESD-safe, Static Dissipative Polyurethane vacuum hoses are available in custom lengths either straight or coiled. The coiled hose is provided with a 6" (152.4mm) tail at each end.

The pricing is per foot. In the part number below replace the "L" with the length in feet that you want to order. *EXAMPLE: VCH-1/16-10 is the part number for a 1/16" (1.59mm) ID coiled vacuum hose that has a 10 feet of working length when extended.*

	Inside diameter	Outside diameter	Extended length	Style	PRICE PER FOOT
VSH-1/16-L	1/16" (1.59mm)	1/8" (3.18mm)	custom	straight	BUY IT NOW \$ 2.40
VCH-1/16-L	1/16" (1.59mm)	1/8" (3.18mm)	custom	coiled	BUY IT NOW \$ 4.00
VSH-1/8-L	1/8" (3.18mm)	1/4" (6.35mm)	custom	straight	BUY IT NOW \$ 4.70
VCH-1/8-L	1/8" (3.18mm)	1/4" (6.35mm)	custom	coiled	BUY IT NOW \$ 7.90

• Hoses can be coiled to a minimum of 1 foot and up to a maximum of 10 feet.

Clear Permanent Static Dissipative Standard Lengths

Permanent Static Dissipative special design for cleanroom application. Our custom blend hose with 2.5mm ID and 4mm OD.

	Inside diameter	Outside diameter	Extended length	Style	PRICE EACH
VCH-2.5mm-5	2.5mm (.098")	4mm (.158")	5 ft	coiled	BUY IT NOW \$ 14.80
VCH-2.5mm-6	2.5mm (.098")	4mm (.158")	6 ft	coiled	BUY IT NOW \$ 17.70
VCH-2.5mm-8	2.5mm (.098")	4mm (.158")	8 ft	coiled	BUY IT NOW \$ 23.60

Clear Flexible Static Dissipative Custom Lengths

Flexible Static Dissipative special design for cleanroom application. Our custom blend hose with 2.5mm ID and 4mm OD are available in custom lengths either straight or coiled. The coiled hose is provided with a 6" (152.4mm) tail at each end.

The pricing is per foot. In the part number below replace the "L" with the length in feet that you want to order. *EXAMPLE: VCH-2.5mm-10 is the part number for a 2.5mm ID coiled vacuum hose that has a 10 feet of working length when extended.*

	Inside diameter	Outside diameter	Extended length	Style	PRICE PER FOOT
VSH-2.5mm-L	2.5mm (.098")	4mm (.158")	custom	straight	BUY IT NOW \$ 2.70
VCH-2.5mm-L	2.5mm (.098")	4mm (.158")	custom	coiled	BUY IT NOW \$ 4.50

• Hoses can be coiled to a minimum of 1 foot and up to a maximum of 10 feet.

2.5mm Clear Coiled Static Dissipative Hose



Custom Lengths
Straight
2.5mm Clear Straight Static Dissipative Hose

In-Line Hose Filters ESD Safe Nickel Plated Brass

These filters come with a replaceable 40 micron mesh o-ring filter.

		Inlet Connection	Outlet Connection	PRICE EACH
VF-1616	Barbed hose filter	1/16" (1.59mm) ID Hose	1/16" (1.59mm) ID Hose	BUY IT NOW \$ 27.50
VF-2.5MM	Barbed hose filter	2.5mm (.098") ID Hose	2.5mm ID Hose	BUY IT NOW \$ 27.50
VF-1818	Barbed hose filter	1/8" (3.18mm) ID Hose	1/8" (3.18mm) ID Hose	BUY IT NOW \$ 27.50



VF-1616



VF-2.5MM



VF-1818

Disposable 43 Micron In-Line Hose Filters

VF-FILTER-43	Barbed hose filter, 1/16" (1.59mm), 43 microns	BUY IT NOW \$ 7.50
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Replaceable In-Line Hose Filters

VF-40M	5 pack of replaceable 40 micron mesh o-ring filters	BUY IT NOW \$ 40.00
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Prices subject to change without notice.

Custom Made Vacuum Tips For Any Application

Custom Tips

Custom And Semi-Custom Vacuum Handling Tips

Many of our customers' special handling needs can be solved with our semi-custom or custom handling tip. Some of the custom tips developed in the past are shown on the right side bar.

Dual Cup Handling Tips

These tips are application specific. You specify the end to end spacing, as well as the size and material of the vacuum cups to be used. Typical applications are for items that are elongated or where an opening needs to be bridged. These tips can typically be used with all of our vacuum handling tools.

Three Cup Tips

These tips are application specific. You specify the triangular area to be formed, as well as the size and material of the vacuum cups used. Typical applications are for items that are large odd shaped or where an opening needs to be bridged. These tips can typically be used with all of our vacuum handling tools.

Extended Reach Tips

We can make vacuum tips with extended reaches up to 18 inches in length.

Right Angle Tips

We can form the metal probe section to any angle up to 90 degrees.

Custom Handling tips

Custom handling tips typically require drawing or parts from the customer describing the exact dimensions of the part to be handled or the vacuum tip to be manufactured. Our manufacturing department will then work with your engineers to determine the feasibility and cost of the vacuum tip.

Procedure of Semi-Custom and Custom Tips

Semi-Custom Tips require you to specify the end to end spacing as well as the size and material of the vacuum cups to be used.

Custom Tips require you to send samples of your part(s), drawings, along with exact dimensions and description of your application to our Technical Applications Department at:

Virtual Industries, Inc.
Attn: Technical Applications Department
2130 Victor Place
Colorado Springs, CO 80915

Virtual Industries, Inc. will respond with a detailed recommendation and quote for your order. Please allow up to two weeks.

Requirements

1. A VALID credit card OR purchase order number with a hard copy must be submitted showing the full value and payment of the custom order.
2. Full name and phone number of person(s) testing the unit(s).
3. If not a current customer, credit references must be provided (unless a credit card number is provided).

Conditions

1. There are no returns or refunds on custom orders.

If you need a vacuum source or wish to try any of our quality products, see page 3 for a 10 Day Trial offer!



General Guide For Selecting A Tip And Vacuum Source

For our complete line of tools and accessories, visit our online store at www.virtual-ii.com

COMPONENT SIZE RANGE Please note the overlap in sizes. One tip will handle many sizes. A heavier part requires a larger cup size. The best method for tip selection is by experimenting on your actual application.		COMPONENT SIZE APPROXIMATION	RECOMMENDED BASIC TIP SIZE	RECOMMENDED VACUUM SOURCE Source Type - C = Continuous S = Self-contained W = Wafer Wand See Legend For Details	COMMON USES Some small parts can be handled from the side. Uses are limited only by your imagination. Replaces conventional tweezers in many applications.	
.004" (.102mm)	.01" (.330mm)	-	VSPT0803-XX	C	Die, 0101, Optics, Small Parts, Mems	
.010" (.254mm)	.040" (1.02mm)	-	VSPT1005-XX	C	Die, 0101, Optics, Small Parts, Mems	
.020" (.508mm)	.060" (1.52mm)	-	VSPT2010-XX	C	Die, 0402, Optics, Small Parts, Mems	
.025" (.635mm)	.075" (1.91mm)	-	VSPT2515-XX	C	Die, Optics, Small Parts, Mems	
.030" (.762mm)	.100" (2.54mm)	-	VSPT3020-XX	C	Die, Optics, Small Parts, Mems	
.040" (1.02mm)	.120" (3.05mm)	-	VSPT4030-XX	C	Die, Optics, Small Parts, Mems	
.060" (1.52mm)	.180" (4.57mm)	-	VSPT6040-XX	C	Die, Optics, Small Parts, Mems	
.070" (1.78mm)	.220" (5.59mm)	-	VSPT7050-XX	C	Die, Optics, Small Parts, Mems	
.080" (2.03mm)	.250" (6.35mm)	-	VSPT8060-XX	C	Die, Optics, Small Parts, Mems	
.100" (2.54mm)	.300" (7.6mm)	-	V9009-X VSPT8060-XX	C	Optics, SMD, Mechanical Parts	
.150" (3.80mm)	.400" (10mm)	-	V9013-X VSPT8060-XX VRT-125-X	C or S	C Optics, SMD, Mechanical Parts	
.200" (5.08mm)	.600" (15mm)	-	V9018-X VRT-188-X	C or S	C Optics, SMD, Mechanical Parts	
.250" (6.35mm)	.750" (19mm)	-	V9025-X VRT-250-X	C or S	C Optics, SMD, Mechanical Parts	
.400" (10mm)	1.50" (38mm)	-	V9038-X	C or S	C Optics, SMD, Mechanical Parts	
.500" (12.7mm)	2.00" (50mm)	-	VRT-375-X V9038-X	C or S C	C Optics, SMD, Mechanical Parts	
.600" (15mm)	3.00" (76mm)	(Sample sizes not shown due to space limitations)	V9050-X VRT-500-X	C or S C C	Optics, SMD, Mechanical Parts	
.800" (20.3mm)	4.00" (100mm)		V9075-X VRT-750-X	C or S C	Optics, SMD, Mechanical Parts	
1.50" (38.1mm)	4.00" (100mm)		VRT-1000-X VMWT-A	C W	Optics, SMD, Mechanical Parts Wafers, Displays, Glass, Solar Cells	
1.75" (44.5mm)	6.00" (150mm)		VMWT-B	W	Wafers, Displays, Glass, Solar Cells	
2.25" (57mm)	8.00" (200mm)		VMWT-C	W	Wafers, Displays, Glass, Solar Cells	
4.00" (101mm)	12.00" (300mm)		VMWT-D	W	Wafers, Displays, Glass, Solar Cells	
6.00" (152mm)	12.00" (300mm)		VWT5R-AR	W	Wafers, Displays, Glass, Solar Cells	
1.00" (25.4mm)	up to 12" (300mm)		Customer Specified Dimensions	Dual Cup Tip	C or S	Large or Unusually Shaped Items
1.00" (25.4mm)	up to 24" (600mm)			Three Cup Tip	C or S	Large or Unusually Shaped Items

LEGEND

C = Continuous Vacuum Handling Systems are those that are battery operated such as the PAC-VAC®; those that plug into a power source such as the TV-1000, SMD-VAC-HP, and those that operate on a compressed air supply or connect to an in-house vacuum system.

S = Self-Contained Manually Operated Handling Tools are those such as the PEN-VAC®, HANDI-VAC®, or VACULA® tools that generate a vacuum through pressing a vacuum button or squeezing the tool to create a vacuum. Note: Objects to pick-up must be non-porous.

W = Wafer Handling Tools such as the PORTA-VAC®, PORTA-WAND®, STEALTH-WAND or any of our other wafer handles that connect to an in-house vacuum source.

X or XX = Material selection or straight or bent probe.



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