



## Replicator Strips

Replicator Strips are used to transfer liquid from a single row or column of wells of a microplate to a gel, a glass slide, membrane or another microplate for serial dilutions. They are ideal for transferring from 5 ul to 20 nl of liquid. We offer strips with 8 and 12 pins on 9 mm centers for 96 well microplates and 16 and 24 pins on 4.5 mm centers for 384 well microplates. Like our Replicators the Replicator Strips can be fitted with solid or slotted pins of different diameters and lengths. Furthermore the pins can be fixed in the strip or floated for use on work stations. The diameter of the pin and or the volume of the slot will determine the volume of liquid that is transferred. This gives you great flexibility in determining the manner and volume of liquid transferred.

Our Manual Fixed Pin Replicator Strips come with a sculpted anodized aluminum handle for handling ease (see photograph on the right of a VP 453). Our Robotic Floating Pin Replicator Strips come with two dowel locating holes and a screw hole for easy mounting onto most robotic work stations ([see photographs below](#)). These are ideal for making high density arrays on glass slides. At last, an inexpensive way to make high density arrays.



[Click here](#) for a list of published articles that cite the products on this page.

## Proof Of Principle Tests

Some of our customers use the Robotic Floating Pin replicators to do inexpensive "proof of principle tests" before buying a 96, 384 or 1536 pin tool. By purchasing a VP 540FP3 pin Replicator Strip model you can test not only FP3 pins but also the smaller diameter [FP1](#), [FP9](#) slotted [FP1 or FP3](#) pins or [hydrophobic coated pins](#). Just "Duct Tape" the Replicator Strip to your robot head and you are ready to test. Once you have your results just purchase the appropriate replicator.

Note that several robots have limited "Z" clearance and may not be suitable for use with the Replicator strips and their mounting systems. Please check your robots "Z" clearance prior to ordering.

## Factors Affecting Pin Delivery Volumes

The list on the right summarizes the factors that contribute to the volume delivered. With each application these factors can be controlled and standardized so that the delivery volumes are very reproducible. With most applications the CV's are less than 5%.

- |  |
|--|
| 1. <a href="#">Pin Diameter</a>  |
| 2. <a href="#">Surface tension of the liquid being transferred</a>     |
| 3. <a href="#">Surface tension of the pin</a>                          |
| 4. <a href="#">Speed of removal of pin from source liquid</a>          |
| 5. Speed of pin striking recipient dry plate                           |
| 6. <a href="#">Depth to which the pin is submerged in source plate</a> |
| 7. Depth to which the pin is submerged in recipient plate              |
| 8. <a href="#">Volume of slot in pin</a>                               |
| 9. <a href="#">Surface tension of the dry plate and dwell time</a>     |

## Select the Replicator Strip for Your Application

You determine what volume of liquid you want to transfer, which microplate format you will be working with, the depth of the well and whether you will use manual or robotic handling. Many of the Replicator Strips are mounted in anodized aluminum and can be quickly sterilized by alcohol flaming or autoclaving. Some of our Floating Pin Replicators and the P1 and P3 pin Replicator Strips are constructed with Delrin and can be chemically sterilized with a 5% bleach solution.

We have also made custom Replicator Strips that combine two rows or 2 columns of fixed pins. Our Floating Replicator Strips with 2 or 4 rows are also used to make microarrays on glass slides see our [Glass Slide Arrayer page](#).

If you are transferring DNA, cDNA or other materials in hydrophobic solutions you will find that using our new V&P Pin Cleaning Solution will greatly increase the precision of delivery. For an explanation see the [FAQ page](#) and the [V&P Pin Cleaning Solution page](#).

### Fixed Solid Pin Replicator Strips

#### 1.58 mm Diameter Pin 22, mm Long

##### Flammable and Autoclaveable Aluminum Frame

|  |               |
|--|---------------|
| 8 pin, ~0.25 ul hanging drop, 96 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm   | <b>VP 450</b> |
| 12 pin, ~0.25 ul hanging drop, 96 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm  | <b>VP 451</b> |
| 16 pin, ~0.25 ul hanging drop, 384 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 452</b> |
| 24 pin, ~0.25 ul hanging drop, 384 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 453</b> |



#### 1.58 mm Diameter Pin, 57 mm Long

##### Flammable and Autoclaveable Aluminum Frame

|  |                |
|--|----------------|
| 8 pin, ~0.25 ul hanging drop, 96 well format, fixed Replicator Strip, pin length = 57 mm, pin diameter = 1.58 mm   | <b>VP 450A</b> |
| 12 pin, ~0.25 ul hanging drop, 96 well format, fixed Replicator Strip, pin length = 57 mm, pin diameter = 1.58 mm  | <b>VP 451A</b> |
| 16 pin, ~0.25 ul hanging drop, 384 well format, fixed Replicator Strip, pin length = 57 mm, pin diameter = 1.58 mm | <b>VP 452A</b> |
| 24 pin, ~0.25 ul hanging drop, 384 well format, fixed Replicator Strip, pin length = 57 mm, pin diameter = 1.58 mm | <b>VP 453A</b> |





## 0.78 mm Diameter Pin (P3)

### Non-Flammable and Non-Autoclaveable Delrin Frame

|   |                 |
|---|-----------------|
| 8 pin, ~80 nl liquid to liquid transfer, 96 well format, fixed Replicator Strip, pin length = 14 mm, pin diameter = 0.78 mm   | <b>VP 450P3</b> |
| 12 pin, ~80 nl liquid to liquid transfer, 96 well format, fixed Replicator Strip, pin length = 14 mm, pin diameter = 0.78 mm  | <b>VP 451P3</b> |
| 16 pin, ~80 nl liquid to liquid transfer, 384 well format, fixed Replicator Strip, pin length = 14 mm, pin diameter = 0.78 mm | <b>VP 452P3</b> |
| 24 pin, ~80 nl liquid to liquid transfer, 384 well format, fixed Replicator Strip, pin length = 14 mm, pin diameter = 0.78 mm | <b>VP 453P3</b> |

## 0.457 mm Diameter Pin (P1)

### Non-Flammable and Non-Autoclaveable Delrin Frame

|  |                 |
|--|-----------------|
| 8 pin, ~20 nl liquid to liquid transfer, 96 well format, fixed Replicator Strip, pin length = 14 mm, pin diameter = 0.457 mm   | <b>VP 450P1</b> |
| 12 pin, ~20 nl liquid to liquid transfer, 96 well format, fixed Replicator Strip, pin length = 14 mm, pin diameter = 0.457 mm  | <b>VP 451P1</b> |
| 16 pin, ~20 nl liquid to liquid transfer, 384 well format, fixed Replicator Strip, pin length = 14 mm, pin diameter = 0.457 mm | <b>VP 452P1</b> |
| 24 pin, ~20 nl liquid to liquid transfer, 96 well format, fixed Replicator Strip, pin length = 14 mm, pin diameter = 0.457 mm  | <b>VP 453P1</b> |



## Floating Solid Pin Replicator Strips

### 1.58mm Diameter Pin

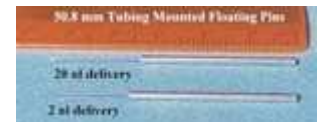
#### Non-Flammable and Non-Autoclaveable Delrin Frame

|   |                |
|---|----------------|
| 8 pin, ~0.25 ul hanging drop, 96 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm   | <b>VP 450F</b> |
| 12 pin, ~0.25 ul hanging drop, 96 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm  | <b>VP 451F</b> |
| 16 pin, ~0.25 ul hanging drop, 384 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 452F</b> |
| 24 pin, ~0.25 ul hanging drop, 384 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 453F</b> |

## Tubing Mounted Floating Pins

#### Aluminum Frame Non-Flammable but Autoclaveable

We have developed methods to fixture very small diameter pins in tubing so they can be safely handled to deliver nanoliter volumes of liquid to glass slides, plastic surfaces, nylon membranes or other microplates. The 0.457 mm diameter pin shown above will provide a liquid to liquid transfer of ~20 nl while the 0.228 mm diameter pin will provide a liquid to liquid transfer of ~2 nl in a hanging drop and 4 nl in a liquid to liquid transfer. We also offer 0.787 mm diameter pins which will provide a liquid to liquid transfer of ~ 80 nl. Mounting in the tubing through 2 separate float plates also has the advantage of providing a longer axial distance so there will be less "wobble" in pin placement thereby increasing placement accuracy. Placement accuracy is important in making high density arrays but is not as important in liquid to liquid transfers.

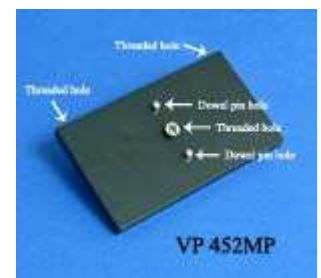


Thus for an inexpensive **"Proof of Principle test"** in liquid to liquid transfers before buying a 96, 384 or 1536 pin tool, we recommend you purchase a VP 450FP3 as a testing bed and then purchase individual [FP1](#), [FP9](#) slotted [FP1 or FP3](#) pins or [hydrophobic coated pins](#) and change them yourself as an inexpensive way to determine which pin is best for your application. Just "Duct Tape" the Replicator Strip to your robot head and you are ready to test. Once you have your results you will know which replicator to purchase

## "Y" AXIS MOUNTING PLATES

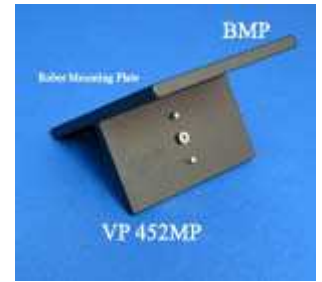
Mounting Plates to precisely attach the Replicator Strip on the "Y" axis to a robot are also available and highly recommended if you are using 1,536 well microplates. This simple VP 452MP plate has 2 dowel pin holes for precise registration and a threaded hole to attach any floating 8 or 16 pin replicator strip to any of our [Robot mounting plates](#).

Note that several robots have limited "Z" clearance and may not be suitable for use with the Replicator strips and their mounting systems. Your robot system will need 115 mm of clearance to the top of the robot mounting plate. Please check your robots "Z" clearance prior to ordering.



Attaching the VP 452MP to the robot mounting plate is as simple as placing two screws through the [BMP](#) mounting plate into the threaded holes on the VP 452MP.

Attaching the Replicator Strip to the VP 452MP is done by registering the dowel pins and dowel pin holes and then fixing the position by tightening one screw.



## "X" AXIS MOUNTING PLATES

We have a similar mounting plate (VP 453MP) that mounts 12 and 24 pin replicator strips on the "X" axis of the robot. Note that these mount on the [robot mounting plates](#) at a 90 degree angle from from the VP 452MP.

Note that several robots have limited "Z" clearance and may not be suitable for use with the Replicator strips and their mounting systems. Your robot system will need 115 mm of clearance to the top of the robot mounting plate. Please check your robots "Z" clearance prior to ordering.



## 0.78 mm DIAMETER PIN (P3)

**Aluminum Frame Non-Flammable but Autoclaveable**

|  |                  |
|--|------------------|
| 8 pin, ~80 nl liquid to liquid transfer, 96 well format, Floating Replicator Strip, pin length = 17 mm, pin diameter = 0.78 mm   | <b>VP 450FP3</b> |
| 12 pin, ~80 nl liquid to liquid transfer, 96 well format, Floating Replicator Strip, pin length = 17 mm, pin diameter = 0.78 mm  | <b>VP 451FP3</b> |
| 16 pin, ~80 nl liquid to liquid transfer, 384 well format, Floating Replicator Strip, pin length = 17 mm, pin diameter = 0.78 mm | <b>VP 452FP3</b> |
| 24 pin, ~80 nl liquid to liquid transfer, 384 well format, Floating Replicator Strip, pin length = 17 mm, pin diameter = 0.78 mm | <b>VP 453FP3</b> |



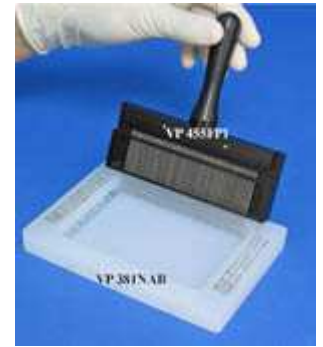
## 0.457 mm DIAMETER PIN (FP1)

**Aluminum Frame Non-Flammable but Autoclaveable**

|   |                  |
|---|------------------|
| 8 pin, ~20 nl liquid to liquid transfer, 96 well format, Floating Replicator Strip, pin length = 17 mm, pin diameter = 0.457 mm     | <b>VP 450FP1</b> |
| 12 pin, ~20 nl liquid to liquid transfer, 96 well format, Floating Replicator Strip, pin length = 17 mm, pin diameter = 0.457 mm    | <b>VP 451FP1</b> |
| 16 pin, ~20 nl liquid to liquid transfer, 384 well format, Floating Replicator Strip, pin length = 17 mm, pin diameter = 0.457 mm   | <b>VP 452FP1</b> |
| 24 pin, ~20 nl liquid to liquid transfer, 96 well format, Floating Replicator Strip, pin length = 17 mm, pin diameter = 0.457 mm    | <b>VP 453FP1</b> |
| 48 pin, ~20 nl liquid to liquid transfer, 1,536 well format, Floating Replicator Strip, pin length = 17 mm, pin diameter = 0.457 mm | <b>VP 455FP1</b> |



|  |                  |
|--|------------------|
| Replicator Strip, pin length = 17 mm, pin diameter = 0.457 mm, with 1.19 mm diameter guide pins for <a href="#">VP 381NAB Library Copier</a>   | <b>VP 455FP3</b> |
| 48 pin, ~80 nl liquid to liquid transfer, 1,536 well format, Floating Replicator Strip, pin length = 17 mm, pin diameter = 0.78 mm with 1.19 mm diameter guide pins for <a href="#">VP 381NAB Library Copier</a> |                  |



## Floating E-Clip Slot Pin Replicator Strips

### 0.5 ul FLOATING E-CLIP SLOT PINS 1.58 mm DIAMETER PIN

**Non-Flammable Non-Autoclaveable Delrin**

|  |                   |
|--|-------------------|
| 8 pin, ~0.5 ul slot, 96 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm   | <b>VP 450FS.5</b> |
| 12 pin, ~0.5 ul slot, 96 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm  | <b>VP 451FS.5</b> |
| 16 pin, ~0.5 ul slot, 384 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 452FS.5</b> |
| 24 pin, ~0.5 ul slot, 384 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 453FS.5</b> |



### 1 ul FLOATING E-CLIP SLOT PINS 1.58 mm DIAMETER PIN

**Non-Flammable Non-Autoclaveable Delrin**

|  |                  |
|--|------------------|
| 8 pin, ~1 ul slot, 96 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm   | <b>VP 450FS1</b> |
| 12 pin, ~1 ul slot, 96 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm  | <b>VP 451FS1</b> |
| 16 pin, ~1 ul slot, 384 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 452FS1</b> |
| 24 pin, ~1 ul slot, 384 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 453FS1</b> |

### 2 ul FLOATING E-CLIP SLOT PINS 1.58 mm DIAMETER PIN

**Non-Flammable Non-Autoclaveable Delrin**

|  |                  |
|--|------------------|
| 8 pin, ~2 ul slot, 96 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm   | <b>VP 450FS2</b> |
| 12 pin, ~2 ul slot, 96 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm  | <b>VP 451FS2</b> |
| 16 pin, ~2 ul slot, 384 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 452FS2</b> |
| 24 pin, ~2 ul slot, 384 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 453FS2</b> |

## 5 ul FLOATING E-CLIP SLOT PINS 1.58 mm DIAMETER PIN

### Non-Flammable Non-Autoclaveable Delrin

|  |                  |
|--|------------------|
| 8 pin, ~5 ul slot, 96 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm   | <b>VP 450FS5</b> |
| 12 pin, ~5 ul slot, 96 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm  | <b>VP 451FS5</b> |
| 16 pin, ~5 ul slot, 384 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 452FS5</b> |
| 24 pin, ~5 ul slot, 384 well format, Floating Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 453FS5</b> |

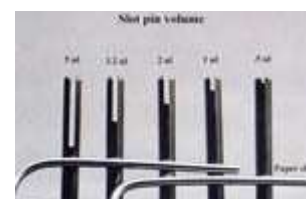


## Fixed Slot Pin Replicator Strips

### 0.5 ul Slot Pins 22 mm LONG 1.58 mm Diameter Pin

#### Flammable and Autoclaveable Aluminum Frame

|   |                  |
|---|------------------|
| 8 pin, ~0.5 ul slot, 96 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm   | <b>VP 450S.5</b> |
| 12 pin, ~0.5 ul slot, 96 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm  | <b>VP 451S.5</b> |
| 16 pin, ~0.5 ul slot, 384 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 452S.5</b> |
| 24 pin, ~0.5 ul slot, 384 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 453S.5</b> |



### 0.5 ul Slot Pins 45 mm LONG 1.58 mm Diameter Pin

#### Flammable and Autoclaveable Aluminum Frame

|   |                   |
|---|-------------------|
| 8 pin, ~0.5 ul slot, 96 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm   | <b>VP 450S.5A</b> |
| 12 pin, ~0.5 ul slot, 96 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm  | <b>VP 451S.5A</b> |
| 16 pin, ~0.5 ul slot, 384 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm | <b>VP 452S.5A</b> |
| 24 pin, ~0.5 ul slot, 384 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm | <b>VP 453S.5A</b> |



**1 ul Slot Pins 22 mm LONG 1.58 mm Diameter Pin  
Flammable and Autoclaveable Aluminum Frame**

|   |                 |
|---|-----------------|
| 8 pin, ~1 ul slot, 96 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm   | <b>VP 450S1</b> |
| 12 pin, ~1 ul slot, 96 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm  | <b>VP 451S1</b> |
| 16 pin, ~1 ul slot, 384 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 452S1</b> |
| 24 pin, ~1 ul slot, 384 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 453S1</b> |

**1 ul Slot Pins 45 mm LONG 1.58 mm Diameter Pin  
Flammable and Autoclaveable Aluminum Frame**

|   |                  |
|---|------------------|
| 8 pin, ~1 ul slot, 96 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm   | <b>VP 450S1A</b> |
| 12 pin, ~1 ul slot, 96 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm  | <b>VP 451S1A</b> |
| 16 pin, ~1 ul slot, 384 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm | <b>VP 452S1A</b> |
| 24 pin, ~1 ul slot, 384 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm | <b>VP 453S1A</b> |

**2 ul Slot Pins 22 mm LONG 1.58 mm Diameter Pin  
Flammable and Autoclaveable Aluminum Frame**

|   |                 |
|---|-----------------|
| 8 pin, ~2 ul slot, 96 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm   | <b>VP 450S2</b> |
| 12 pin, ~2 ul slot, 96 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm  | <b>VP 451S2</b> |
| 16 pin, ~2 ul slot, 384 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 452S2</b> |
| 24 pin, ~2 ul slot, 384 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 453S2</b> |

**2 ul Slot Pins 45 mm LONG 1.58 mm Diameter Pin  
Flammable and Autoclaveable Aluminum Frame**

|   |                  |
|---|------------------|
| 8 pin, ~2 ul slot, 96 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm   | <b>VP 450S2A</b> |
| 12 pin, ~2 ul slot, 96 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm  | <b>VP 451S2A</b> |
| 16 pin, ~2 ul slot, 384 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm | <b>VP 452S2A</b> |
| 24 pin, ~2 ul slot, 384 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm | <b>VP 453S2A</b> |



## 5 ul Slot Pins 22 mm LONG 1.58 mm Diameter Pin Flammable and Autoclaveable Aluminum Frame

|   |                 |
|---|-----------------|
| 8 pin, ~5 ul slot, 96 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm   | <b>VP 450S5</b> |
| 12 pin, ~5 ul slot, 96 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm  | <b>VP 451S5</b> |
| 16 pin, ~5 ul slot, 384 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 452S5</b> |
| 24 pin, ~5 ul slot, 384 well format, fixed Replicator Strip, pin length = 22 mm, pin diameter = 1.58 mm | <b>VP 453S5</b> |

## 5 ul Slot Pins 45 mm LONG 1.58 mm Diameter Pin Flammable and Autoclaveable Aluminum Frame

|   |                  |
|---|------------------|
| 8 pin, ~5 ul slot, 96 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm   | <b>VP 450S5A</b> |
| 12 pin, ~5 ul slot, 96 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm  | <b>VP 451S5A</b> |
| 16 pin, ~5 ul slot, 384 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm | <b>VP 452S5A</b> |
| 24 pin, ~5 ul slot, 384 well format, fixed Replicator Strip, pin length = 45 mm, pin diameter = 1.58 mm | <b>VP 453S5A</b> |

## CUSTOM TUBE TYPE FLOATING SLOT PIN REPLICATOR STRIPS

If you have a special application we can make a custom slot pin Replicator Strip for you. The enlarged photographs below illustrate how small of slots we can make in tube type floating pins.

### Accessories

We suggest that you buy 3 other inexpensive items when you purchase a Replicator Strip that will make using the Replicator Strips safer and more reproducible. The [VP 420 is a Glass Alcohol Reservoir](#) that is used in the sterilization of the Replicators by flaming. Some labs use plastic reservoirs but if flaming alcohol drops into them the plastic burns too dumping flaming alcohol all over the counter. The [VP 425 is Pin Cleaning Brush](#) that is used to kept the Replicator pins clean so they will carry the same amount of liquid each time. [VP 110 is a Pin Cleaning Solution](#) that is used to clean and treat the pin tips when they can't be flamed.



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