

Stainless Steel

# Vertica™ Pendant Arms and Enclosures (NEMA 4X)

Vertically Adjustable Mountings for Operator Interfaces

## Features

- ▶ **Adjustable Height** for each operator.
- ▶ **Automatically Locks in Place** when repositioned vertically.
- ▶ **Convenient Grab Handle** unlocks and automatically relocks vertical position.
- ▶ **13", 23", or 30"** of vertical adjustment.
- ▶ **Internal Cable Passageway** sealed and safe.
- ▶ **Versatile Mounting Styles** for any plant floor location:
  - Wall Mount
  - Post Top
  - Machine Top
- ▶ **Arm Extensions** include:
  - Horizontal Extension
  - Middle Joint Extension
  - Rigid Wall Mount Extension
  - Vertical Extension
- ▶ **Counterbalances** up to 100 lbs.
- ▶ **Precision-sized Enclosures** for any operator interface.
- ▶ **Available from Stock** in every configuration.
- ▶ **Also Available in NEMA 4/12 Painted Aluminum/Carbon Steel**  
Vertica arms and enclosures are available for corrosive, sanitary and washdown applications.



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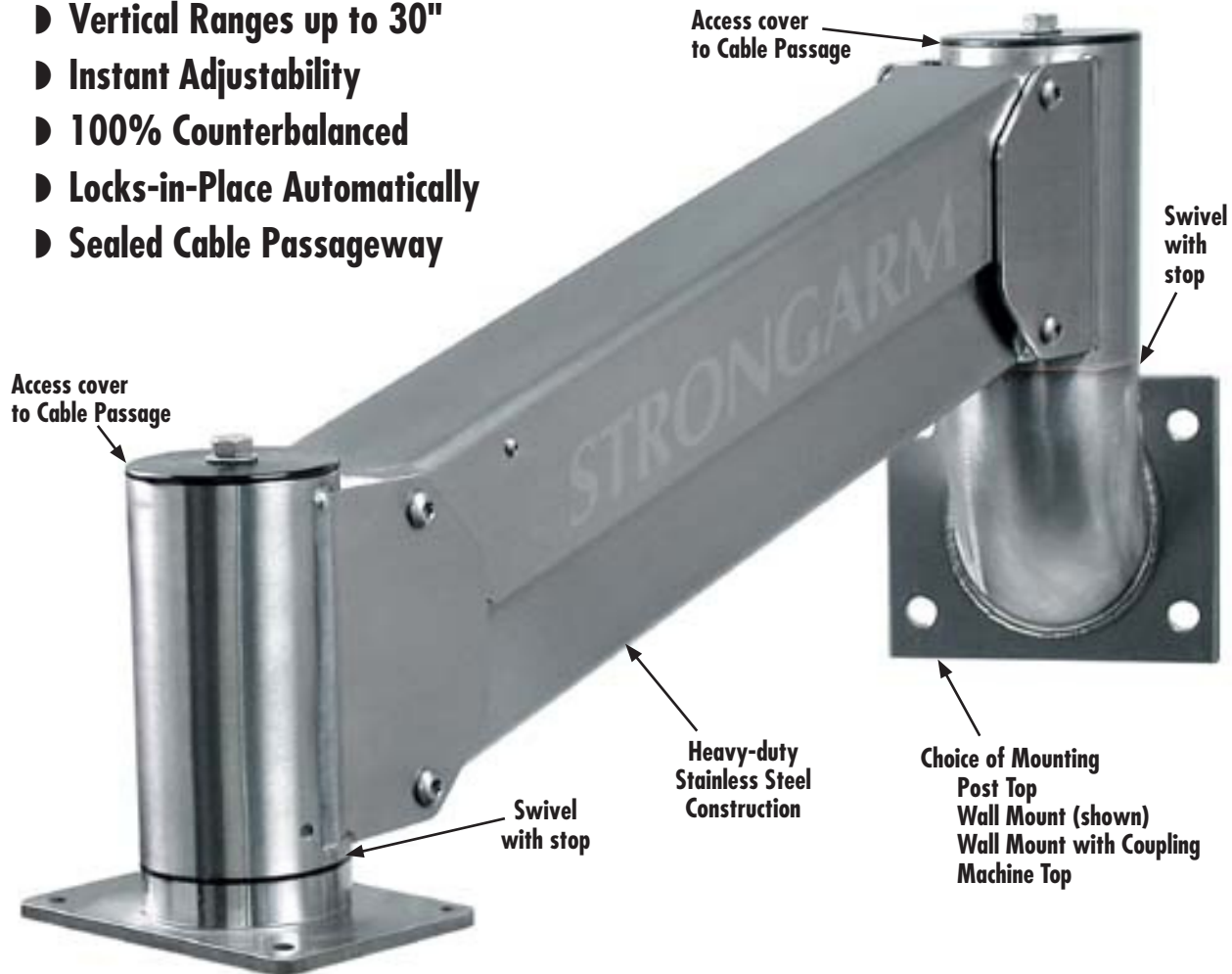
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# Vertica™ Pendant Arms

THE industry standard for vertically adjustable mountings

- ▶ Vertical Ranges up to 30"
- ▶ Instant Adjustability
- ▶ 100% Counterbalanced
- ▶ Locks-in-Place Automatically
- ▶ Sealed Cable Passageway

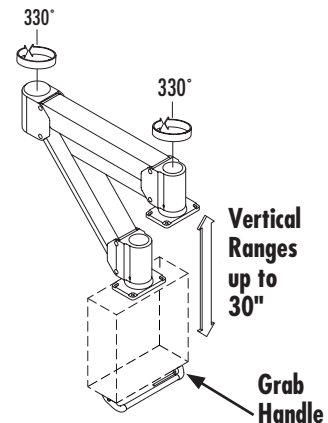


## Industrial Strength

Heavy-duty, stainless steel construction makes the Vertica arm ideal for mounting flat panel operator interfaces in demanding plant floor environments. Versatile mounting designs allow the Vertica arm to be attached to any horizontal or vertical surface or 3/2" OD pipe. A sealed cable passageway protects the cables, keeping them secure and twist-free.

## Easily Repositioned

STRONGARM's Vertica™ Pendant Arms allow the operator to adjust the interface to a comfortable height. The operator simply squeezes the grab handle and the interface becomes weightless and easily repositioned. The gas spring counterbalancing system automatically locks in place, providing safety and stability. Swivels at both ends with rotational stops are standard.



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# Vertica™ Pendant Arms

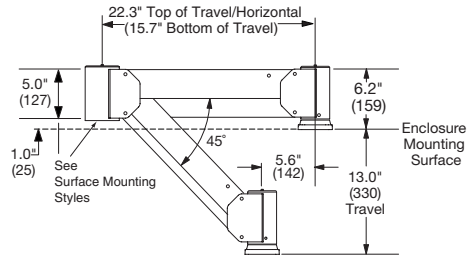
## Vertica Selection and Articulation

### Vertica – 13" of Vertical Adjustability



#### Typical Application

For ergonomic height adjustment of the display which eliminates the nearly impossible engineering task of mounting the display at "just the right height" to please everyone.



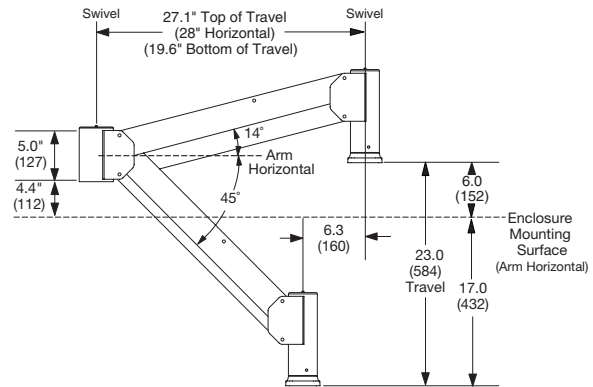
Dimensions in inches (mm)

### Vertica L – 23" of Vertical Adjustability



#### Typical Application

Set-up and monitoring where the interface is pulled down for machine set-up and then pushed up and out of the way.

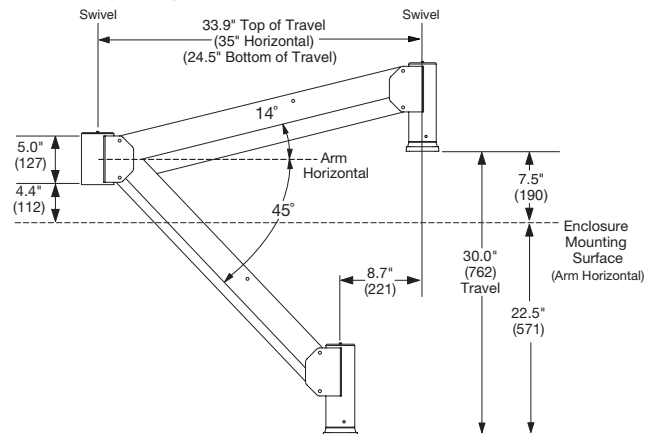


### Vertica XL – 30" of Vertical Adjustability



#### Typical Application

Where the operator can use the same interface from either down on the floor level or up on a platform.



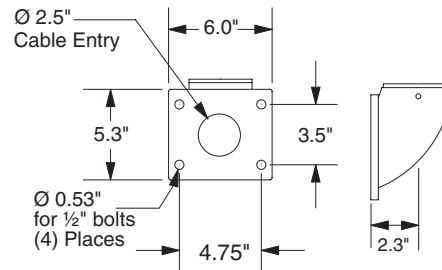
# Vertica™ Pendant Arms

## Surface Mounting Selection

### Wall Mount



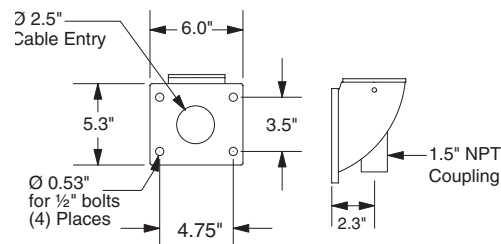
A Wall Mount Vertica Arm attaches to a vertical surface with a thru-hole pattern (4) 0.53 Ø. Cables enter through the center of mounting surface. Rotational stops at 180° (±90°) are standard; alternate stops can be specified.



### Wall Mount with Coupling



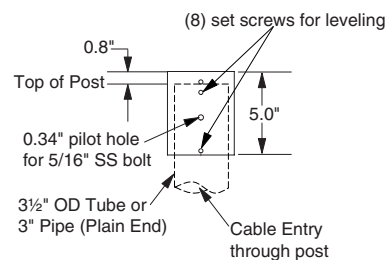
A Wall Mount Vertica Arm attaches to a vertical surface with a thru-hole pattern (4) 0.53 Ø. Cables enter through the center of mounting surface or the additional 1½" NPT coupling. Rotational stops at 180° (±90°) are standard; alternate stops can be specified.



### Post Mount



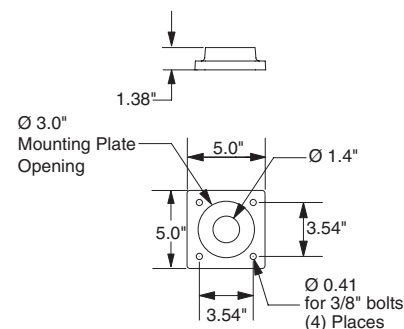
A Post Mount Vertica Arm attaches to a plain end 3½" OD tube or 3" pipe. Collar slides over post and is leveled with set screws. A pilot hole in the collar for drilling through the post and installing a 5/16" bolt is provided. Cables enter through post (optional posts have 1½" NPT female coupling). Rotational Stops at 330° (±165°) are standard; alternate stops can be specified.



### Machine Top Mount



A Machine Top mount Vertica Arm attaches to a horizontal surface with thru-hole pattern (4) 0.38 Ø. Cables enter through center of mounting surface. Rotational stops at 330° (±165°) are standard; alternate stops can be specified.



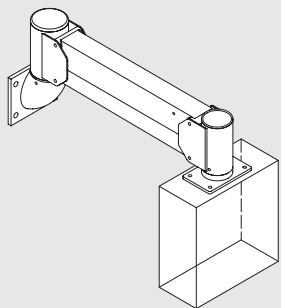
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# Vertica™ Pendant Arms

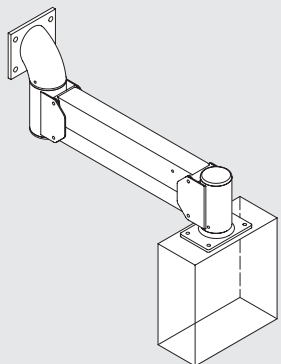
## Assembly Configuration Selection

### Standard Configuration



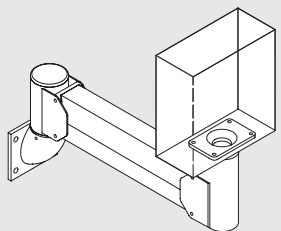
The mounting surface supports the arm and the enclosure is suspended from the arm. This is the most popular configuration.

### Inverted Configuration



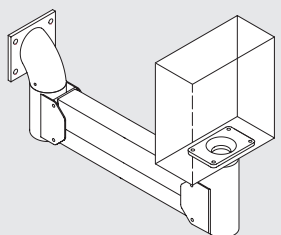
The mounting end is inverted, resulting in the arm being suspended from the mounting surface. Inverted post-mounted arms are popular for supporting the arm from the ceiling.

### Supported Configuration



The mounting surface is supporting the arm and the enclosure is supported by the arm. A vertical extension is required for this configuration so that the arm does not come in contact with the enclosure when it is lowered and rotated. The minimum length of the extension depends on the size of the enclosure. This configuration is popular for supporting devices other than operator interface enclosures.

### Inverted Supported Configuration



The mounting end is inverted and the enclosure is supported by the arm. A vertical extension is required for this configuration so that the arm does not come in contact with the enclosure when it is lowered and rotated. The minimum length of the extension depends on the size of the enclosure. This configuration is popular for supporting devices other than operator interface enclosures.

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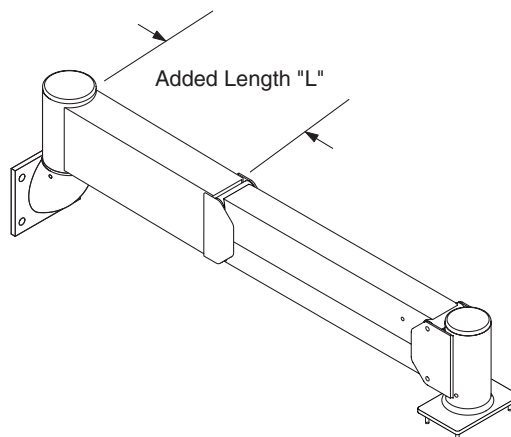
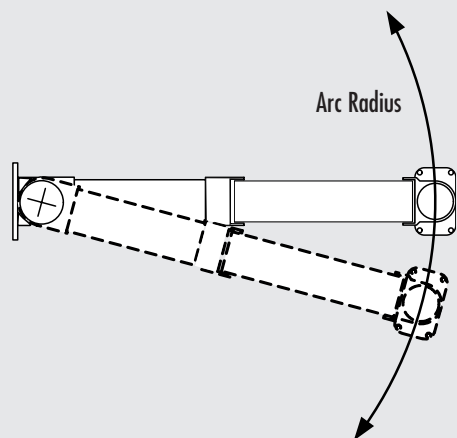
# Vertica™ Pendant Arms

## Arm Extensions

### Horizontal Extension



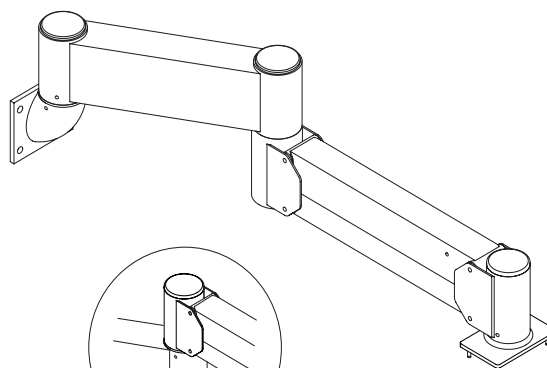
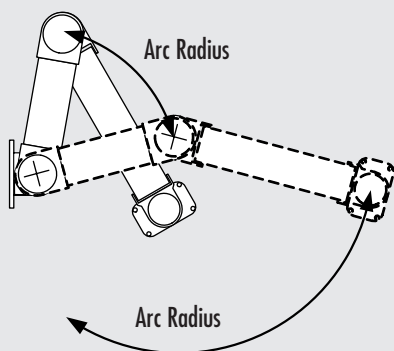
The horizontal extension increases the overall length of the arm. The horizontal extension is inserted between the mounting surface pivot and the Vertica arm. Vertical travel does not change. Swivel-to-swivel length is increased by dimension "L".



### Middle Joint Extension



The middle joint extension adds a third pivot to the Vertica arm for in/out adjustability.



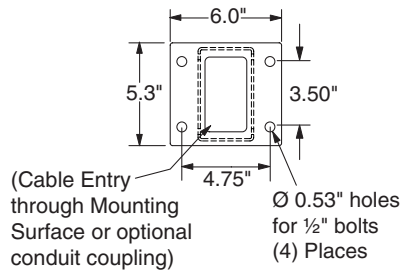
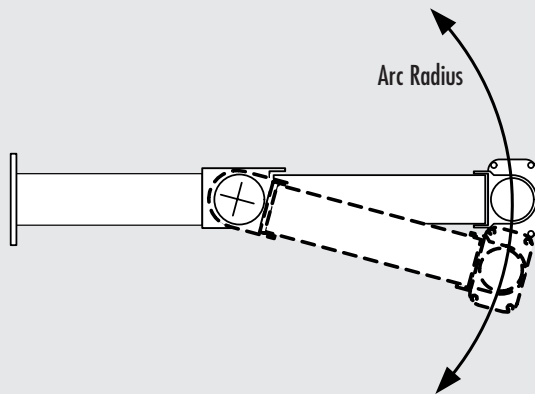
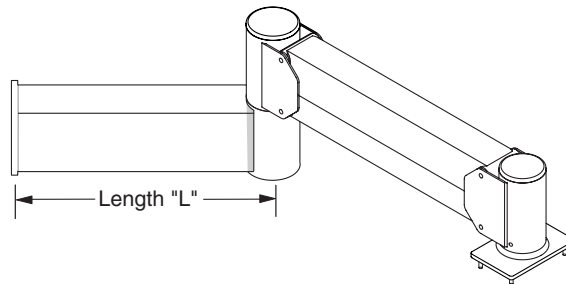
# Vertica™ Pendant Arms

## Arm Extensions (continued)

### Rigid Wall Mount



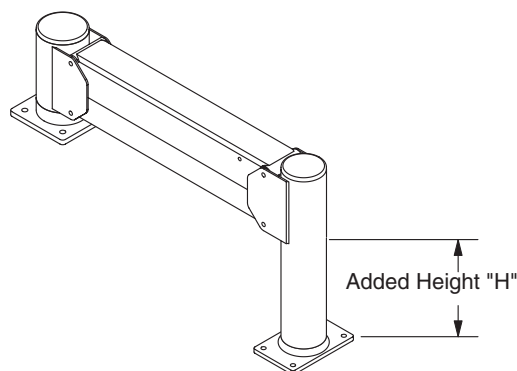
Typically used when there is a mounting surface available but not in the ideal location. The rigid wall mount essentially moves the mounting surface. Both length and angle can be specified. These extensions are preferable over horizontal and middle joint extensions for applications that require a long reach.



### Vertical Extension



The vertical extension increases the distance between the mounting surface and the enclosure by "H". Select from standards of 4", 8", 12" or specify the exact length. Very long vertical extensions are not recommended due to the increase in the twisting moment on the arm. Generally, the shorter the better and not longer than 18".



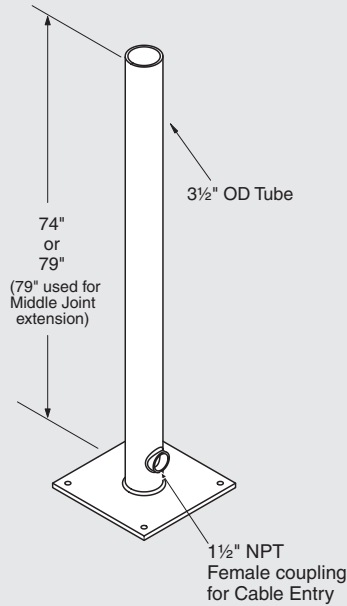
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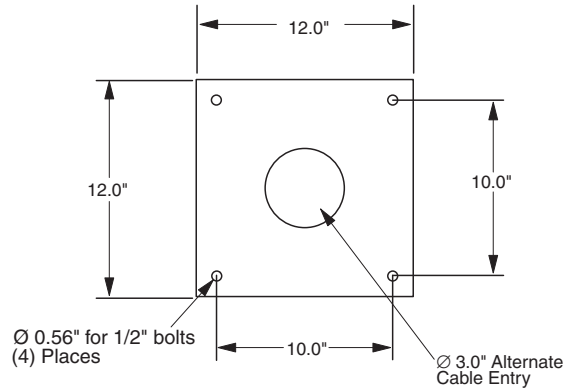
# Vertica™ Pendant Arms

## Vertica Options

### Floorpost



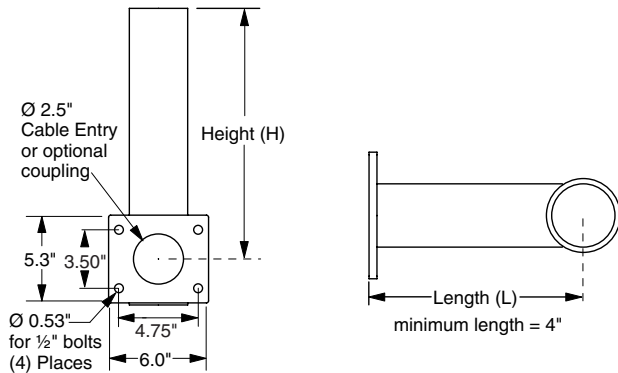
For use with a post top mount Vertica arm, the floorpost is a very popular method of mounting an arm when a structural surface is not available. The 74" post is for Vertica arms and the 79" post is for Vertica arms with a middle joint extension. Fabricated from heavy wall 3 1/2" structural tube welded to a 12" x 12" x 3/8" thick baseplate. A 1 1/2" female NPT coupling near the base for cable entry, additional couplings can be specified or located differently.



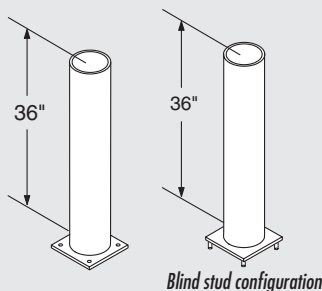
### Machine Base Post



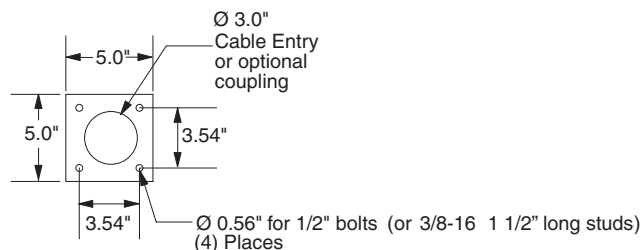
The machine base post attaches to a machine frame and extends the post out a distance "L" as needed for clearance.



### Short Post



The short post is generally used for mounting a post top Vertica arm to a machine frame. The short post features a small 5" x 5" footprint with cable passageway through the center of the plate, providing a clean mounting solution. The 36" post can be cut to length by the customer or ordered precut. (Also available with blind studs.)



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# Vertica™ Pendant Arms

## Vertica Options (continued)

### Floorpost Accessories

- Tie-off Kit for Inverted Post** A popular method of mounting is to invert a floorpost and attach it to a ceiling structure. To avoid twisting of the structure, it is recommended that diagonal tie-offs are installed. This kit includes (2) sets of clamps that attach to the post and have thru-holes for attaching user-supplied tie-offs between the clamps and ceiling structure.
- Freestanding Floorplate** Heavy ¼-thick, reinforced plate used to freestand a floorpost mounted system. Intended for temporary Vertica installations, including training rooms, development labs and trade shows. For Vertica L or XL, specify Freestanding Floorplate with Outriggers.

### Release Handles

- Enclosure Handle** Standard enclosure handle is supplied with the Vertica Arm. See **Vertica Specifications**.

### Rotational Stops

- Specified Rotational Stops** Alternative rotational stop locations can be specified. The standard default stop locations are listed in **Vertica Specifications**. Use the same format when specifying the limits of the desired rotation.
- Latching Stop** The latching stop holds the swivel point at an exact angle. The stop is released by a short pull lever located on the front side of the arm end. The stop pin is spring-loaded for automatic latching. Hard stops are also installed to prevent rotation beyond the latching stop, please call for assistance.
- Detent Stop** Detent stops hold the swivel point at an exact position and releases when a firm force is applied. Detents utilize spring ball mechanisms and have adjustable breakaway force. Detent stops are application specific, please call for assistance.

### Finish

- Standard** #4 Satin Polish

### Other Options

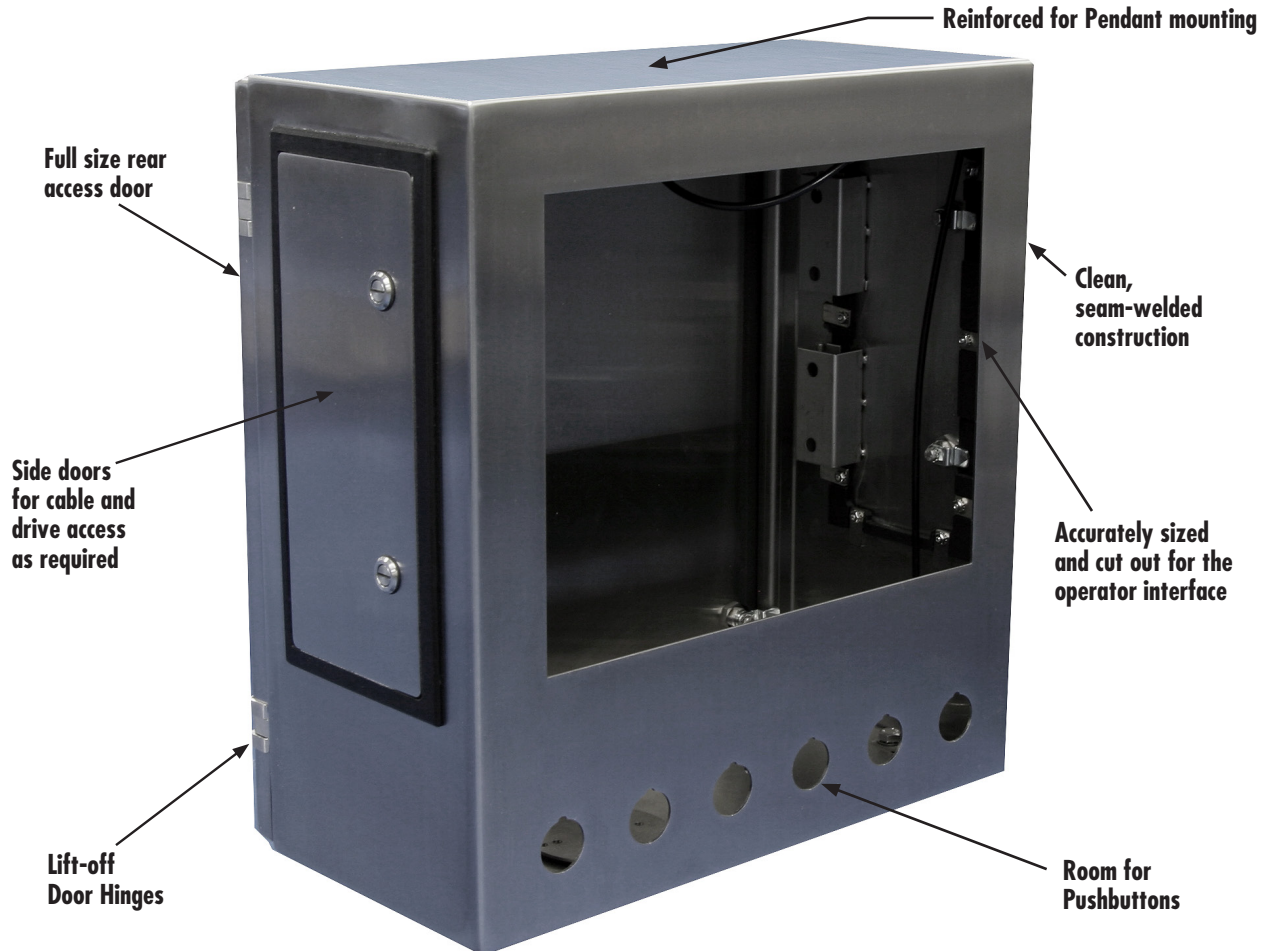
- Restricted Vertical Travel** The angle of travel can be restricted as necessary, specify angle(s).
- Clean Room Specification** Specific to semiconductor manufacturers, this option reduces the bearing surface materials to just stainless steel on Delrin (acetal). Also, the use of all lubricants is eliminated. Available for loads less than 100 ft/lbs.
- Threaded Access Caps** The cable access covers can be supplied with a ½" NPT female thread for mounting a stack light.

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# Operator Interface Enclosures

Perfectly-sized Enclosures Set-up and Ready to Install



- ▶ Individually sized for the exact model of operator interface.
- ▶ Thoughtful consideration of engineering details.
- ▶ Convenient side access doors for cabling and drives.
- ▶ Square and precise laser cut and TIG welded construction.
- ▶ Reinforced for rigidity when pendant arm mounted.
- ▶ Fast delivery, Operator Interface enclosures are our specialty.

## Get the Right Enclosure Effortlessly

Let STRONGARM do the work! Get it sized right from a vast solid-modeled library of all the popular Operator Interfaces that include cut-outs, clearance requirements, and access idiosyncrasies. The enclosure you get will be designed right, have all the cut-outs and accessories you need, finished to your specification, and pre-assembled to your Vertica arm. All on-site hassles are eliminated.

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# Operator Interface Enclosures

## Enclosure Options

### Cut-outs

Operator Interface Cut-out

Cut-out for specified manufacturer and model number. Typically, the positioning of the interface will leave approximately 2 inches of air space above the electronics.

Pushbutton or Special Cut-outs

Cut-outs for pushbuttons or other requirements. Specify location and size.

### Doors and Latches

Side Doors

Side doors allow access to cabling or drives. Door size and location are based on the requirements of the operator interface. Side door frames are milled from 3/8" thick aluminum plate. Milled door frames seal tightly, don't protrude and have a clean appearance. Latches are 1/4-turn operated and hinges are concealed. Standard sizes for side access doors are:

Door Sizes	Opening
6.0" x 4.7"	5.0" x 3.7"
11.0" x 4.7"	10.1" x 3.7"
11.0" x 7.5"	10.0" x 6.5"
15.0" x 7.0"	14.1" x 6.0"

Door Latches

STRONGARM enclosures feature EMKA brand latches. Any EMKA option can be specified, while popular options include wing handles and keylocks.

Front Door

A full-size front door can either be added or substituted for the standard full size rear door.

### Subpanels

Rear Door Subpanel

Subpanel on rear door is 1/8" painted aluminum and on stand-offs. Usable space is approximately 3" less the height and 4" less the width of the enclosure's dimensions.

Hinged Subpanel

Hinged Subpanel is 1/8" painted aluminum with lift-off hinges located just inside rear door. Usable space is approximately 2" less than the enclosure's height and width.

### Enclosure Cooling

4" Filtered Fan

4" Filtered Fan with Drip Shroud is rear door-mounted and protected by ABS plastic drip shrouds. Includes filter media pockets. Fan uses 120 VAC and includes cord and plug. Plug strip option is recommended. (See **Power Management** options).

Thermoelectric Cooler

Thermoelectric Cooler actually cools air below ambient temperature (unlike fans or heatpipe heat exchanger.) Totally solid state with no refrigerants, the thermoelectric cooler is ideal for small, sealed enclosures installed in areas with high ambient temperatures.

Thermoelectric Cooler with Heater

See Thermoelectric Cooler. Add a heater where ambient temperature can drop below freezing.

Vortex Cooler

The Vortex cooler uses only compressed air to create a stream of refrigerated air while maintaining the sealed integrity of the enclosure.

Washdown Heatpipe Heat Exchanger

Heatpipe Heat Exchanger is a compact 12" x 12" unit that efficiently removes heat from a sealed enclosure. Maintains internal temperature to within approximately 10° of ambient temperature. Exchanger uses 120 VAC and includes cord and plug. Plug strip option is recommended. (See **Power Management** options).

Washdown Hazardous Area Heatpipe Heat Exchanger

Suitable for hazardous areas. Requires compressed air.

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# Operator Interface Enclosures

## Enclosure Options (continued)

### Power Management

AC Power Strip

Available with (4) or (6) AC outlets. Include finger-safe terminals for convenient hook-up of incoming power wiring, mounting plate, and a 15 amp circuit breaker.

Terminal Block

Allows internal components to be hard wired, saving space and providing added security and safety.

### Keyboard, Mouse and Bar Code Reader Cable Entry

Cable Gland

Cable Gland is used for routing keyboard, mouse, or barcode reader cables into the enclosure. The gland consists of two sliding plates that open to allow the terminated ends to pass and then clamp together to form a seal around the cables. The sealing surface is closed cell foam. Three sizes are available:

Small: 1.5" x 0.7" maximum opening.

Medium: 3.0" x 0.7" maximum opening.

Large: 5.0" x 1.0" maximum opening.

Cable Plate

Cable Plate is used for routing keyboard, mouse, or barcode reader cables into an enclosure. It handles one or two cables and clamps them securely. Generally used for devices that require cable strain relief such as handheld bar code readers.

Washdown Keyboard and Mouse Ports

Provides (2) PS-2 or USB plug-ins that are external to the enclosure. The Washdown Keyboard and Mouse Ports are completely sealed, thereby maintaining the integrity of the enclosure.

### Viewing Windows

Polycarbonate

Viewing Window is a heavy-duty 3/8" thick Lexan® brand polycarbonate window with Marguard coating to minimize scratching.

Safety Glass

1/8" thick laminated safety glass. Laminated (or compound) glass consists of two sheets of glass with one plastic layer "sandwiched" between the glass panes.

Display Bracket

Bracket with VESA pattern to hold Flat Panel Display.

### Finish

Standard

#4 Satin Polish

### Keyboards and Pointers

See separate data sheet for many options.

### PCs and Extenders

PCs, PC Enclosures, and KVMs

See separate data sheet for many options.

### Other Options

Bar Code Reader Bracket

Bar Code Reader bracket holds and stores bar code reader.

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# Vertica™ Pendant Arms and Enclosures

## Vertica Specifications

### Vertical Travel

Vertica	13 inches
Vertica L	23 inches
Vertica XL	30 inches

### Counterbalance Capacity

Vertica	100 lbs
Vertica L	75 lbs
Vertica XL	50 lbs

### Load Limitations

350 ft/lb maximum on swivel joint. Consult factory for larger loads.

### Cable Passageway

1.4" diameter sealed continuous passageway.

### Material

304 Stainless Steel 14 Gauge

### NEMA Rating

NEMA 4X

### Finish

#4 Satin Polish

### Rotational Stops—Standard

Enclosure Swivel	stop at $\pm 165^\circ$
Post Top Mount	stop at $\pm 165^\circ$
Wall Mount	stop at $\pm 90^\circ$
Machine Top Mount	stop at $\pm 165^\circ$
Middle Joint	stop at $\pm 126^\circ$
Rigid Wall Mount	stop at $\pm 126^\circ$

### Release Handle

Release handles are standard on all Vertica enclosures.

## Operator Interface Enclosure Specifications

### Construction

Laser-cut and continuous TIG seam welded.

### Material

304 Stainless Steel 14 Gauge

### Reinforcement

Folded and welded stiffener designed for pendant arm mounting.

### Cut-outs

Vertica arm and handle standard, O.I. and pushbuttons as specified.

### NEMA Rating

NEMA 4X

### Agency Approval

UL 508c labeled (available as option).

### Doors

Rear Door	(1) full size standard.
Front Door	Optional, in lieu of rear door.
Side Doors	As required for access to cabling and drives (see <b>Enclosure Options</b> for sizes and descriptions).
Gaskets	Neoprene/EPDM/SBR Blend #SCE42B
Latches	Rear door: EMKA brand 1000 series $\frac{1}{4}$ turn, slotted. Side door: EMKA brand 1022 series $\frac{1}{4}$ turn, slotted.
Hinges	Rear door: lift-off hinges, (2) typically. Side door: concealed hinges.

### Finish

#4 Satin Polish

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# Vertica™ Pendant Arms and Enclosures

## Ordering Information

### Series

602

Vertica Arm and Enclosure

### Vertica Arm

602 - V

13" vertical travel

602 - L

23" vertical travel

602 - X

30" vertical travel

### Surface Mounting

602 -  P

Post Top Mount

602 -  W

Wall Mount

602 -  C

Wall Mount with Coupling

602 -  M

Machine Top Mount

### Assembly Configuration

602 -  1

Standard Configuration

602 -  2

Inverted Configuration

602 -  3

Supported Configuration

602 -  4

Inverted/Supported Configuration

### Arm Extensions

602 -  Hxx

Horizontal Extension in specified xx length (inches)

602 -  Mxx

Middle Joint Extension in specified xx length (16, 24, or 36 inches standard)

602 -  Rxx

Rigid wall mount in specified xx length (inches)

602 -  Vxx

Vertical Extension in specified xx length (4, 8, or 12 inches standard)

602 -  MXT

Multiple Extensions. Type and length of multiple extensions listed in unique serial number. See **Options**.

602 -  000

No extensions

### Enclosure

602 -  - HHWWDD

Height, Width, Depth of Enclosure

### Options

602 -  -  - xxxxxx

Select options from Vertica options and Enclosures options lists.

(xxxxxx represents unique serial number that is assigned at order entry)

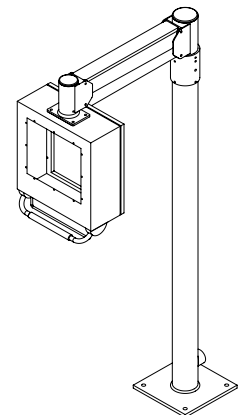
### Model Number Example

602 - VP1000-171906 - xxxxx

Options:

- Cut-out for AB Panelview 1000
- 74" Floorpost

Vertica arm, post top mount, standard configuration, no extensions, with a 17" x 19" x 6" enclosure. Options include cut-out for AB Panelview 1000 and 74" floorpost.



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