



# VSpin™ User Manual

version 3.0

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# Chapter 1: General Information

## Introduction

Thank you for purchasing a Velocity11 VSpin integrated centrifuge.

The purpose of this manual is to provide the basic information necessary to achieve optimal efficiency from your VSpin. This manual will walk you through the required steps to get your VSpin working to its fullest capacity and provide maintenance and safety tips to keep it running smoothly.

Velocity11 strives to produce the highest throughput and highest quality products available for the laboratory automation market. Technical information on the VSpin and other exciting Velocity11 products is available from Velocity11. With questions or comments, please contact our Service Center at (800) 979-4811 or visit our website at: <http://www.velocity11.com>.

## System Requirements

### Computer Platform

- Pentium 166 based or better PC
- Windows NT 4.0, Windows 2000
- 32 MB RAM
- Serial I/O RS-232 9 pin connector supporting 57,600 baud communication speed

### Lab Requirements

- 14" x 18.25" benchspace
- 1/4" compressed air line capable of supplying 80 psi
- 100 to 240 VAC, 50-60 Hz, 6 amps grounded power cable
- For speeds above 1500 rpm: Dedicated permanent mounting surface (table of aluminum at least 1/2" thick and at least 100 pound weight)
- For speeds below 1500 rpm: 14" x 19" non-skid stable surface for free standing operation

### Performance Specifications

- Spindle speed: 0-3000 RPM
- Effective plate radius: 4.00 inches
- Centrifugal force on plate: 0-1000g
- Maximum imbalance at top speed: 10 grams. For higher imbalances, consult factory
- Maximum plate weight: 250 gram (each plate)
- Maximum allowable plate height: 1.90 inches (2.10 inches available soon: consult factory)
- Acceleration: 0-2000 RPM in 5.0 seconds, 0-3000 RPM in 7.5 seconds
- Deceleration: 0-2000 RPM in 5.0 seconds, 0-3000 RPM in 7.5 seconds



# Chapter 2: Warnings and Advisories

## General Information

Your safety while utilizing the VSpin is of **paramount importance**. Carefully read and follow all warnings and cautions that are outlined in this manual. *The VSpin must only be used in the manner in which it was intended by Velocity11.* Any other use of the VSpin may cause damage to the product or harm to the user.

Take note of the following signs. They are found throughout the manual and call attention to a procedure or practice that if not correctly performed, could result in a hazardous condition or damage part or all of the product. Do not proceed beyond a warning label until the indicated conditions are fully understood and met.



### WARNING

**Warning signs signal procedures that will potentially cause bodily harm or death if not performed correctly.**



### CAUTION

**Caution signs signal procedures that will potentially cause damage to the instrument if not performed correctly.**



### NOTE

*Note signs indicate points that are important in order to correctly setup or use the VSpin. No danger is involved.*

The VSpin has been designed to meet the state-of-the-art UL requirements for laboratory centrifuges guarding against improper operation, including door interlock, imbalance detection, and automatic shutdown. Should any difficulties with start up arise, the VSpin module may be protecting itself from improper operation. Consult Velocity11 for assistance in resolving this problem.

Velocity11 is not responsible for damages caused in whole or part by unauthorized modifications or maintenance procedures not explicitly expressed in this user manual. Any modifications or changes to the VSpin not expressly approved in this manual could void your warranty and authority to operate this equipment.

## Specific Warnings & Cautions

Please read the following warnings before proceeding with VSpin installation and use. The VSpin is not designed for casual manual use and such use is not recommended. The VSpin is designed and optimized for robotic access.



### WARNING

**Do not run the VSpin if any VSpin components or accessories are damaged or if any components or accessories have received rough handling or have been modified in any manner unauthorized by Velocity11. Discontinue use if the VSpin vibrates or emits noise above normal levels.**



### WARNING

**Do not operate the VSpin if foreign objects or liquids are trapped within the chamber.**

**WARNING**

Do not operate the VSpin above spindle speeds of 1500 rpm unless securely mounted to a structure approved by Velocity11. Consult Velocity11 for review and approval of mounting surface.

**WARNING**

Disconnect power, air, and COMM before performing any service to the VSpin.

**WARNING**

Do not exceed maximum single bucket load of 250 grams (.55 lb.) for each bucket.

**CAUTION**

Do not use harsh abrasives, corrosive cleaning agents, or metal brushes to clean any VSpin components or accessories. Do not use bleach or any concentration of sodium hypochlorite. Do not allow cleaning agents to contact any electronic, electrical, or sensitive mechanical components (central motor, support springs, etc.).

**CAUTION**

Do not tamper with or adjust the VSpin rotor mounting screw. Consult Velocity11 for maintenance procedure.

**NOTE**

*Do not interchange buckets from other VSpins. Buckets should be balanced within one gram.*

**NOTE**

*Keep hands clear of door during closing.*

**NOTE**

*Ensure proper orientation of VSpin buckets before operation, especially after performing maintenance. Buckets must swing freely and be oriented such that two tabs are facing outward and four tabs are facing inward.*

**NOTE**

*The VSpin accommodates a maximum plate or plate stack height of 1.90”.*

**NOTE**

*Read and follow all unpacking information before use.*

# Chapter 3: Installation

## Unpack the VSpin

Your VSpin has come shipped to you direct from Velocity11. The following is a list of the contents of the Velocity11 VSpin package.

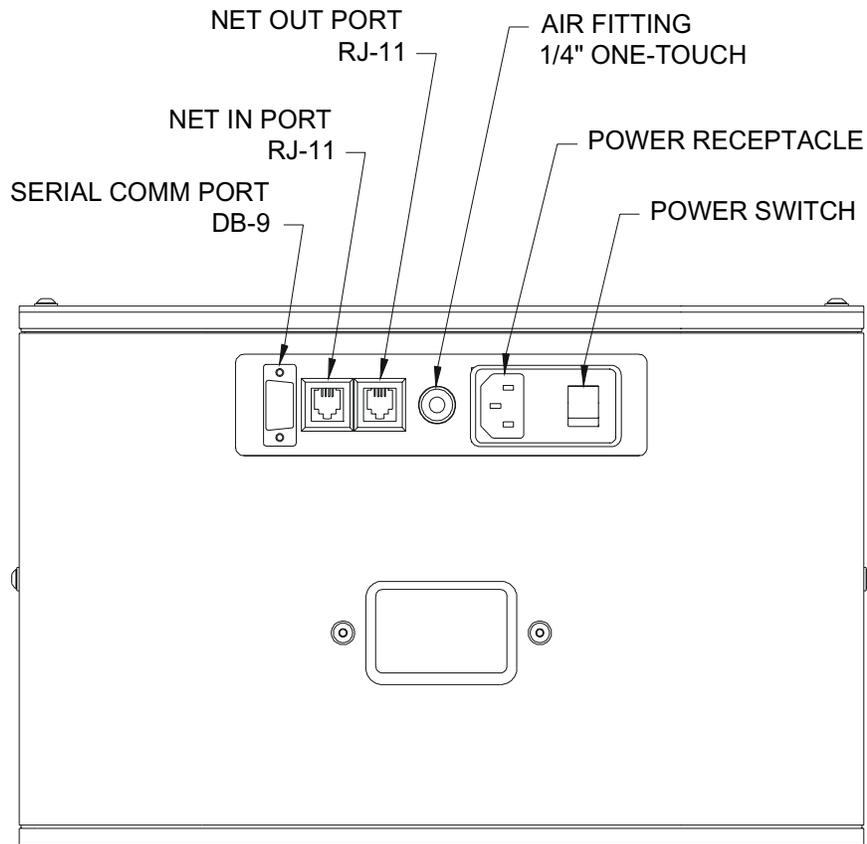
- VSpin centrifuge module
- Power cable
- Serial communications cable
- 15 feet of 1/4" tubing for air supply
- Hose fitting: 1/4" NPT-1/4" one touch hose
- Hose fitting: 1/8" NPT-1/4" one touch hose
- One-touch T hose fitting (*optional depending on your air supply*)
- VSpin ActiveX CD
- *VSpin User Manual*

### **Inspection**

Inspect all the items for possible shipping damage before continuing the setup process. If anything is missing or appears damaged, contact a Velocity11 service representative as soon as possible. Save the carton and packing materials in case you ever need to ship the VSpin.

## Install the VSpin

Figure 1



**NOTE**

*VSpin net connectors are obsolete.*

### Install Compressed Air Line

**WARNING**

Switch off the house air before installing the VSpin.

Working with open, charged air lines can result in injury. Proper technique should be used to bring an air line to the system. If you have questions regarding this, be sure to contact your facilities department or a Velocity11 service representative.

**CAUTION**

Ensure that the air line coming into the VSpin is properly filtered. Impurities in the air can adversely affect the life of the unit. If there is any question about the quality of your air line, contact Velocity11.

- 1) Take the supplied ¼" tubing and cut it to the length you need for the air line.
- 2) Plug one end into your lab's air supply.
- 3) If your house air uses a threaded nozzle, attach the ¼"NPT fitting to the nozzle. Attach the ¼" one touch hose fitting into the ¼" tubing.
- 4) Plug the other end of the ¼" tubing into the quick release air supply port on the back of the VSpin (see Figure 1).
- 5) After installation, tug gently on the line. If you feel resistance, then the line has been properly installed.

**NOTE**

*You may have another machine in your laboratory hooked up to the house air supply. In this case, use the one touch ¼" T hose connector to attach both the VSpin and your other machine to the house air.*

### Install Serial Communications Cable

- 1) Plug one end of the serial communications cable into the serial communications port on the back of the VSpin (see Figure 1).
- 2) Plug the other end of the serial communications cable into the available serial communications port on the PC you will use to control the VSpin.

### Install Power Cable

**CAUTION**

Operating the VSpin at the wrong voltage could seriously damage the instrument.

Before turning on the system, be sure that the voltage supplied to the VSpin is 100 to 240 VAC, 50-60 Hz, and the line is rated to supply a minimum of 6 amps.

- 1) Ensure that the VSpin is turned off.
- 2) Plug one end of the power cable into the power entry receptacle at the rear of the VSpin (see Figure 1).
- 3) Plug the other end of the power cable into an appropriate grounded electrical socket.

**WARNING**

Keep clothing, hair, and jewelry away from the VSpin at all times.

The VSpin is an automated piece of equipment with moving parts. Ensure that hair, clothing, and jewelry do not become caught in the machine.

## Install ActiveX

### Install VSpin Software

- 1) Take the compact disc marked *VSpin ActiveX* from the plastic sleeve.
- 2) Place it in the CD drive of your PC. For the highest performance from your VSpin, we recommend a Pentium 166 or better based PC running Windows NT 4.0 or Windows 2000.
- 3) Open the CD drive on your computer.
- 4) Click **Setup.exe**. InstallShield Wizard will appear.
- 5) Click **Next** to proceed from the InstallShield welcome.
- 6) Enter your customer information and click **Next** to proceed.
- 7) Select a setup type. Choose “**Custom**” setup if you wish to specify the Destination Location.
- 8) The installation program will install the program on your C: drive unless you otherwise specify a location. To specify a location, click **Browse** and choose the desired destination folder.
- 9) When the folder has been specified, click **Next**.
- 10) Setup Status Screen will appear while setup is in process and InstallShield Wizard Complete will appear when setup is done. Click **Finish**.
- 11) The VSpin ActiveX has been installed in the folder you specified. You are now ready to run the VSpin ActiveX from your computer.

### Running the VSpin ActiveX

To run the VSpin ActiveX and to access the control screen diagnostics dialog:

- 1) Go to Start\Programs\Velocity11\VSpin 3 ActiveX\VSpin Test Container (see Figure 2).

**Figure 2**

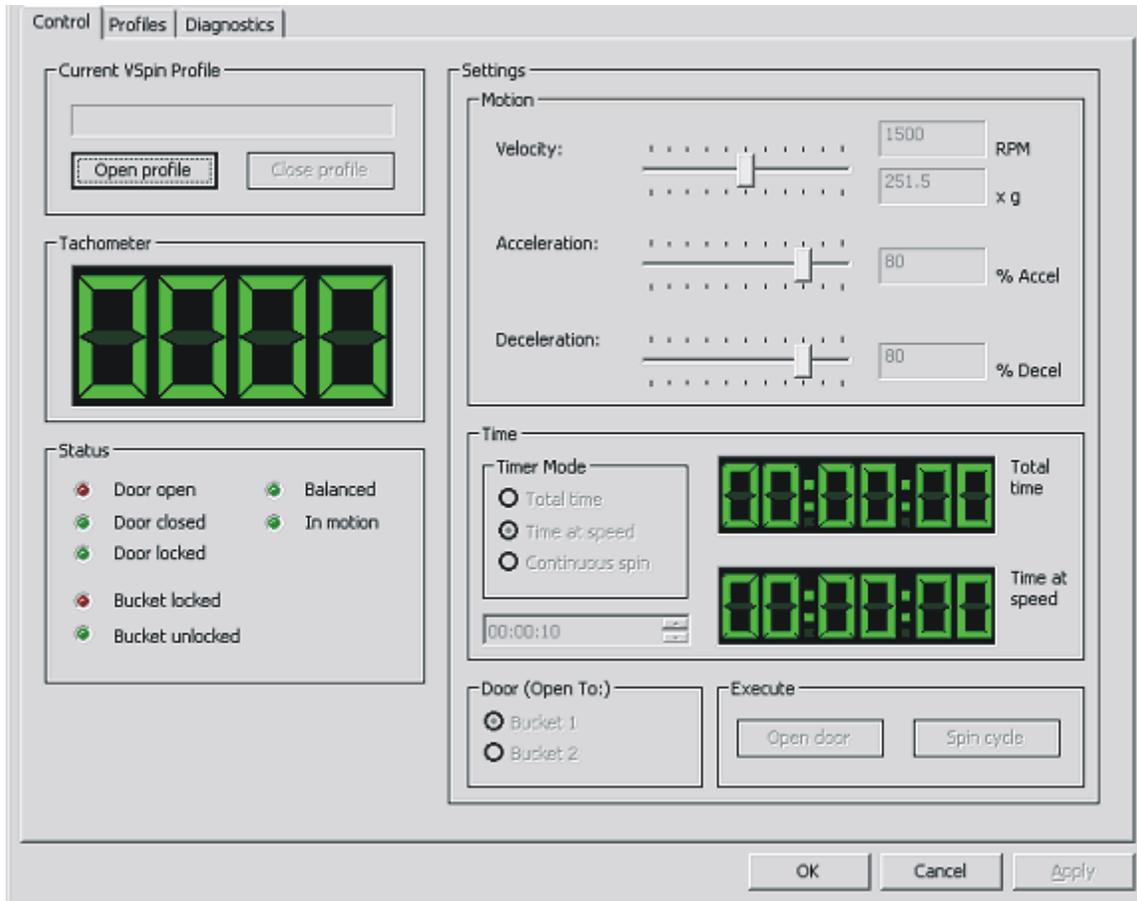


- 2) Click **OK**.
- 3) The VSpin control screen will appear.

# Chapter 4: Control Screen & Diagnostics

## Control Screen

Figure 3



When the software is run, the VSpin **Control** screen appears (see Figure 3). Please note the following controls:

### Current VSpin Profile

<b>Open Profile</b>	Opens a VSpin Profile on which to operate
<b>Close Profile</b>	Closes the currently open VSpin Profile

**Tachometer**

<b>Tachometer Display</b>	Displays the current speed of the VSpin in revolutions per minute.
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**Status**

<b>Status Display</b>	Indicates the following possible statuses: door open, door closed, door locked, bucket locked, bucket unlocked, rotor balanced, rotor in motion, and amplifier enabled.
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**Motion Settings**

<b>Velocity</b>	The velocity at which the next spin command should cruise.
<b>Acceleration</b>	The acceleration at which the next spin command should accelerate expressed as a percentage of maximum possible acceleration.
<b>Deceleration</b>	The deceleration at which the next spin command should decelerate expressed as a percentage of maximum possible deceleration.

**Time Settings**

<b>Timer Mode Settings: Total Time</b>	Sets the next spin command to spin for a specified amount of time. Time includes acceleration and deceleration time.
<b>Timer Mode Settings: Time at Speed</b>	Sets the next spin command to spin for a specified amount of time.
<b>Time Mode Settings: Continuous Spin</b>	Sets the next spin command to spin until told to stop.
<b>Time Setting</b>	Amount of time for total time and time at speed modes.
<b>Total Time Display</b>	The total time that elapsed/has elapsed during the previous/current spin.
<b>Time at Speed Display</b>	The duration of the previous/current spin spent cruising at the desired velocity.

**Door (Open To:)**

<b>Door Settings: Bucket 1</b>	The next open door or spin command should present bucket 1 upon completing.
<b>Door Settings: Bucket 2</b>	The next open door or spin command should present bucket 2 upon completing.

**Execute**

<b>Execute: Open Door</b>	Commands the VSpin to open the door to the desired bucket.
<b>Execute: Spin Cycle</b>	Commands the VSpin to spin using the settings specified in the control panel.

**Profiles Screen**

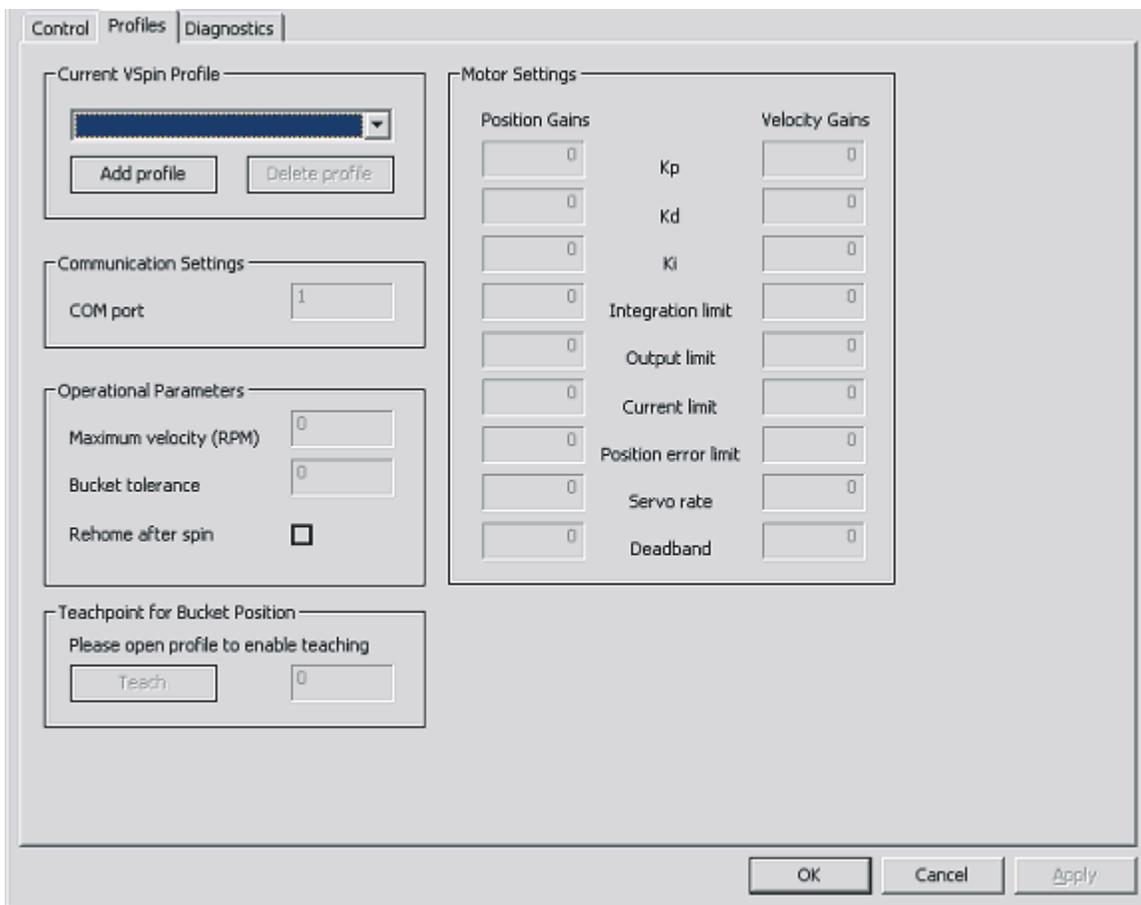
A profile is a specific set of parameters configurable for each VSpin. The **Profiles** screen allows you to set the parameters for each of your VSpins.

From the **Control** screen, click on the **Profiles** tab to go to the **Profiles** screen (see Figure 4).



**NOTE** *Be sure to click **Apply** to save the changes you want to take effect.*

**Figure 4**



**Current VSpin Profile**

<b>Add Profile</b>	Creates a VSpin profile
<b>Delete Profile</b>	Deletes a VSpin profile

**Communication Settings**

<b>COM Port</b>	Designates the COM port through which the current VSpin profile should access the VSpin
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**Operational Parameters**

<b>Maximum Velocity (RPM)</b>	Designates the maximum velocity that the VSpin can reach in revolutions per minute
<b>Bucket tolerance</b>	The margin of error allowed in positioning the bucket at the teachpoint. Each unit of error represents $\sim 0.05^\circ$
<b>Rehome after spin</b>	Check this box to rehome the VSpin after spin cycles.

**Teachpoint for Bucket Position**

<b>Teach</b>	Click this button to open the <b>Teach Bucket Position</b> dialog box, see Figure 6. Current teachpoint is displayed.
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**Motor Settings**

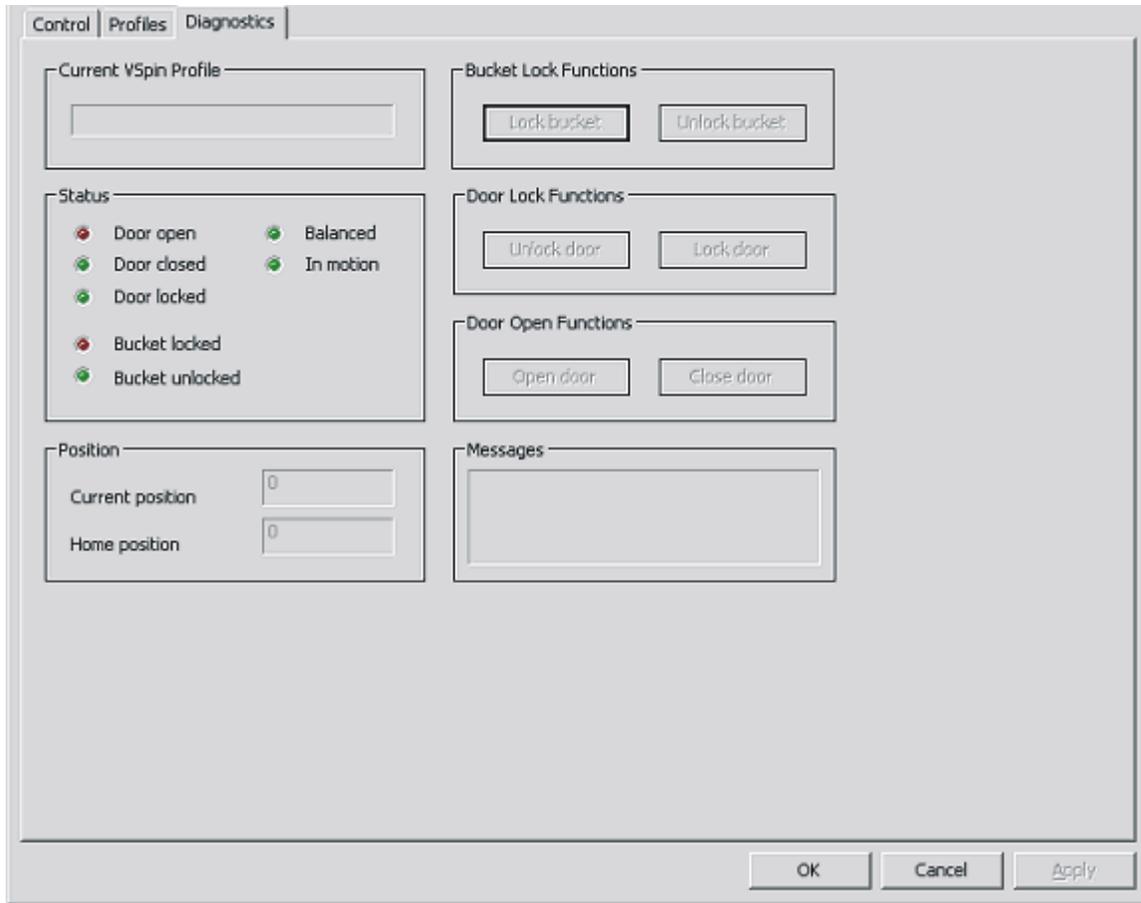
**Motor Settings** set the control values for the servo motor. These values must not be changed by the end user.

	<b>CAUTION</b>	<p><b>Do not change the motor settings.</b></p> <p><b>Parameters may only be changed by a Velocity11 service technician.</b></p>
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## Diagnostics Screen

Click on the **Diagnostics** tab in the **Control** screen to take you to the **Diagnostics** screen (see Figure 5).

Figure 5



### Current VSpin Profile

Displays the name of the VSpin profile currently running.

### Status LEDs

Refer to these status LEDs to determine the current status of the VSpin.

### Position

<b>Current Position</b>	Current position of the rotor.
<b>Home Position</b>	Current home position for the rotor.

### Bucket Lock Functions

Click **Lock bucket** to lock the bucket. Click **Unlock bucket** to unlock the bucket.

### Door Lock Functions

Click **Unlock door** to unlock the door. Click **Lock door** to lock the door.

### **Door Open Functions**

Click **Open door** to open the door. Click **Close door** to close the door.

### **Messages**

Displays messages if any of the bucket lock, door lock, and door open function fail.

## Teaching Bucket Position for a Profile

- 1) Install and run VSpin ActiveX. The VSpin **Control** screen will appear (see Figure 3).
- 2) Click on **Open Profile** to open the profile for which you wish to teach the bucket position.
- 3) Click on the **Profile** tab. The **Profile** screen will appear (see Figure 5).
- 4) Click on **Teach**. The **Teach** screen will appear (see Figure 6).
- 5) Shut off air to the VSpin.
- 6) Manually rotate the rotor so that the bucket aligns with the door.
- 7) Insert robot end effector into the VSpin so that the end effector is centered within the VSpin's door. The end effector must be inserted far enough that when the rotor is rotated, the buckets contact the end effector. Robot must be centered in the theta direction.
- 8) Manually rotate the rotor slightly so that the left side of the bucket lightly touches the end effector.
- 9) Under Calibration, click **Capture 1**.
- 10) Rotate the rotor slightly so that the right side of the bucket lightly touches the end effector.
- 11) Under Calibration, click **Capture 2**.
- 12) Turn on air to the VSpin.
- 13) A new teachpoint will be automatically calculated.
- 14) Click **OK**.
- 15) The new teachpoint will appear in the **Profile** screen.
- 16) Click **Apply** to save changes to the profile.

Figure 6

Field/Label	Value
Current position	8000
Capture 1	0
Capture 2	0
Capture average	0
Home position	1
Teachpoint	0

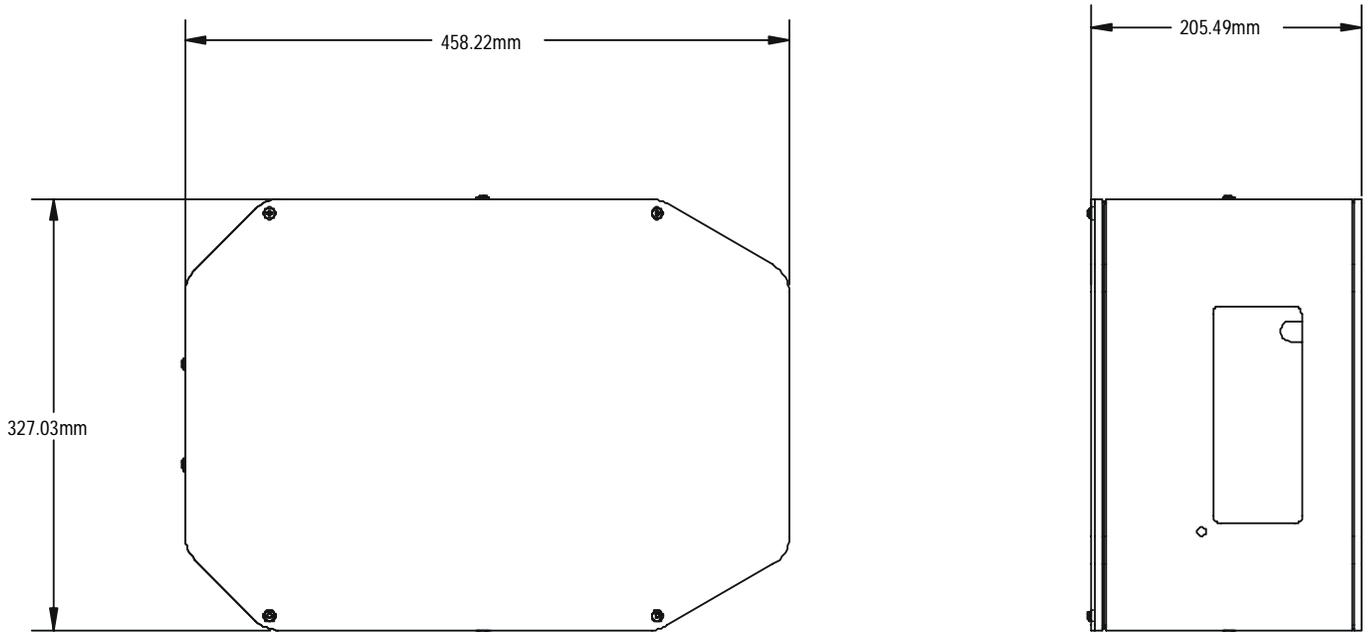


# Chapter 5: Mechanical Interface

## Figures

In integrating the VSpin with your robot, please refer to the figures below for physical dimensions of the VSpin. For overall VSpin dimensions, see Figure 7.

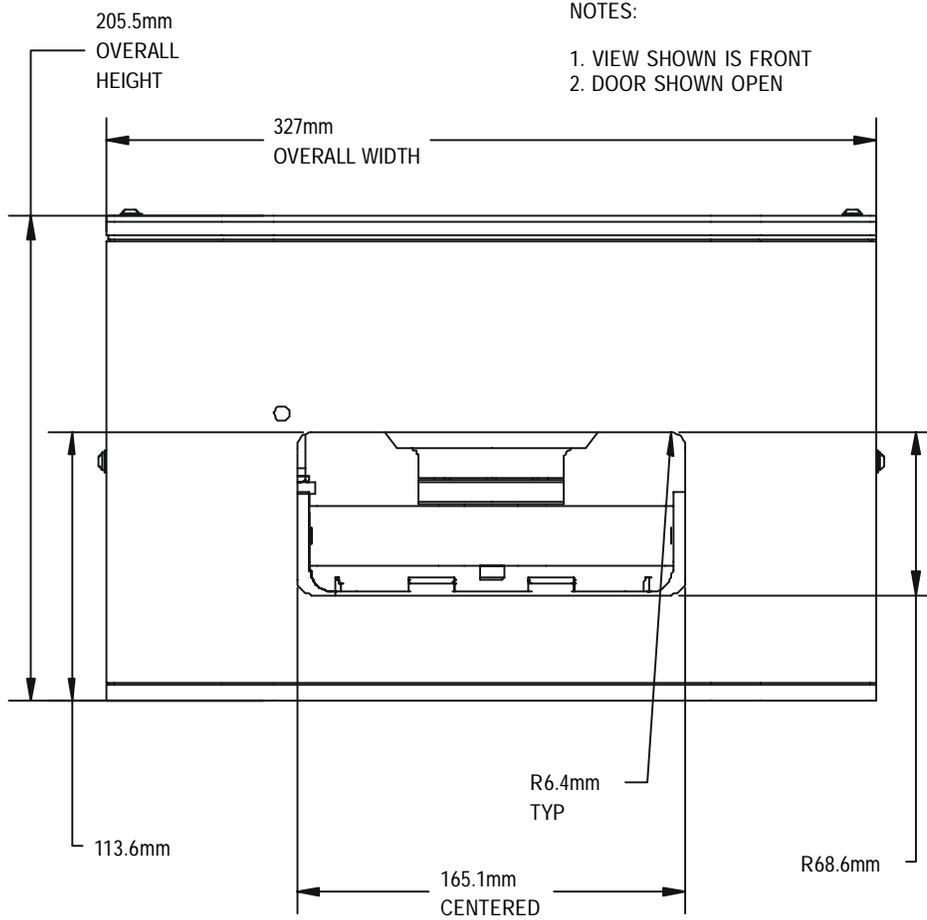
Figure 7



NOTES:

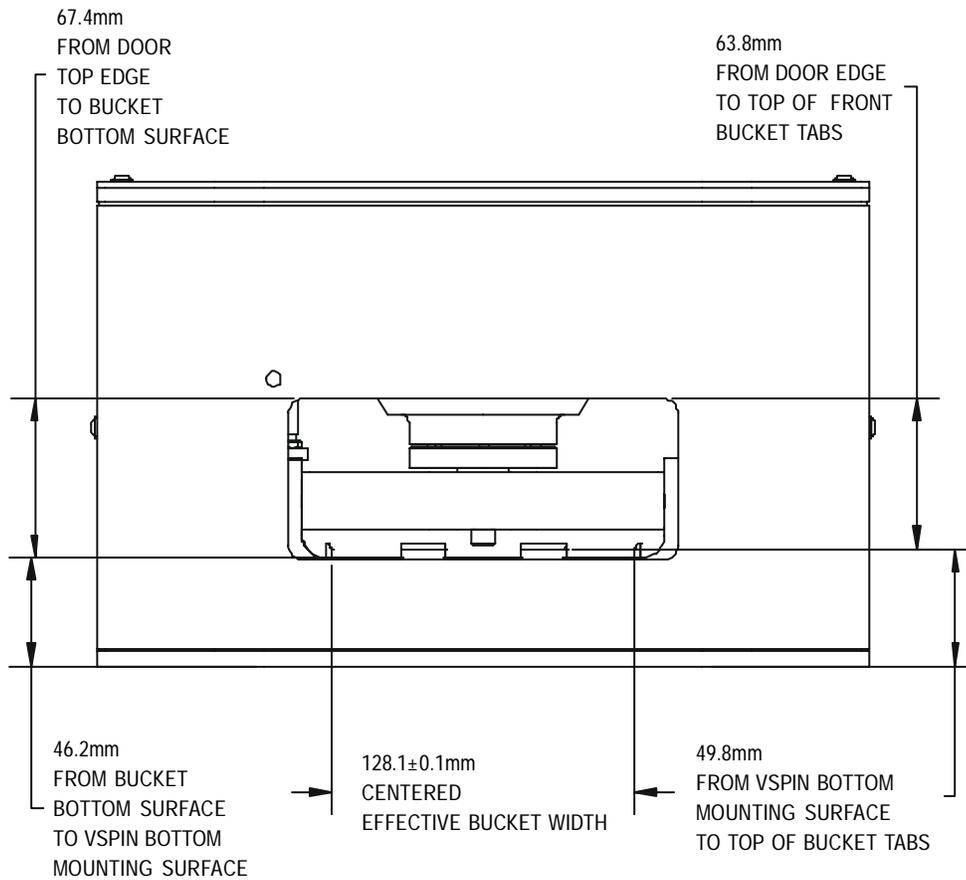
- 1. OVERALL WEIGHT: 57.5 LBS
- 2. SHOWN WITH DOOR CLOSED.

**Figure 8**



For VSpin door dimensions, see Figure 8 above.

**Figure 9**

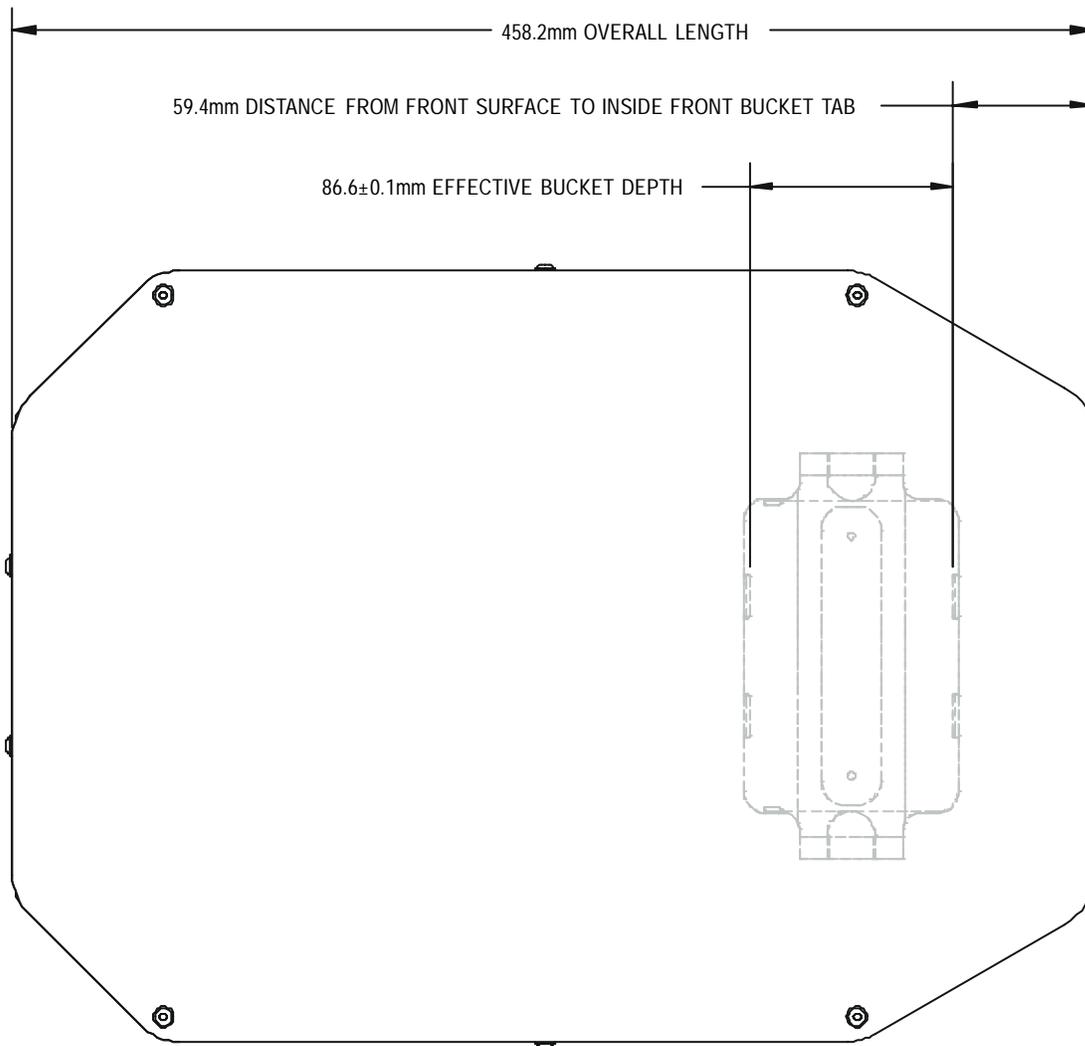


NOTES:

1. VIEW SHOWN IS FRONT
2. DOOR SHOWN OPEN

For VSpin plate entry dimensions, see Figure 9 above.

**Figure 10**

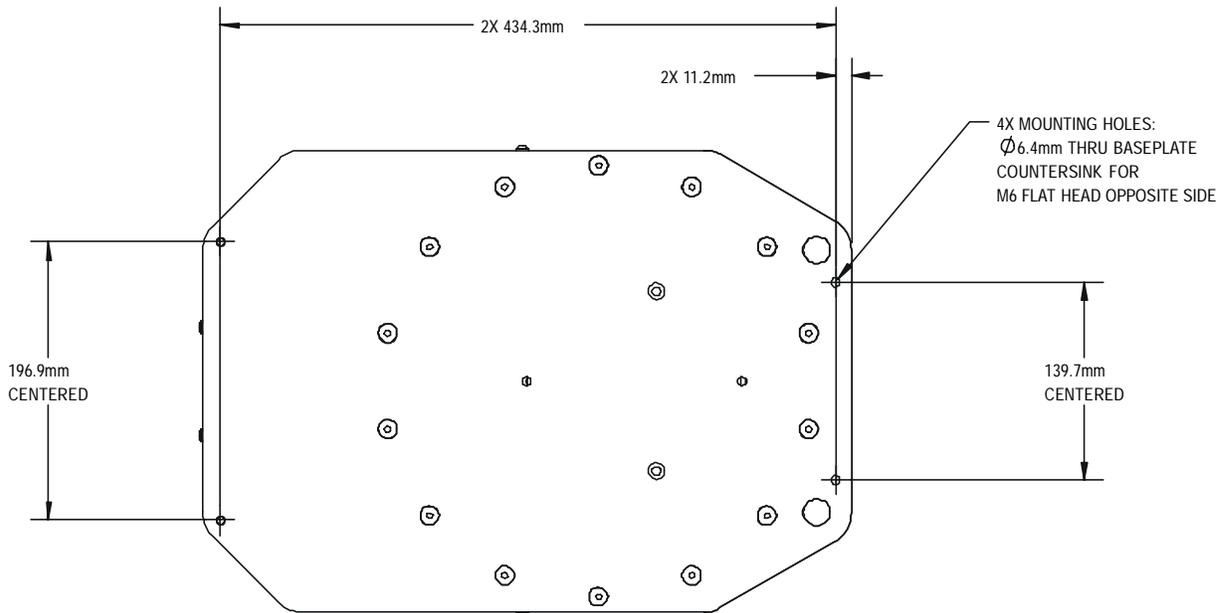


NOTES:

1. VIEW SHOWN IS TOP
2. VIEW SHOWN WITH BUCKET IN LOAD/UNLOAD POSITION

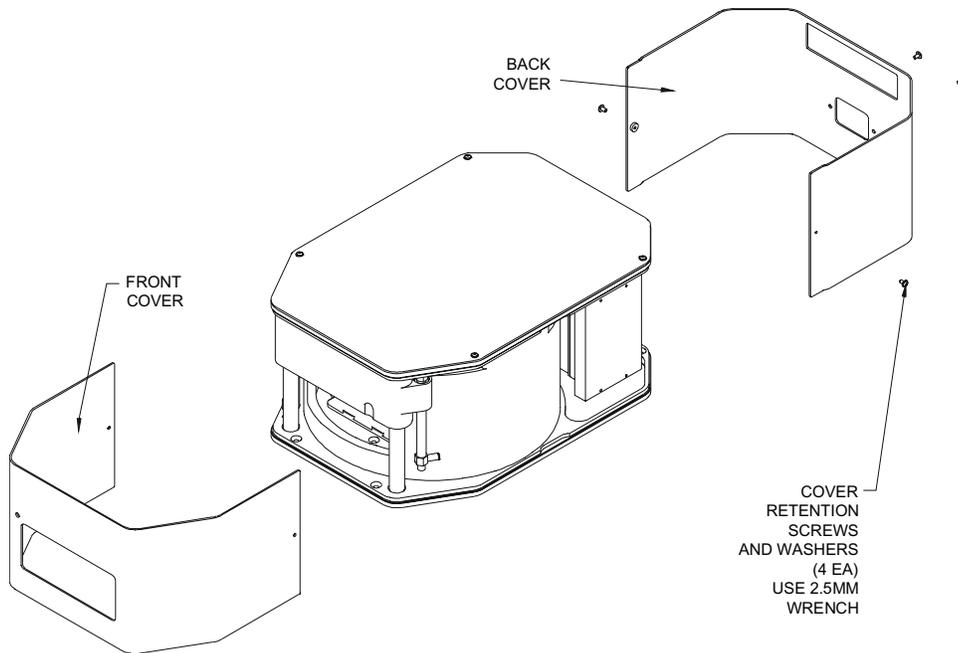
For VSpin bucket position, see Figure 10 above.

Figure 11



For VSpin bottom mounting pattern, see Figure 11.

Figure 12



For removing the covers to access the four mounting screws, see Figure 12.



# Chapter 6: Maintenance

## Cleaning

The figures in this chapter outline how to open the VSpin for cleaning, inspection, and non-regular maintenance (see ), and how to unlock the VSpin's door (see Figure 13).

For cleaning the VSpin, use soap, a mild detergent, or organic solvents. Velocity11 recommends using a damp cloth to wipe off inner shield surfaces, rotor, and buckets. Buckets may be removed for thorough cleaning and inspection, but relubrication will be necessary upon reinstallation.

Do not let liquids contact the electronic or electrical components. Avoid liquids contacting mechanical components inside the motor assembly and spindle support assembly as trapped liquids may cause corrosion.



### CAUTION

**Do not use harsh abrasives, corrosive cleaning agents, or metal brushes to clean any VSpin components or accessories. Do not use bleach or any concentration of sodium hypochlorite. Do not allow cleaning agents to contact any electronic, electrical, or sensitive mechanical components (central motor, support springs, etc.).**



### WARNING

**Disconnect power, air, and COMM before performing any service to the VSpin.**

## Opening the VSpin's Door

The VSpin's door can be manually unlocked while the air supply is disconnected from the VSpin (see Figure 13). To open the door:

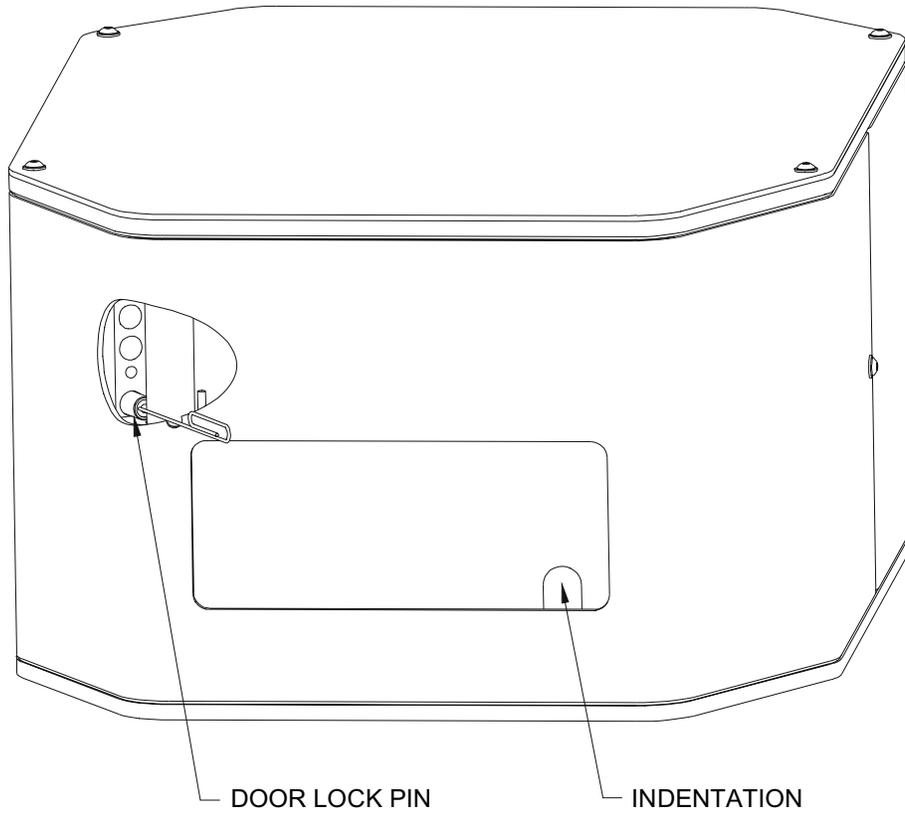
- 1) Use a small, thin tool to push against and fully retract the lock pin (an unfolded large paperclip is shown in the figure below) while pushing upward in the indentation in the door.
- 2) Once the door begins to open, the tool must be removed to continue opening the door.



### WARNING

**Do not attempt to manually unlock the door while the VSpin rotor is in motion. Doing so will disable the amplifier and cause the rotor to coast which may result in a dangerous condition.**

Figure 13



# Chapter 7: ActiveX

The VSpin's ActiveX control makes it easy to integrate the VSpin into Velocity11's BioCel® Series automated system or a custom laboratory system. This document provides information on how to use the VSpin's ActiveX control with your Visual C++ or Visual Basic application. **In all of the Visual Basic examples, assume that there is a VSpin control named VSpin1 on the current form. In all of the C++ examples, assume that there is a VSpin control named m\_VSpin in the current class. In all examples, "My Profile" is used as the profile name. As all profile names require a string of characters, Velocity11 recommends using the serial number of your VSpin for the profile name.**

## Properties

Properties can be thought of as variables whose value can be set or retrieved by the container application.

### ControlPicture

Description: Retrieves a picture of the VSpin bitmap that can be used in the container's application.

Example: In this example, we will paint the VSpin bitmap over a button.

Visual Basic	Visual C++
<pre> \ Assume that there is a button named \ Command1 on the current form. You \ must set the Style property of \ Command1 to "Graphical" Command1.Picture = VSpin1.ControlPicture           </pre>	<pre> /* The CPicture class will be imported    into your project when the ActiveX is    installed */  CButton button; // Create a button CPicture VSpinPic; VSpinPic = m_VSpin.GetControlPicture(); // Retrieve the picture button.SetBitmap((HBITMAP)     VSpinPic.GetHandle()); // Paint the //bitmap onto the button           </pre>

## Methods

Methods are essentially functions that can be called by the container application.

### Initialize(BSTR, profile\_name, SHORT block)

Description: Initializes the VSpin. **Initialize()** should typically be the first method called in an application, and only needs to be called once per VSpin in the system. After successful homing the **InitComplete** event is fired.

Parameters:

Type	Name	Range	Description
BSTR	profile_name		The VSpin Profile you would like to initialize.
SHORT	block	0,1	Whether to block during initialization. 0=non-blocking 1=blocking

Returns: None

Example:

Visual Basic	Visual C++
<pre>'Initialize to use profile "My Profile" VSpin1.Initialize "My Profile" 1</pre>	<pre>// Initialize to use blocking until // initialization is complete m_VSpin.Initialize("My Profile",1);</pre>

### Close

Description: Closes the serial port used by the VSpin. **Close** should always be called before exiting an application.

Parameters: None

Returns: None

Example:

Visual Basic	Visual C++
<pre>VSpin1.Initialize "My Profiile" 1 'Open control dialog VSpin1.ShowDiagsDialog 0 VSpin1.Close</pre>	<pre>// Initialize to use "My Profile" m_VSpin.Initialize("My Profile",1); // Show the main user dialog m_VSpin.ShowDiagsDialog(0); m_VSpin.Close();// Close the profile</pre>

### ShowDiagsDialog(LONG reserved)

Description: Displays the Diagnostics dialog.

Parameters: Type LONG, name reserved, range 0

Returns:

Example:

Visual Basic	Visual C++
<pre>VSpin1.Initialize "My Profile" 1 ' Open diagnostics dialog VSpin1.ShowDiagsDialog 0 VSpin1.Close</pre>	<pre>// Initialize to use profile m_VSpin.Initialize("My Profile",1); // Open diagnostics dialog m_VSpin.ShowDiagsDialog(0); m_VSpin.Close();// Close the profile</pre>

**SpinCycle(DOUBLE vel\_percent, DOUBLE accel\_percent, DOUBLE decel\_percent, SHORT timer\_mode, LONG time, SHORT bucket\_num)**

Description: Commands the VSpin to perform a spin cycle.

Parameters:

Type	Name	Range	Description
DOUBLE	vel_percent	0-100.0	what % of max velocity to run
DOUBLE	accel_percent	0-100.0	what % of max accel to run
DOUBLE	decel_percent	0-100.0	what % of max decel to run
SHORT	timer_mode	0-1	TIMER_MODE_TIME_TOTAL=0 The entire VSpin cycle will take <i>time</i> seconds TIMER_MODE_TIME_AT_SPEED=1 The VSpin will spend <i>time</i> seconds at full speed
LONG	time	1-2147483648	# of seconds to spin
SHORT	bucket_num	1-2	which bucket to present after spin cycle finishes

Returns: None

Example:

Visual Basic	Visual C++
<pre>VSpin1.Initialize "My Profile" 1 ` Open diagnostics dialog VSpin1.SpinCycle 55.0 60.0 90.0 1 10 1</pre>	<pre>// Initialize to use profile "My Profile" m_VSpin.Initialize("My Profile" ,1); // *Spin rotor #1 at 55% velocity, 60% //accel, 90% braking for 10 //seconds at desired speed. Present bucket // 1 upon completion m_VSpin.SpinCycle(55.0,60.0,90.0,1,10,1);</pre>

**SetErrorLevel (SHORT error\_level)**

Description: Sets up the level of error reporting. Default is full error reporting or ERROR\_HIGH

Parameters:

Returns: None

Type	Name	Range	Description
SHORT	error_level	0-2	ERROR_HIGH=0 ERROR_MED=1 ERROR_LOW=2

Example:

Visual Basic	Visual C++
<pre>VSpin1.Initialize "My Profile" 1 'Set high level error reporting VSpin1.SetErrorLevel 0 VSpin1.Close</pre>	<pre>m_VSpin.Initialize("My Profile",1); //Set high level error reporting m_VSpin.SetErrorLevel(0); m_VSpin.Close();</pre>

**OpenDoor (SHORT bucket\_num, SHORT block)**

Description: Opens the door to bucket\_num. After successful opening, the OpenDoorComplete event is fired.

Parameters:

Type	Name	Range	Description
SHORT	bucket_num	1-2	which bucket will be presented
SHORT	block	0,1	whether function blocks 0=non-blocking 1=blocking

Returns: None

Example:

Visual Basic	Visual C++
<pre>VSpin1.Initialize "My Profile" 1 'Open door and present 'bucket 1 VSpin1.OpenDoor 1 1 VSpin1.Close</pre>	<pre>// Initialize to use profile " m_VSpin.Initialize("My Profile" ,1); // block here until bucket 1 of VSpin 1 is // ready m_VSpin.OpenDoor(1, 1); m_VSpin.Close();// Close the profile</pre>

## Events

Events are fired asynchronously by ActiveXes to notify the container that a procedure has finished or an error has occurred. Consult Microsoft's ActiveX documentation on how to handle events in your Visual C++ or Visual Basic code.

- `Error` (SHORT "My Profile" Number, BSTR FAR\* Description, SCODE Scode, LPCTSTR Source, LPCTSTR HelpFile, long HelpContext, BOOL FAR\* CancelDisplay)—The stock Error event. See Microsoft documentation for explanation of function arguments.
- `InitializeComplete` (LONG reserved)—Called when VSpin is done with its initialization.
- `OpenDoorComplete` (LONG reserved)—Called when Vspin is done opening the door.
- `SpinCycleComplete` (LONG reserved)—Called when VSpin is done with its spin cycle.



# Appendix A

## Velocity11's Product Warranty

Velocity11, a California corporation with its principal place of business at 435 Acacia Avenue, Palo Alto, California 94306 ("Velocity11") is the obligor of this service contract ("Contract").

This Contract sets forth the terms and conditions under which Velocity11 will provide Support Services (as defined below) for its Products covered under the Product Warranty guidelines.

### 1. DEFINITIONS

- 1.1 "Support Services" means the support and/or services that are available from Velocity11, as further described in Exhibit A, may be amended from time to time.

### 2. COVERAGE

Velocity11 will provide the Support Services set forth in Exhibit A and pursuant to the terms and conditions of this Contract for one year after the purchase date of the product.

Within 30 days prior to the expiration date of the Product Warranty or Support Services contract, Velocity11 will offer the Customer the option of purchasing additional coverage based on the current Support Services rates at that time.

### 3. SUPPORT SERVICES

- 3.1 In order for Customer to receive the Support Services described in Exhibit A, Customer must:

- (a) Initiate a service request by contacting Velocity 11 at (650) 846-6500.
  - (b) Provide the serial number of the Product, a description of the problem and the current version of the control software.
  - (c) Provide a detailed description of the type of error, a description the specific error message and when it occurs, the activity or use of the Product when the error occurred and remedial measures taken by the Customer to correct the error.
  - (d) Follow procedures and recommendations provided by the Velocity11 technician in an effort to correct problems via telephone. (VELOCITY11 WILL NOT DISPATCH A SERVICE TECHNICIAN TO PERFORM ON-SITE REPAIRS UNTIL THE TELEPHONE-BASED TROUBLESHOOTING PROCESS HAS BEEN EXHAUSTED)
  - (e) Subject to Customer's applicable security requirements, provide Velocity11 with access to and use of all information and Product facilities, including working space, electricity and a local telephone line, necessary for Velocity11 to provide timely Support Services pursuant to this Contract.
  - (f) To the best of its abilities, read, comprehend and follow operating instructions and procedures as specified in, but not limited to, Velocity11 documentation and other correspondence related to the products.
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- 3.2 Velocity11 shall have no obligation to support:
- (a) altered or damaged Products;
  - (b) any version of the Products other than the current version of the product, unless otherwise covered under an existing service contract or agreement;
  - (c) any Product with software that has been modified or is out-of -date, without the written approval and authorization of Velocity11;
  - (d) Product problems caused by Customer's negligence; Customer abuse or misapplication, including but not limited to use of incorrect voltages, use of incorrect fuses, use of incompatible devices or accessories and improper or insufficient ventilation; use of inadequate air or vacuum supplies; use of Product other than as specified in the user manual; or other causes beyond the reasonable control of Velocity11, including but not limited to an act of God such as lightning, floods, tornado or earthquake;
  - (e) Products installed on any hardware, operating Product version or network environment that is not supported by Velocity11;
  - (f) Products sold or transferred by the Customer to another entity.

#### **4. FEE SCHEDULE**

Customer shall pay the annual fees for Support Services for the initial term of this Contract within thirty (30) days of the Effective Date. Thereafter, (unless Support Services are not renewed) Customer shall pay annual Support Services within 30 days of the commencement of the then-current term for such Support Services.

#### **5. TERM AND TERMINATION**

- 5.1 The initial term of this Contract is one (1) year from the Effective Date of this Contract unless earlier terminated in accordance with this Contract. The Customer will be notified within thirty (30) days prior to the expiration date of the Product Warranty or Support Services contract and will have the option of purchasing additional coverage based on the current Support Services rates at that time.
- 5.2 Velocity11 may suspend or terminate Support Services if Customer fails to timely pay Support Service fees as provided in this Contract. Velocity11 may also terminate Support Services if Customer breaches any provision of this Contract and such breach is not remedied within thirty (30) days after Customer receives written notice of the breach. Velocity11 shall also have the right not to renew this Contract with respect to any Product by providing written notice of such election at least ninety (90) days prior to the termination of Support Services for such Product, provided that Velocity11 no longer generally provides Support Services for such Licensed Product, or no longer provides the specific Support Services previously offered.
- 5.3 Customer may terminate this Contract if Velocity11 materially breaches its obligations under this Contract. If Customer terminates this Contract due to a material breach on the part of Velocity11, Velocity11 will refund the support fees for the then current term paid by Customer under the Contract, from the date of termination prorated to the end of the then current term.

**6. REINSTATEMENT OR RENEWAL OF SUPPORT SERVICES**

In the event Customer fails to timely renew Support Services under this Contract, Support Services shall be discontinued at the end of the then-current term. If Support Services are terminated for any reason, at Velocity11's sole option, Customer may be permitted to reinstate or renew Support Services by paying Velocity11 applicable Support Services fees.

**7. LIMITED WARRANTY**

Velocity11 warrants that Support Services will be performed with the same degree of skill and professionalism as is demonstrated by like professionals performing services of a similar nature.

**8. LIMITATION OF LIABILITY**

8.1 Direct Damages. VELOCITY11'S SOLE LIABILITY AND CUSTOMER'S EXCLUSIVE REMEDY FOR DAMAGES WITH RESPECT TO THE SUPPORT SERVICES UNDER ANY CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHER THEORY, SHALL BE LIMITED TO THE AMOUNT PAID BY CUSTOMER FOR THE SUPPORT SERVICES.

8.2 Consequential Damages. UNDER NO CIRCUMSTANCES, INCLUDING NEGLIGENCE, SHALL VELOCITY11 BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF DATA, OR COSTS OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, ARISING IN ANY WAY OUT OF THIS CONTRACT OR THE USE OF THE LICENSED PRODUCT, DESIGN TECHNIQUES AND DOCUMENTATION.

**9. ENTIRE CONTRACT**

This Contract and the attached Exhibit constitute the entire Contract between the parties regarding Support Services and supersede all previous Contracts or representations, oral or written, regarding the subject matter. This Contract may not be modified or amended except in a writing signed by a duly authorized representative of each party. Both parties acknowledge having read the terms and conditions set forth in this Contract and Exhibits attached hereto, understand all terms and conditions, and agree to be bound thereby.

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**EXHIBIT A****SUPPORT SERVICES  
VELOCITY11'S STANDARD WARRANTY**

The Standard Warranty, effective for one full year upon purchase date, covers all parts and labor costs necessary to repair your covered product due to all functional part failures as reasonably considered under this contract. If the technician cannot correct the Product problem over the telephone at the initiation of a service request, then the technician will follow the procedures outlined for the Support Services, described in this Agreement.

Non-shippable Products: a service technician will be dispatched the next business day, excluding holidays, to repair the Product(s). Regular holidays shall include New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the day after Thanksgiving, and Christmas Day, unless Velocity11 determines otherwise and notifies Customer with 30-day advance notice.

Shippable Products: Product(s) must be shipped directly to Velocity11 to be repaired. A replacement unit may be shipped to the Customer until the Product is repaired.

On-Site Service. On-site service is available for Customer Products within the United States. The technician will need to have the full address of Customer Products' location. A service technician will be dispatched to Customer's location to service Customer's Product. The Services provided under this Agreement are repair services that are necessary because of any defect that exists or occurs in materials or workmanship in the Products or in any Product component covered by this Agreement. The Standard Warranty does **not** include preventive maintenance, installation, deinstallation, relocation services or operating supplies. If Customer or Customer's authorized representative are not at the location when the service technician arrives, Velocity11 will no longer be obligated to provide services under this Agreement for the Product that requires service on such visit. The service technician will leave a notice with the time of arrival as proof of arrival. Consequently, you may be charged an additional fee for a second service call to repair your instruments.

Service Area. This Agreement applies only to Products located in the United States. In addition, Velocity11 may invoice Customer an additional charge for service in certain remote areas of the United States. Velocity11 will notify Customer if Customer Products are in an area where Velocity11 cannot offer on-site service. If Customer relocates its Product(s) to a geographic location in which the Standard Warranty service is not available, Customer may incur an additional charge to maintain the same categories of service coverage at the new location. If Customer chooses not to pay such additional charge, Customer service may be automatically changed to categories of service that are available in such new location with no refund available.

For purposes of the Standard Service, all references to time will mean the Customer's local time. References to the United States include the continental United States, Alaska, Hawaii and Puerto Rico.

Whole Unit Replacement. If the telephone technician determines that the defective unit is one that is easily disconnected and reconnected, or if the technician determines that Customer Product is one that should be replaced as a whole unit, Velocity11 reserves the right to request that the defective unit be shipped to Velocity11 for repairs. Under the Standard Warranty, Velocity11 will repair the unit, and ship it back to Customer.

Parts Ownership. All service parts removed from Customer Product(s) become Velocity11 property. Customer must pay the current retail price(s) for any service parts removed from Customer Product(s) and retained by Customer.