



Pickleball Training Machine

User Manual



TABLE OF CONTENTS

Important Notes and Tips	5
Using the ERNE App	6
Downloading and Installation	
ERNE Application Updates	
Basic usage and Controls	
Default Drills Table	
ERNE Usage Tips	9
Travel vs Training Mode	
Various ERNE Court Placements	
AC Transformer vs Battery	
Lifting and Moving ERNE	
ERNE Specifications	
Usage Notes	
Quick Start	13
Unboxing ERNE	
Unboxing Steps	
Unboxing Video	
Included Materials and Accessories	
Checking ERNE for Shipping Damage	
Setting Up ERNE	17
Power Controls	
Charging the Battery Considerations	
Checking ERNE for Mechanical/Electrical Damage	
Agitator Installation	

TABLE OF CONTENTS

Standard Drills and Settings	21
Drill and sub-Drill Navigation	
Parameter Relationships	
Adjusting the Parameters	
ERNE's Court Position	
Fixed	
Cross	
Horizontal	
Vertical	
Volley	
Smash	
Random	
Program	
Other Resources	34
Website	
Social Media (Facebook, Instagram, Youtube, LinkedIn)	
eMail Addresses	
Important Links	
Business Address	
Maintenance	35
Bolt Locations and Sizes	
Removing the ERNE Base	
Replacing the Wheels	
Replacing the Battery	
Removing the Yoke Restriction Bolt	
Linking the Remote Control	
Installing the Agitator	

TABLE OF CONTENTS

Accessories	38
Transformer	
Wheels	
Battery	
Remote Control	
Agitator	
Sound Dampening Balls	
Custom Drills and Settings	39
Drill Grid	
Cross Court Dinking	
Drives	
Drops	
Various Drills (12 Total Drills)	
Training Tools	44
Targets	
Ball Picker Uppers	
Ball Control and Capture	
Tables for Enhanced Drilling	
Endorsed for ERNE Use	48
Pickleballs	
Cleaning Materials	
Ball Bags	

IMPORTANT NOTES and TIPS

-  **Make SURE** you remove all packing material from ERNE, this includes foam protectors in the front opening, this is a critical step otherwise you could damage the machine when you start him up,
-  Always make sure ERNE is fully charged when starting a training session,
-  Never let ERNE get wet and never use wet or dirty Pickleballs for training,
-  Save all of ERNE's packing material and shipping box, we can't accept ERNE for warranty work or returns when not shipped in the original packaging,
-  Always turn ERNE off when charging, this is done by placing the power switch on the back of ERNE in the middle position,
-  Always tilt ERNE back on the wheels when moving or relocating, do not drag ERNE or you could damage his front legs,
-  Make sure to install the ERNE ball agitator which is included in the box, we have an instructional video on our website and on our Youtube channel (see additional resources section at the end of this document),
-  **DO NOT** stand in front of or near the ERNE ball outlet, this is dangerous and could cause serious injury,
-  Promptly stop ERNE if a ball or any material gets into the opening and then remove the material carefully,
-  Always turn power off when when working on ERNE (replacing battery, throwing wheels, cleaning, etc.),
-  **NEVER** leave ERNE in your vehicle in the hot sun, this can damage the battery and even some of the internal electronics,
-  Use the provided remote control (or the phone app) to turn ERNE off when not in use, this will conserve battery power,
-  **ENJOY** using ERNE, he makes a fantastic training partner!

QUICK START

- A. Unbox ERNE. Save ALL packaging in case you have to ship back because we only accept ERNE when he is packed in his original packaging...
 -  Check for shipping damage (box, ERNE, yoke facing forward)
 -  Double Check that all packing material is remove from ERNE including the foam insert(s)
- B. Remove and reseal the hopper so it is in throwing configuration (as opposed to travel configuration)...
- C. Install the agitator...
- D. Install the mobile app...
- E. Turn ERNE on and then load the ERNE App (it should connect automatically) and press the CONNECT button on the top left hand corner of the screen...
- F. Select the CROSS drill and watch the yoke (contains throwing wheels inside ERNE), it should move slightly. Press CROSS a few more times and wait 2 seconds between each change - again, make sure the yoke is moving when you select the drill...
- G. Turn ERNE off (switch in middle position) and let charge for 12 hours (or more) the first time...
- H. After initially charging for 12 hours unplug the charger and ERNE should be ready to play some Pickleball!

ENJOY ERNE!

UNBOXING ERNE

Unboxing Steps:

1. Place ERNE Box in an open area,
2. Carefully cut the tape on both sides of the box,
3. Pull up on the lid and carefully cut down the middle,
4. Open all four parts of the lid,
5. Remove and papers and place to the side,
6. Remove the sheet of cardboard,
7. Remove the accessories from the Styrofoam and place on the side,
8. Remove the styrofoam and put out of the way,
9. Remove ERNE by bending your legs and grabbing under the front and back and lifting out of the styrofoam base,
10. Place ERNE on the ground,
11. Place the styrofoam back in the ERNE box.
12. Remove the plastic cover from ERNE,
13. Grab the front and back of the hopper and pull hard to remove from the ERNE base, traveling tends to make it a little difficult to remove,
14. Remove the styrofoam packing material and place in ERNE box,
15. Pull the telescopic handle up,
16. Slide the Hopper over the handle and fit it to the base,
17. Grab the handle and tilt ERNE backwards a few inches, now you can roll ERNE near an outlet for charging,



Unboxing Video:



Overview of Accessories:



- The Thank You! Card contains the QR code which will bring you to this user manual.
- Extra Bolts, washers and lock washers are in the baggie and can be used several places on the machine if required, keep them handy.
- The Agitator is used placed on the carousel to stir the balls in the hopper otherwise jams will occur and potentially damage ERNE, see the video link below for instructions on how-to install the agitator.
- 4mm Hex wrench used to install the Agitator
- Remote Control is used for on-court control of ERNE in terms of starting and stopping when training so you don't need your phone. *That said, you always have to START the drill using the mobile app, after that you can use the remote to pause (off)/start.*
- Warranty Card provides the QR code to scan and register your ERNE. To do the registration you'll need the serial number which can be found on the back of the machine (on the sticker) or in the top right corner of the app (when connected).

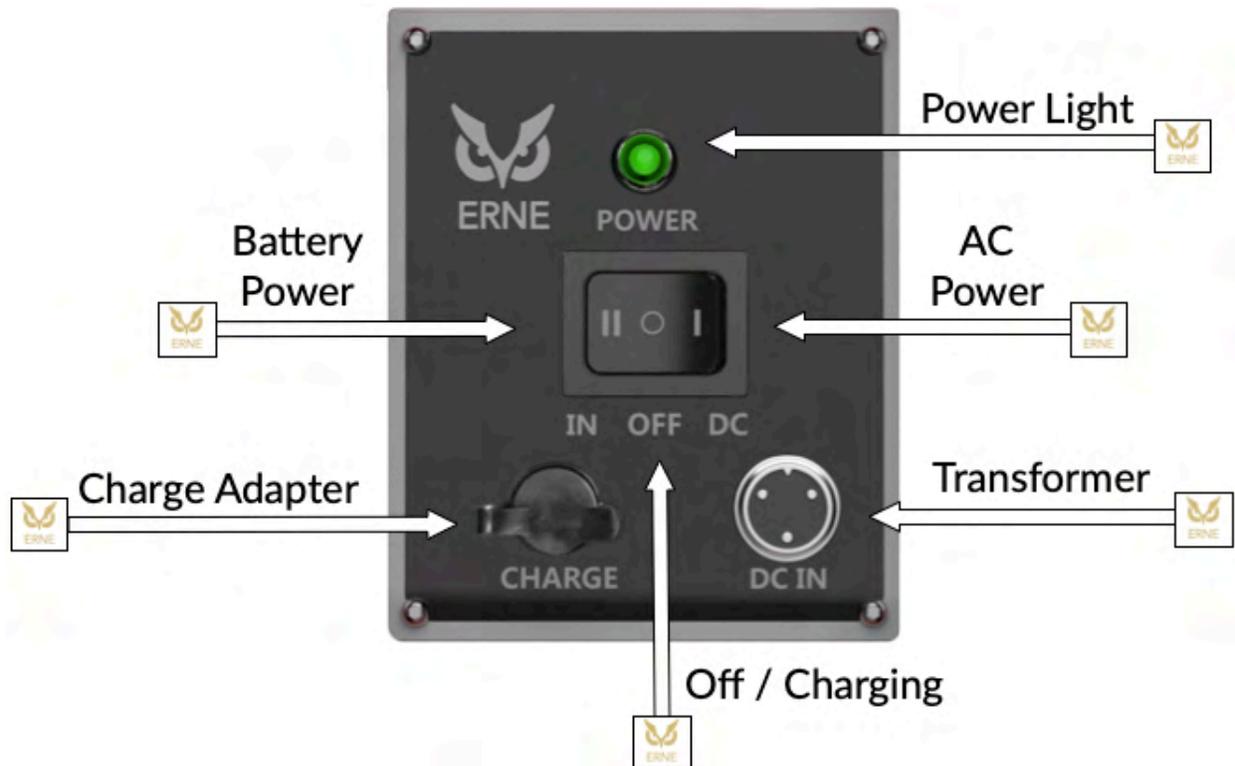
Checking ERNE for Shipping Damage:

1. Is the box badly damaged?
2. How does ERNE look out of the box once put together?
3. Is the Yoke (internal ball-throwing mechanism) pointing forward?

SETTING UP ERNE

Power Controls:

The power controls at the rear of ERNE support battery operations (switch to left), charging the battery (switch in middle position) and the AC transformer for using an outlet to power ERNE (switch to the right).



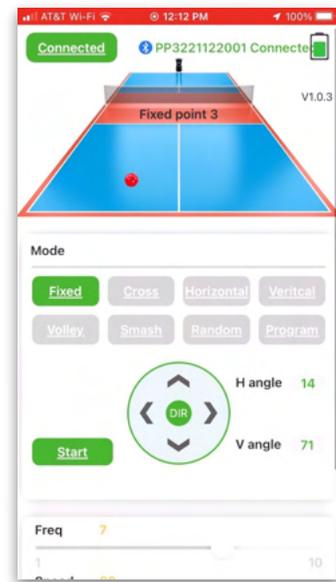
- **Power Light:** Indicates ERNE is turned on and ready for action.
- **Battery Power:** Moving the 3-way switch to the (Battery) left will turn ERNE on using the battery.
- **AC Power:** Moving the 3-Way switch to the (DC) right will turn ERNE on using AC/DC power transformer (optional).
- **Charge Adapter:** This is where the battery charger plug (barrel plug) is inserted, the power switch MUST be in the middle position for ERNE to charge.
- **Transformer:** This is where the AC transformer (XLR plug) is plugged into Erne, align the notch on the XLR plug and the notch on the ERNE plug, press plug into ERNE then screw the connector to ERNE using a clockwise motion.
- **Off / Charging:** This represents the middle position of the power switch, this is the position to turn ERNE off as well as allow ERNE to charge the battery.

Charging ERNE:

One of the first things you need to do after receiving ERNE is charge him to capacity, the first time may take 12 hours but it is recommended that you leave ERNE plugged in when not in use. ERNE has a trickle charge circuit that will keep the battery “topped off” without causing heating or other problems.

ERNE is simple to charge and keep charged, simply plug one end of the charger into the wall and the other end into the Charge plug on Erne (see previous page). Make sure the 3-way power control is in the middle position so that the charging circuit can be engaged. ERNE cannot be charged while in use.

To check the battery status and current charge level you can load the ERNE App on your mobile device and connect to ERNE (see section 6 for detailed instructions), once connected the top right corner of the screen will indicate ERNE’s current charge level, see image:



Battery Considerations:

- You cannot overcharge ERNE, keeping him plugged in when not in use will make sure the battery stays healthy,
- If ERNE’s charge level fall below 60% he may become a little erratic throwing balls into the net, positioning the balls correctly on the court, etc.
- The charging adapter has a red-light that indicates charging is active, when it turns green ERNE should be fully charged however if ERNE is near or below 50% the adapter could represent erroneously that ERNE is fully charged. In this case ignore the light and allow ERNE to charge for at least a full 12 hours.
- The battery can be replaced by removing the hopper, the handle and the base exposing the internal battery. Unplug the battery cables (two of them), remove the bracket retaining bolts and move the bracket so that the battery can be easily removed. Once removed a new battery can be installed and ERNE can be put back together for charging and or use. See the maintenance section for more detailed instructions with images.

Checking ERNE for Electrical and Mechanical Damage:

The following procedures represent a simple way to verify that ERNE wasn't badly damaged during shipping. These procedures should be followed after ERNE is unpacked, setup and charging. You should NOT have any Pickleballs in the hopper while executing these procedures. If any of these steps fail then immediately turn off ERNE (power switch in middle position) and contact Victory Sports Technologies at support@victorysportstechnologies.com and let us know what happened.

1. Turn ERNE on by moving the 3-way switch to the left (IN),
2. ERNE should almost immediately go thru his startup procedure which includes:
 - The yoke will move slightly up, down, right and left before stopping at the Home position,
 - The wheels should start spinning
 - The power light should be illuminated,
 - Load the app on your mobile device (see page 16 for instructions),
3. It should connect to ERNE automatically, if it doesn't then select the DISCONNECTED button in the upper left hand corner of the mobile app,
4. Once connected we'll make sure the yoke is responding to the mobile app correctly:
 - Let's select a few drills that will cause ERNE's yoke to move, try the following drills with a 5 second (or so) delay between the selections, FIXED, SMASH, CROSS. Each one of these selections should adjust the yoke slightly indicating ERNE is recognizing the app,
 - Now select the FIXED drill then press the START button on the mobile app. Make Sure there are NO BALLS IN THE HOPPER!
 - The carousel should start to move periodically after several seconds.
5. Now let's check the remote control. ERNE should still be running with the carousel spinning periodically. Get the remote control and press the OFF button, ERNE should go into PAUSE mode with a beep sound which indicates the remote is working.
6. Turn ERNE off by moving the 3-way switch to the middle position (Off/Charge mode). Make sure to connect the charging adapter so that ERNE can continue charging.

If ERNE has passed all the above procedures you should be good to go after charging and completing the last step - Attaching the Agitator. If this is your first time charging ERNE make sure you keep him plugged in for 12 hours. We recommend you keep ERNE charging whenever you are not using him.

Installing the Agitator:

The Agitator is used to keep the balls from jamming in the hopper and carousel, it is installed in the middle of the carousel with two bolts that are already in the machine (bolts in the bag are extra). Following the steps below to install the Agitator, it will take about 2 minutes.

1. Remove the Agitator and the Allen (hex) wrench from the baggie of accessories that came with ERNE (see page 7),
2. Remove two bolts from the middle of the carousel opposite the 2 bolts sitting on the half-moon (see below),



3. Now fit the Agitator so that it is positioned to form a full circle from the half-moons,
4. Insert the two bolts thru the Agitator and into the threaded holes, now tighten the bolts (don't over tighten).



Here is a video that shows the process:



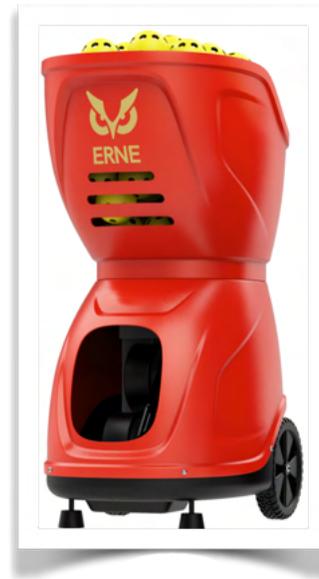
ERNE USAGE TIPS

Travel Versus Training Mode:

ERNE has two different modes of setup, once is travel mode where ERNE is compact and the other is training mode where ERNE is at his full size.



Travel Mode

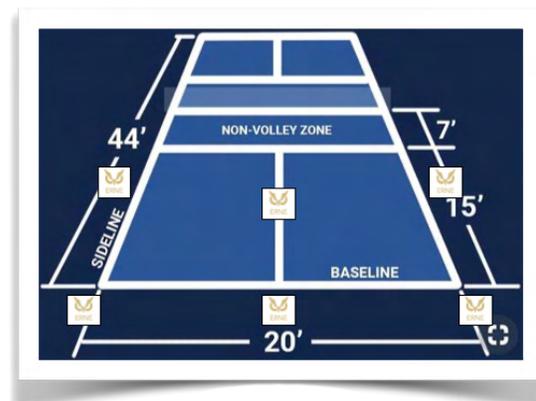


Training Mode

Various ERNE Court Placements:

ERNE can be placed anywhere on the court you just have to adjust the drill to make the shot(s) you want to use in training. Here are six typical positions for ERNE placement:

Note: You can angle ERNE as needed depending on where ERNE is located and the shot you are trying to get. All drills can be modified based on position of ERNE. By default the drills expect ERNE to be 1' from the T at the baseline.



AC Transformer versus Battery:

ERNE supports two different modes for receiving power, the first is the battery (which is installed in all ERNEs) and the second is the AC transformer which allows ERNE to be plugged into a typical wall outlet. The AC transformer is not included with ERNE and must be purchased separately from the website (see page 8 for more details on the power controls).



Power Control Panel



Battery Charger



AC Transformer

Lifting and Moving ERNE:

ERNE is heavy, ~50 pounds so lifting can be difficult. Make sure you always bend your knees when attempting to lift ERNE. The best way to lift ERNE is with one hand underneath to front and the other hand underneath the back.

- DO NOT use the handle to lift ERNE,
- DO NOT use the Yoke opening (front of ERNE) to lift ERNE,
- ONLY lift ERNE with you hands under the front and back or under both sides, you want to grab the base of ERNE when lifting.

Moving ERNE is simple, extend the handle by pushing on the center button and extending the handle all the way up, it will lock in place. Once the handle is extended you place your foot behind one of the the wheels, tilt ERNE back and drive him where he needs to go. The wheels were made to go over rough terrain and not just the court. ERNE will easily move through the grass, dirt, gravel and other substrates without difficulty. Try to keep ERNE steady without too much in the way of bumps, as an electro-mechanical device it is possible to cause damage so be careful!

- DO NOT bounce ERNE too much as this can cause problems,
- DO NOT drag ERNE instead always use the handle and tilt ERNE backwards before moving,
- DO NOT bounce ERNE up and down steps, take it very slow.



ERNE is Ready to Travel

ERNE Specifications:

FEATURE	ERNE
Speed Range (mph)	10 - 65
Ball Capacity	150
Interval (seconds)	.80 - 10
Sweep Oscillation	<input checked="" type="checkbox"/>
Elevation Oscillation	<input checked="" type="checkbox"/>
Simultaneous Oscillation	<input checked="" type="checkbox"/>
Stealthy Operation	<input checked="" type="checkbox"/>
Spin (Top, Back, Flat)	<input checked="" type="checkbox"/>
Battery Life (hours)	4 - 8
Weight (lbs)	50
Remote Control	<input checked="" type="checkbox"/>
External Battery Support	<input checked="" type="checkbox"/>
Dual Power Circuit (AC, Batter)	<input checked="" type="checkbox"/>
Training Mode (LxWxH) (in)	34.25 x 15.75 x 22
Travel Dimensions (LxWxH) (in)	22.5 x 16.5 x 20
Warranty (years)	3
Price	\$1,799

Power:	100W
Ball frequency:	1-10 seconds/ball
Net weight:	23.5KG / 51 LBS
Ball capacity:	150
Product size:	40*56*87 cm 15 ¾ * 22 * 34¼ inches
Package size:	64.5 * 49.5 * 58.5 cm 25½ * 19 ½ * 23 inches
Power type:	DC 24V

Usage Notes:

1. If there is water or rain on the court, it is forbidden to use the machine, the wet ball will cause the ball to be stuck and potentially damage the electronics or the mechanical operation.
2. Do not stand at the ball outlet when the machine is running to avoid injury from the ball.
3. If a Pickleball is accidentally hit into the machine, turn off the power first (immediately) and then take the ball out.
4. Always turn off the power first when cleaning the machine, otherwise you could be injured.
5. Please recharge the battery after each use. The battery needs to be recharged from time to time even if there is battery energy left. The battery being drained or having very little charge will affect the battery life and ERNE operation.
6. Due to the built-in lithium battery in ERNE do not place where the temperature will exceed 55°C (131°F) for an extended period of time, such as vehicle, an attic or other place that gets (and stays) exceedingly hot.
7. Avoid using wet balls, dirty balls, deformed balls and balls that have cracked or in some other way damaged. Both indoor and outdoor Pickleballs can be used by the machine.
8. When not in use for a long time, please turn off the power to avoid battery power loss.

USING THE ERNE APP

Downloading, Installation and Updates:

Downloading the ERNE App for both the Android and Apple IOS devices is easy, simply scan the appropriate QR code below depending on which device you use.



ANDROID



APPLE IOS

You can also go to the appropriate app store and search for “ERNE Pickleball” to find, download and install the application. Once the ERNE application is installed you should see the ERNE icon on one of your mobile device screens (location of the icon is dependent on your device). On an IOS device your screen will look something like the one below:



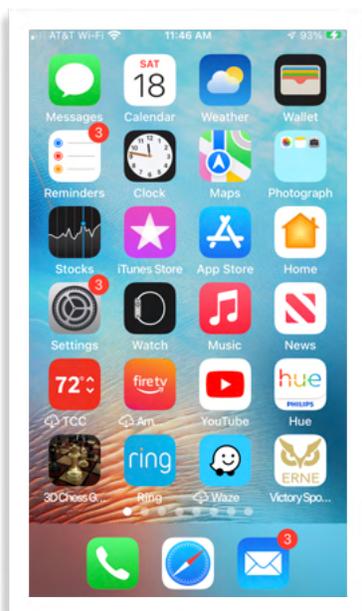
ERNE App Icon



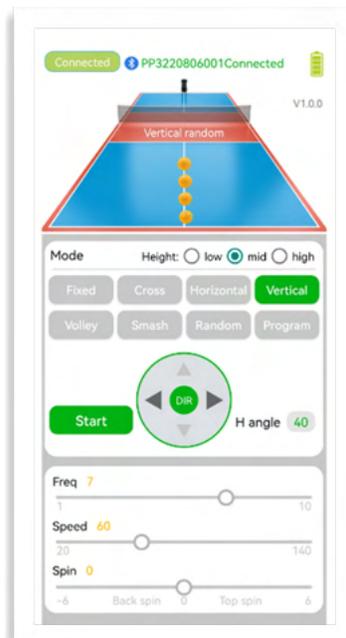
Updating ERNE Application:

ERNE software updates are handled based on the settings on your mobile device, updates can be installed automatically or manually. We will always send an eMail letting you know when the software has been updated, the updates themselves and finally the version number. You can simply check the version number on your ERNE App to insure you have the latest and greatest.

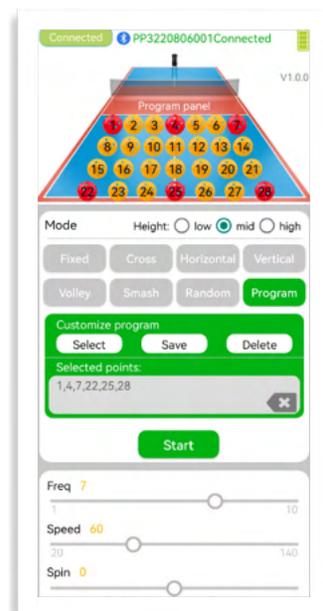
Basic Usage and Controls:



iPhone Screen

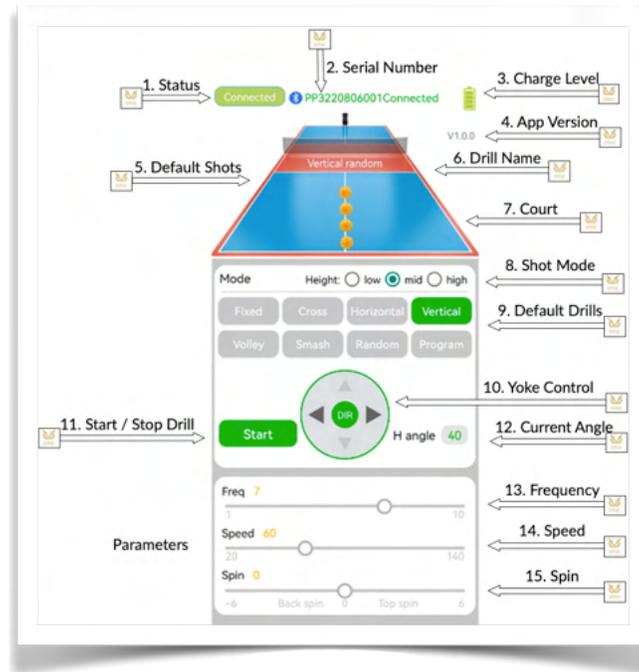


Standard Options



Program Options

- Notice the ERNE icon at the bottom right part of the iPhone screen, this is the APPLICATION used to control the machine, select drills, etc. *The icon location on the mobile device may vary from the image above, if you have trouble finding it after installation just search for "Victory Sports" and it should show up.*
- First switch on ERNE and install the APPLICATION (scan the appropriate QR (page 2) code to download).
- Connect the phone through Bluetooth to the device using the app just make sure the phone's Bluetooth is turned on before launching the application.
- Select the desired drill under "mode" (Fixed, Cross, etc) and then click start.
- There are three parameters at the bottom of the interface, these parameters can be adjusted at any time to suit your training needs:
 - Frequency (Freq): Right is faster, Left is slower [Range is .8sec - 8sec]
 - Speed (Speed): Right is faster, Left is slower [Range is 10kmh/8mph - 104kph/65mph]
 - Rotation (Spin): Left=Backspin, Middle=Flat, Right=Topspin [Range is 7 levels: 0/6, 0/-6]



Here is a typical screen presented by the ERNE application that includes all the functions needed to operate ERNE and adjust the drills as required. The section below describes each of the various components on the screen for default drills, there are some exceptions which will be detailed here as well.

1. **Status:** Indicates whether ERNE is connected to your mobile device, touching this indicator will either connect to or disconnect from ERNE.
2. **Serial Number:** This is the ERNE serial number which is used to register your warranty (see warranty card that came with ERNE).
3. **Charge Level:** Indicates the current charge level of the battery.
4. **App Version:** Indicates the current version of the ERNE App you are running.
5. **Default Shots:** A graphic that represents the default shots for the given drill selected.
6. **Drill Name:** The name of the specific drill being executed.
7. **Court:** A perspective view of the court with ERNE in the very back and the player in front.
8. **Shot Mode:** The shot mode only appears on certain drills, in this case it allows changing the height from low to high.
9. **Default Drills:** These are the 8 default drills but most drills contain variations, to see them just touch the drill button until you find the variation you want.
10. **Start / Stop Drill:** Used to start and stop the drill, the remote control can also be used to pause/start the selected drill.
11. **Yoke Control:** This control allows manipulation of the throwing yoke, depending on the drill you can modify the height and angle of the shot using the arrows.
12. **Current Angle:** The represents the current angle, in this case it is representing the Horizontal angle, in some drills you will see a vertical angle and in other you will see both the vertical and horizontal angle.
13. **Frequency:** This parameter controls how fast ERNE throws balls out of the machine, this can be as slow as 8 seconds between shots or as fast as .8 seconds between shots. To slow down ERNE move the slider to the left, speed up ERNE by moving the slider to the right.
14. **Speed:** This parameters indicates how fast the ball is being thrown across the court, this can be as slow as 10kph (8mph) or as fast as 104kph (65mph)
15. **Spin:** The spin parameter controls how much spin and what kind you apply to the shots. Topspin and Backspin can set to anywhere between 1 (least amount) and 6 (highest amount). When set to Zero (0) no spin will be applied, this is called Flat.

Default Drills Table:

ADJUSTABLE SETTINGS							
DRILL NAME	#	SWEEP	HEIGHT	SPEED	SPIN	INTERVAL	SELECT LOCATION
Fixed	3	<input checked="" type="checkbox"/>					
Cross	6			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Horizontal	5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Vertical	3	<input checked="" type="checkbox"/>					
Volley	3	<input checked="" type="checkbox"/>					
Smash	1	<input checked="" type="checkbox"/>					
Random	1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Program	1		<input checked="" type="checkbox"/>				
DRILL NAME	DRILL DEFINITION						
Fixed	Used for single shot drills, 3 predefined shot locations						
Cross	Used for double shot drills, 6 predefined sets of shot locations						
Horizontal	Traditional sweep mode that supports 5 predefined sets of shot sequences						
Vertical	Drill used to practice moving from baseline to kitchen, 3 predefined shot sequences						
Volley	Typically used for Dink practice and Drop Shot returns, 3 predefined shot locations						
Smash	Used to practice returning LOBs and Overheads, 1 default shot location						
Random	Used to move around the court, 28 predefined locations						
Program	Used to create a unique sequence of shots, player created sequence						

Available Drills Table

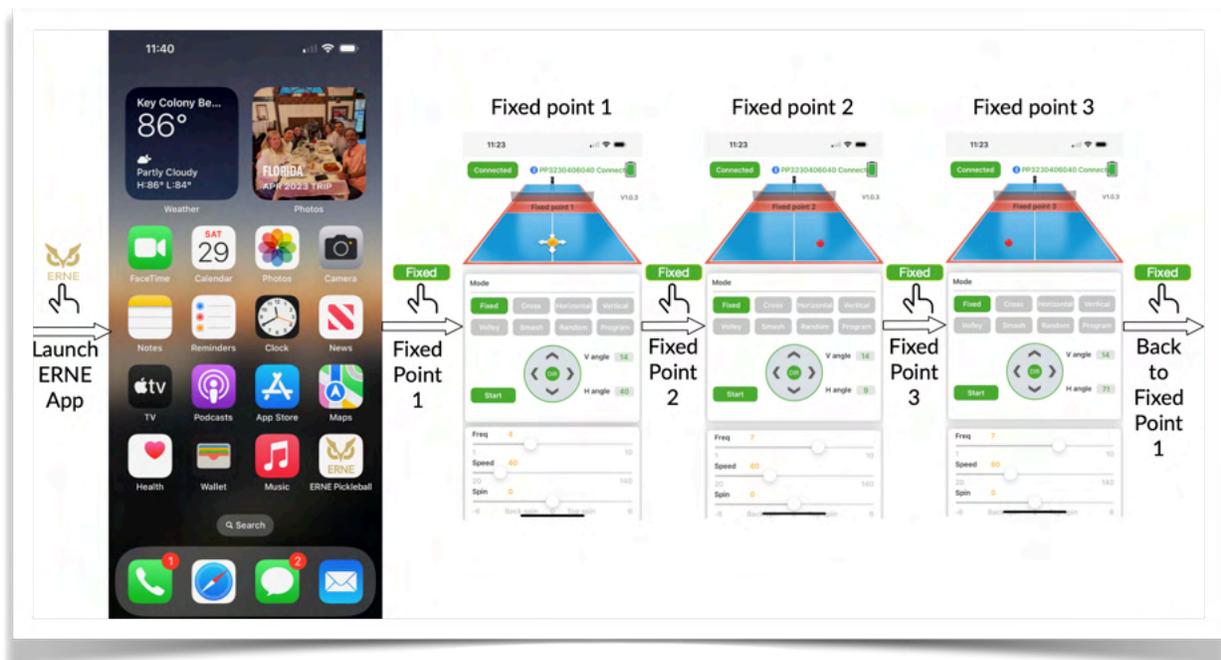
The above table represents the basic parameters for each of the default set of drills within the ERNE application. The left column lists the drill name as it appears in the application, to the right of the name is the number of sub-drill that are available. To cycle thru each of the sub-drills just keep touching a particular drill button and the app will represent each sub-drill. The next columns indicate which parameters are available for each of the drills (and sub-drills).

STANDARD DRILLS AND SETTINGS

Drill and Sub-Drill Navigation:

ERNE has a number (8) of drills and (24) sub-drills that can be selected and used during a training session. Drills are selected by simply touching the drill button you want to execute. To access all the sub-drills offered under a given drill just keep pressing the drill button, with each touch a new sub-drill will displayed. See the table on the previous page.

For example, to see all of the sub-drills under the Fixed drill you keep pressing the Fixed button until you get back to the first sub-drill (Fixed Point 1), see below:



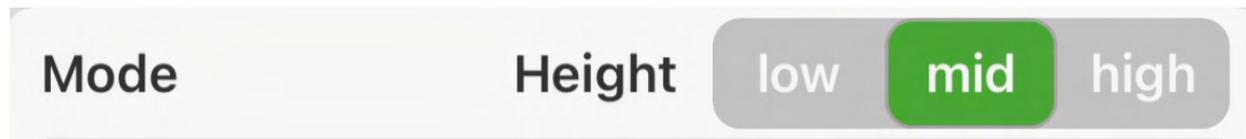
This is true for all of the drills except for Smash, Random and Program which have no sub-drills. See the chart on the previous page for the number of sub-drills each drill has available (the # column). All of the drills assume ERNE is 1' behind the baseline.

All drills can be selected and manipulated using only three different types of controls including the button, the joystick and the slider. Depending on the drill selected all options may not be available (see table on previous page). For example, when the Vertical drill is selected the height adjustment is unavailable.

Adjusting the Parameters:

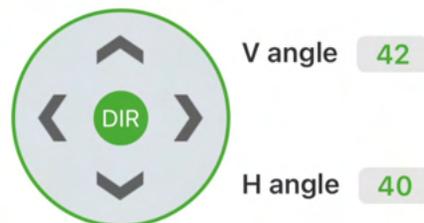
Each drill has its own set of parameters that can be adjusted either prior to Starting the drill or during actual drill operation. These adjustments will be reflected by ERNE in near real-time so that changes can be made quickly without having to waste a lot of balls setting up a shot. It will take a little time to learn what works for you depending on what you are trying to accomplish.

Height Parameter:



The Height parameter is available for the following drills: Cross, Vertical, Random and Program drills. Simply touch the level of height you want and ERNE will adjust accordingly. When using this particular method of adjusting height ERNE will adjust the speed of the wheels relative to each other to achieve higher or lower ball trajectory, this method can sometimes require an adjustment in speed or spin to accommodate the change in throwing wheel speed.

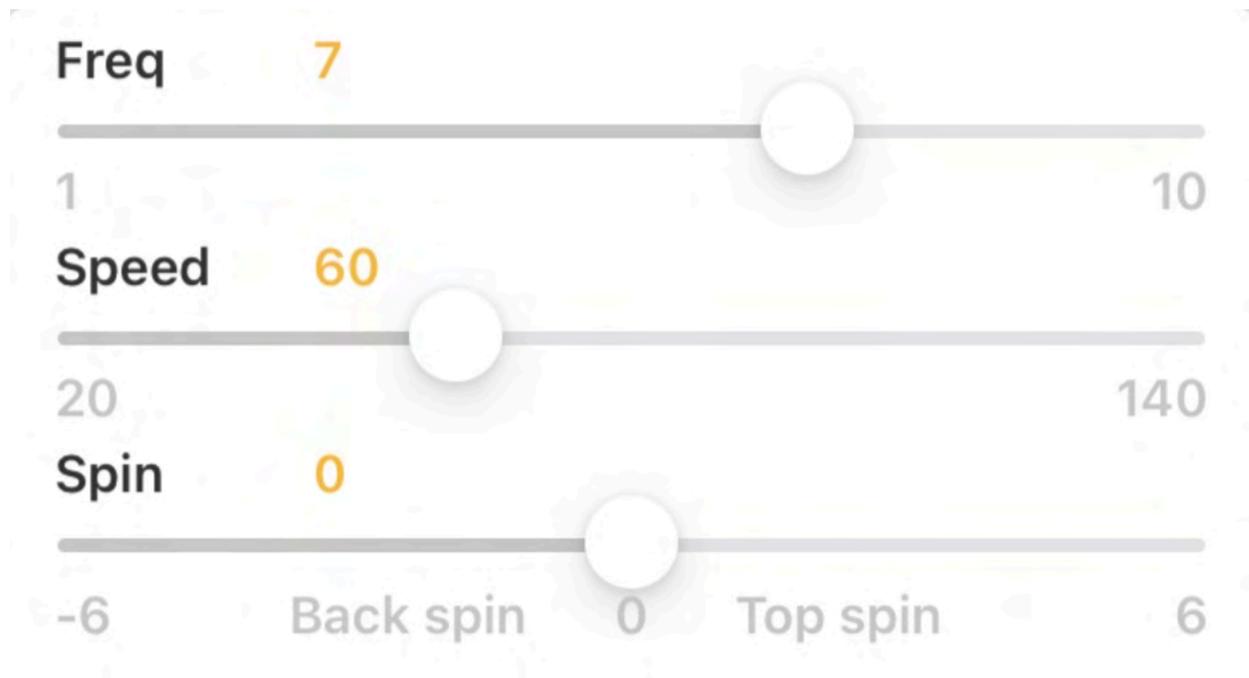
Yoke Control:



The Yoke control is available for the following drills: Fixed, Horizontal, Vertical, Volley and Smash. The horizontal drill doesn't allow the horizontal position to be changed and the vertical drill doesn't allow the height to be changed (using the yoke) since the drills are predefined patterns that ERNE controls.

The up and down arrows control the V angle (Vertical) position of the yoke, the number of degrees selected is indicated in the box labeled V angle. The right and left arrows control the H angle (Horizontal) position of the yoke, the number of degrees selected is indicated in the box labeled H angle. The lowest V angle is 3 and the highest is 20 while the lowest H angle is 9 and the highest is 71.

Frequency, Speed and Spin Parameters:



These three parameters, frequency, speed and spin are available to all drills and are controlled by using the sliders (moving right or left).

The **Frequency** controls how long ERNE waits before throwing the next ball, the range is a little less than a second (1) to about 8 seconds (10). This can vary slightly depending on the drill and sub-drill being executed. Moving the slider to the left will decrease the rate at which ERNE throws the balls while moving it to the right will increase the rate of throws.

The **Speed** control controls how fast ERNE throws the ball, this ranges from about 8mph (20) to over 60mph (120). Similar to the Frequency control moving the slider to the left decreases the ball throw speed while moving to the right increases ball throw speed.

The last parameter is **Spin** which control the amount of backspin and topspin that are put into the throws, 0 indicated no spin at all or flat. The scale of spin is from -6 to 0 for backspin and 0 to 6 for topspin where 0 is no spin and -6, 6 is the maximum amount for that spin.

Parameter Relationships:

As you've seen in the previous section (Adjusting the Parameters) ERNE supports several different parameters that can be used together to create multiple different shots. In this section we'll explain how these parameters work together and impact each other.

Yoke Position (Up, down): When moving the yoke up with either the  arrow controls or the Height low mid high menu you may need to adjust the Speed and or the Spin to get the right elevation and trajectory. In other words, when a ball is bring thrown off the court for example, you can change any or all of these parameters to bring it down - lower height, reduce speed, add topspin. Alternatively if you want to raise the ball slightly you can add backspin causing the ball to gain more of a "floating" trajectory.

Speed: As already stated the yoke height is intertwined with the speed slider  as is the spin slider (topspin, flat, backspin). If you want to create hard drives just over the net adjust the speed, then adjust the spin (add topspin) then finally adjust the height until you get what you want.

Spin: The spin slider  is used to control levels of spin (0-6) applied to the shots. Topspin will cause balls to drop quickly after a certain distance, the faster the ball is thrown the faster the shot will drop, be manipulating speed and spin you can easily create hard drives that closely resemble "bangers". Applying backspin will cause the ball to "float" a little more therefore speed and yoke height may need to be adjusted.

Making a shot go...

- *Higher:* Increase speed, increase backspin, increase yoke height
- *Lower:* Decrease speed, increase topspin, decrease yoke height
- *Faster:* Increase speed, lower yoke height, add topspin
- *Slower:* Decrease speed, increase yoke height, add backspin

REMEMBER: You can adjust multiple parameters to create the shots you want, after using ERNE for a few sessions you will get the hang of it. Its best to setup ERNE, select the Fixed Drill and stand on the side of the court watching the shots as you adjust parameters - leave your paddle in your bag and focus on the flight path of the ball. This is the best way to learn how to control and adjust ERNE.

ERNE's Court Positions:

Just like adjusting parameters you can also move ERNE around the court and the out of bounds area to create new shots and new angles. By default ERNE expects to be about 1 foot behind the T so he doesn't know if you move him somewhere else on the court. To use the various drills when ERNE is in a different location on the court you'll need to change the parameters of the selected drill until you get what you want.

A great example of this is setting up ERNE to execute cross-court dinking drills or ATP training. To do this setup ERNE in the following way:

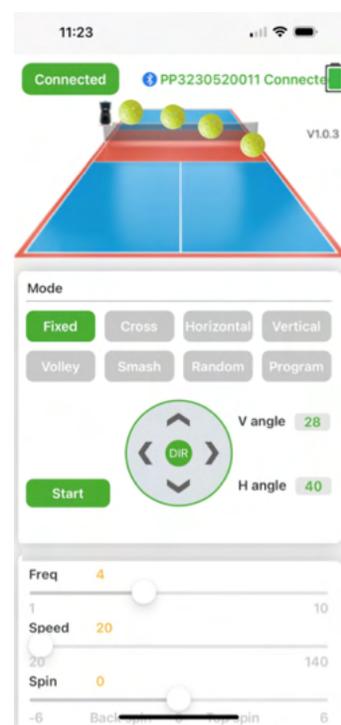
Drill Name	Drill	Directional			Freq	Speed	Spin	ERNE Position
		V (+/-)	H (+/-)	Low-Med-High				
Cross Court Dinking	Fixed Point 1	28	40		4	20	F-0	1' Angled Outside Kitchen

To go from cross court dinking to ATP training adjust ERNE's position or his parameters to create the kind of aggressive dink you want to execute the ATP. Remember ERNE is accurate to about 18" square on a single position so keep that in mind when adjusting the parameters and ERNE's location.

Changing ERNE's court position, angle to receiving court, the drill selected and the various parameters associated with that drill will allow you to create some completely unique drilling and training sessions. Don't be afraid to move ERNE around court once you get familiar with the drills and they're associated parameters. This is part of the fun of using ERNE - create your own drills there are very few limitations on what you can do.

It is important that you become familiar with the parameters and how changing them impacts the flight path of the ball before moving ERNE around.

Try leaving your paddle in your bag and just use the Fixed Point drill with a hopper full of balls, then adjust the parameters slowly, one at a time to see the impact on the balls flight path. This will help you see and focus the impact of the changes instead of also worrying about returning the shot. It is worth the investment!



Cross Court Dinking Drill

Fixed Point: (3 sub-drills)

The fixed point drill is one of the most powerful tools in the drilling arsenal, everything can be done from LOBs to drop shots to dink to drives - all with this one drill (and sub-drills). With the fixed point drills you have access to all of the parameters allowing for all kinds of shot configurations.

The three different fixed point sub-drills are essentially the same with a slightly different target (centerline, serving side, returning side), this is simply meant to make it more convenient to pick those areas but any of these sub-drills can be configured to duplicate the others by simply changing the Yoke position (right and left arrows).



Fixed Point 1

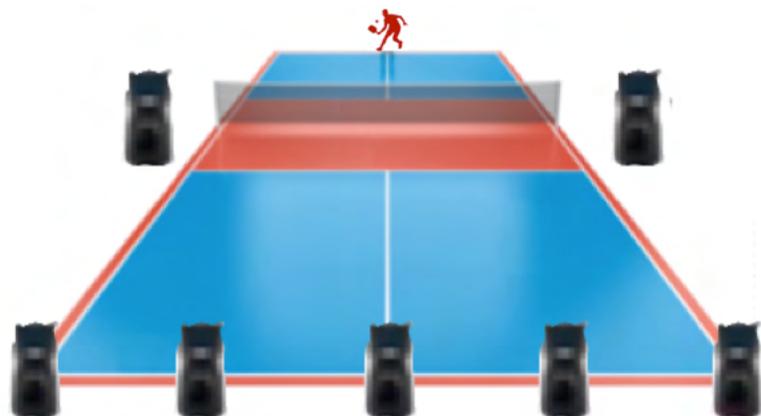


Fixed Point 2



Fixed Point 3

Typical ERNE Locations: (note: Angle ERNE appropriately)



Cross: (6 sub-drills)

The cross drill(s) is typically used for practicing a return from the baseline then heading to the NVZ, stopping and returning the second more shallow shot (see images) then resting back to the baseline. Additionally, the Cross drills can be used for doubles practice where one player handles the longer shot and the other player handles the shorter shot, players typically rotate from one position to the other after an agreed number of shots (every other shot, every fourth shot, etc.)

Like the other drills you can configure ERNE to throw these shots at an angle to the net from the playing area (instead of behind the T), you can get some very interesting drills from moving ERNE around and adjusting the parameters to create the two shot sequence you want.



Left Deep,
Middle Light

Right Deep,
Middle Light

Left Light,
Middle Deep

Right Light,
Middle Deep

Left Deep,
Right Light

Left Light,
Right Deep

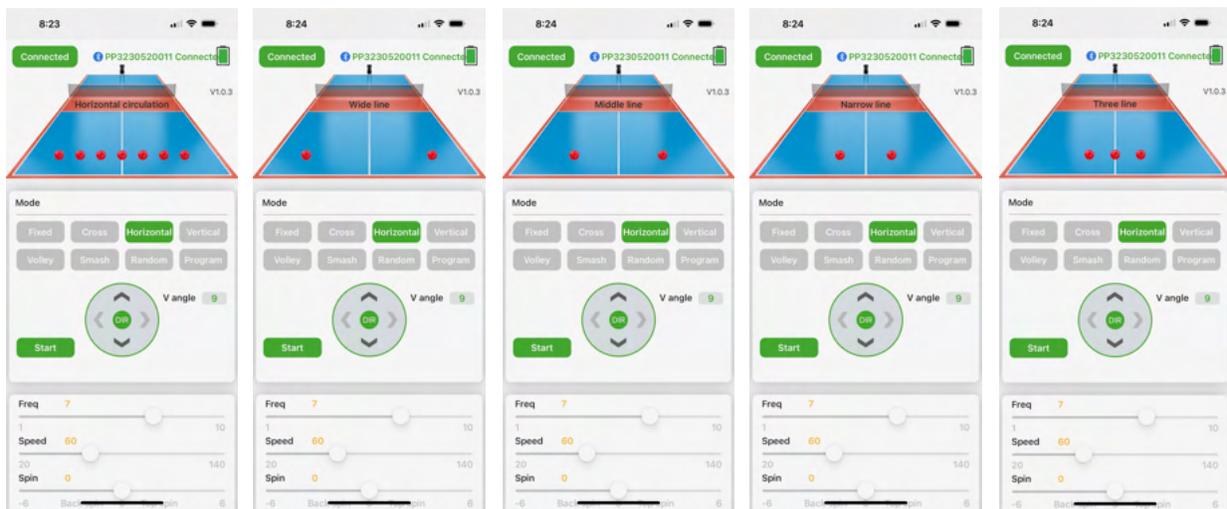
Typical ERNE Locations:
(note: Angle ERNE appropriately)



Horizontal: (5 sub-drills)

The horizontal drills are great for a single player or two players. Provides a great mechanism for teams working on communication from the return all the way thru the process of getting to the NVZ - who takes the forehand? This drill is a good one helping to work that out.

The five sub-drills are similar to drills that are used in Tennis except goes a little further by exposing parameters like height, spin and speed. The drill is fantastic for working on getting from the baseline to the NVZ by forcing you to hit drives, drops and resets. This can work for doubles (circulation sub-drill) but it can also work well for singles by selecting the narrow line or the three line sub drill, you can even move ERNE to the middle of one of the playing areas to keep things within half the court!



Horizontal Circulation

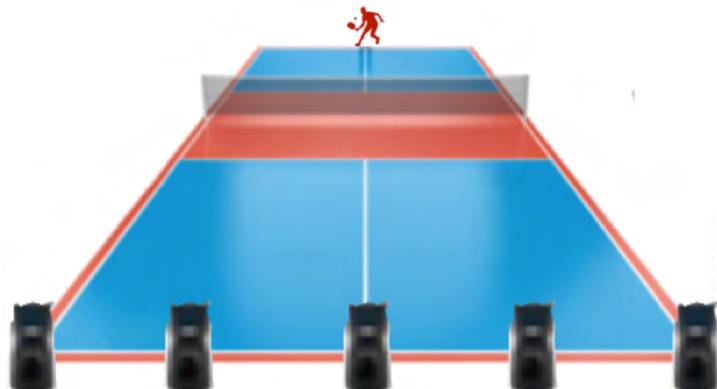
Wide Line

Middle Line

Narrow Line

Three Line

Typical ERNE Locations:
(note: Angle ERNE appropriately)



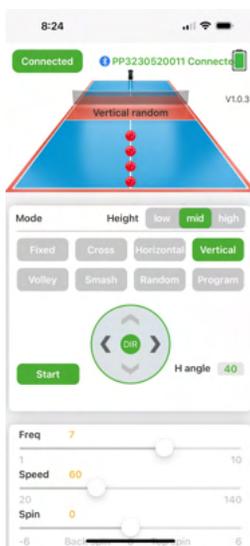
Vertical: (3 sub-drills)

The vertical drill provides 3 different sub-drills that include random, circulation and a deep and light set of shots.

The random drill will throw 4 different shots randomly located down the mid-line (based on ERNE being in the default location behind the T), this sub-drill provides a good way to train moving back and forth from the baseline to near the NVZ.

The vertical circulation sub-drill is similar to the random drill in terms of ball location but instead of random locations this version is predictable allowing the player to practice getting from the baseline to the NVZ in an incremental fashion.

The last sub-drill, deep and light, is really meant for the player to work from the baseline to the NVZ in just two shots both are more like drop shots then drives.



Vertical Random

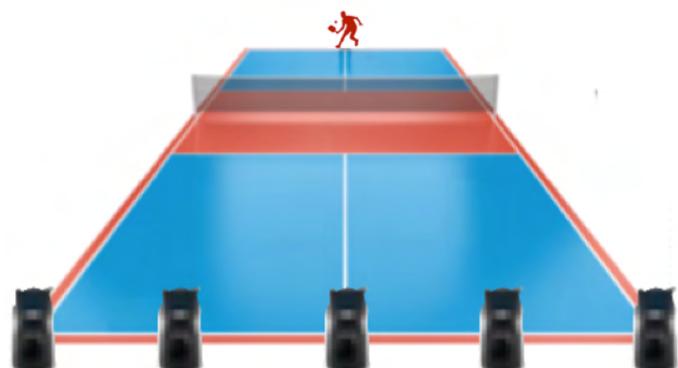


Vertical Circulation



Deep and Light

Typical ERNE Locations:
(note: Angle ERNE appropriately)



Volley: (3 sub-drills)

The volley and the associated sub-drills (1, 2, 3) are simple and very similar to the Fixed Point drills in that they are incredibly flexible because all of the parameters are exposed in the drill creation process. The biggest difference is that the Volley series of sub-drills, by default, take a higher trajectory then that of the fixed drills otherwise they are very similar.

These sub-drills can be used to create a wide variety of shots, everything from drop shots to dinks and because all the parameters are exposed any single type of shot can be setup under these sub-drills. The 3 sub-drills are basically the same drill with a slightly different sweep position, this is done to make it easier get going quickly.



Volley 1

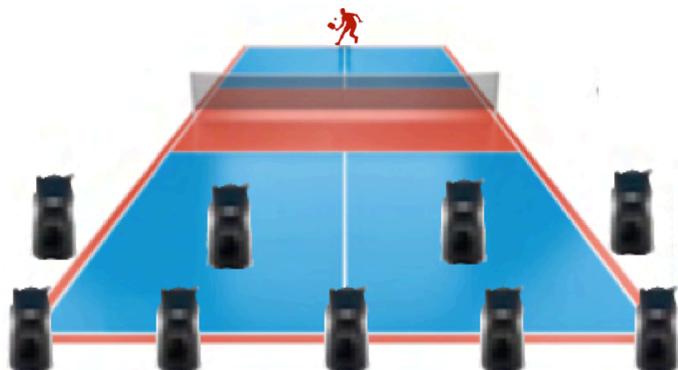


Volley 2



Volley 3

Typical ERNE Locations:
(note: Angle ERNE appropriately)



Smash: (1 sub-drill)

The Smash is a great drill to help practice returning LOBs from your opponents. The LOB is a popular shot in terms of both defense and offense so learning to deal with it is critical, ERNE will help you do that quickly and easily (well, it isn't easy returning LOB after LOB).

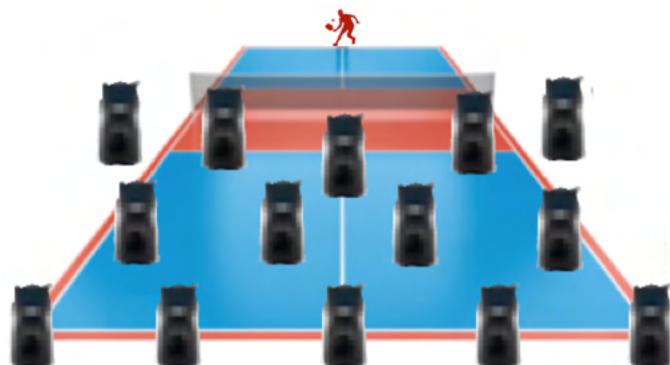
To use this drill you can use the default but its generally best to have the LOBs thrown over your head when you are at the NVZ, because it is a difficult drill to execute it is best to give yourself time to back up and hit the LOB before returning to the NVZ.

Like the Fixed and Volley drills and sub-drills the Smash drill can be manipulated to accommodate lots of different shots so explore the parameters in combination with ERNE's position on the court throwing LOBs from the kitchen to one of the corners for example.



Smash

Typical ERNE Locations:
(note: Angle ERNE appropriately)

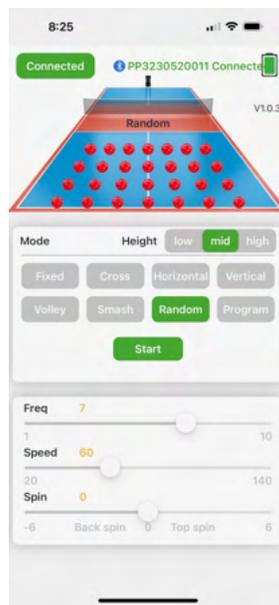


Random: (1 sub-drill)

The random drill requires a lot of energy to operate so make sure the battery has a good charge when trying to execute it, best to operate this drill early in a sequence of drills being executed. The court is defined in 28 locations that are defined to be in the playing area of the court, none of the shots will drop into the NVZ unless you manipulate ERNE's parameters and his position on the court.

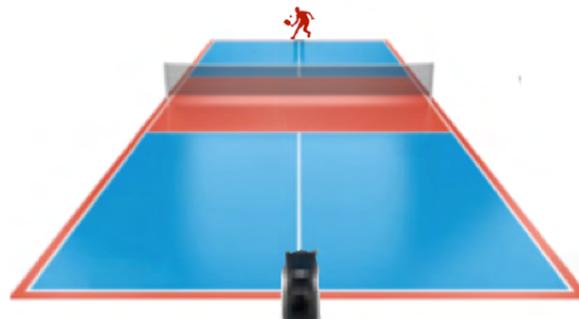
Each numbered position is defined by a roughly 3' wide by 4' long rectangle, this means there can be a large difference between two sequential points. For example, shots 11 and 12 can be as far apart as 8' in the front to back shot position and a 6' difference in right to left shot position.

The random functionality is where the ERNE app determines randomly, what position of the 28 to throw the ball. This makes it a good drill for doubles practice and aggressive singles practice.



Random

Typical ERNE Locations:
(note: Angle ERNE appropriately)



Program: (Player Defined)

The Program drill is similar to the Random drill in that there are 28 locations on the court but in this drill they can be selected (touch the appropriate Pickleball on the screen). These shot selections will be executed in exactly the order they were selected.

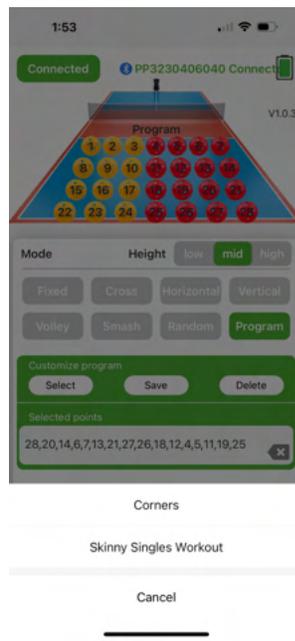
All Program drills created can be saved with a name that you assign, something like "Skinny Singles Workout" for example. In this drill we keep all the shots in one quadrant of the court while moving in bottom to NVZ pattern, see below.



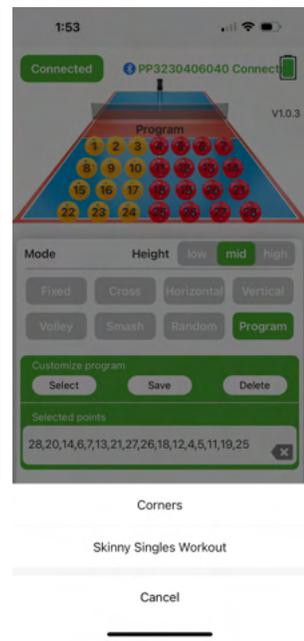
Example Drill



Saving the Drill

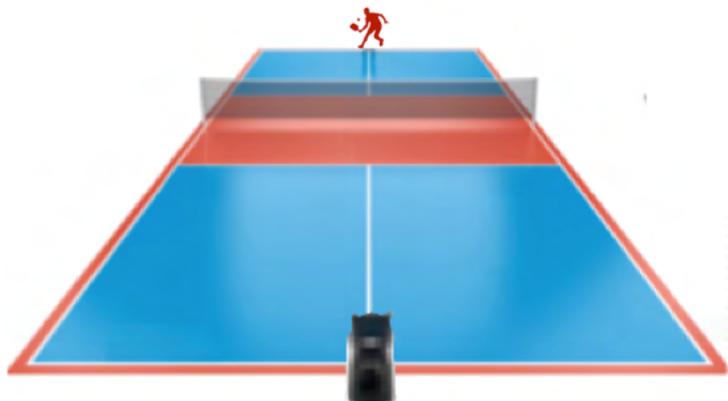


Select a Drill
(previously saved)



Delete a Drill
(previously saved)

Typical ERNE Locations:
(note: Angle ERNE appropriately)



OTHER RESOURCES

Website: <https://www.ErnePickleballMachine.com>
Youtube: <https://www.youtube.com/channel/UCYdWI6tCn8F80l8gSzBnLeQ>
Facebook: <https://www.facebook.com/VictorySportsTech>
Instagram: [https://instagram.com/ernepickleballmachine?
igshid=MmlzYWVINDQ5Yg==](https://instagram.com/ernepickleballmachine?igshid=MmlzYWVINDQ5Yg==)

FAQ: <https://www.ErnePickleballMachine.com/faq>
Warranty: <https://www.ErnePickleballMachine.com/warranty-information>
Contact: <https://www.ErnePickleballMachine.com/support>
Shop: <https://www.ErnePickleballMachine.com/shop>
Subscribe: <https://www.ErnePickleballMachine.com/subscribe>

Email Addresses:

Dave Tribbett:	davet@victorysportstechnologies.com	Engineering
Frank Pizzichillo:	frankp@victorysportstechnologies.com	Business Development
Ryan Rabidou:	ryanr@victorysportstechnologies.com	Brand Management

Business Location:

The Roost
Victory Sports Technologies, LLC
504 Louise Lane
North Wales, PA 19454
(610) 972-3763 [ERNE]

MAINTENANCE

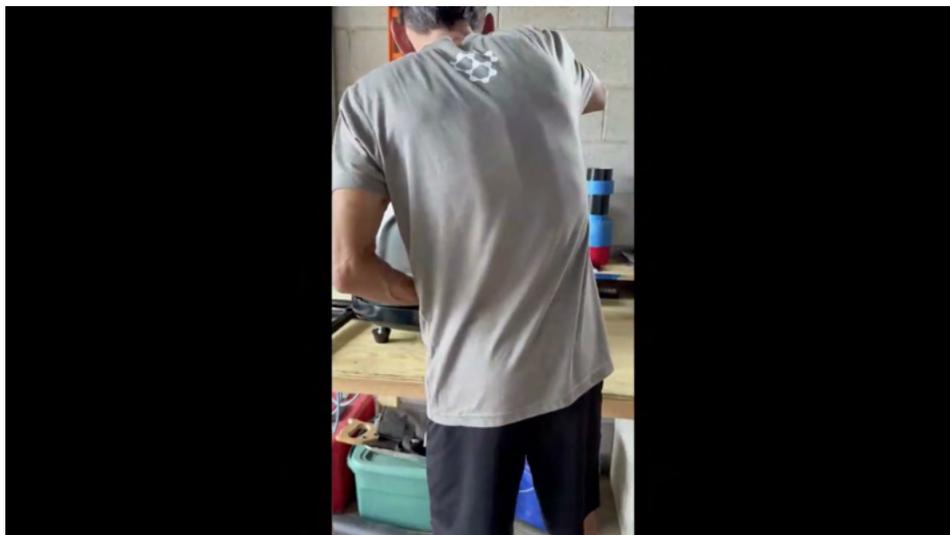
Bolt Locations and Sizes:

- Extendable Handle (5mm)
- ERNE Base (3mm)
- Battery Holder (4mm)
- Yoke Restriction Bolt (5mm)
- Wheel Set Screw (3mm)
- Motherboards (2.5mm)

Removing the ERNE Base:

Removing the ERNE base is a relatively simple thing to do, its a total of 10 bolts, 4 on the handle and 6 on the base itself. After these bolts are removed (see the video) the base can be lifted straight up and tilted back and away from ERNE, then lower it slowly to rest on behind ERNE upside down. There are 3 sets of wires that connect the base to ERNE's electronics so be careful as you lift and tilt the base while removing it.

Bolt Locations



Replacing the Wheels (Base off)



Replacing the Wheels (Base on)



Replacing the Battery



Removing the Yoke Restriction Bolt:

The Yoke restriction bolt is used to limit the movement of the Yoke during shipping since the shipping companies are not gentle and have broken multiple machines by throwing them around. This bolt shouldn't need to be removed and only remove it if we specifically ask you to, these are the video instructions for that process. The bolt **MUST** be installed if shipping ERNE otherwise the machine can get damaged and VST will not be responsible.



Linking the Remote Control Video



Installing the Agitator:

The Agitator is used to keep the balls from jamming in the hopper. The heart shaped metal plate must be installed on the carousel prior to putting any balls in ERNE, this is imperative otherwise you could jam and damage the carousel rendering ERNE useless. Below, is a quick video on how to install the agitator:

Installing the Agitator



ACCESSORIES

Transformer:

The AC Transformer is used to run Erne using a standard electrical outlet (110). This is not included with ERNE and must be purchased if you want to use this option.



Wheels:

The throwing wheels are easily replaceable using the hex wrench included with every new set of wheels. We don't recommend trying to clean the wheels as will potentially damage the wheels and is dangerous. The wheels should be changed if ERNE is throwing erratically and the wheels are covered in plastic "gunk".



Battery:

This is a replacement battery and not an "extra" battery. ERNE keeps the battery stored inside the case so replacing it takes about 5 minutes but really can't be charged until it is inside ERNE so it won't work to "extend" battery based training time.



Remote:

The remote is specific to the ERNE it ships with, it provides two functions - start and stop. The drill must first be started using the ERNE app as the remote will only start and stop a running drill, if you use it to start ERNE without using the APP the throwing results will be completely erratic.



Agitator:

The agitator is used to "churn" the balls and minimize the possibility of jamming. It *must* be installed on the carousel as indicated in this manual (and related video) before using ERNE.



Balls:

Our ERNE Pickleballs are specifically formulated to minimize the amount of residue left on the throwing wheels, these will extend the life of your throwing wheels and provide long lasting play. The balls are also sound dampening which means they produce about 33% less "pop" sound than other balls. An additional feature is the ability to remove plastic residue left by other harder balls, this takes time but eventually will remove most of the residue buildup! Check out our 2-color outdoor training balls or our single color playing balls in the shop.

CUSTOM DRILLS AND SETTINGS

Drill Grid:

The drill grid below includes some basic variation of the default drills, adjust the parameters and location as needed. These are guidelines that can be changed and adjusted to suit your specific needs.

Various ERNE Drills and Parameters

Drill Name	Drill	Directional			Freq	Speed	Spin	ERNE Position	Shot Sequence (Program Drill)
		V (+/-)	H (+/-)	Low-Med-High					
Cross Court Dinking	Fixed Point 1	28	40		4	20	F-0 1' Angled Outside Kitchen		
Overheads	Smash	28	40		4	60	T-2 1' Behind Baseline T		
Horizontal	Horizontal Narrow	12	-		4	70	T-1 1' Behind Baseline T		
Volley	Volley (any)	13	40		4	60	T-1 1' Behind Baseline T		
Vertical	Vertical Random	-	40	High	5	60	T-1 1' Behind Baseline T		
Program	Program	-	-	High	5	60	F-0 1' Behind Baseline T	25,23,9,18	
Dubs	Program	-	-	High	5	60	F-0 1' Behind Baseline T	28,24,26,22,14,8,12,10	
Singles	Program	-	-	High	5	70	T-1 1' Behind Baseline T	26,23,20,17,12	

There is an infinite number of combinations that combine drills, settings and ERNE locations to accommodate your drilling needs. Don't hesitate to move ERNE around the court and play with the parameters, not just for the drills outlined above in the grid but for any drill in the ERNE arsenal!

Cross Court Dinking:

Serves and Drives Drill:



Serve & Drive Drill

THE RMOOST



Settings

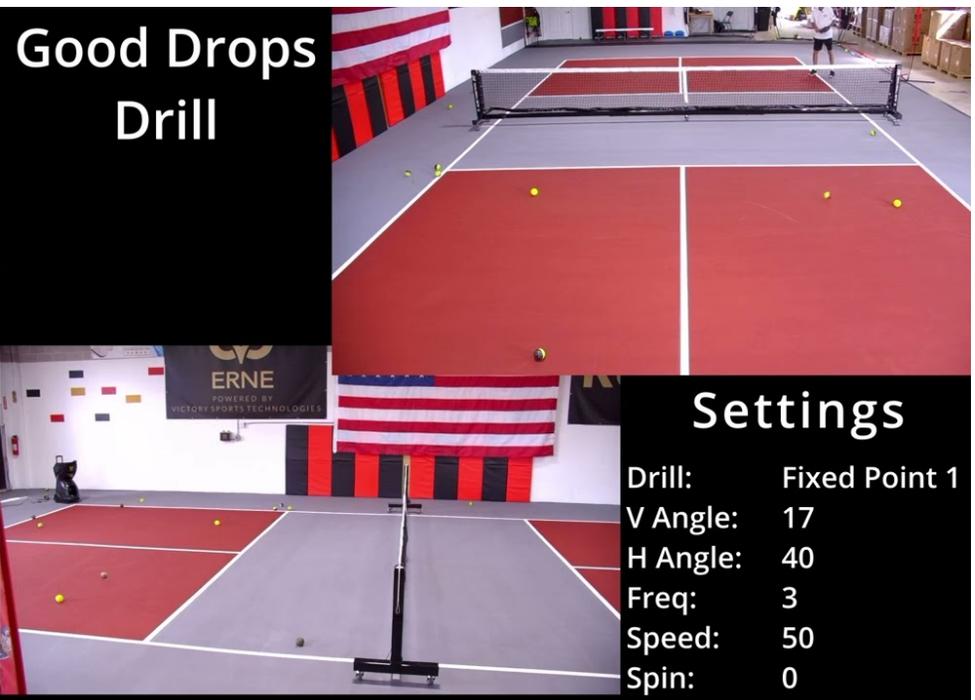
Drill:	Fixed Point 1
V Angle:	15
H Angle:	40
Freq:	5
Speed:	80
Spin:	5

Drops (Fixed Point):



Good Drops Drill

ERNE



Settings

Drill:	Fixed Point 1
V Angle:	17
H Angle:	40
Freq:	3
Speed:	50
Spin:	0

Various Drills (12):

The following video contains 12 different drills with all the required information to reproduce using your ERNE, they include:

1. Three Line Horizontal
2. Horizontal Circulation
3. Three Line Horizontal (at the Kitchen)
4. Vertical Random (Transition Zone)
5. Fixed Point (at the Kitchen)
6. Fixed Point (Return of Serve)
7. Fixed Point (Transition Zone)
8. Fixed Point (Cross Court Dinking)
9. Program Drill (2 Dink Pattern)
10. Fixed Point (Practicing ERNE's)
11. Fixed Point (Hands Battle with Table)
12. Fixed Point (Ground Strokes)



Various Drills (12) with ERNE

COMMON PROBLEMS AND SOLUTIONS

PROBLEM	POTENTIAL CAUSE	SOLUTIONS
No power	Incorrect Power switch position (see page 9) Battery Not Charged Motherboard Damage	<ul style="list-style-type: none"> • Select correct switch position • Recharge the battery. • Contact: support@victorysportstechnologies.com
Carousel	Carousel is not moving. Carousel can't be controlled in app	<ul style="list-style-type: none"> • Possibly jammed, remove all balls and try again. • Contact: support@victorysportstechnologies.com
Throwing into the Net	Battery not charged enough Yoke Height too low Too much Topspin Too Slow	<ul style="list-style-type: none"> • Fully Charge Battery • Raise Yoke • Lower Topspin • Increase ball speed
Yoke Doesn't Move	Yoke doesn't go thru initialization when turned on	<ul style="list-style-type: none"> • Bad motherboard • Jammed Yoke • Contact: support@victorysportstechnologies.com

ERNE Support:

support@VictorySportsTechnologies.com

TRAINING TOOLS

The following is a short list of training tools we use at The Roost along with ERNE, these tools increase training efficiency and skill level much more quickly than using ERNE alone. For example, we recommend always using targets when training with ERNE to focus on specific locations which will help develop the right mechanics and touch.

You can use almost anything as a target, things like 1 gallon containers, buckets, hoola-hoops can all be used to benefit your training sessions. There are some very nice alternatives that are available, this is not an exhaustive list but represents some of the tools we use (and many of our coaches and players). We have and use all of these products so we have experience with them but do your own research as you may find better solutions for your particular situation.

Targets:

https://www.amazon.com/gp/product/B07FD7C8H9/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&psc=1



These are great targets for practicing dinks and drops with three different ball catch targets within the frame!

<https://oncourtoffcourt.com/spots/>

Simple and basic “spot” targets, better than not having a target at all in our opinion.



<https://www.rtsrebounder.com/product-page/ball-catching-target-3-foot-square>

Great for dinks and drops, they have 3 different size, 2x2, 3x3 and a 4x4. Very well made.

<https://www.rtsrebounder.com/product-page/ball-catching-target-2-foot-square>

See above.



<https://www.rtsrebounder.com/product-page/adjustable-ball-catching-target-window>

Multi-configuration tool/target for use in practicing dinks and drops shots.



<https://www.parksun.com/Outdoor-Games/Disc-Golf/>

We use these to practice drives mostly, they can be set at three different heights so pretty flexible. We set them up to practice drives down the line and up the middle.



Ball Pick Ups:

https://www.amazon.com/gp/product/B0C5391G77/ref=ppx_yo_dt_b_search_asin_image?ie=UTF8&psc=1

Excellent tool for picking up balls that ERNE is throwing around, it holds about 50 balls. It can also be used to hold the balls and dispense easily.



https://www.amazon.com/gp/product/B074CRCV9R/ref=ppx_yo_dt_b_search_asin_image?ie=UTF8&psc=1

We like these as well, they hold about 17 Pickleballs and are really light and easy to use.



Ball Control:

https://www.amazon.com/gp/product/B0BQYD869J/ref=ppx_yo_dt_b_search_asin_image?ie=UTF8&psc=1

This is a huge net 10'x20', we use two of these to contain the balls in the court area. These work great and limits ball chasing and hunting - we just keep playing!



https://www.amazon.com/gp/product/B0C1NTF2J2/ref=ppx_yo_dt_b_search_asin_image?ie=UTF8&psc=1

Another ball control net that is a bit smaller than the one above, its only 7'x7'. We use these nets to close off areas of the court so we don't have to chase balls around our warehouse.



Tables:

https://www.amazon.com/gp/product/B0971YF41Q/ref=ppx_yo_dt_b_search_asin_image?ie=UTF8&th=1

This table is great for hand battles at the kitchen and generally changes the way ERNE throws balls during normal drills, its a nice component to have. Very light and portable.



<https://www.harborfreight.com/material-handling/hand-trucks-carts-dollies/36-in-x-24-in-industrial-polypropylene-service-cart-58323.html>

Another nice table that is better as a permanent fixture in a club or on a home court. Functions the same as the table above but doesn't break down for easy travel. That said it is great for holding balls, paddles, phone, etc.



<https://www.harborfreight.com/500-lb-capacity-hydraulic-table-cart-61405.html>

Our favorite cart for ERNE height manipulation, it is hydraulic and will raise ERNE over 3', easily moveable around the court but not easily movable to other locations - if you have a club or a home court this is a great addition to your training.



Endorsed for ERNE Use

The following list represents items that we have or are using with ERNE and therefore endorse them as compatible, we'll change this list as we use more and more products. Updates to this list will be published in our online forums, specifically here: <https://www.ernepickleballmachine.com/ernecommunityforum>. You'll need to be a member of the website (it's free) to gain access to these forums.

Just because we endorse it for use with ERNE doesn't mean there aren't better alternatives for you to use. The opposite is true as well, if a product isn't on the list it doesn't necessarily mean it won't work with ERNE it simply means we may not have tested it yet. As a customer you can reach out to us and we will be happy to test a product before you purchase (if we have time) or even after you've bought it and found it works well.

The best way to verify if something you want to use with ERNE is endorsed (pr not) is to reach out via a call, text, eMail or through our website.

Pickleballs:

Outdoor pickleballs are the focus of ERNE ball testing, we haven't yet spent a lot of time testing and classifying indoor balls although we have used various kinds that have worked well - many were unbranded.

For outdoor balls we suggest our ERNE balls (playing and or training) for multiple reasons not the least of which is depositing plastic residue on the wheels - the ERNE balls leave very little residue and will even help clean the wheels of other balls plastic residue (Franklin's or Dura's for example). Another benefit of using ERNE pickleballs is the sound dampening aspect which will, in general, reduce the "pop" sound by about 33%. The final reason is they are incredibly durable, we haven't had a ball wear out in several months of play and ERNE use!

That said, we also realize that there are many other pickleballs on the market that are used by our ERNE community so we have tested many of them including *Franklin, Durafast and Onix* - these all work well with ERNE except they can deposit plastic residue on the wheels which shortens the life of the wheels. We have also tested balls that are out of spec and will jam ERNE's carousel and or throw erratically. All balls (especially harder plastic balls) shrink over time as particles of the plastic are deposited on the wheels, the court and the paddles which will eventually create out of spec balls and therefore problems for ERNE.

Cleaning Materials:

To keep ERNE clean you can use most household cleaning products to get the job done but remember to keep these cleaning materials out of the machine and just one the case. At the Roost we use Windex to keep our ERNE's clean and reflective. In some cases we'll use the magic eraser to remove tar from the court or other more nasty stains.

To clean the inside of ERNE we suggest using an air compressor to blow materials out of the ERNE yoke cavity, this should be done from the top through the carousel. You can also use a keyboard cleaner can of compressed air but you'll probably want to take the case off. The electronics are separated from the mechanical functions of the machine so very little dust and debris will make it to that compartment of ERNE.

Lastly, do not spray anything directly on ERNE instead spray the rag that will be used to wipe ERNE down, this minimizes the possibility of introducing liquid to the machinery.

Ball Bags:

Since ERNE supports substantially more than 100 balls in the hopper you'll likely need a bag to carry your pickleballs to the court. If you purchased ERNE Pickleballs in 100 or 150 count you received one of the bags listed below, for those of youth don't have a bag we thought it made sense to share what our customers receive.

100 Balls:

https://www.amazon.com/gp/product/B07KY6SCQJ/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&psc=1



150 Balls:

https://www.amazon.com/gp/product/B000CD2JUY/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&psc=1

