

VECTRA
FITNESS



EX 220

Owner's Manual

EX SERIES ELLIPTICALS:
220 and 420

WELCOME TO THE **EX SERIES ELLIPTICALS:** A HOME FITNESS REVOLUTION

EX Models



EX 420



EX 220

Important Safety Instructions

When using the equipment, always take basic precautions, including the following:

- Read all instructions before using the equipment. These instructions are written for your safety and to protect the unit.
- Before beginning any fitness program, see your physician for a complete physical examination.

Il est conseillé de subir un examen médical complet avant d'entreprendre tout programme d'exercice. Si vous avez des étourdissements ou des faiblesses, arrêtez les exercices immédiatement.

DANGER To reduce the risk of electrical shock always unplug the unit from the electrical outlet immediately after using and before cleaning.

WARNING To reduce the risk of burns, fire, electric shock, or injury, take the following precautions:

- Do not allow children, or those unfamiliar with the operation of the equipment, on or near it. Do not leave children unsupervised around the unit.
- Never leave the equipment unattended when it is plugged in. Unplug the equipment from the power source when it is not in use, before cleaning it, and before acquiring authorized service.
- **Important:** The Heart Rate and HeartZone features are intended for reference only. They may not be accurate for every user or at every intensity and are not intended for use as a medical device. Also visit: www.vectrafitness.net/faqs.
- Equipment Weight Restrictions: For EX 220: DO NOT use the EX if you weigh more than 275 pounds (125 kg). For EX 420: DO NOT use the EX if you weigh more than 350 pounds (159 kg).

- When the equipment is not in use, disconnect it by turning the power switch to the Off position, and then remove the power plug from the power outlet.
- Assemble and operate the equipment on a solid, level surface. Locate the equipment a few feet from walls or furniture. Keep the area behind the equipment clear.
- Never operate the unit if it is damaged, not working properly, when it has been dropped, or has been dropped in water. Return the equipment to a service center for examination and repair.

DANGER The unit must be connected to a properly grounded circuit (refer to *Grounding Instructions*).

- Keep the power cord and plug away from heated surfaces.
- Keep all electrical components, such as the power cord and power switch, away from liquids to prevent shock.
- Do not operate the equipment where aerosol (spray) products are being used or where oxygen is being administered.

- Do not use outdoors.
- Maintain the equipment in good working condition. Make sure that all fasteners are secure and the running belt is clean and running smoothly.
- Do not attempt to service the equipment yourself except to follow the maintenance instructions found in this manual.
- Never drop or insert objects into any opening. Keep hands away from moving parts.
- Use the equipment only for its intended purpose as described in this manual. Do not use accessory attachments that are not recommended by the manufacturer, as such attachments may cause injuries.
- Do not set anything on the handrails or hood. Place liquids, magazines, and books in the appropriate receptacles.
- Do not rock the unit. Do not lean or pull on the console at any time.

- Wear proper exercise clothing and shoes for your workout and avoid loose clothing. Do not wear shoes with heels or leather soles. Check the soles of your shoes and remove any dirt and embedded stones. Tie long hair back.
- Keep your body and head facing forward. Never attempt to turn around on the EX.
- Do not overexert yourself or work to exhaustion. If you feel any pain or abnormal symptoms, stop your workout immediately and consult your physician.

Safety Approvals for Cardiovascular Equipment

Vectra equipment has been tested and found to comply with the following applicable safety standards.

Cardiovascular Type Equipment:

- CAN/CSA, IEC 60335-1 (Household and similar electrical appliances - Safety)

Grounding Instructions

The equipment must be grounded. If the equipment malfunctions or breaks down, grounding provides a path of least resistance for electric current, which reduces the risk of electrical shock. The equipment is equipped with a power cord having an equipment-grounding conductor and a grounding plug. The plug must be inserted into an outlet that is properly installed and grounded in accordance with all local codes and ordinances. Failure to properly ground the equipment could void the Vectra Limited Warranty.

DANGER Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the unit is properly grounded. Do not modify the plug provided with the equipment. If it does not fit the outlet, get a proper outlet installed by a qualified electrician.

120 V Units Designated for North American Markets

The unit must be connected to a grounded circuit. The power outlet must have the same configuration as the plug. No adapter should be used with this product.

Radio Frequency Interference (RFI)

Federal Communications Commission,
Part 15

This fitness equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. The equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the owner's manual instructions, may cause harmful interference to radio communications.

If the equipment does cause harmful interference to radio or television reception, which can be determined by turning the unit off and on, you are encouraged to try to correct the interference using one or more of the following measures:

- Reorient or relocate the receiving antenna for your TV, radio, VCR, DVR, etc.
- Increase separation between the unit and the receiver (TV, radio, etc.).
- Connect the equipment into a different power outlet on a dedicated circuit different from the one used by the receiver (TV, radio, etc.). No other appliance should be plugged into the same power outlet as the equipment.
- Consult an experienced radio/TV technician for help.

WARNING Per FCC rules, changes or modifications not expressly approved by Vectra could void the user's authority to operate the equipment.

Canadian Department of Communications

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

ATTENTION: Haute Tension
Débranchez avant de réparer

Obtaining Service

You should not attempt to service the equipment except for maintenance tasks as described in this manual. The equipment does not contain any user-serviceable parts that require lubrication. For information about product operation or service, see the Vectra web site at www.vectrafitness.net.

Should you need more information regarding customer support numbers or a list of Vectra authorized service centers, visit the Vectra web site at www.vectrafitness.net.

Note: A thin protective sheath covers the roller arm wheels on your EX. As you exercise, the roller arms move up and down the ramp and the wheels tend to squeak until the protective sheath wears off. Noise from the wheels during this break-in period is normal and will stop once the break-in period is complete (usually after about ten hours of use). Please allow ten hours of use for the wheel noise to subside before calling Vectra Customer Support.

For future reference, write the model number, equipment serial number, console serial number, and date of purchase for your unit in the space provided.

Model number: _____

Equipment serial number: _____

Console serial number: _____

Date purchased: _____

The equipment serial number is located on the rear stabilizer bar, just below the power switch.



Figure 1: EX serial number label position

The console serial number is located inside the audio connector compartment on the back of the console. You will need to open the cover of this compartment to see the number.



Figure 2: Console serial number label position

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EX Safety Features

The Elliptical Fitness Cross trainer (EX) is equipped with certain items that, when used properly, help sustain a safe and enjoyable workout. These items include:

- Locking pin
- Power switch

Important: Before exercising, review the Important Safety Instructions found at the beginning of this manual.

Location

It is important to keep the area around the equipment open and free from encumbrances such as furniture or other fitness equipment. For user safety and proper maintenance, be sure to allow three feet (one meter) of space on all sides of the equipment.

Turning the Unit On and Off

To turn the unit on and off, use the power switch located on the back of the unit, near the power cord connection. Refer to the following figure to see the location of the switch.

Important: When the unit is not being used, turn it off.

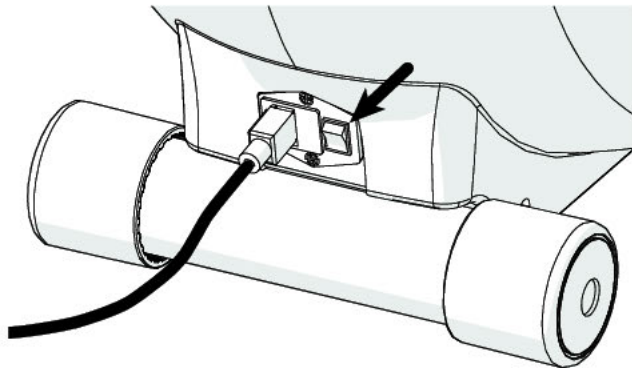


Figure 3: Power switch location

Using the Locking Pin

Your EX is equipped with a pin and lanyard to lock its pedals (and arms, if it has moving arms) in place. To lock the EX, insert the pin securely into one of the holes just behind the rollers.

Important: *The locking, spring-loaded ball near the end of the pin must pass through both sides of the arm. You should be able to feel it when it clicks into place.*

The following figure shows how the pin looks when it is properly seated.

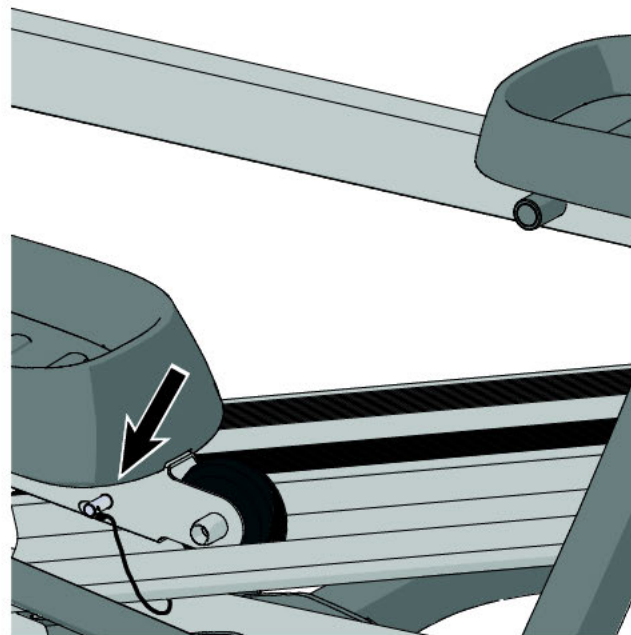


Figure 4: Locking pin in use

When you want to use the EX, remove the pin from the hole and store it in the hole under the bottom of the ramp. The following figure shows how the pin should look while the EX is in use.

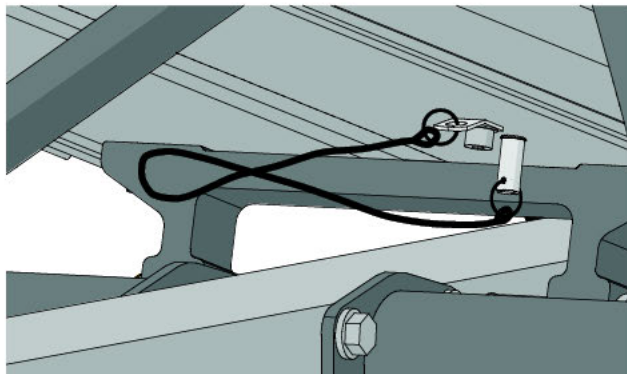


Figure 5: Locking pin in storage during a workout

Getting Started

As you get to know your new Vectra Elliptical Fitness Cross trainer and your own fitness goals, you'll use the advanced features of the equipment more often. To begin with, though, here's an easy way to start out.

Note: These instructions assume that your equipment has been completely installed and set up (refer to *Setting Up Your Equipment*).

WARNING Read through **ALL** of the safety information in this manual before you use the equipment.

To get started with your new Elliptical Fitness Cross trainer:

1. Turn the equipment on if necessary.
2. If the locking pin is engaged, release it.
3. Hold one handrail and step onto the pedals.
4. Grasp the handlebars securely.
5. Press the **GO** key.

6. Use the up and down arrows to adjust the amount of resistance. If the equipment includes a motorized Power Ramp adjustment, use the arrows on the left to adjust the Power Ramp height, and the arrows on the right for the resistance.

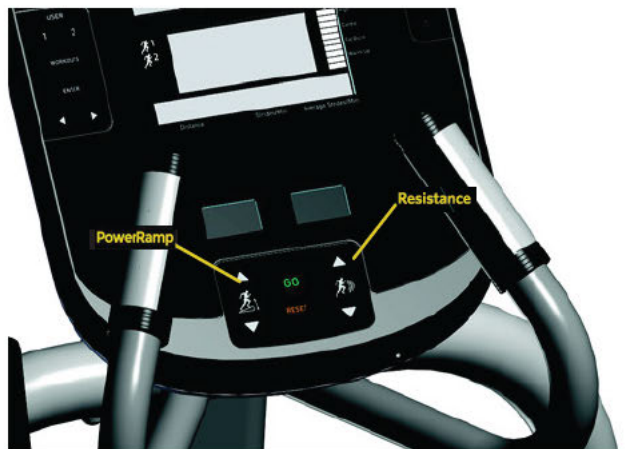


Figure 6: Power Ramp and resistance adjustments

7. If you need to end your workout early, press

RESET.

Note: A thin protective sheath covers the roller arm wheels on your EX. As you exercise, the roller arms move up and down the ramp and the wheels tend to

squeak until the protective sheath wears off. Any noise from the wheels is normal and will stop after a break-in period. Please allow a break-in period of approximately ten hours before calling Customer Support.

Using Power Ramp

Power Ramp is a Vectra technology that helps you get more out of your EX. As you select different Power Ramp settings, the angle of the roller ramp changes while your body remains in a biometrically correct position. In addition to increasing the intensity of your workout, higher Power Ramp settings change the motion of your feet and legs, bringing additional focus to your quadriceps and gluteal muscles. The following two figures show how the different Power Ramp settings target different muscle groups in your lower body.

Note: On 400-series EX models, the Power Ramp range is available as a larger number of smaller level changes than those available on 200-series models.

The following figures show the differences between the level settings on these different EX models.

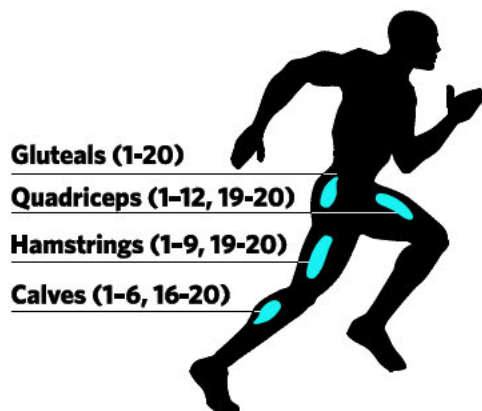


Figure 7: Muscle groups targeted by Power Ramp (400-series EX models)

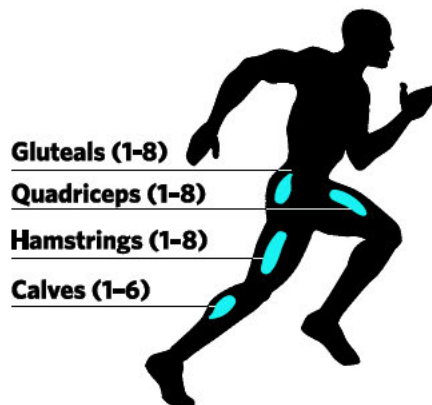


Figure 8: Muscle groups targeted by Power Ramp (200-series EX models)

Be sure to try different Power Ramp settings during your workout. In addition to exercising different groups of muscles, you may also find that certain settings adjust the performance of the EX to your height and body geometry.

Note: Your EX is equipped with movable arms and using them exercises muscle groups in your arms and chest. Note also that 200-series EX models provide a more limited range of Power Ramp levels.

Getting Familiar with the Controls

The figure and table on the following page introduce the controls on the console of your fitness equipment.

Status Display



Figure 9: Status display

Table 1. Control descriptions

Number	Name	Purpose
1	Upper text display	Displays status messages and your workout progress graph
2	Lower text display	Displays text messages about your workout, as well as the following statistics: - Distance (the total number of kilometers or miles you have traveled in the current workout) - Strides / Min (your current walking rhythm, in strides per minute) - Average Strides / Min (your average walking rhythm, in strides per minute)

Number	Name	Purpose
3	User indicator	Shows which user profile is currently selected. Progress made during the current workout will be applied to this profile.
4	HeartZone and Heart Rate icon	The HeartZone scale places your current heart rate in one of several intensity zones. The heart-shaped icon pulses whenever the equipment detects your heartbeat.
5	Time indicator	Depending on the current workout, displays the amount of time that you have spent in the workout or the amount of time still remaining in it

Number	Name	Purpose
6	Calorie indicator	Displays the number of calories that you have used in your current workout
7	Cal / Min indicator	Displays the average number of calories you have used per minute in your current workout
8	Heart Rate indicator	Displays your current heart rate, if you are using the touch-sensitive grips or a chest strap (refer to <i>Measuring Your Heart Rate</i>)

Workout Selection and Volume Controls

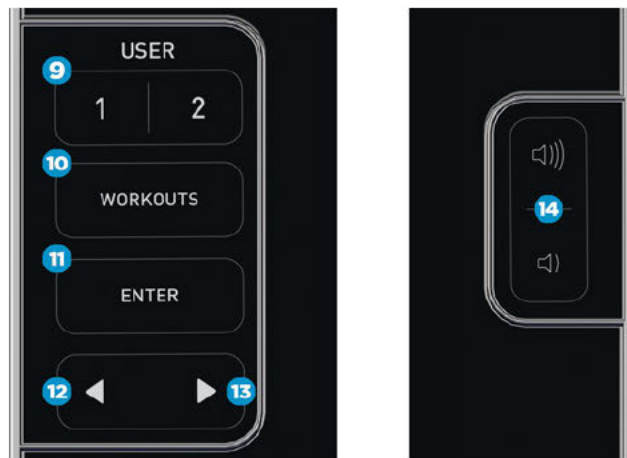


Figure 10: Workout selection and volume controls

Table 2. Control descriptions

Number	Name	Purpose
9	User keys	Selects a user profile to personalize your exercise experience
10	WORKOUTS key	Displays preset workouts
11	ENTER key	Selects the current menu item
12	Left arrow key	Navigates through menus
13	Right arrow key	Navigates through menus
14	Volume controls	Changes the playback volume of a music player, tablet, or smartphone (if you have one connected to the console)

Lower Readouts and Intensity Controls



Figure 11: Lower readouts and intensity controls

Note: Some equipment has both a resistance indicator and an incline indicator. Other equipment may have only the resistance indicator.

Table 3. Control descriptions

Number	Name	Purpose
15	Power Ramp indicator*	Displays the current Power Ramp angle as a grade percentage
16	Resistance indicator	Displays the current level of resistance
17	GO key	Begins a manual workout
18	RESET key	Resets (stops) the workout program and displays the workout summary
19	Power Ramp Up key*	Increases the Power Ramp level
20	Power Ramp Down key*	Decreases the Power Ramp level
21	Resistance Up key	Increases resistance
22	Resistance Down key	Decreases resistance

Connecting Your Audio Player

The reading tray at the top of your display console can also hold an audio player or a tablet. If you connect your device to the console, you can use the console's headphone connector and volume controls to listen to your music without interrupting your workout.

Note: You will need a connecting cable with miniature (3.5 mm) stereo headphone plugs on both ends.

To connect your audio player or tablet to the display console:

1. Gently pull open the access cover on the back of the console, as shown in the following figure.



Figure 12: Opening the access cover

2. Feed one end of the connecting cable through the opening in the reading tray.
3. Insert the plug on the lower end of the cable into the jack on the back of the console.
4. Close the access cover.
5. Plug the other end of the cable into your audio player or tablet.

Tip: You can get excess cable out of the way by feeding it through the opening in the reading tray.

Setting Up Your Equipment

After the console is installed, it needs the following information to work correctly:

- Your measurement preferences
- The model of equipment connected to the console

You will need to enter this information before you can start to use the equipment. When you do, you will also have an opportunity to change the equipment's other settings.

As you set up the console, use the keys in the following table to select and apply the settings you want.

<i>If you want to ...</i>	<i>Press ...</i>
Switch between available choices	The right and left arrow keys
Make a selection or save a setting	GO
Cancel out of the setup routine and return to the Welcome prompt	RESET

To set up the console:

1. Turn the equipment on, if necessary.
2. Press the following keys *in order*:
 - **RESET**
 - **ENTER**
 - Left Arrow
 - Right Arrow
 - **WORKOUTS**

- When the first setting (SAFETY CODE) appears, press a key to continue.

If you want to ... Then press ...

Change this setting **GO**

Leave this setting as it is The right arrow key

- Use the left and right arrow keys to change the setting, then press **GO** to save your changes.
- Repeat the previous two steps for the remaining settings.

Note: You can use the left arrow key to return to previous settings if you want to change them, and the list of settings loops from the end back to the beginning.

- When you have changed all of the settings you want to change, press **RESET** to exit from the setup menu.

The following table shows the effect that each setting has and the changes you can make.

Table 4. Console settings

Setting	Effect	Values	Default
SAFETY CODE	Requires users to press a sequence of keys (WORKOUTS, ENTER, Left arrow, Right arrow) before starting a workout	ENABLE or DISABLE	DISABLE
SET UNIT OF MEASURE	Selects the system to use when entering or reporting distances and weights	US STANDARD or METRIC	US STANDARD
SET DEFAULT WORKOUT TIME	Controls whether workouts start with a default length that is different from the maximum length	ON or OFF; if ON, you must also choose the default length in minutes	ON (30 minutes)

Setting	Effect	Values	Default
SET MAX WORKOUT TIME	Selects the longest amount of time that a workout can continue	A number of minutes between 1 and 90 Note: a setting of 90 actually allows unlimited workout time.	90 minutes (unlimited)
SET MAX RESISTANCE	Selects the maximum resistance setting allowed on this equipment	A setting between 1 and the maximum available (20 on 400-series equipment, 16 on 200-series equipment)	The maximum value
SET MAX POWER RAMP	Selects the maximum Power Ramp setting allowed on this equipment	A setting between 1 and the maximum available (20 on 400-series equipment, 8 on 200-series equipment)	The maximum value

Setting	Effect	Values	Default
SET MAX PAUSE TIME	Selects how long the equipment will wait for someone to resume an interrupted workout	An amount of time between 30 seconds and 5 minutes, or NONE	30 seconds
SET MAX COOL DOWN TIME	Selects the length of the cooldown phase at the end of each workout	A number of minutes between 0 and 5	5 minutes
CONFIGURATION	Selects the type of equipment installed with this console	EX 200 or EX 400	EX 200
BEEPER	Switches on or off the informational beeps that the console produces during use	ON or OFF	ON

Creating User Profiles

Your equipment can keep track of profiles for two people. Each person's profile stores that person's age and weight.

Once you have created both user profiles, you can switch back and forth between them by pressing the two USER keys.

To create a user profile:

1. Press one of the two **USER** keys.
2. Use the left and right arrow keys to adjust the workout length you want, then press **ENTER**.
3. Adjust the weight shown so that it matches your weight, then press **ENTER** again.
4. Adjust the age shown so that it matches your age, then press **ENTER** to save your changes.

Note: To change a user profile after it has been set up, press the **USER** key for that profile and hold it for three seconds.

Measuring Your Heart Rate

Important: *The Heart Rate and HeartZone features are intended for reference only. They may not be accurate for every user or at every intensity and are not intended for use as a medical device. Also visit: www.vectrafitness.net/faqs.*

Vectra cannot guarantee the accuracy of any readings you may get, but for best results, measure your heart rate in one of two ways:

- If you have a chest strap (for use with a fitness watch, for example), the equipment can receive the heart rate signal the strap transmits.
Note: You may have better results using a chest transmitter strap.
- You can grasp the heart rate sensors on the handlebars.

When the equipment detects your heart rate, the following things happen:

- The heartbeat indicator (icon) appears over the HeartZone scale (refer to *Using HeartZone*).
- After a few seconds, the console displays your current heart rate.

Before you start working out, make sure you know your maximum heart rate. Then, as you work out, be sure to reduce the intensity of your exercise if you reach or exceed that number.

CAUTION: Your heart rate should never exceed 85% of your maximum aerobic heart rate.

You can use the following formula, provided by the American College of Sports Medicine®, to figure out your maximum heart rate:

Maximum heart rate = $207 - (\text{your age} \times 0.67)$

Your typical target heart rate is 70% of your maximum rate.

The following graph shows how your effective heart rate ranges vary with your age.

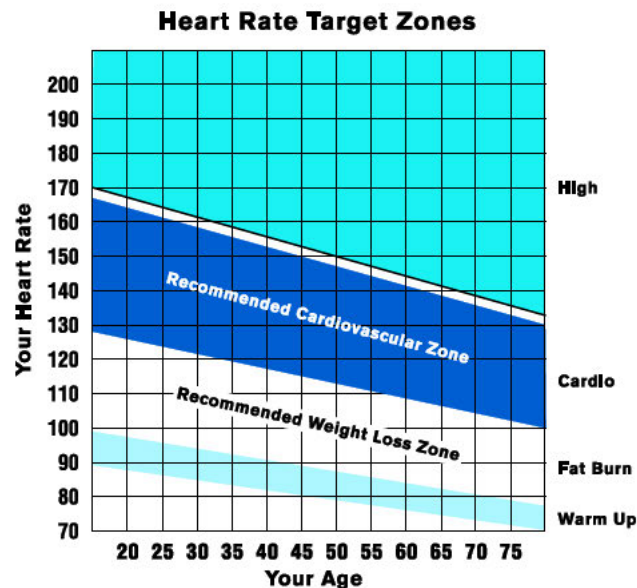


Figure 13: Heart rate target zones

On the Workout List, you can find several preprogrammed heart rate workouts. These workout courses automatically manage your heart rate at a target level based on your age. By monitoring your heart rate and making changes to the equipment's settings as you exercise, the workouts keep your heart rate within a few beats per minute of the target rate.

Using HeartZone

HeartZone displays actual heart rate information in relation to the user's target zone for weight loss and cardiovascular training.

Note: Vectra cannot guarantee the accuracy of any readings you receive.

The HeartZone monitor is visible during all workouts. In addition, Heart Rate Control (HRC) workouts adjust their intensity automatically to keep a user's heart rate in its target zone.

CAUTION: Your heart rate should never exceed 85% of your maximum heart rate. You can calculate your maximum heart rate using the following formula:

Maximum heart rate = $207 - (0.67 \times \text{your age})$

CAUTION: Before beginning any fitness program, see your physician for a thorough physical examination. Seek advice from your physician to learn the target heart rate appropriate for your fitness level.

To test your heart rate:

1. Select a workout and press **GO** or **ENTER**.
2. Grasp the Heart Rate sensors with both hands. A blinking heart indicator appears while the equipment reads your heart rate. After a few seconds, the console displays your heart rate in beats per minute and shows it on the HeartZone scale. The labels next to the HeartZone scale indicate the zone where your heart rate is currently operating:
 - Warm Up
 - Fat Burn (weight loss)
 - Cardio
 - High

Note: In the Basic Heart Rate Control workout, the **GO** key is deactivated. The equipment needs to know your age to set an accurate target heart rate, so you must either enter it or select a user account before you start the Basic Heart Rate Control workout.

Getting Accurate Heart Rate Readings

Vectra cannot guarantee the accuracy of any readings you may get, but for best results, Heart Rate sensors need to be securely in contact with your skin. Use the following guidelines to make sure they are.

Note: You may have better results using a chest transmitter strap.

To attach a chest strap:

WARNING Signals used by the chest strap transmitter (or Heart Rate strap) may interfere with pacemakers or other implanted devices. Contact your doctor, the manufacturer of the chest strap, and the manufacturer of the implanted device before using a chest strap transmitter.

Important: Vectra cardio equipment works with 5 KHz chest straps only. It does not work with Bluetooth®-based chest straps, which are designed for use with mobile apps.

Note: To receive an accurate reading, the strap needs to be in direct contact with the skin on the lower sternum (just below the bust line for women).

1. Carefully dampen the back of the strap with tap water. Refer to the following figure.

Note: Do not use deionized water. It does not have the proper minerals and salts to conduct electrical impulses.

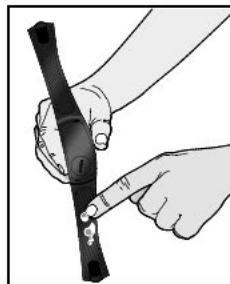


Figure 14: Moisten chest strap

2. Adjust the strap and fasten it around your chest. The strap should feel snug, not restrictive. Refer to the following figure.

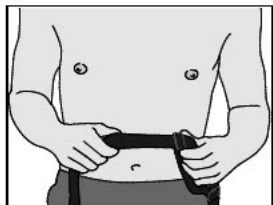


Figure 15: Adjust chest strap

3. Make sure that the chest strap is right side up, lies horizontally across your chest, and is centered in the middle of your chest. Refer to the following figure.

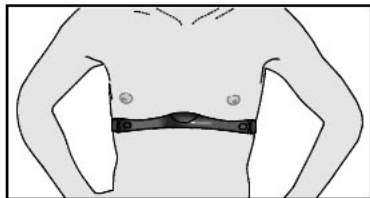


Figure 16: Fasten chest strap

4. After you put on the chest strap, face the display console for a few seconds. This allows the receiver in the console to recognize the signal from the chest strap.

If you use the touch-sensitive grips, be sure to grasp them securely (but not tightly—use a loose, cupping hold) on both sides. You may need to wait for 15 to 20 seconds before your heart rate is displayed.

Important: The touch-sensitive grips work well for most people. However, because of their body chemistry or erratic heartbeats, a few people cannot use the grips. If this applies to you, a chest strap may provide better results. However, do not grasp the touch-sensitive grips while wearing a chest strap—using both at the same time can cause erratic heart rate readings.

Troubleshooting Heart Rate Readings

Vectra cannot guarantee the accuracy of any readings but if your heart rate readings look wrong, or if you do not see any readings at all, check the following list for possible causes. If the solutions in this list do not solve the problem, contact your dealer or Vectra Customer Support.

Important: *The Heart Rate and HeartZone features are intended for reference only. They may not be accurate for every user or at every speed and are not intended for use as a medical device. Holding the Heart Rate handle touch sensor while running may also decrease accuracy of the heart rate reading and is not recommended. Also visit: www.vectrafitness.net/faqs.*

No Heartbeat Icon or Heart Rate Display

Vectra cannot guarantee the accuracy of any readings you may get, but for best results, follow these tips.

The Heart Rate sensors may not be in secure contact with your skin. Try the following solutions.

For touch-sensitive grips:

- Make sure that your hands grasp the touch-sensitive grips continuously and firmly (but not tightly) for at least five to ten seconds.
- Check that the palms of your hands are not covered with any sort of salve, rub, or lotion. If they are, wash them.
- Check that your hands are not too dry. If they are, moisten them slightly.

For a chest strap:

- Make sure the strap is fastened, positioned, and moistened correctly.
- Make sure the strap is compatible with the equipment. It must be a 5 kHz strap. Heart Rate straps that function at other frequencies, and Bluetooth-based straps, are not compatible with this equipment.

The Displayed Heart Rate Is Wrong Or HeartZone Doesn't Work

Vectra cannot guarantee the accuracy of any readings you may get, but for best results, follow these tips.

The touch-sensitive grips may not be making secure contact. Try the following solutions:

- Make sure that your hands are clean, slightly moist, and positioned as described earlier in this table.
- Try using a chest strap instead of the grips.

If you are trying to use the grips and an active chest strap at the same time, choose one or the other. Either do not grasp the touch-sensitive grips, or remove or turn off the chest strap.

Choosing and Completing a Workout

The instructions shown earlier in this manual provide the simplest possible steps for getting started with your new fitness equipment. But in most cases, you'll want to start with one of the preprogrammed workouts available on the equipment.

Choosing a Workout

Your fitness equipment has been programmed with a library of workout plans to help you meet your fitness goals.

To choose a workout:

1. Press the **WORKOUTS** key repeatedly to scroll through the available workouts.
2. When you reach the workout you want, press the **ENTER** key to select it, then press **GO** to begin.

Tip: The **WORKOUTS** key remains active while you work out, in case you want to switch workouts in the middle of your exercise session

To adjust the duration of your workout and your personal information:

1. At any time during your workout, press **ENTER**.
2. Use the left and right arrow keys to adjust the duration of the workout, then press **ENTER** to continue.
3. Adjust the weight shown so that it matches your weight, then press **ENTER** again.
4. Adjust the age shown so that it matches your age, then press **ENTER** one last time.

Available Workouts

Your fitness equipment includes a wide selection of workouts that are carefully designed to make sure you get the best results out of every workout.

The human body is extremely efficient. If it makes the same motion regularly over many days or weeks, it learns to make that motion with less and less effort. This process, called *muscle adaptation*, has one drawback—the longer you stick to the same workout, the less good that workout does you.

To prevent muscle adaptation from setting in as you work out, try different kinds of workouts on different days. By keeping your muscles guessing, you'll keep your energy use up, promoting faster weight loss and better conditioning.

In the following figures, the elevated areas show the training profile for each preset workout.

Interval 1-1 and Interval 1-2

Interval workouts help exercisers improve strength, endurance, aerobic and anaerobic fitness. They alternate short bursts of high intensity activity with recovery periods.

These workouts are designed to raise and lower your heart rate in a repeating fashion for a user-defined period of time by alternating rest and work intervals of two minutes each (for the Interval 1-1 workout) and two minutes of rest followed by four minutes of work (for the Interval 1-2 workout).

Training tip: You can further tailor your rest and work period intensity by adjusting the resistance, Power Ramp setting, or both at any time. The equipment remembers these preferences for each upcoming interval.



Figure 17: Interval 1-1



Figure 18: 1-2 Interval

Weight Loss

The American College of Sports Medicine recommends that adults get at least 30-60 minutes of moderately intense exercise five days a week. The Weight Loss workout provides a structured and time-based aerobic challenge designed to help you reverse or prevent weight gain.

The total time for this workout is fixed at 28 minutes. It consists of alternating four-minute work and rest intervals. During the work intervals, you can change the resistance at any time.

Training tip: For best results, wear a heart rate monitor and maintain a target heart rate that is between 50% and 70% of your maximum heart rate.



Figure 19: Weight Loss

Basic Heart Rate Control

This workout monitors your heart rate to guide you through a moderate intensity program that is optimal for aerobic conditioning.

During the workout, your target heart rate is based on the following calculation:

Target heart rate = $70\% \times (207 - (0.67 \times \text{your age}))$

The equipment adjusts resistance, Power Ramp level, or both to maintain your target heart rate while you work out.

When a heart rate signal is not received, a heart shape with a question mark appears in the upper text display. Recheck your hand grip on the handheld sensors or the placement of your chest strap.

Training tip: This program offers a coaching benefit for new and returning users who are learning how to maintain a moderate, steady exertion level throughout their workouts.

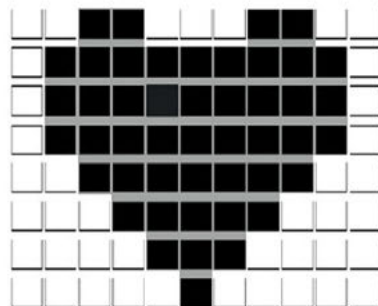


Figure 20: Basic HRC

Note: For the unit to detect your heart rate, you must grip the handheld Heart Rate sensors or wear a chest strap while exercising. In the presence of both handheld and wireless data, the handheld data takes precedence and is displayed.

Hill Climb

This workout engages a wider range of muscle groups by adjusting the resistance and Power Ramp settings to simulate a hill climbing experience.

For improved conditioning of your thigh and calf muscles, the workout requires you to reverse direction after 25%, 50%, and 75% of the total time. At these points, you will see text messages on the console that prompt you to change direction. Increasing or decreasing one workout segment increases or decreases all remaining segments by the same amount.

Note: If the equipment has a manually operated ramp, we recommend adjusting it to the highest possible setting before you begin.

Training tip: Incorporating hill climb workouts into your regular cardio schedule will keep your workouts varied and help build lower body muscle strength.



Figure 21: Hill Climb

Cross Country

This workout delivers true training variety and muscular engagement by continuously adjusting the incline to simulate the dynamic terrain of an outdoor run. Any increase or decrease made in one workout segment will increase or decrease all remaining “hills” and “valleys” depicted on the display by the same amount.

For improved conditioning of your thigh and calf muscles, the workout requires you to reverse direction after 25%, 50%, and 75% of the total time. At these points, you will see text messages on the console that prompt you to change direction.

Training tip: Advanced users can take their hands off the handlebars to make better use of their core stabilizer muscles throughout the workout.



Figure 22: Cross Country

Aerobic

This workout is designed to condition your heart. After an accelerating warmup stage, the equipment reminds you to maintain a constant pace while it increases the Power Ramp setting steadily. At the end of each cycle, the Power Ramp setting returns to its lowest value and starts to increase again.

You can modify the Power Ramp setting for each two-minute segment, and you can change the resistance at any time.

Note: You cannot switch to or from the Aerobic workout during your exercise session.



Gluteal

Strong glutes contribute to better posture, improved spine and hip stabilization, and reduction in lower body injuries at the hips, knees and ankles. This workout targets your thighs and glutes as it gradually increases in intensity. For maximum effect, the workout requires you to reverse direction after 25%, 50%, and 75% of the total time. At these points, you will see text messages on the console that prompt you to change direction.

You can modify either the Power Ramp level or the resistance level at any time during this workout. If the equipment has a manually operated ramp, we recommend adjusting it to the highest possible setting before you begin.

Training tip: To increase your core activation throughout this workout, take your hands off the machine handles while maintaining an upright posture.



Cross trainer

This workout targets your thigh and calf muscles as it moves you through a gradual climb and decline. It requires you to reverse direction after 25%, 50%, and 75% of the total time. At these points, you will see text messages on the console that prompt you to change direction.

You can modify either the Power Ramp level or the resistance level at any time during this workout. If the equipment has a manually operated ramp, we recommend adjusting it to the highest possible setting before you begin.

Training tip: To increase your core activation throughout this workout, take your hands off the machine handles while maintaining an upright posture.



Manual

This workout motivates you by allowing you to define and track your exertion levels throughout your exercise session.

Training tip: As you progress through your workout, each segment of the profile reflects the last change you made to the Power Ramp and resistance settings. Challenge yourself by adjusting your training parameters regularly for the best results.



Figure 23: Manual

Ending a Session

Cooling down is an important aspect of your workout because it helps reduce muscle stiffness and soreness by transporting excess lactic acid out of the working muscles. In addition, a five-minute cooldown allows your heart rate to return to its normal, resting state.

At the end of your workout, the Summary screen displays the following information:

- Total elapsed time
- Total number of calories used
- Total distance completed
- Average number of strides per minute

Reading Diagnostic Information

Your fitness equipment keeps track of its own history. The details it stores about itself can be useful if you ever need to contact Vectra Customer Support.

To show the diagnostic information:

1. Press the following keys *in order*:
 - **RESET**
 - Left Arrow
 - **ENTER**
2. Use the left and right arrow keys to display the headings for different types of information.
3. Press **GO** to see the details under each heading.
4. If the information is a log, use the left and right arrow keys to scroll between the log entries.
5. To return to the headings, press **WORKOUTS**.
6. Repeat the previous step for any other information you want to examine.

7. To return to the Welcome screen, press **RESET**.

Table 5. Types of diagnostic information

Heading	Contents
ODOMETER	Total distance (kilometers or miles) that people have exercised on this equipment
HOUR METER	Total amount of time the equipment has been in use
U-BOOT SOFTWARE	Version number of the boot loader software in the console (the program that prepares the console and loads the rest of the software)
U-BASE SOFTWARE	Version number of the application software in the console
LOWER SOFTWARE	Version number of the operating software in the lower mechanism
USAGE LOG	List of the workouts that have been used, the number of times each one has been used, and the total amount of time each one has been in use
ERROR LOG	List of the last 30 error messages that the equipment has reported (or fewer, if the equipment hasn't reported 30 error messages).

Maintenance

It is important to perform the minor maintenance tasks described in this section. Failure to maintain the equipment as described here could void the Vectra Limited Warranty.

DANGER To reduce the risk of electrical shock, always unplug the equipment from its power source before cleaning it or performing any maintenance tasks.

Inspection

Inspect the EX before use.

Look and listen for loose fasteners, unusual noises, worn or frayed power cords, and any other indications that the equipment may be in need of service. If you notice any of these, obtain service.

Important: If you determine that the EX needs service, make sure that the EX cannot be used inadvertently. Turn the unit Off, insert the locking pin and then unplug the power cord from its power source. Make sure other users know that the EX needs service.

To order parts or to contact a Vectra authorized service provider in your area, refer to *Obtaining Service*.

Cleaning the Equipment

Most of the working mechanisms are protected inside the covers. However, for efficient operation, the EX relies on low friction. To keep the friction low, the unit's rollers, ramp, foot pedals, handlebars, and covers must be as clean as possible.

Vectra recommends the EX be cleaned before and after each workout to remove dust, dirt, water, and sweat. Use mild soap and water to dampen a soft cloth and wipe all exposed surfaces.

CAUTION: Do not use any acidic cleaners. Doing so will weaken the paint or powder coatings and void the Vectra Limited Warranty. Never pour water or spray liquids on any part of the EX, and remove any accumulated sweat from the EX after use. Allow the EX to dry completely before using it again.

Frequently vacuum the floor around the unit to prevent the accumulation of dust and dirt, which can affect the smooth operation of the unit. Use a soft nylon scrub brush to clean the foot pedals.

Storing the Chest Strap

Store your chest strap in a place where it remains free of dust, dirt, and moisture, such as in a closet or drawer. Be sure to protect the chest strap from extremes in temperature. Do not store it in a place that may be exposed to temperatures below 32° F (0° C).

To clean the chest strap, use a sponge or soft cloth dampened in mild soap and water. Dry the surface thoroughly with a clean towel.

Long-Term Storage

When the equipment is not in use for any length of time, turn it off. Make sure that the power cord is unplugged from its power source and is positioned so that it will not become damaged or interfere with people, furniture, or other equipment.

EX 420 / EX 220 Elliptical Fitness Cross trainers

Product Specifications

	EX 420	EX 220
Length:	84 in (213 cm)	76 in (193 cm)
Width:	31 in (79 cm)	29 in (74 cm)
Height:	67 in (171 cm)	65 in (165 cm)
Weight:	240 lb (109 kg)	214 lb (80 kg)
Power Requirements:	120 VAC, 60 Hz	120 VAC, 60 Hz
Power Ramp Range:	15°-40°	15°-25°
Incline Settings:	1-20	1-8
Resistance Levels:	1-20	1-16
Frame:		
Regulatory Approvals:		

Product Features

Power Ramp
Variable Stride
LCD Display
Quick Start
HeartZone
Heart Rate Telemetry (chest strap)
Heart Rate Touch Sensors
User Profiles (2)
Audio Volume Control

Workouts

Interval:	Hill Climb
1-1	Cross Country
1-2	Gluteal
Weight Loss	Cross trainer
Basic Heart Rate Control	Manual
Aerobic	

Electronic Readouts

Calories	Workout Percentage Complete
Calories per Minute	Distance
Power Ramp	Strides per Minute
Resistance	Average Strides per Minute
Heart Rate*	Time Elapsed
HeartZone Zone*	Time Remaining
Target Heart Rate*	Units
Workout Profile	Current User

* Use of touch-sensitive Heart Rate grips or chest strap is required.



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NOTICE:

Vectra is a leader in creating innovative, award-winning exercise equipment. Our dedication to pushing the boundaries of design and functionality over 25 years has resulted in products that are both visually striking and highly effective. Vectra proudly protects its intellectual property through a robust portfolio of U.S. and international patents, safeguarding the unique mechanical and aesthetic elements of our designs. This commitment ensures that our customers receive the highest quality products and experience. By safeguarding our intellectual property, we maintain the integrity of our brand and continue to develop groundbreaking fitness solutions.



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303121 113 rev E, en
May 2024