

Instructions and User Guide

Arm Ultrasound Training Models for PICC, I.V. and Arterial Access

BPA200, BPA202, BPA203, BPA204



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Overview

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Giving you the confidence only experience can offer™

Congratulations on the purchase of your Blue Phantom™ ultrasound model(s) for hands-on training. Every product we manufacture at Blue Phantom™ is specifically designed to be the most realistic and ultra-durable ultrasound simulation phantoms available anywhere. Our high standards for quality manufacturing and design guarantee that you receive only the absolute best.

About Blue Phantom™

Blue Phantom™ brings you the most realistic and durable hands-on ultrasound training models available anywhere. At Blue Phantom™ we know that learning to use ultrasound requires practice. You gain confidence and skill through experience. That is why we offer you the best ultrasound simulation training available.

Blue Phantom™ Warranty

Blue Phantom™ takes pride in its quality design and manufacturing standards. Our products are warranted to you by Blue Phantom™ for one year from the date of purchase against defects in workmanship and materials. During the warranty period, a defective part or product will be replaced either with a new or reconditioned part or product, depending on the availability at the time.

This warranty covers normal consumer usage and does not cover damage incurred through use not consistent with the product design. Failure that results from alteration, accident, misuse, vandalism, or neglect is not covered under this warranty. This warranty does not extend to any products that have been used in violation of written instructions.

Product Cautions

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Please read this instruction guide carefully. Do not begin using this model until you fully understand these safeguards and have read the User Guide in its entirety.

Important Safeguards



1. Read Instructions – All safety and operating instructions should be read before the unit is operated.
2. While all parts of this User Guide are important, the red flag that you see to the left denotes especially important content. Please familiarize yourself with all of the content prior to using your training model or damage to the model can occur.
3. Retain Instructions – The safety and operating instructions should be retained for future reference.
4. Heed Warnings – All warnings in the operating instructions should be adhered to.
5. Follow Instructions – All operating and maintenance instructions should be followed.
6. Weight Warning—Product weight is approximately 9lbs (4kg).
7. Care must be taken to place the model in a position in which it will not fall off of the bed or surface, as this may cause injury.
8. Accessories – Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall causing serious injury to a child or adult, and serious injury to the unit.
9. **CAUTION:** Please use extreme care when using needles and sharp objects as to not accidentally injure yourself during training.



Product Information

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Blue Phantom™ Arm Ultrasound Training Models

- PICC Vascular Access Arm ([BPA200](#))
- PICC Vascular Access Arm with Thrombosis ([BPA202](#))
- I.V. and Arterial Line Vascular Access Arm ([BPA203](#))
- PICC, I.V. and Arterial Line Vascular Access Arm ([BPA204](#))

Included in this Package

- Blue Phantom™ Red Ultrasound Refill Solution ([BRS180-Red](#))
- User Guide and Utilities CD

Additional Items Required for Training

- For optimal performance, please use 18-21 gauge sharp and unbent needles and associated catheter kits (please see *Chapter 4: Utilizing Your Training Model—Using Needles and Catheters* section on page 9 of this User Guide)
- Ultrasound system configured with an appropriate transducer for ultrasound guided vascular access procedures
- Ultrasound gel

Optional Accessories for Your Training Model

- Blue Phantom™ Red Ultrasound Refill Solution ([BRS180-Red](#))
- Blue Phantom™ Soft Storage Case ([BPA201](#))



Introduction to Your Training Model

This model is intended as a platform for ultrasound guided vascular access hands-on technique training. The model is designed to be extremely realistic, mimicking the feel and imaging characteristics associated with ultrasound guided vascular access procedures in the upper arm, lower arm, or both upper and lower arm. Blue Phantom's self healing design provides you with superb durability. In order to get the most out of your training platform, it is important that you properly care for your model.

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Quick Facts about Your Training Model

- Excellent platform for training clinicians in the psych-motor skills associated with ultrasound guided vascular access procedures
- Models configured with an upper arm ultrasound tissue module for PICC training contain the brachial artery and the brachial and basilic veins
- Models configured with a lower arm ultrasound tissue module for I.V. and arterial training contain the radial artery, ulnar artery, medial cubital vein and the cephalic vein
- Positive fluid offers users immediate feedback when vessels are accurately accessed
- Superb ultrasound imaging characteristics; experience the same quality you expect from imaging patients in a clinical environment
- Made in USA



Utilizing Your Training Model

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Blue Phantom™ Arm Ultrasound Training Models

BPA200, BPA202, BPA203, BPA204

Anatomy of Your Training Model

1. Remove your training model from its shipping container and make sure that you have received all of the items listed in *Chapter 3: Product Information—Included in this Package* section on page 5 of this User Guide. If you did not receive one of the listed items, or if you received the wrong items, please contact Blue Phantom™ Customer Support immediately:

Telephone: (425)881-8830

Email: customersupport@bluephantom.com

Web: www.bluephantom.com

2. Familiarize yourself with your training model.



Blue Phantom™ ultrasound training models are constructed using our patented simulated ultrasound tissue and mimics the imaging characteristics to that of human tissue. Care must be taken to not place the model on rough surfaces as the model can take on the characteristics of that surface. Do not place objects under the model as the tissue is soft and will conform to the shape of the object.



Your training model comes pre-filled with Blue Phantom™ Red Ultrasound Refill Solution ([BRS180-Red](#)). If you suspect that your model is low on fluid, please refer to *Chapter 4: Utilizing Your Training Model—Maintaining Optimal Fluid Levels* section on page 10 of this User Guide.

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Anatomy of Your Training Model (*continued*)

Your Blue Phantom™ Arm ultrasound training model is configured with either one or two ultrasound tissue inserts. Please refer to the table below to determine the configuration of your training model and see *Image A* below for the location of the ultrasound tissue inserts.

| Part Number | Product Description | Arm Tissue Insert(s) |
|-------------|---|-------------------------|
| BPA200 | PICC Vascular Access Arm | Upper Arm Only |
| BPA202 | PICC Vascular Access Arm with Thrombosis | Upper Arm Only |
| BPA203 | I.V. and Arterial Vascular Access Arm | Lower Arm Only |
| BPA204 | PICC, I.V. and Arterial Vascular Access Arm | Upper Arm and Lower Arm |

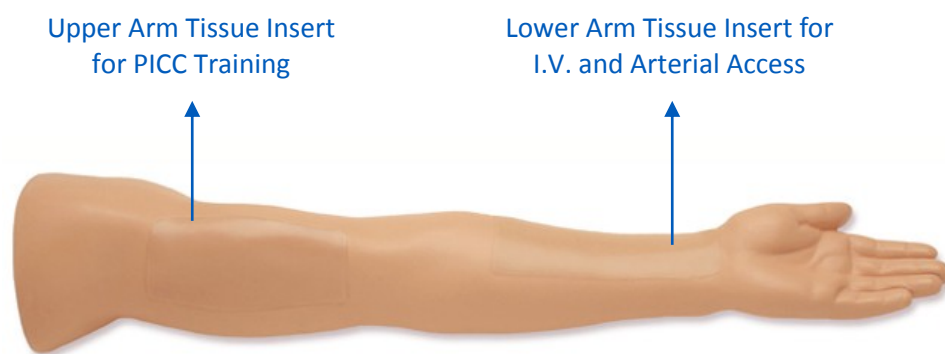


Image A

Using Your Training Model

1. Remove your Blue Phantom™ from its packaging and place on a clean, hard, flat surface.
2. This model is designed for ultrasound guided technique training.



You may mark your model with a dry erase marker at your own risk. Blue Phantom™ recommends testing the dry erase marker on the underside of the tissue insert prior to regular use. If satisfied with the test mark, you may utilize the dry erase marker during training. Immediately following use, gently remove the dry erase marker using a damp paper towel. **DO NOT** leave dry erase marker on your model for more than one hour or permanent damage to your model may occur.

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Using Your Training Model (*continued*)

3. When utilizing ultrasound guidance, place ultrasound gel on the model or on the ultrasound transducer in adequate quantities so that the probe slides effortlessly across the surface of the model. Add more gel as necessary.
4. Adjust the ultrasound system controls per the manufacturer's instructions, increasing and decreasing the depth and gain controls until the desired image is obtained.



If you intend on guiding sharp objects into the phantom, never place the model in a location where you might accidentally puncture yourself.

Using Needles and Catheters



1. For best performance, we recommend that you utilize new, sharp, unbent 18-21 gauge needles and associated catheter kits when accessing the structures in the model; you may use up to 7-French Triple-Lumen catheters.
2. Do not use any needle larger than 18 gauge or permanent damage to your model may occur.
3. Smaller bore needles (>21 gauge) can bend during use and damage your model's simulated tissue.
4. Aggressive repositioning of needles rather than removing and repositioning can cause stubborn or permanent needle tracks due to the needle tip dragging through the simulated tissue.
5. Dull needles may also cause permanent damage to the tissue. It is important to replace needles approximately every ten cannulations.

Accessing Simulated Blood Vessels

1. The Blue Phantom™ Red Ultrasound Refill Solution ([BRS180-Red](#)) contained within the model's vessels is specially formulated to allow for optimal performance.
2. Users can remove fluid after the vessels have been properly cannulated to confirm needle placement. Please note that any fluid withdrawn from the vessel will require refilling.



Lack of fluid will result in diminished ultrasound image. For instructions on refilling your model, please refer to *Chapter 4: Utilizing Your Training Model—Refilling Your Training Model* on page 11 of this User Guide.

Maintaining Optimal Fluid Levels

The Blue Phantom™ Ultrasound Refill Solution contained within the model is specially formulated to allow for optimal performance. It is important to maintain a good fluid level within your ultrasound training model. Through normal repeated use, users can experience a reduction in the amount of fluid, resulting in small amounts of air within the model. This is directly dependent upon the amount of fluid removed during simulation training.



WARNING: Using fluid other than that supplied by Blue Phantom™ will void your warranty. Using other fluid will cause changes in the imaging qualities of the model, reduce the ability to thread catheters, and cause fungal or bacterial growth within the model. DO NOT dilute the Ultrasound Refill Solution contained within your model.

The simplest way to maintain optimal fluid levels in the vessels is to have users inject the accessed fluid back into the model after accessing the targeted vessel. This is limited to users that are not performing the entire catheter placement procedure.



CAUTION: Use refill solution only as directed. Not intended for human consumption. If accidental consumption occurs, drink a glass of water and consult a physician. May irritate eyes; flush well with water. May contain pigments that can stain clothing; wash immediately with cold soapy water. Keep out of reach of children.

Please refer to *Chapter 4: Utilizing Your Training Model—Refilling Your Training Model* section below to determine if your model requires refilling.

How to Determine if Your Model Requires Refilling

Ultrasound is required to determine if your model requires refilling. An optimally filled vessel will be identified by the presence of a black echo-free lumen (refer to *Image B* below). A low fluid environment is identified by the inability to visualize the vessels during normal imaging situations (refer to *Image C* below). This is due to the presence of air within the vessels, which will reflect all of the sound energy.

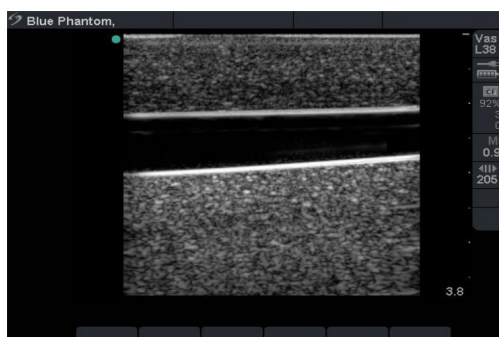


Image B

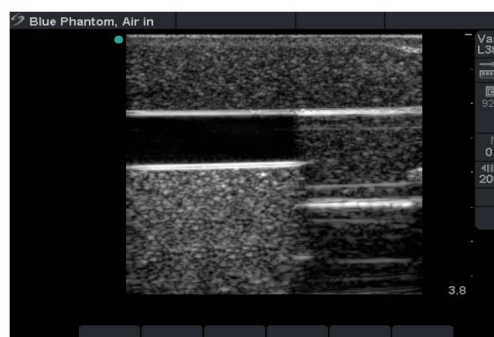


Image C

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How to Determine if Your Model Requires Refilling (*continued*)

If you have determined that your model requires refilling, please refer to *Chapter 4: Utilizing Your Training Model—Refilling Your Training Model* section below.

Refilling Your Training Model

Refilling your Blue Phantom™ Arm ultrasound training model is a simple process that will take approximately 15 minutes. Please follow the directions below.

Items Required

- Empty syringe with sharp and unbent 18-21 gauge needle
- Blue Phantom™ Red Ultrasound Refill Solution ([BRS180-Red](#))



If you are uncomfortable refilling the vessels for any reason, contact Blue Phantom™ and we can refill the phantom for a nominal fee.

Directions

1. Gently pull the ultrasound tissue insert(s) out of the base arm platform.
2. Identify the dimple access ports on your Blue Phantom™ arm tissue insert. These are identified as the small dimples at the beginning of each blood vessel within the tissue insert (refer to *Image D* for Upper Arm Inserts and *Image E* for Lower Arm Inserts).

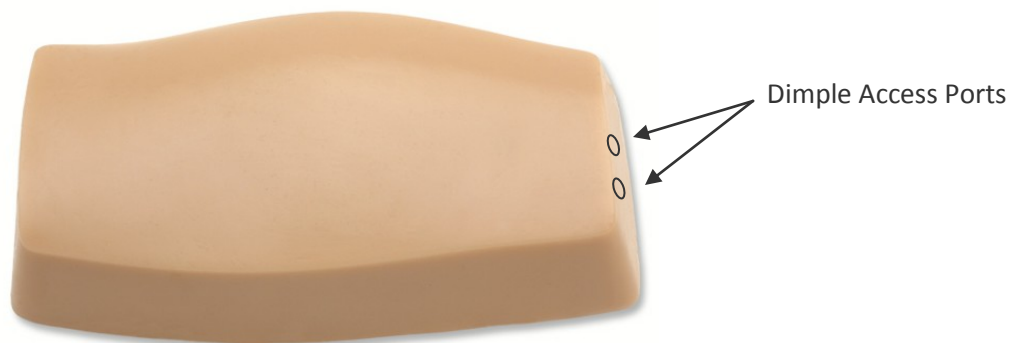


Image D—Upper Arm Tissue Insert

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Refilling Your Training Model (*continued*)

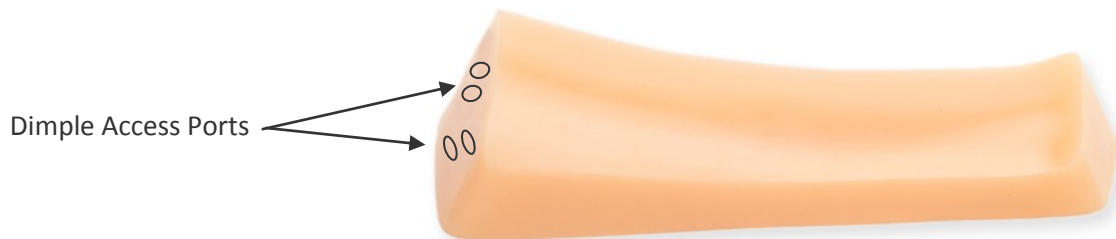


Image E—Lower Arm Tissue Insert

3. Position the tissue insert vertically with the dimple access ports pointing upward.
4. With the tissue insert positioned upright, gently tap or “burp” the model for 60 seconds. This will allow the air within the vessel to migrate to the top of the vessel.
5. Before filling your training model, it is important to be sure that you are comfortable accessing the vessels. If you are already comfortable with filling the model, skip to step 7.
6. Each vessel terminates approximately 1/2” from the surface of the tissue where the dimple access ports are located. Carefully attach a sharp and unbent 18-21 gauge needle to an empty syringe.
7. Insert the needle into the corresponding dimple access port; you should feel a loss of resistance when you enter the vessel. Repeat steps 5-6 until you feel confident and proceed to step 7 once you are ready to begin.
8. Carefully fill the empty syringe with Blue Phantom™ Red Ultrasound Refill Solution ([BRS180-Red](#)) and attach a sharp and unbent 18-21 gauge needle.
9. With the tissue insert in the upright position, carefully insert the needle into the intended dimple access port; you should feel a loss of resistance when you enter the vessel.
10. SLOWLY inject the refill solution into the appropriate vessel index marker in 5ml increments. Be sure to purge air after each successive 5ml by pulling back on the plunger. Filling the system SLOWLY prevents air bubbles from being introduced into the model.
11. Withdraw any air that has accumulated at the top of the simulated vessel.
12. Repeat this process until the targeted vessel is full and all of the air has been purged.
13. Once the tissue insert has been refilled, simply place it back into the recess in the base platform of your training model.

Overfilling the Vessels

It is possible for you to overfill the model if you infuse too much fluid into the vessels during the refill process. It will be obvious when the vessels are overfilled when small dimples of ultrasound refill solution appear on the surface of the model at previous cannulation sites. Simply removing excess fluid and air from the vessels will alleviate this issue. Overfilling the vessels is unlikely to cause any permanent problems with your model but please take care to avoid overfilling.

Caring for Your Training Model

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Proper Use and Care

Proper care of your training model will result in tremendous utility. Please heed all instructions contained in this User Guide when using your model.

Swapping Tissue Inserts

Swapping tissue inserts in and out of your Blue Phantom™ Arm ultrasound training model is a simple process that will take approximately 5 minutes.

Items Required for Swapping Arm Inserts

- Replacement Arm Ultrasound Tissue Insert

Directions

1. Place your Arm ultrasound training model on a clear workspace.
2. Gently pull the ultrasound tissue insert out of the base arm platform.
3. Place the replacement arm ultrasound tissue insert into the recess in the base platform of your training model.

Cleaning Your Training Model

After each use, your training model can be easily cleaned using mild soapy water. For best results, mix one part liquid soap with one part tap water. Gently rinse the model with the soapy water to remove any accumulated debris.

Use a clean, soft, lint-free cloth to dry after cleaning. Dry the model using a dabbing motion, rather than wiping or rubbing the model.



Wiping or rubbing the surface aggressively can result in scuffing the simulated tissue.

Storing Your Training Model

The model can be stored at room temperature either in the open or in the accessory Blue Phantom™ soft storage case ([BPA201](#)).



Do not store the model in contact with other objects. This can cause the simulated tissue to become deformed.

Blue Phantom™ Customer Support

Blue Phantom™ is committed to providing you with superb products and uncompromising customer support. Should you require assistance feel free to contact us directly at:

Telephone: (425)881-8830

Email: customersupport@bluephantom.com

Web: www.bluephantom.com



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