



## EQUINE NASOGASTRIC MODEL

USER MANUAL

1025593, 1025594

# EQUINE NASOGASTRIC MODEL

## ➤ CARE, OPERATION, AND MAINTENANCE

### Equine Nasogastric Model (1025593)

#### Components:

- Nasogastric equine head
- Nasogastric equine neck with skin cover
- Nasogastric stomach chamber
- Venipuncture fluid
- Venipuncture fluid reservoir
- Mane
- Extra veins

### Equine Nasogastric Model with Stand (1025594)

#### Components:

- Nasogastric equine head
- Nasogastric equine neck with skin cover
- Nasogastric stomach chamber
- Venipuncture fluid
- Venipuncture fluid reservoir
- Mane
- Extra veins
- Adjustable rolling stand



## ➤ SETTING UP THE MODEL

First, set up the adjustable rolling stand. Please see the adjustable rolling stand instruction manual. Once the stand is set up, this model requires the use of the stand adapter to attach the neck onto the stand properly. On the flat, wide section of the neck (proximal transverse plane), you'll find a female metal bracket into which the male fitting of the stand adapter will snugly slide. After securing the stand adapter to the neck, insert the adapter into the female receiver on the stand mount to firmly attach the neck to the stand.

With the neck securely mounted, you can proceed to fill the veins with venipuncture fluid and place the fleece hide. Refer to the specific instructions below for detailed guidance on filling the veins and securing the hide. After the hide is in place, attach the nasogastric head by inserting the steel bar at the back of the head into the female receiver on the exposed portion of the neck. The male bracket should slide easily into the corresponding female receiver, ensuring a snug fit with no visible gaps between the head and the neck.

Next, mount the stomach chamber onto the tower of the rolling stand. Align the opening of the chamber with the base of the neck, positioning it as close as possible to the ABS backer. There will be a small opening at the base of the neck for the nasogastric tube to pass through into the stomach chamber. If desired, the stomach chamber can be filled with liquid and scented as needed. The chamber is easy to clean by unscrewing the top and washing it with soapy water.

Once the adjustable rolling stand, nasogastric neck, nasogastric head, and stomach chamber are in place, the model is ready for use.

## ➤ THE NECK

The core neck structure of this model is constructed from flexible urethane foam, supported by an internal steel armature. The cranial plane features an exposed female bracket that serves as the receiver for the male bracket of the horse head. Additionally, an exposed female fitting on the transverse plane allows the model to be attached to either the adjustable stand or the equine body. When installing the model onto the stand, the stand adapter should be inserted into the back female receiver of the equine neck. The square tubing on the stand adapter slides into the corresponding larger square metal fitting on the stand, securing the attachment. For additional stability, tighten the hex-head set screw on the neck. Assembly and operation of the stand are covered in a separate document.

When attaching the equine head/neck assembly to the equine body, ensure that the hose coming from the neck to the reservoir is passed through the hole/tube located on the right front side of the body. The square tubing on the body should be carefully inserted into the corresponding larger square tubing on the neck model, taking care not to pinch the hose during installation. Once the neck is secured in place, the hose can be connected to the reservoir bag inside the body cavity. A "D" ring is located on the left side of the front interior bulkhead for hanging the reservoir bag.

The neck model features both intramuscular and venipuncture functionalities. The intramuscular feature includes large trapezoidal cutouts in the neck where urethane foam pads are inserted. These pads are designed to withstand hundreds of punctures and accept liquid from injections. Replacement pads (1025600) are available when they begin to show signs of wear from extensive use.

The venipuncture feature includes two cavities in the jugular groove region. These cavities house thick, soft silicone rubber open-sided tubes that act as backing for the jugular vein, preventing punctures to the durable silicone skin of the model. The jugular vein is represented by a replaceable latex tube that fits into the tubular cavity of the silicone backing. The latex hose is connected at the caudal transverse plane of the neck to a fluid reservoir via a one-way valve/connector. A small latex band is wrapped over the hose and connector to tightly clamp the hose and prevent leaks.

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Similarly, at the cranial plane of the neck, the latex hose is attached to a reduced connector with a plastic barbed fitting. A short piece of clear vinyl tubing is connected to the barbed fitting and is sealed at the cranial end with a push-type air relief/bleeder valve. The caudal end of the vein is connected via the one-way valve/connector to clear vinyl tubing, which joins with a barbed 'T' fitting to a single line from the reservoir.

The venipuncture fluid reservoir is a vinyl bag equipped with a built-in connector for the single feed line. This connector includes an automatic shut-off valve, allowing the single feed line to be disconnected without spillage or emptying the reservoir.

The reservoir also features a pump that can pressurize the reservoir to fill the veins. Only apply enough pressure to overcome gravity and simulate natural venous pressure, as excessive pressure may cause the veins to leak. When not in use, release the pressure by depressing the release button on the pump. The reservoir hangs from a magnetic hook, which can be positioned as desired on the stand.

## ➤ THE VEINS

The jugular veins are represented by 50 cm (20 in.) lengths of thin-walled latex tubing. This tubing requires replacement when it has endured enough punctures to start causing leaks and weeping. This material is of a very specific dimension and is available as a replacement part. The latex composition of the veins is UV sensitive, and any replacement veins should be protected from UV and stored in a cool, dry environment.

Although tap water may be used to represent blood in the model, a one-liter container of simulated blood concentrate is provided. This can be mixed with water at a maximum ratio of 1 part concentrate to 3 parts water for use in the model. The contents of this simulated blood will mitigate leakage from needle punctures in the veins, especially if the vein is being occluded. This simulated concentrate is available as a replacement item.

The veins are backed by thick silicone inserts that absorb punctures from needles that breach the medial vein wall. Although these thick, silicone backing inserts are replaceable, they will withstand hundreds of punctures before requiring maintenance. They are mechanically held in place and can be easily removed by simply stripping them out by hand.

To fill the veins with fluid, first fill the reservoir bag with the desired liquid and hang it on the provided hook at the top of the stand's main strut. Connect all lines, with the veins inserted into the jugular grooves. The tubing of the veins and the respective connecting tubes will air-lock. With the horse head removed, open the relief/bleeder valves at the cranial end of the vein by pressing the ends of the valves and holding the valves open. If the hide covering is rolled forward at the transverse plane, the veins can be seen filling. Release the valves to stop the flow once the veins are full. If fluid does not begin to fill the veins when the relief valves have been opened, gently squeeze the reservoir bag, forcing liquid to flow through the lines to help start the siphoning action.

If the veins need to be drained, the latex tubing representing the vein can be removed from the connectors at either end, as the one-way valve/connector will impede draining. To remove or replace the veins, the hide covering needs to be removed, and the latex tubing stripped from or rolled off the connectors at both ends.

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## ➤ THE SKIN COVER

A tailored, stretchable cloth represents the skin cover. The hide is oriented with Velcro patches running along the growth line of the mane. The mane is a separate strip of hair material with Velcro strips to attach appropriately to the hide. The hide must be removed in order to insert and replace the veins or the intramuscular injection pads.

The skin cover is best applied with the neck in place on the adjustable stand, with all of the components assembled, veins filled, and horse head removed. When installing the skin cover, it is best to start with a proper orientation and pull the covering over the neck (horse head removed),—similar to putting on a pullover sweater. The cloth material can be massaged into close conformity and, when properly dressed, will have very little bridging or tenting in crucial areas. When using the neck on the equine body, the hide should be installed prior to installing the head/neck assembly onto the body.

The rubber and foam composition of the neck is sensitive to UV light and oxidation, and can be partially protected from these elements if the skin cover is kept in place even when the model is not in use. The rubber covering of the neck core may exhibit yellowing over time.



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## > THE HEAD

The head is constructed from rubber-coated, flexible foam with an internal metal armature and an exposed square-tubing bracket. This male bracket easily slides into the corresponding female receiver in the neck structure. The head features an open mouth, allowing for the application of a bridle. Proper head placement also helps to secure the cloth hide covering to the neck. To access the bleeder valves for filling the veins or to remove the cloth hide covering from the neck, the head must be detached.

Both nostrils provide access for passing a nasogastric tube. While lubrication is not required, it can be used if desired. Depending on the tube's orientation, it may enter the upper nasal passage or the trachea. In either case, the tube will encounter a dead stop and will need to be readjusted.

As the tube travels down, it will pass through an entryway into the esophagus. A visible bulge at the base of the neck will indicate the tube's passage through this area before it enters the stomach chamber.

## > THE STAND

The dedicated stand is adjustable for height, head angle (forward and back), and can be rotated 90 degrees to one side.

Follow the steps below to assemble the stand:

### Prepare the Base:

- Start by placing the base on a flat, sturdy surface with the wheel side facing down.
- Remove the top bolt and wingnut to reveal the opening in the base where the tower will be attached. Ensure the lower bolt and wingnut remain securely in place, as the tower will rest on them.

### Attach the Stand Tower:

- Insert the stand tower into the central metal hole of the base, letting it rest on the lower bolt.
- Use the second bolt to securely fasten the stand tower to the base by passing it through the designated holes.

### Handle Installation:

- Now that the tower is in place, remove the bolt and wingnut from the handle.
- Slide the handle onto the top of the tower through the single square hole in the handle.

### Adjust the Handle Height:

- Lower the handle to your preferred height and lock it in place using the removed bolt and wingnut.
- To adjust the handle's height or tilt the model, simply remove the wingnut and bolt, make the necessary adjustments, and then secure them back in the desired positions.

### Final Checks:

- Before placing your model on the stand, ensure all bolts are tightened securely, the wheels have been locked, and the stand adapter has been attached to the model.

To adjust the tilt of the model's head, use the single bolt and wingnut to lock the head in your desired height position. The head has a square bracket that fits into a corresponding tube on the adjustment assembly. Once in place, you can adjust the tilt using the hand crank. To rotate the head 90 degrees to the right, remove the locking pin and rotate the head carefully.

When in use, the front and rear wheel locks should be engaged (depressed downwards) to prevent movement of the stand.

All of the stand components are either painted, powder-coated, galvanized, plated, or made of plastic and are resistant to moisture. However the stand should always be stored indoors and kept dry to prevent unnecessary corrosion.

To ensure seamless integration with the adjustable rolling stand, simply slide the provided adapter into the crank mount. Once securely in place, slide the horse neck onto the adapter, and your model will be ready for immediate use.

Should you encounter any challenges during this process, please don't hesitate to reach out to us. Our team is here to assist you and troubleshoot any issues you may encounter, ensuring a smooth and successful experience.



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