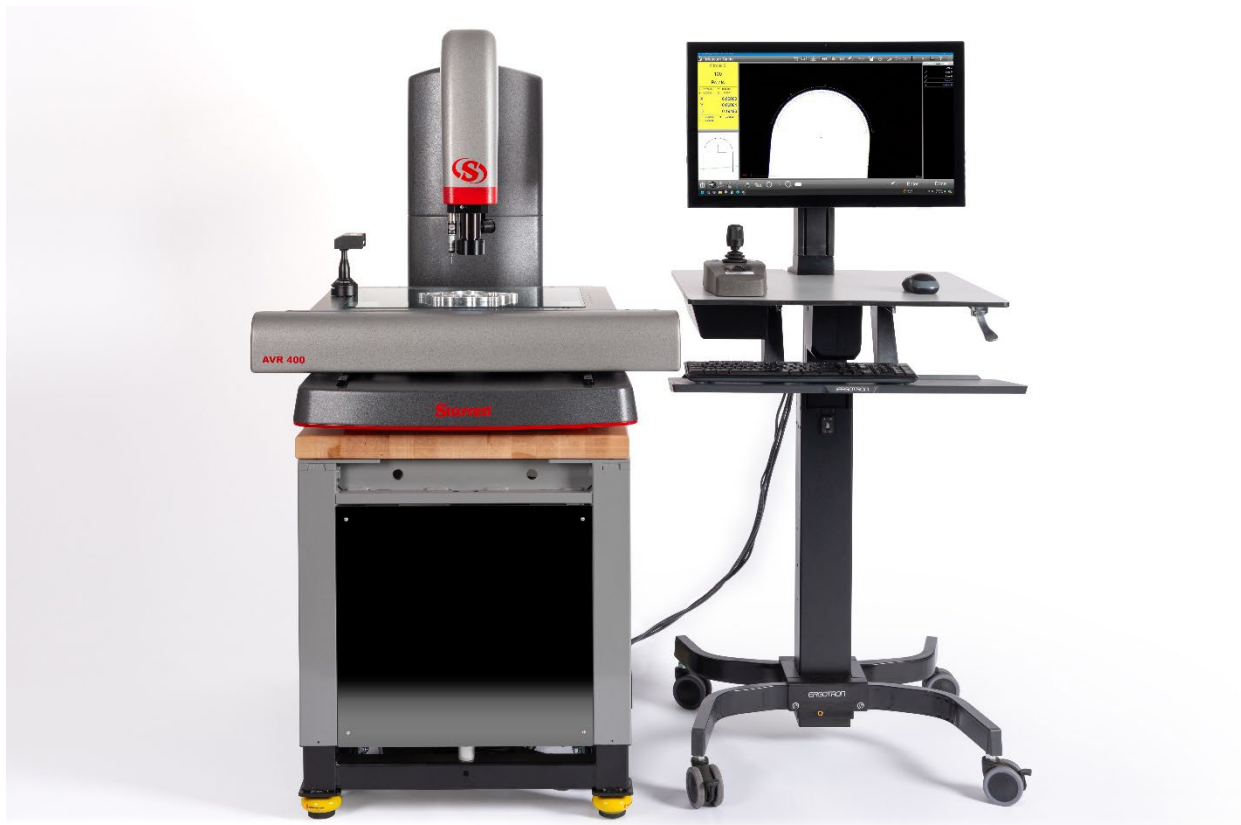




AVR400 CNC Video Metrology System Unpacking Instructions



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1. About This Guide

1.1 Purpose

These instructions provide information on how to uncrate and move the AVR400 metrology system.

1.2 Audience

This guide is intended for end-user customers, SKE Technical Services specialists, and Authorized Service Partners.

1.3 Conventions

Information that Requires Special Attention

This guide uses the following three conventions to present information that requires special attention: a warning, a caution, or a note.

A warning looks like this:

<p style="text-align: center;">WARNING</p> <p>Warning information is printed in a box. Warnings direct your attention to operating or maintenance procedures or practices that must be followed correctly to prevent personal injury, loss of life and, possible, hardware or software damage.</p>
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A caution looks like this:

<p style="text-align: center;">Caution</p> <p>Caution information is printed in a box. Cautions provide information that helps to prevent accidental hardware or software damage.</p>
--

A note looks like this:

Note: *Pay special attention to the information printed in italics that follows the **Note:** heading. Notes provide additional information that is important to the surrounding text.*

1.4 Related Production Information

The following documents provide information that is related to the subject of this guide.

AVR400 CNC Vision Metrology System User Guide (PN 9985)

This guide provides instructions on how to install, operate, and maintain the AVR400 CNC vision metrology system.

2. Unpacking and Setup

This section provides information on unpacking the AVR400 system. SKE metrology systems are normally installed by factory-trained technicians who also provide operator training. The following information covers basic hardware installation if an installer is not available.

2.1 Planning the Placement of Equipment

When planning the placement of the AVR system, refer to the following recommendations:

- Ensure a clean operating environment to minimize the accumulation of dirt on the optics and on precision mechanical parts, such as lead screws and encoder scales.
- Ensure the planned installation location has the proper electrical requirements. Refer to ***AVR400 CNC Vision Metrology System User Guide*** for electrical specifications for detailed information.
- Select an installation location where the temperature can be controlled to within $20^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ ($68^{\circ}\text{F} \pm 1^{\circ}\text{F}$), which is the calibration temperature of the system.
- It is recommended (but not essential) the system be placed on a level work surface using a bubble level for verification.
 - AVR systems are designed to be installed on a benchtop at a height of approximately 85 centimeters (33.5 inches). The height of the optional workstation can be adjusted to suit the requirements of the operators.
- Allow 60 centimeters (24 inches) to right or left side of the metrology unit to position the monitor.
- Allow additional clearance of 30 centimeters (12 inches) on both sides is recommended for general access.
- Allow a minimum of 5 centimeters (2 inches) behind the unit for air flow, as the electronics compartment only uses convective air cooling.
- Allow 50 centimeters (20 inches) of space at the back of the unit to completely open the hinged door for service access. If necessary, the metrology unit can be moved as needed for service.

2.2 Uncrating and Moving the System

WARNING

The AVR system weighs 330 pounds (150 kg) and is heavy. Do not attempt to lift the system on your own. A lifter is recommended to lift the system. Alternatively, four people are required to lift and move the system.

The AVR400 is shipped in a wooden shipping crate. Exercise care in handling the unopened shipping crate, as excessive force or a drop can damage the contents. There are two options for lifting and moving the AVR400 system: lifting straps and lifting handles.

Lifting straps

The lifting straps are included with each AVR400 order and are designed to move the AVR system to the final location with a lifter. The kit includes the following components:

- Straps (quantity 4)
- Eyebolt (quantity 4)
- Carabiner (quantity 4)
- Washer (quantity)



Lifting Handles

The lifting handles must be ordered separately and are designed to carry the system to the final location with four people. The lifting handles are used when the AVR location does not support a lifter. The kit includes the following components:

- Front handle (quantity 1)
- Rear handle left and right pair (quantity 1)
- Hex head screw (quantity 4)

2.2.1 Uncrating the System

Tool Requirements

The following items are required to uncrate and install an AVR system:

- Battery powered drill with Phillips bit (to remove top and sides of shipping crate)
- Crescent wrench (to remove screws which attach shipping tabs to the crate)
- Bubble level (to level workbench or workstation)
- 10mm Hex wrench
- Lifting strap or lifting handle kit

Uncrating Procedure

To uncrate the AVR system, refer to the following figure and perform the following steps:

1. Remove the screws on the top of the crate and carefully remove the top.

2. Remove one of the side panels for access to the contents.
3. Remove and unpack all components.
4. Verify that the contents match the packing checklist included in the documentation packet.



Figure 1. Removing Screws from the Shipping Container

2.2.2 Moving the System Using Lifting Handles

The AVR system weighs 350 pounds (113 kilograms). Four people are required to move the system using the lifting handles.

1. Locate the lifting bars that are shipped with the AVR system. Refer to “Lifting Handles” earlier in this section for details.
2. Locate the attachment holes at the rear of the AVR system. Refer to the following figure.
3. Using a 10mm hex wrench, attach the rear right and left bars to the designated location at the rear of the system. Refer to the following figure.

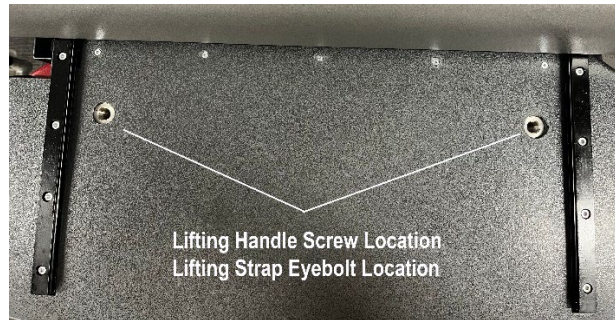


Left Rear Lifting Handle

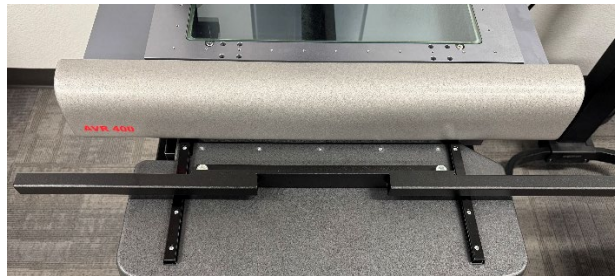


Right Rear Lifting Handle

4. Locate the attachment holes on the front of the system. Refer to the following figure.



5. Using a 10mm hex wrench, attach the front lifting bar to the designated position. Refer to the following figure.



6. With four people, use the lifting bars to lift the system from the shipping container.



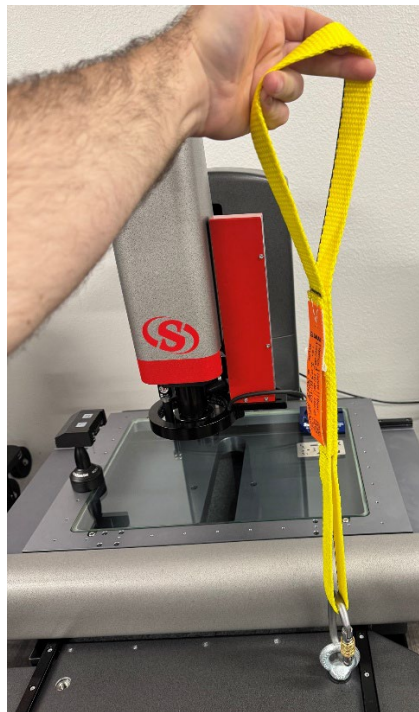
2.2.3 Moving the System with Lifting Straps

To move the system with the lifting straps and a lifter, do the following:

1. Locate the lifting strap kit including with the system.
2. Place a washer on each corner of the AVR system in the designed location. Refer to the previous figures for the location.
3. Place an eyebolt onto the washer and screw to attach. Repeat for each side of the system.
4. Attach a carabiner to each eyebolt.
5. Attach a strap to each carabiner. Refer to the following figure for the completed assembly.



Lifting Strap Assembly



Front of System



Rear of System

6. Connect the straps to the lifter.
7. With all the straps secured, gradually raise the forks enough to provide a light amount of tension to straighten the straps.
DO NOT lift the system if the straps are twisted or kinked in any way. Make the adjustments as needed before proceeding to lift.
8. Once all straps are aligned, raise the system and move to the appropriate location.

2.3 Removing the Shipping Locks

Background

AVR400 systems are shipped with multiple mechanisms to prevent movement during shipment. Shipping locks are installed on each side of the X-Y stage and on the Z-column of the system to prevent movement during shipment. Refer to the following figure.

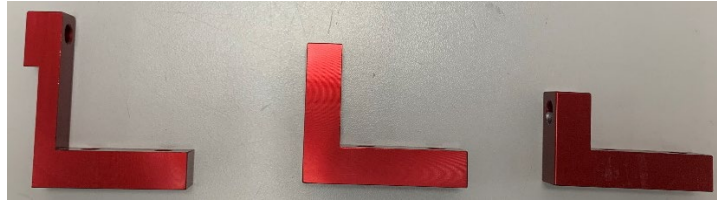
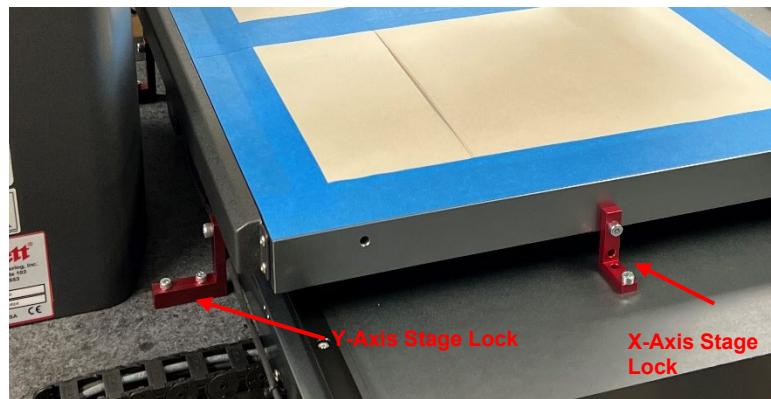


Figure 2. Shipping Locks

Procedure

To remove the shipping locks, perform the following steps:

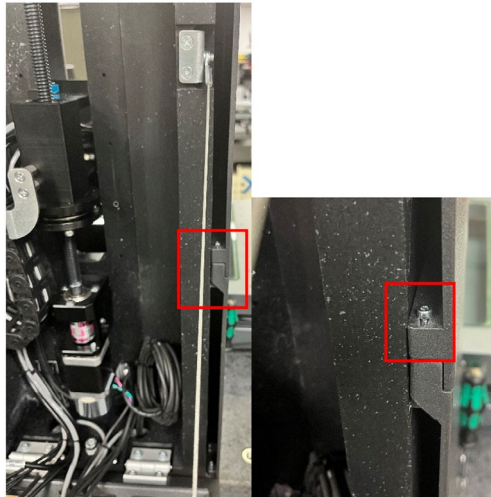
1. Locate the four red locks that secure the stage. There are two locks on each side of the stage and two locks on the rear of the stage. Refer to the following figures.
2. Using a metric hex wrench, remove the two M5 socket head cap screws that secure each lock.



3. To access the remaining shipping locks, do the following:
 - a. Using a Phillips screwdriver, remove the two screws at the top of rear panel of the AVR system. Refer to the following figure. The rear panel is hinged.



- b. On the rear panel of the system, locate the two M3 screws on each side of the column. Refer to the following figures.



- c. Using a metric hex wrench, remove the M3 screws from each side of the column.
 - d. From the front of the system, lift the top half of the cover off the system. The cover is magnetized and should lift off easily.
 - e. Locate the red shipping locks on the Z column. Refer to the following figure.
 - f. Using a metric hex wrench, remove the two M5 socket head cap screws that secure each lock. Refer to the following figure.
 - g. Replace the top cover of the system.
 - h. Reattach the two M3 screws on the rear column.
 - i. Close the rear panel and reattach the two Phillips screws that secure the panel.
4. Retain the shipping locks for future use.

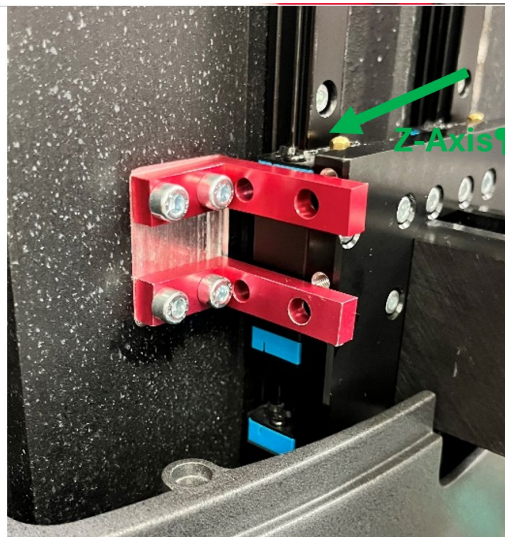


Figure 3. AVR Z Column Shipping Locks