

Ergonomics Data & Mounting Heights

Ergonomic Ground Rules

To obtain optimum performance from a workstation, consider the following topics during installation of your Flat Panel ARMS:

1. The adjustment range of the ARMS product.
2. The use-mode of the ARMS product...
 - a. Monitoring only?
 - b. Data entry?
 - c. User will be sitting?
 - d. User will be standing?
 - e. User will be sitting *and* standing at different times?
3. Vertical mounting height of the ARMS product in respect to user(s)...
 - a. Female or male only?
 - b. Female and male both?
 - c. Average height of users?

Using the Eye-Height / Elbow-Height Tables:

Use these tables to help determine mounting heights of ARMS products.

Follow these Ergonomic Ground Rules during installation of ARMS products:

1. Screen Height: Top of screen should be level with, or slightly below, *Eye Height* of user.
2. Keyboard Height: Center-line of keyboard should be level with *Elbow Height* of the operator with forearms and wrists in a level position.
3. Screen/Keyboard Height Variance: The distance from top of monitor screen to center-line of keyboard reflects *Eye-to-Elbow Measurement* of the average female to male users.

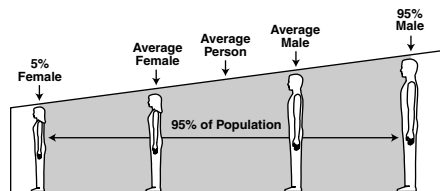
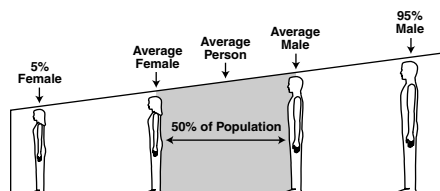
Remember that the actual attachment-point height of ARMS products varies because:

1. Dimensions of monitors vary.
2. Configurations of ARMS products vary.

Eye-Height / Elbow-Height Tables

For average range of users – anthropometric[†] data expressed in inches

| 1 | Eye Height 4 | | | Elbow Height 4 | | | Eye-to-Elbow Measurement | |
|--------------|--------------|------|------|----------------|------|------|--------------------------|------|
| | Stand | Sit | Var. | Stand | Sit | Var. | Stand | Sit |
| Av. Female | 59.4 | 44.0 | 15.4 | 38.8 | 23.0 | 15.8 | 20.6 | 21.0 |
| Av. Person | 61.7 | 46.1 | 15.6 | 40.4 | 24.9 | 15.5 | 21.3 | 21.2 |
| Av. Male | 64.4 | 48.5 | 15.9 | 42.5 | 27.0 | 15.5 | 21.9 | 21.5 |
| Variance F/M | 5.0 | 4.5 | — | 3.7 | 4.0 | — | — | — |



For 5% female to 95% male range of users

| | Stand | Sit | Var. | Stand | Sit | Var. | Stand | Sit |
|--------------|-------|------|------|-------|------|------|-------|------|
| 5% Female* | 55.7 | 40.8 | 14.9 | 36.5 | 20.8 | 15.7 | 19.2 | 20.0 |
| 95% Male** | 68.6 | 52.1 | 16.5 | 45.4 | 29.5 | 15.9 | 23.2 | 22.6 |
| Variance F/M | 12.9 | 11.3 | — | 8.9 | 8.7 | — | — | — |

[†] Anthropometry: The study of human body measurements. Data based on studies of US population.

* Denotes the female who is at the 5% mark of a scale ranging 0% to 100%.

** Denotes the male who is at the 95% mark of a scale ranging 0% to 100%.

Look for numbers in tables that correlate with numbers in illustrations on the following pages.

1 Fixed-height applications: Mount at height for average person.

Height-adjustable applications...

2 Sitting or standing for average range of users: ≥ 5" vertical adjustment range required.

3 Sitting or standing for 95% range of users: ≥ 12.9" vertical adjustment range required.

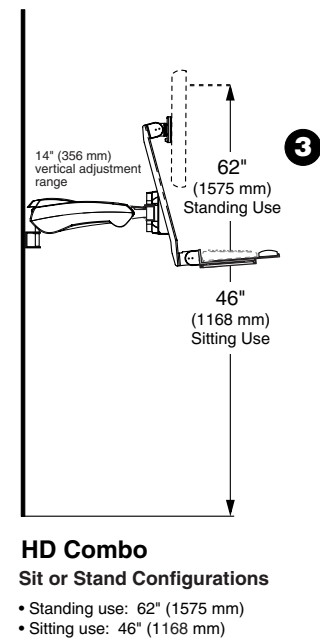
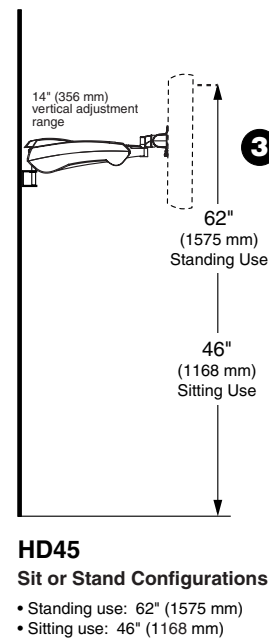
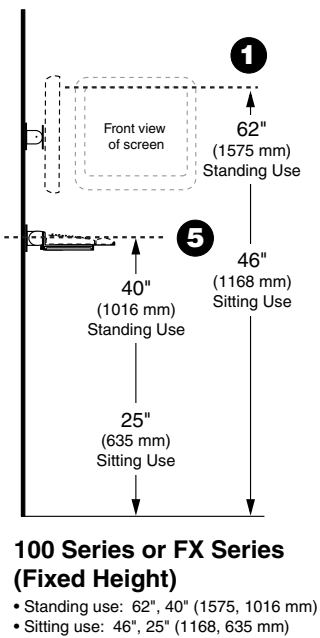
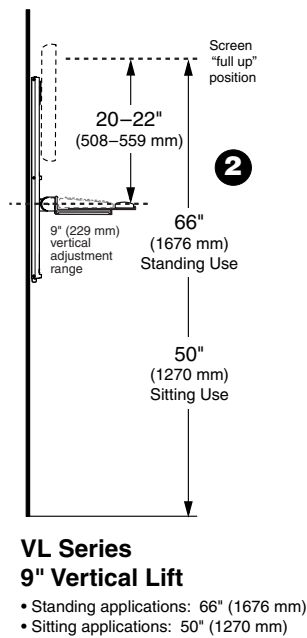
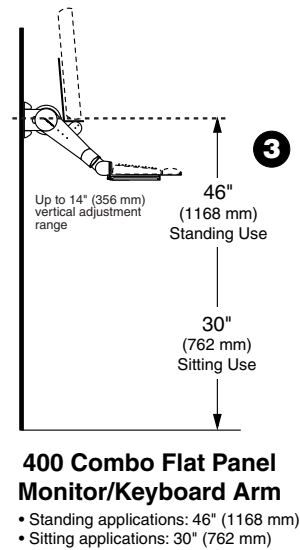
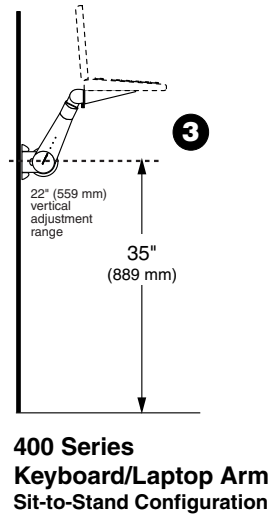
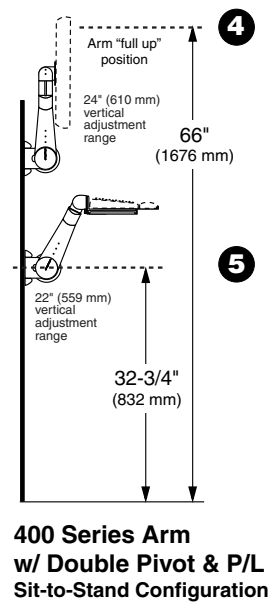
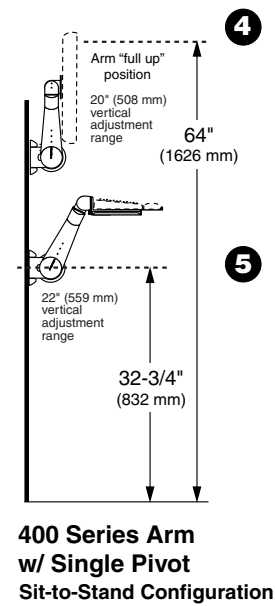
4 Sitting & standing for average range of users: ≥ 19.5" vertical adjustment range required.

Keyboard placement...

5 Keyboard to monitor relationship: The optimal distance is 21" in all applications.

Mounting Height Illustrations

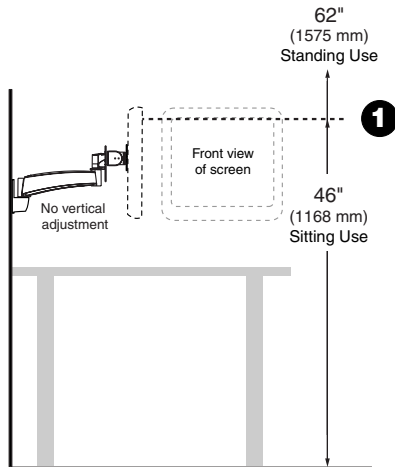
Ergotron ARMS are designed to provide optimum operator viewing and keyboard operation. These diagrams use measurements based on the average height of the US population. Numbers can be cross-referenced with numbers in the Eye-Height / Elbow-Height Tables for more information.



Mounting Height Illustrations

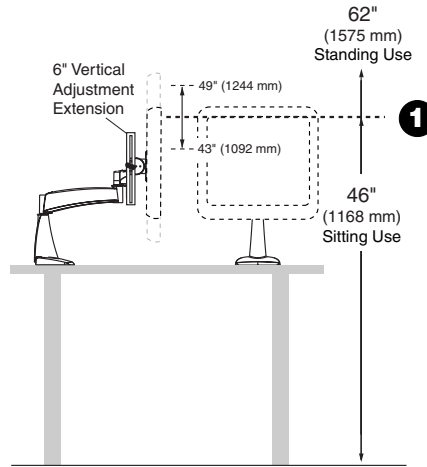
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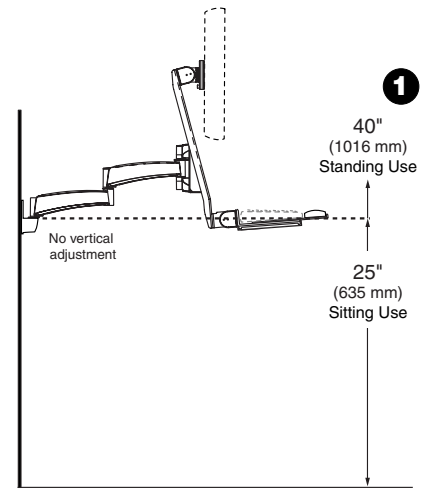
100 & 200 Series • Fixed Height Sit or Stand Configurations

Mount fixed-height hardware (no vertical adjustment) so that distance from the floor to top of screen is 46" (1168 mm) for sitting applications or 62" (1575 mm) for standing applications. This corresponds with Eye Height of Average Person. Deviation from this recommendation may be required depending on items on desk or customer preference.



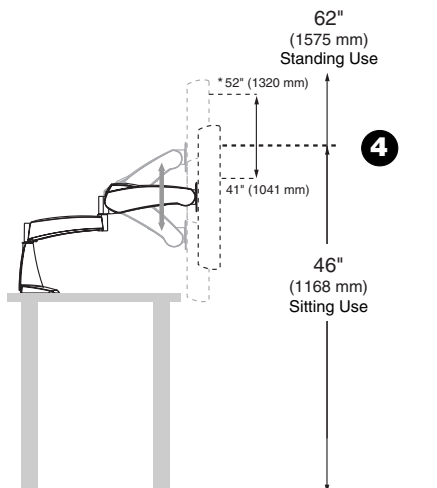
200 Series w/ 6" Vertical Adjustment Sit or Stand Configurations

Mount the 200 Series with 6" Vertical Adjustment Extension so that the top of screen is either 46" (1168 mm) or 62" (1575 mm) above floor when pivot is in center of vertical adjustment range.



200 Series Combination Arm Sit or Stand Configurations

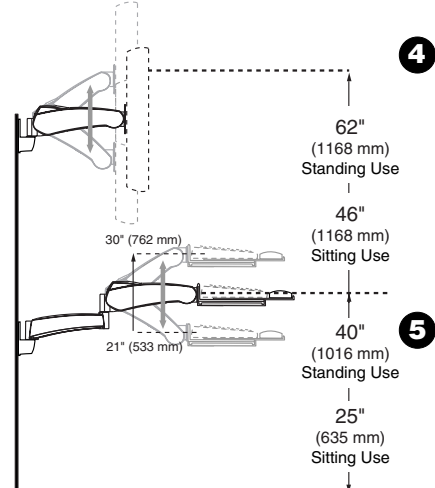
Mount the 200 Series Combination Arm so that the baseline (shown above) is either 40" (1016 mm) or 25" (635 mm) above floor.



300 Series Sit or Stand Configurations

Mount the 300 Series Arm so it is as level as possible when screen is at the appropriate height (either 46", 1168 mm, or 62", 1575 mm, depending on whether the operator is sitting or standing).

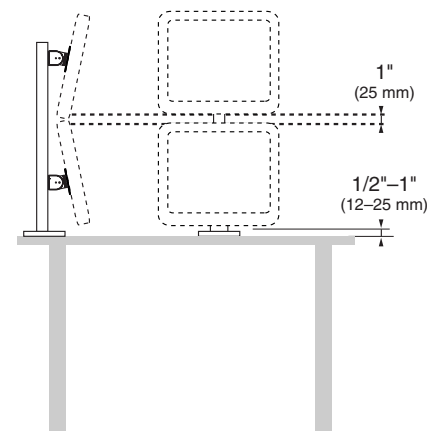
• The sitting Male-to-Female Eye Height for 95% of population ranges from 52" (1320 mm) to 41" (1041 mm) providing a 11-1/4" (287 mm) variance.



300 Series Keyboard Arm Sit or Stand Configurations

Mount the 300 Series Keyboard Arm so it is as level as possible when the middle of the keyboard is at the appropriate height (either 40", 1016 mm, or 25", 635 mm, depending on whether the operator is sitting or standing).

• The sitting Male-to-Female Elbow Height for 95% of population ranges from 30" (762 mm) to 21" (533 mm) providing a 9" (229 mm) variance.



Dual-Stacked (DS100 & 200 Series) Flat Panels Sit Configurations

Dual-stacked flat panel monitors may not strictly conform to standard Ergonomic Height Rules. In general, the monitors should be set as close to the table top as possible, consistent with the ability to create a top-to-bottom parabola to improve sight lines. Lower is better than higher because it is more comfortable for the operator to look down than look up for sustained periods.