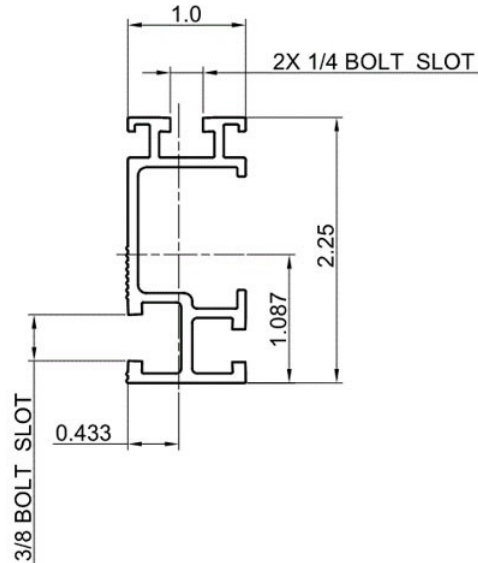


# HR150 (Helio Open Rail)

SunModo's new HR150 Open Rail makes it easy to route PV wires inside rail channels with the cable management feature.

With two convenient 1/4" channels and a 3/8" slot available, HR150 can handle a variety of components such as mounts, rail splices, micro-inverters, and clamps.

Manufactured in 4 stock sizes in clear or black. SunModo Rail is extruded 6005-T5 aluminum with anodized coating for lasting aesthetics.



| Part Number | Description                            | Length |
|-------------|--|--------|
| A20242-084  | HR150 (Helio Open Rail)<br>84", Clear  | 84"    |
| A20242-124  | HR150 (Helio Open Rail)<br>124", Clear | 124"   |
| A20242-164  | HR150 (Helio Open Rail)<br>164", Clear | 164"   |
| A20242-206  | HR250 (Helio Open Rail)<br>206", Clear | 206"   |



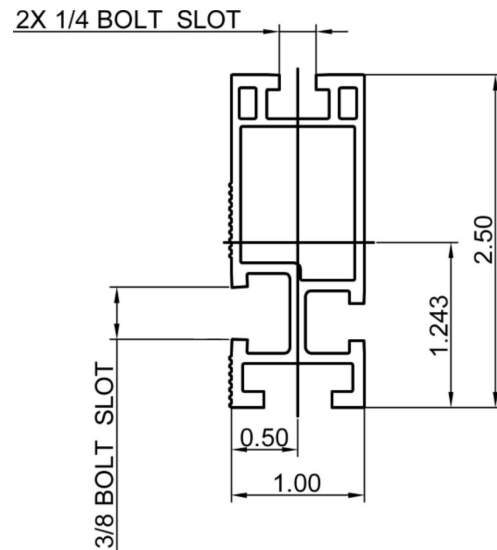
| Part Number   | Description                            | Length |
|---------------|--|--------|
| A20242-084-BK | HR150 (Helio Open Rail)<br>84", Black  | 84"    |
| A20242-124-BK | HR150 (Helio Open Rail)<br>124", Black | 124"   |
| A20242-164-BK | HR150 (Helio Open Rail)<br>164", Black | 164"   |
| A20242-206-BK | HR250 (Helio Open Rail)<br>206", Black | 206"   |

# HR250 (Helio Standard Rail)

SunModo's HR 250 Rail is a cost-effective rail especially designed for strength and versatility.  
**Calculated Span Chart on page 22**

With two convenient 1/4" channels and a 3/8" slot available, the Helio standard Rail can handle a variety of components such as mounts, rail splices, micro-inverters, and clamps.

Manufactured in 4 stock sizes in clear or black. SunModo Rail is extruded 6005-T5 aluminum with anodized coating for lasting aesthetics.



| Part Number | Description                                | Length |
|-------------|--|--------|
| A20144-084  | HR250 (Helio Standard Rail)<br>84", Clear  | 84"    |
| A20144-124  | HR250 (Helio Standard Rail)<br>124", Clear | 124"   |
| A20144-164  | HR250 (Helio Standard Rail)<br>164", Clear | 164"   |
| A20144-206  | HR250 (Helio Standard Rail)<br>206", Clear | 206"   |



| Part Number   | Description                                | Length |
|---------------|--|--------|
| A20144-084-BK | HR250 (Helio Standard Rail)<br>84", Black  | 84"    |
| A20144-124-BK | HR250 (Helio Standard Rail)<br>124", Black | 124"   |
| A20144-164-BK | HR250 (Helio Standard Rail)<br>164", Black | 164"   |
| A20144-206-BK | HR250 (Helio Standard Rail)<br>206", Black | 206"   |

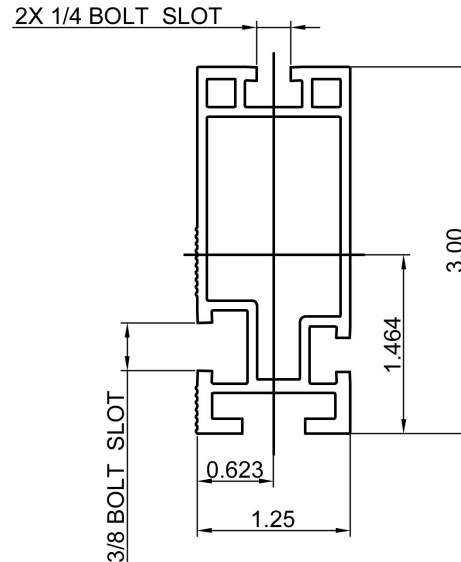
# HR350 (Helio Heavy Rail)

SunModo's HR 350 Rail is known for its heavy duty strength and spanning long distances between mounts.

**Calculated Span Chart on page 22**

With two convenient 1/4" channels and a 3/8" slot available, the Helio Heavy Rail can handle a variety of components such as mounts, rail splices, micro-inverters, and clamps.

Manufactured in 4 stock sizes in clear or black. SunModo Rail is extruded 6005-T5 aluminum with anodized coating for lasting aesthetics.



| Part Number | Description                             | Length |
|-------------|---|--------|
| A20145-084  | HR350 (Helio Heavy Rail)<br>84", Clear  | 84"    |
| A20145-124  | HR350 (Helio Heavy Rail)<br>124", Clear | 124"   |
| A20145-164  | HR350 (Helio Heavy Rail)<br>164", Clear | 164"   |
| A20145-206  | HR350 (Helio Heavy Rail)<br>206", Clear | 206"   |



| Part Number   | Description                             | Length |
|---------------|---|--------|
| A20145-084-BK | HR350 (Helio Heavy Rail)<br>84", Black  | 84"    |
| A20145-124-BK | HR350 (Helio Heavy Rail)<br>124", Black | 124"   |
| A20145-164-BK | HR350 (Helio Heavy Rail)<br>164", Black | 164"   |
| A20145-206-BK | HR350 (Helio Heavy Rail)<br>206", Black | 206"   |

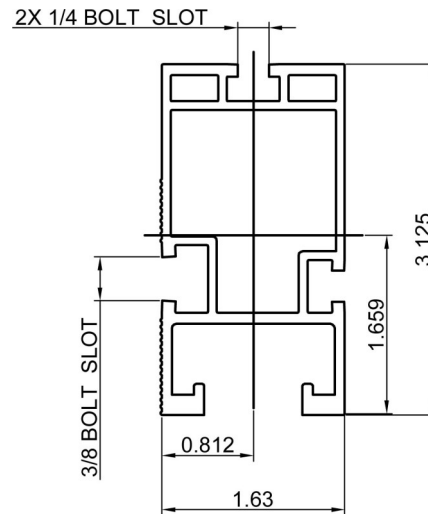
# HR500 (Helio Super Rail)

SunModo's HR 500 Rail is a high performance rail with super heavy duty strength and longest spanning distances between mounts among all new rails.

**Calculated Span Chart on page 22**

With two convenient 1/4" channels and a 3/8" slot available, the Helio Super Rail can handle a variety of components such as mounts, rail splices, micro-inverters, and clamps.

Manufactured in 4 stock sizes in clear or black. SunModo Rail is extruded 6005-T5 aluminum with anodized coating for lasting aesthetics.



| Part Number | Description                             | Length |
|-------------|---|--------|
| A20146-084  | HR500 (Helio Super Rail)<br>84", Clear  | 84"    |
| A20146-124  | HR500 (Helio Super Rail)<br>124", Clear | 124"   |
| A20146-164  | HR500 (Helio Super Rail)<br>164", Clear | 164"   |
| A20146-206  | HR500 (Helio Super Rail)<br>206", Clear | 206"   |



| Part Number   | Description                             | Length |
|---------------|---|--------|
| A20146-084-BK | HR500 (Helio Super Rail)<br>84", Black  | 84"    |
| A20146-124-BK | HR500 (Helio Super Rail)<br>124", Black | 124"   |
| A20146-164-BK | HR500 (Helio Super Rail)<br>164", Black | 164"   |
| A20146-206-BK | HR500 (Helio Super Rail)<br>206", Black | 206"   |

# Helio Rail – Span Chart Notes

## 1. Calculations assume the following support conditions:

- A) Two standard rails and two heavy rails are used to support modules perpendicular to the long edge of the modules.
- B) The shared rail supports the modules parallel to the long edge of the modules.
- C) Module size assumed as approximately 66" x 40" with approximate weight of 48LB.
- D) Tributary width = 2.75' for standard and heavy rails, and 3.33' for shared rail.

## 2. The following load combinations are used:

- A)  $D + W$  (controls in shaded area on left)
- B)  $D + 0.75S + 0.75W$  (controls in un-shaded area)
- C)  $D + S$  (controls in shaded area on right)

## 3. Rail section properties shown on Sunmodo drawings

A20144, A20145, A20146 and A20149.

## 4. Span lengths shown is:

Between support points. Simple span conservatively assumed for lengths over 4'6" and continuous span condition used for lengths 4'6" and under.

## 5. Allowable cantilever length past last support:

May be up to 1/3 the span shown in the table.

## 6. Wind and snow loads:

To be determined based on site specific and local code criteria.

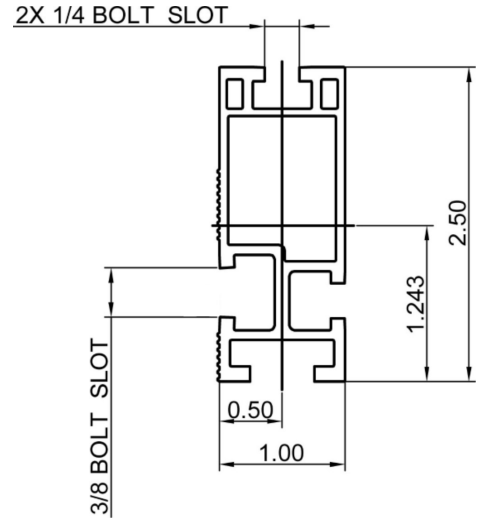
| Properties                     | Units           | HR150<br>A20242     | HR250<br>A20144     | HR350<br>A20145     | HR500<br>A20146     |
|--------------------------------|-----------------|---------------------|---------------------|---------------------|---------------------|
| Material                       | N/A             | Aluminum<br>6005-T5 | Aluminum<br>6005-T5 | Aluminum<br>6005-T5 | Aluminum<br>6005-T5 |
| Finish                         | N/A             | Clear and Black     | Clear and Black     | Clear and Black     | Clear and Black     |
| Approx. Weight (per linear ft) | plf             | .672                | .850                | 1.143               | 1.388               |
| Total Cross Section Area       | in <sup>2</sup> | .566                | .723                | .973                | 1.182               |
| Section Modulus (X—Axis)       | in <sup>3</sup> | .299                | .387                | .683                | .851                |
| Section Modulus (Y—Axis)       | in <sup>3</sup> | .106                | .190                | .333                | .542                |
| Moment of Inertia (X—Axis)     | in <sup>4</sup> | .348                | .486                | 1.049               | 1.412               |
| Moment of Inertia (Y—Axis)     | in <sup>4</sup> | .060                | .095                | .209                | .443                |
| Radius of Gyration (X—Axis)    | in              | .785                | .820                | 1.093               | 1.093               |
| Radius of Gyration (Y—Axis)    | in              | .327                | .363                | .612                | .612                |



# Helio Rail – Span Chart Notes

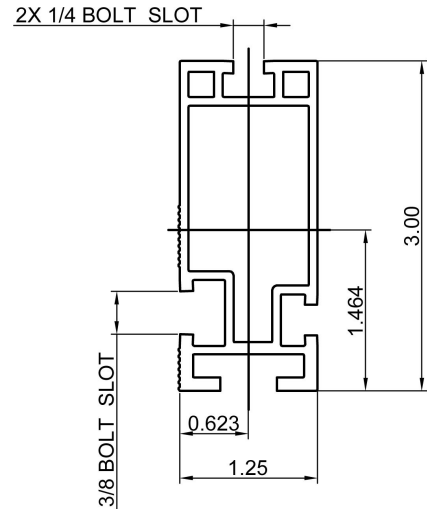
## Helio Standard Rail A20144

|                 |    | Snow Load (psf) |       |       |       |       |       |       |       |       |
|-----------------|----|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|
|                 |    | 0               | 10    | 20    | 30    | 40    | 50    | 60    | 70    | 80    |
| Wind Load (psf) | 10 | 8' 9"           | 8' 0" | 7' 3" | 6' 9" | 6' 0" | 5' 3" | 5' 0" | 4' 6" | 4' 3" |
|                 | 15 | 8' 0"           | 7' 9" | 7' 0" | 6' 6" | 6' 0" | 5' 3" | 5' 0" | 4' 6" | 4' 3" |
|                 | 20 | 7' 6"           | 7' 3" | 6' 9" | 6' 3" | 5' 9" | 5' 3" | 5' 0" | 4' 6" | 4' 3" |
|                 | 25 | 7' 3"           | 7' 0" | 6' 6" | 6' 0" | 5' 6" | 5' 0" | 4' 9" | 4' 6" | 4' 3" |
|                 | 30 | 6' 9"           | 6' 9" | 6' 3" | 5' 9" | 5' 3" | 5' 0" | 4' 9" | 4' 6" | 4' 3" |
|                 | 35 | 6' 3"           | 6' 3" | 6' 0" | 5' 6" | 5' 0" | 4' 9" | 4' 6" | 4' 3" | 4' 0" |
|                 | 40 | 6' 0"           | 6' 0" | 5' 9" | 5' 3" | 5' 0" | 4' 9" | 4' 6" | 4' 3" | 4' 0" |
|                 | 45 | 5' 9"           | 5' 9" | 5' 6" | 5' 0" | 4' 9" | 4' 6" | 4' 3" | 4' 0" | 4' 0" |
|                 | 50 | 5' 3"           | 5' 3" | 5' 3" | 5' 0" | 4' 9" | 4' 6" | 4' 3" | 4' 0" | 4' 0" |
|                 | 55 | 5' 0"           | 5' 0" | 5' 0" | 4' 9" | 4' 6" | 4' 3" | 4' 0" | 4' 0" | 4' 0" |
|                 | 60 | 5' 0"           | 5' 0" | 5' 0" | 4' 9" | 4' 6" | 4' 3" | 4' 0" | 4' 0" | 4' 0" |
|                 | 65 | 4' 9"           | 4' 9" | 4' 9" | 4' 6" | 4' 3" | 4' 0" | 4' 0" | 4' 0" | 4' 0" |
|                 | 70 | 4' 6"           | 4' 6" | 4' 6" | 4' 6" | 4' 3" | 4' 0" | 4' 0" | 4' 0" | 4' 0" |
|                 | 75 | 4' 6"           | 4' 6" | 4' 6" | 4' 3" | 4' 0" | 4' 0" | 4' 0" | 4' 0" | 3' 9" |
|                 | 80 | 4' 3"           | 4' 3" | 4' 3" | 4' 3" | 4' 0" | 4' 0" | 4' 0" | 4' 0" | 3' 9" |



## Helio Heavy Rail A20145

|                 |    | Snow Load (psf) |       |       |       |       |       |       |       |       |
|-----------------|----|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|
|                 |    | 0               | 10    | 20    | 30    | 40    | 50    | 60    | 70    | 80    |
| Wind Load (psf) | 10 | 10' 6"          | 9' 9" | 9' 0" | 8' 3" | 7' 9" | 7' 3" | 6' 6" | 6' 0" | 5' 9" |
|                 | 15 | 9' 9"           | 9' 3" | 8' 6" | 8' 3" | 7' 9" | 7' 3" | 6' 6" | 6' 0" | 5' 9" |
|                 | 20 | 9' 3"           | 9' 0" | 8' 3" | 8' 0" | 7' 6" | 7' 0" | 6' 6" | 6' 0" | 5' 9" |
|                 | 25 | 8' 9"           | 8' 6" | 8' 3" | 7' 9" | 7' 3" | 6' 9" | 6' 3" | 6' 0" | 5' 9" |
|                 | 30 | 8' 3"           | 8' 3" | 8' 0" | 7' 6" | 7' 0" | 6' 6" | 6' 3" | 6' 0" | 5' 6" |
|                 | 35 | 8' 0"           | 8' 0" | 7' 9" | 7' 3" | 6' 9" | 6' 3" | 6' 0" | 5' 9" | 5' 6" |
|                 | 40 | 7' 9"           | 7' 9" | 7' 6" | 7' 0" | 6' 6" | 6' 3" | 6' 0" | 5' 6" | 5' 6" |
|                 | 45 | 7' 6"           | 7' 6" | 7' 3" | 6' 9" | 6' 3" | 6' 0" | 5' 9" | 5' 6" | 5' 3" |
|                 | 50 | 7' 3"           | 7' 3" | 7' 0" | 6' 6" | 6' 3" | 6' 0" | 5' 6" | 5' 6" | 5' 3" |
|                 | 55 | 6' 9"           | 6' 9" | 6' 9" | 6' 3" | 6' 0" | 5' 9" | 5' 6" | 5' 3" | 5' 0" |
|                 | 60 | 6' 6"           | 6' 6" | 6' 6" | 6' 3" | 6' 0" | 5' 6" | 5' 6" | 5' 3" | 5' 0" |
|                 | 65 | 6' 3"           | 6' 3" | 6' 3" | 6' 0" | 5' 9" | 5' 6" | 5' 3" | 5' 0" | 5' 0" |
|                 | 70 | 6' 0"           | 6' 0" | 6' 0" | 6' 0" | 5' 6" | 5' 6" | 5' 3" | 5' 0" | 4' 9" |
|                 | 75 | 6' 0"           | 6' 0" | 6' 0" | 5' 9" | 5' 6" | 5' 3" | 5' 0" | 5' 0" | 4' 9" |
|                 | 80 | 5' 9"           | 5' 9" | 5' 9" | 5' 6" | 5' 6" | 5' 3" | 5' 0" | 4' 9" | 4' 9" |



## Helio Super Rail A20146

|                 |    | Snow Load (psf) |        |       |       |       |       |       |       |       |
|-----------------|----|-----------------|--------|-------|-------|-------|-------|-------|-------|-------|
|                 |    | 0               | 10     | 20    | 30    | 40    | 50    | 60    | 70    | 80    |
| Wind Load (psf) | 10 | 11' 6"          | 10' 6" | 9' 6" | 9' 0" | 8' 6" | 8' 0" | 7' 3" | 6' 9" | 6' 3" |
|                 | 15 | 10' 6"          | 10' 0" | 9' 3" | 8' 9" | 8' 3" | 8' 0" | 7' 3" | 6' 9" | 6' 3" |
|                 | 20 | 9' 9"           | 9' 3"  | 9' 0" | 8' 6" | 8' 3" | 7' 9" | 7' 3" | 6' 9" | 6' 3" |
|                 | 25 | 9' 6"           | 9' 3"  | 8' 9" | 8' 3" | 8' 0" | 7' 6" | 7' 0" | 6' 9" | 6' 3" |
|                 | 30 | 9' 0"           | 9' 0"  | 8' 6" | 8' 3" | 7' 9" | 7' 3" | 7' 0" | 6' 6" | 6' 3" |
|                 | 35 | 8' 9"           | 8' 9"  | 8' 3" | 8' 0" | 7' 6" | 7' 0" | 6' 9" | 6' 6" | 6' 3" |
|                 | 40 | 8' 6"           | 8' 6"  | 8' 3" | 7' 9" | 7' 3" | 7' 0" | 6' 6" | 6' 3" | 6' 0" |
|                 | 45 | 8' 3"           | 8' 3"  | 8' 0" | 7' 6" | 7' 0" | 6' 9" | 6' 6" | 6' 3" | 6' 0" |
|                 | 50 | 8' 0"           | 8' 0"  | 7' 9" | 7' 3" | 7' 0" | 6' 6" | 6' 3" | 6' 0" | 5' 9" |
|                 | 55 | 7' 9"           | 7' 9"  | 7' 6" | 7' 0" | 6' 9" | 6' 6" | 6' 3" | 6' 0" | 5' 9" |
|                 | 60 | 7' 3"           | 7' 3"  | 7' 3" | 7' 0" | 6' 6" | 6' 3" | 6' 0" | 5' 9" | 5' 6" |
|                 | 65 | 7' 0"           | 7' 0"  | 7' 0" | 6' 9" | 6' 6" | 6' 3" | 6' 0" | 5' 9" | 5' 6" |
|                 | 70 | 6' 9"           | 6' 9"  | 6' 9" | 6' 6" | 6' 3" | 6' 0" | 5' 9" | 5' 6" | 5' 6" |
|                 | 75 | 6' 6"           | 6' 6"  | 6' 6" | 6' 6" | 6' 3" | 6' 0" | 5' 9" | 5' 6" | 5' 3" |
|                 | 80 | 6' 3"           | 6' 3"  | 6' 3" | 6' 3" | 6' 0" | 5' 9" | 5' 6" | 5' 6" | 5' 3" |

