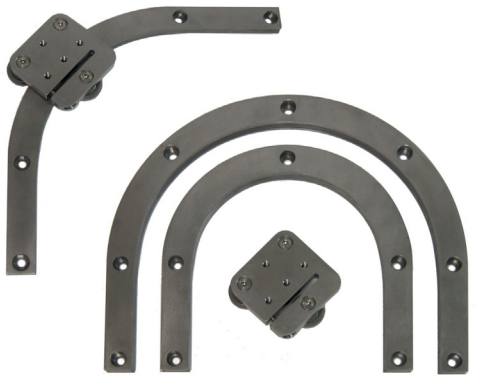
TPA MOTION
LINEAR MOTION SOLUTIONS
800-284-9784

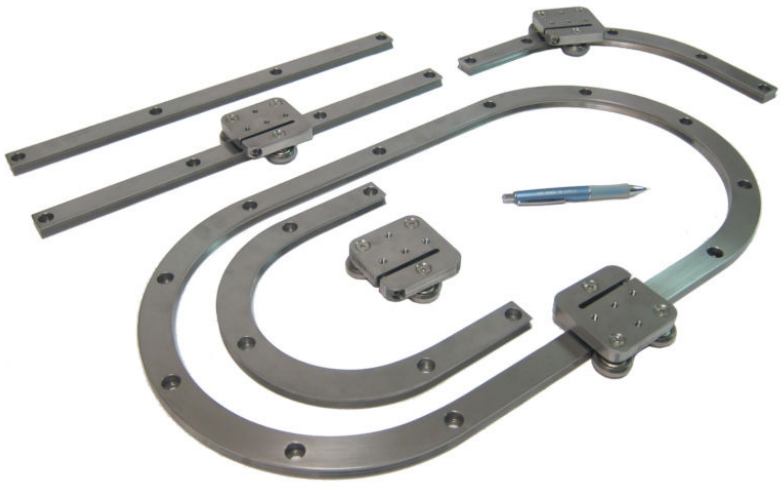
Is your application throwing you a curve? We have the solution for you!

Immediately Available for Your Prototyping or Production Requirements



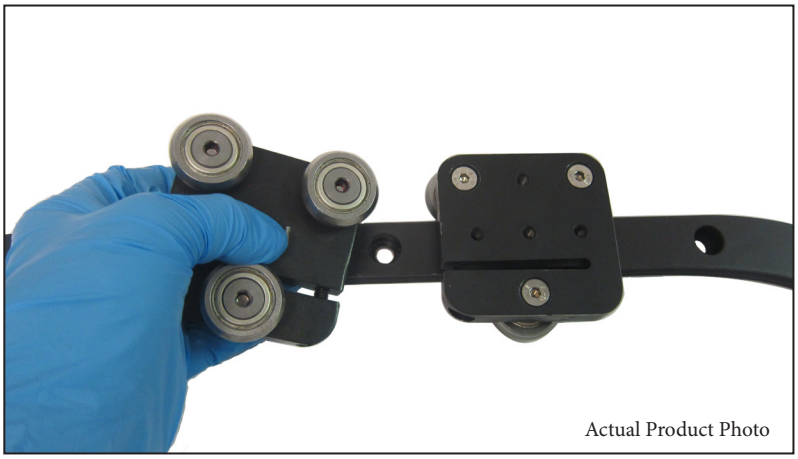
Rail and Carriage Components for carrying your payload in a linear (straight line) or circular (curved) motion path.

As engineers not everyone sees things like we do. So we like to build mockups or conceptual models to demonstate our ideas for management approval and support. That is the intent of our standard off the shelf CR40 series curved rail product. We are making it available with little to no wait time for shipping. Ordering is done convienently online via our store.



Rail Sections

Straight (up to 1220 mm long), 90 degree turn, and 180 degree turn sections allow you to create your own motion track system by attaching rails end-to-end on a flat surface plate or other type of support structure.



Actual Product Photo

Your product will have a matte black color finish as shown in this photo.

Actual Product Photo

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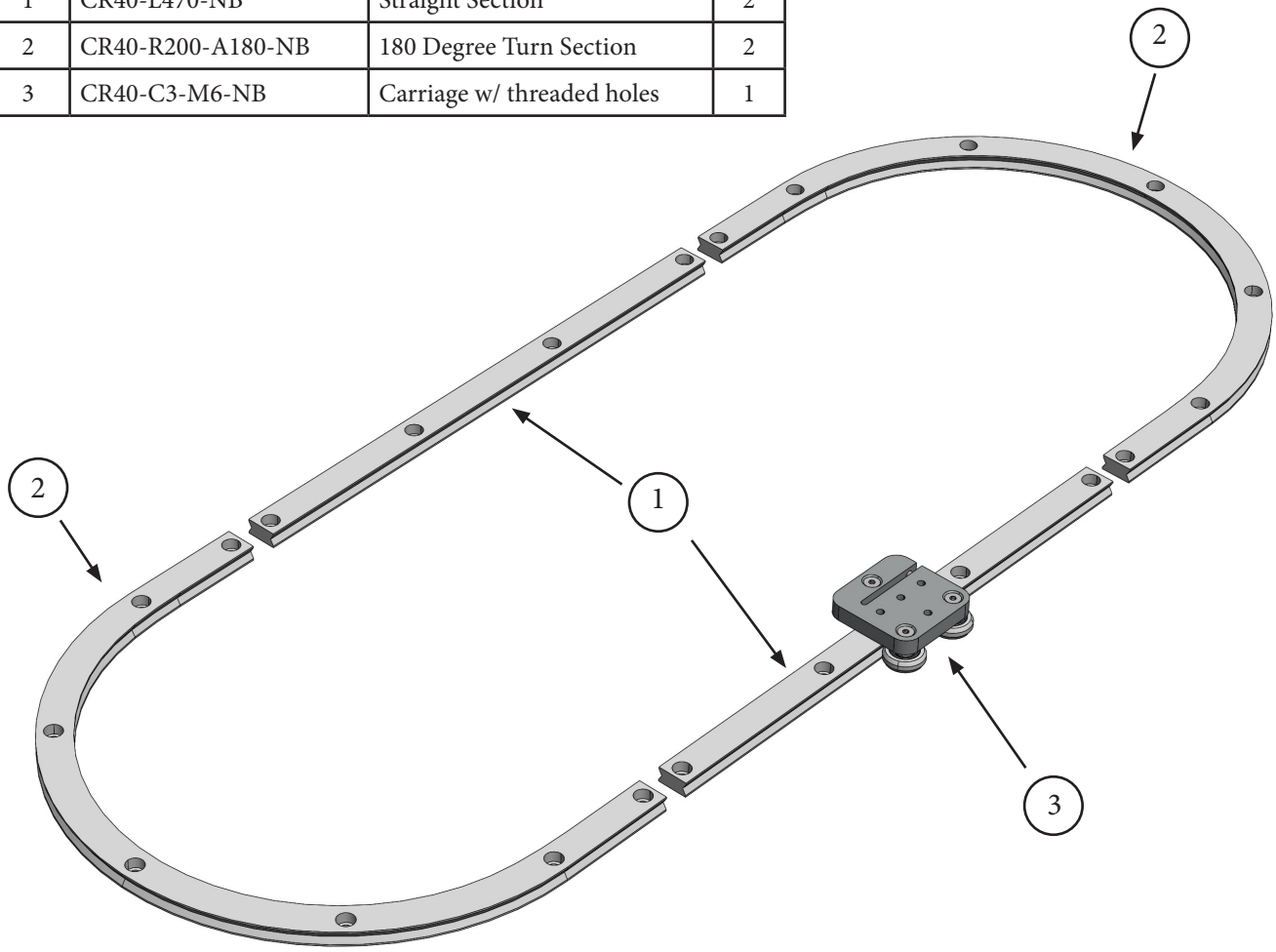
Below is an example of a simple track system that you can build.

Bill of Materials (for arrangement pictured below)

Item	Part Number	Description	Qty
1	CR40-L470-NB	Straight Section	2
2	CR40-R200-A180-NB	180 Degree Turn Section	2
3	CR40-C3-M6-NB	Carriage w/ threaded holes	1



Carriage Load Capacity

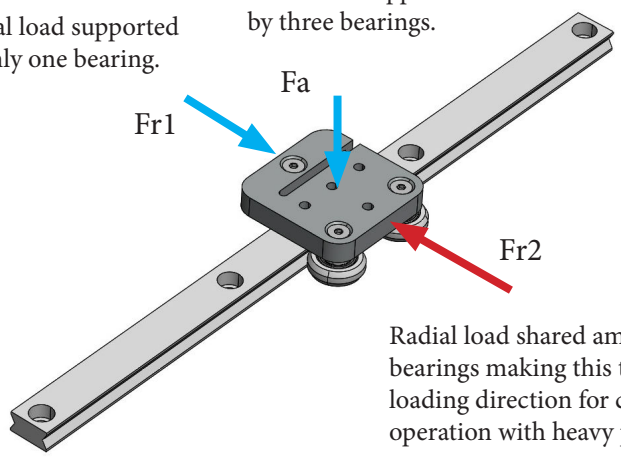
Fa - Axial Static = 133 N (30 lbs)
Fr1 - Radial Static = 178 N (40 lbs)
Fr2 - Radial Static = 267 N (60 lbs)

The cam roller bearings supporting each carriage have the highest load capacity in the radial direction. They are a single row deep groove type design.

For higher capacity load requirements, contact us.

Radial load supported by only one bearing.

Axial load supported by three bearings.



Radial load shared amongst two bearings making this the best loading direction for continuous operation with heavy payload.

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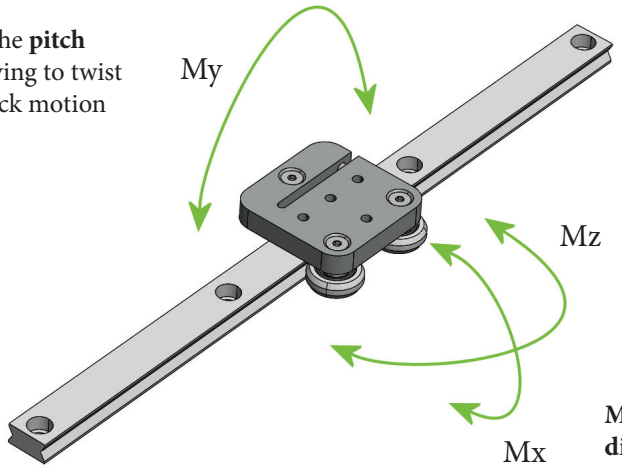
Carriage Moment Load Capacity

Mx - Roll Moment = 2.6 N-m (23 in-lbs)
My - Pitch Moment = 6.0 N-m (53 in- lbs)
Mz - Yaw Moment = 3.0 N-m (26.5 in-lbs)

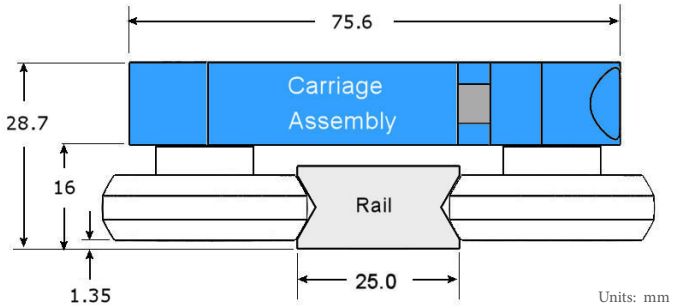
My is the moment load in the **pitch direction** where you are trying to twist the carriage in a front to back motion lifting it off the rail.



Mz is the moment load in a **yaw direction** where you are twisting the carriage around it's center as shown.

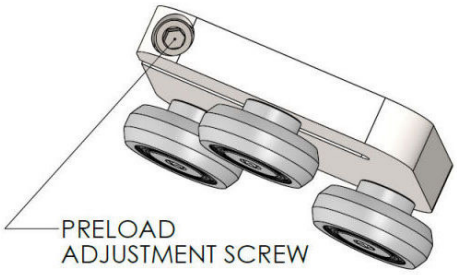
Mx is the moment load in the **roll direction** where you are twisting the carriage along the center line of the rail axis.

Assembly Dimensional Data

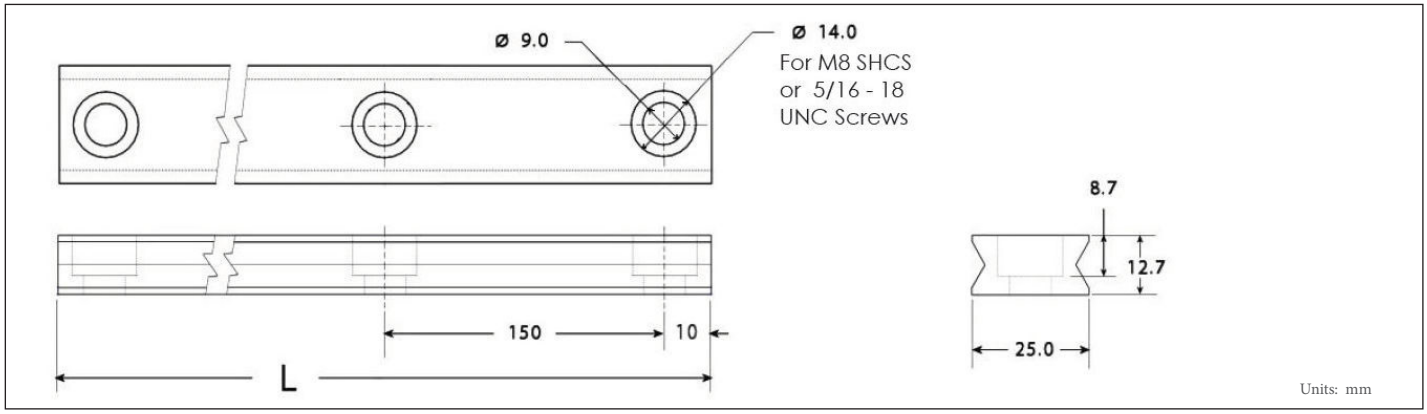


Carriage Preload

Carriage cam roller bearings are typically preload from production to match the rail. However when necessary it can be adjusted by the socket head cap screw as shown below.



Rail Dimensional Data



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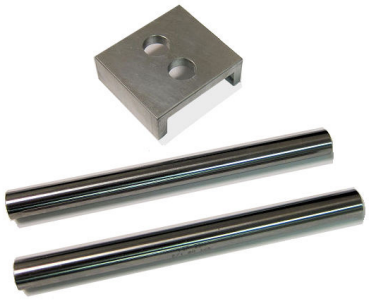
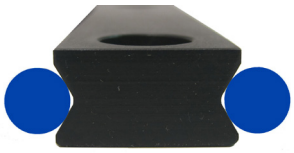
Rail Alignment Tool - p/n CR40-ALIGNTOOL

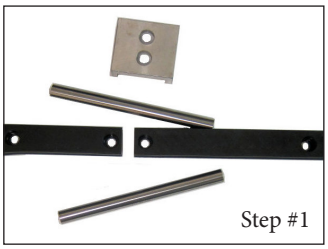


The rail alignment tool aids in aligning the rail joints during base structural support hole position locating and also during the rail installation process.

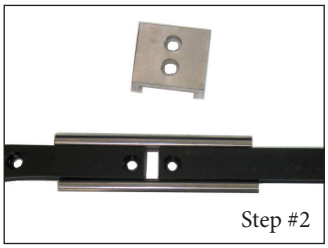
Two 1/2 inch diameter round rods are held firmly in the "V" grooves of the rails by the aluminum cap.



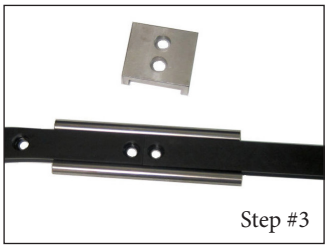
Rail Alignment Instructions



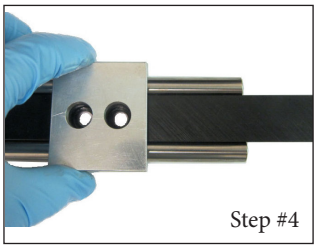
Position each one rod on opposing sides of rails.



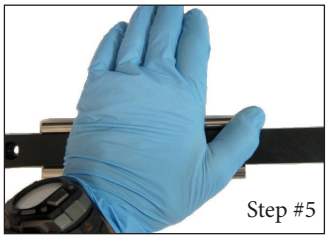
Push rods into rail "V" grooves bringing rails into alignment.



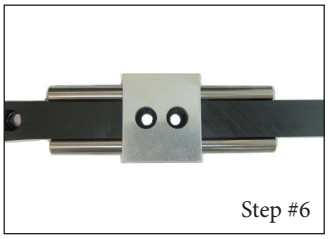
Close gap between rail ends while rods maintain rail alignment.



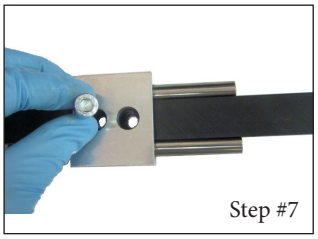
Place aluminum cap over rods while aligned with rail holes.



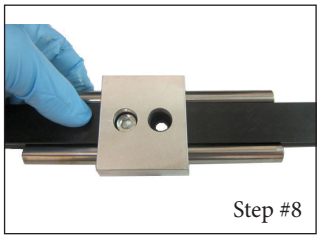
Push cap over rods for final rail alignment.



Now you can mark hole position in base structure for drilling.



Once holes are drilled and tapped you can insert fastener.



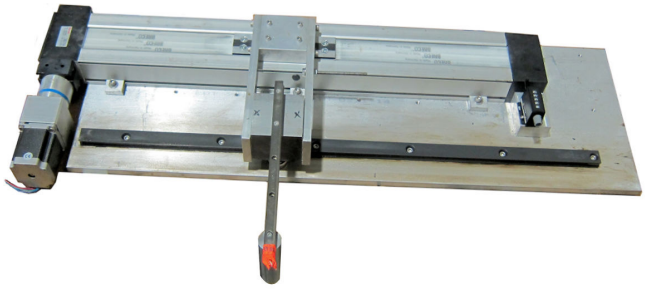
M8 Socket Head Cap Screws are typically used with this rail.

Lubricant and Wear

As each cam roller bearing wheel moves within the "V" groove of the rail some small amount of sliding occurs at the interface of these components. During continious operation there may be some surface wear.

Prior to operation a small amount of an NLGI #2 lithium-based grease should be applied within the "V" groove where the cam roller wheel contacts the rail.

This will help with wear and quiet operation.



Wear testing with 7.6 lb axial load and 10 in-lb moment load on one carriage and moving back and forth along a straight rail.

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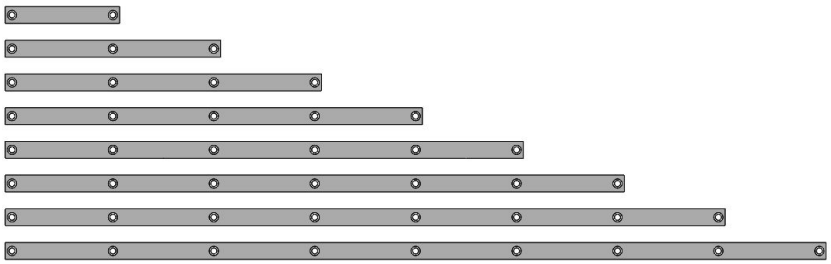
ONLINE ORDERING

For you prototyping needs, we typically keep the following pieces in stock for quick deliver. You can order these online at our store listed via the following link.

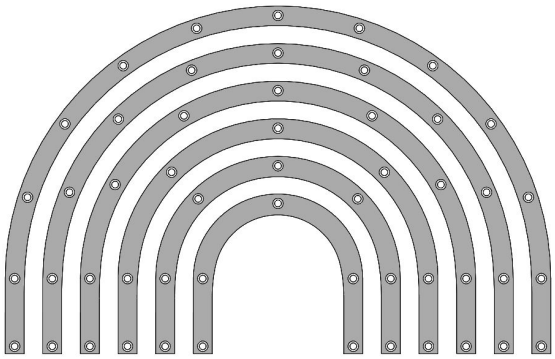
https://tpa-store.com

Rail Sections and Carriage Assemblies

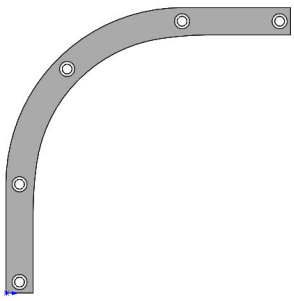
- Straight Sections, Lxxx = length
  1. CR40-L170-NB
  2. CR40-L320-NB
  3. CR40-L470-NB
  4. CR40-L620-NB
  5. CR40-L770-NB
  6. CR40-L920-NB
  7. CR40-L1070-NB
  8. CR40-L1220-NB



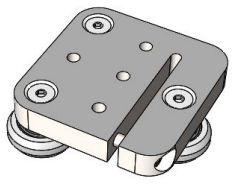
- 180 Degree Turn Sections, Rxxx = radius
  1. CR40-R100-A180-NB
  2. CR40-R150-A180-NB
  3. CR40-R200-A180-NB
  4. CR40-R250-A180-NB
  5. CR40-R300-A180-NB
  6. CR40-R350-A180-NB



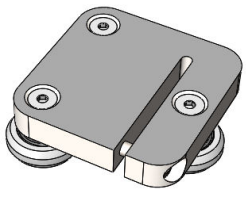
- 90 Degree Turn Section
  1. CR40-R150-A90-NB



- Carriage Assemblies
  1. CR40-C3-NO-NB
  2. CR40-C3-M6-NB



Threaded holes in carriage assembly #2 are M6 x 1.0



Ready for drilling & tapping your own mounting holes

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Custom OEM Applications

For applications where there will be many copies of the same track layout utilized such as for **O**riginal **E**quipment **M**anufacturers (**OEM**s) we can offer customization such as:

- design and manufacture a one piece rail system
- design and manufacture a special motion path
- design and manufacture a special curve radius
- design and manufacture a motorized carriage
- use materials such as aluminium or stainless steel

Modifications You Can Do!

with an Abrasive Cut-off Wheel:

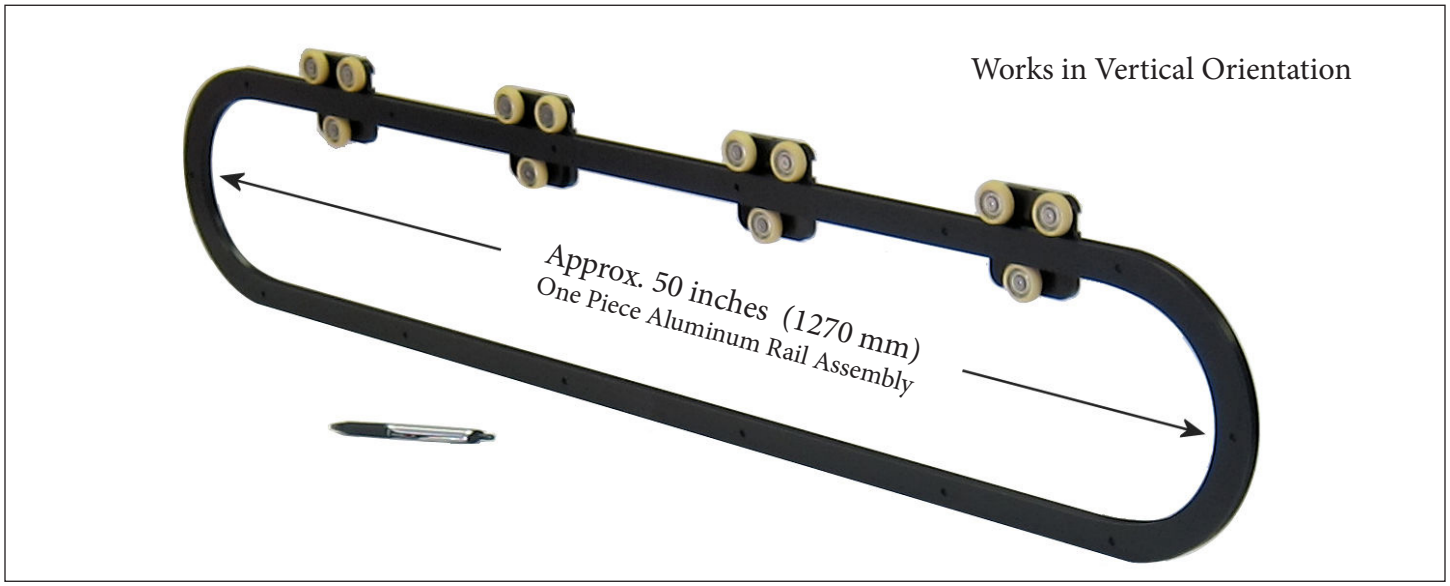
1) Make custom angles by cutting a standard 180 degree turn rail to your desired angle

2) Make custom rail lengths by cutting a standard off-the-shelf straight rail section to your desired length

with a Cobalt Drill bit:

Add additional holes in rail sections via drill

Example Custom Assembly Shown Below



Polymer tires running along a black anodized aluminum rail were used in this example for quiet operation.

Special needs for carriage geometry or cam roller wheels can also be accommondated.

Call us at 800-284-9784

to discuss your OEM custom application with an engineer.