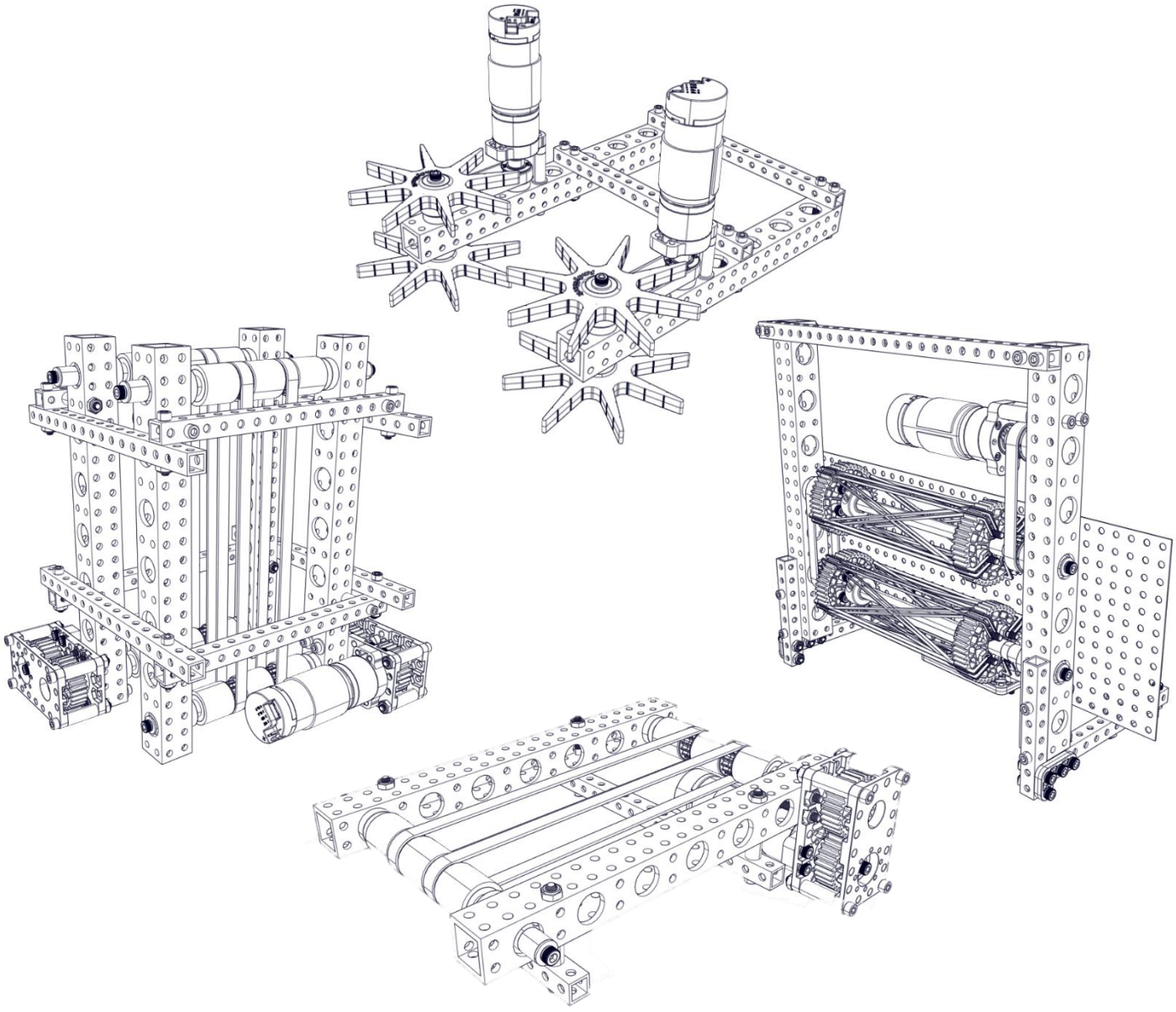
ROBITS Conveyance Expansion

(am-5816)

Assembly Guide



Revision #	Date	Author	Purpose
0	8/27/2026	E. Scime	Original Document

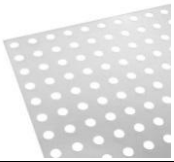
P. Yeung	8/31/26
Reviewer Name	Date Reviewed

Need help with an AndyMark product? Contact us at support@andymark.com.

Recommended Tools List

Component	Part #	QTY	Photo
5/32" Ball End Hex Driver	am-2751	1	
3/8 Combination Wrench	am-4961	1	

Parts List

Component	Part #	QTY	Photo
3" Compliant Star, 3/8 Hex Bore, 35A	am-5709_green	4	
5" Compliant Star, 3/8 Hex Bore, 35A	am-5124_green	4	
ROBITS Hex Shaft, 3"	am-5003-0300	2	
ROBITS Hex Shaft, 8"	am-5003-0800	4	
ROBITS Hex Shaft, 12"	am-5003-1200	2	
3/8" Hex 1 Part Collar Clamp	am-1637	4	
15.5" x 6" x 0.03" Perforated PC Sheet	am-4964a	2	

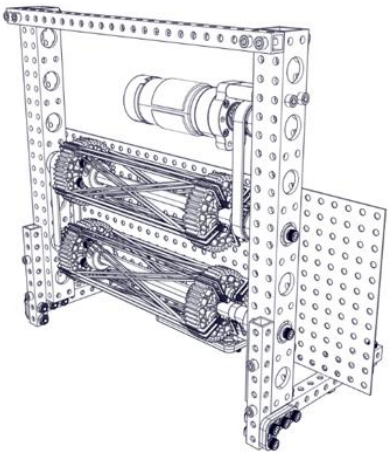
Component	Part #	QTY	Photo
3.7:1 NeveRest Hex Gearmotor	am-5550_0100_004	1	
13.7:1 NeveRest Hex Gearmotor	am-5550_0100_014	2	
Rubber Band	am-5024_black	200	
30T Gear	am-5020_30	4	
45T Gear	am-5020_45	4	
10-32 Nylock Jam Nut	am-1063	50	
#10 Washer	am-1026	20	
0.5″ 10-32 Socket Head Cap Screw	am-1002	20	
1″ 10-32 Socket Head Cap Screw	am-1056	30	
1.25″ 10-32 Socket Head Cap Screw	am-1041	15	
1.5″ 10-32 Socket Head Cap Screw	am-1014	10	
1.75″ 10-32 Socket Head Cap Screw	am-1048	10	

Component	Part #	QTY	Photo
2.25″ 10-32 Socket Head Cap Screw	am-1156	10	
2.5″ 10-32 Socket Head Cap Screw	am-1024	5	
1″ Nylon Screw Spacer	am-1696	10	
0.5″ Nylon Screw Spacer	am-1697	10	
0.25″ Aluminum Shaft Spacer	am-1698	20	
0.5″ Aluminum Shaft Spacer	am-1699	15	
0.25″ Nylon Screw Spacer	am-1700	5	
45T 5mm HTD Belt	am-5209_45T	4	
75T 5mm HTD Belt	am-5209_75T	4	
106T 5mm HTD Belt	am-5209_106T	4	
Pass Through Plate	am-5023	4	
ROBITS Bushing	am-5021	15	
2x3 L Gusset	am-5004_2x3	2	
4x8 Plate Gusset	am-5006_4x8	2	

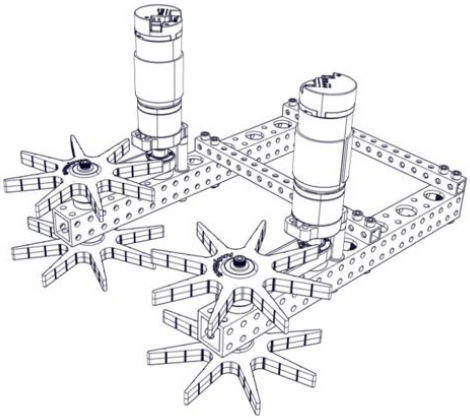
Component	Part #	QTY	Photo
1/2" x 1/2" x 4" ROBITS Tube	am-5001-0400	2	
1/2" x 1/2" x 6" ROBITS Tube	am-5001-0600	2	
1/2" x 1/2" x 8" ROBITS Tube	am-5001-0800	8	
1/2" x 1/2" x 12" ROBITS Tube	am-5001-1200	2	
1" x 1" x 11" ROBITS Tube	am-5002-1100	4	
14T Pulley, 3/8" Hex, Half	am-4960_half	16	
Sushi Roller, 3/8 Hex, 35A	am-4590_green	12	

Assembly

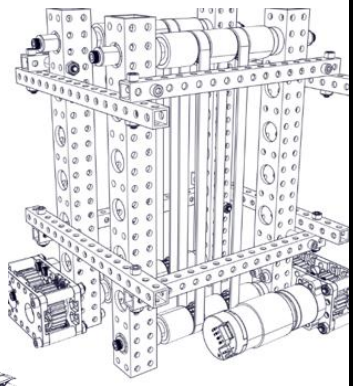
The Intake & Conveyance Kit can be assembled in a variety of different ways, though there are 4 primary configurations this kit is built to support:



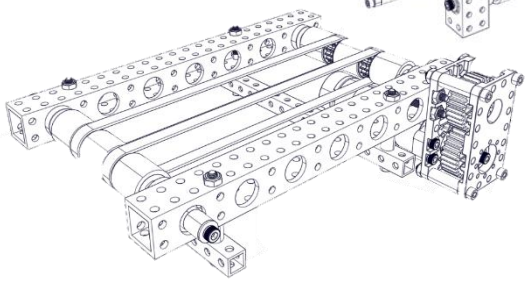
- ***Horizontal Roller (Page 9)*** **-** This horizontal roller concept uses a pair of shafts parallel to the floor with roller components (rubber bands or compliant stars) to bring an object into a robot and up off the ground. Horizontal rollers are ideal for creating wide, easy to use, intakes. Changing variables such as the roller components, roller height off the ground, and backstop position allow you to test a variety of intake dynamics.



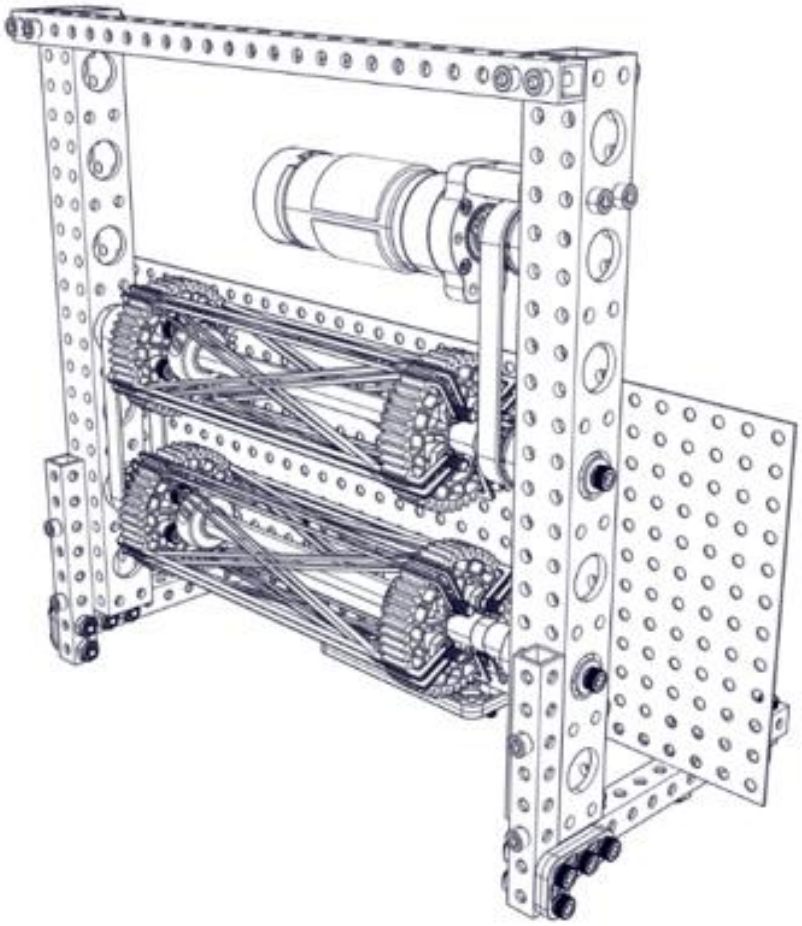
- ***Dual Vertical Rollers (Page 19)*** **-** This roller concept uses a pair of counter rotating rollers to pull items between the shafts and into a robot. A dual roller system works well on odd shaped objects that traditionally don't roll well and generally requires a little more alignment to center an object between the rollers. This concept is adjustable by varying axial roller spacing, roller to roller spacing, and roller type.



- ***Single & Double Conveyors (Page 23)*** **-** These conveyor concepts use a series of wheels and belts to move objects around a robot. Whether vertical or horizontally oriented, this concept is a common design in robotics. These concepts are adjustable by varying belt length, position of one conveyor in relation to the other, and the spacing between conveyors.

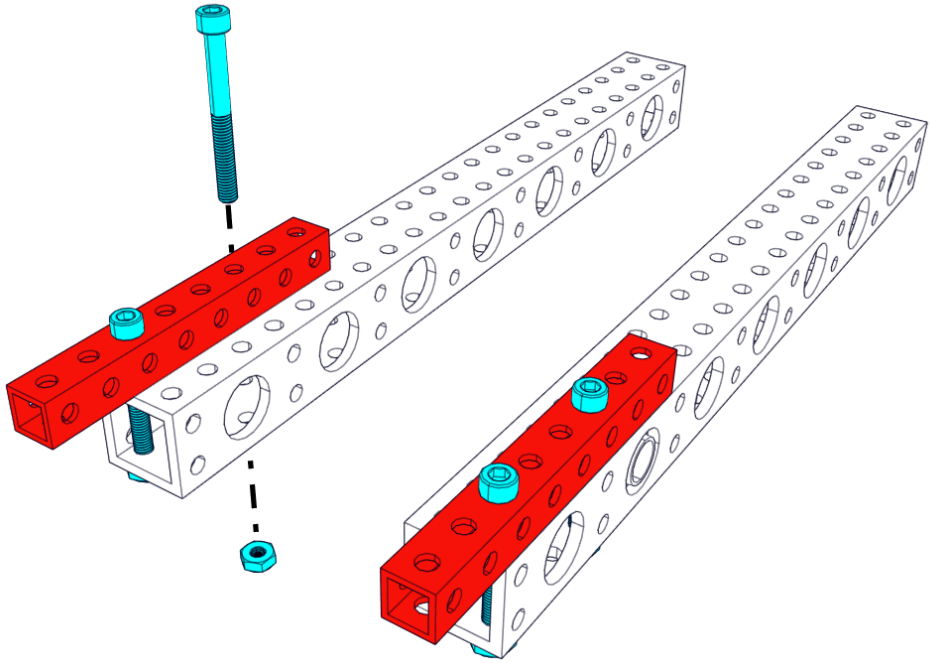


Horizontal Roller



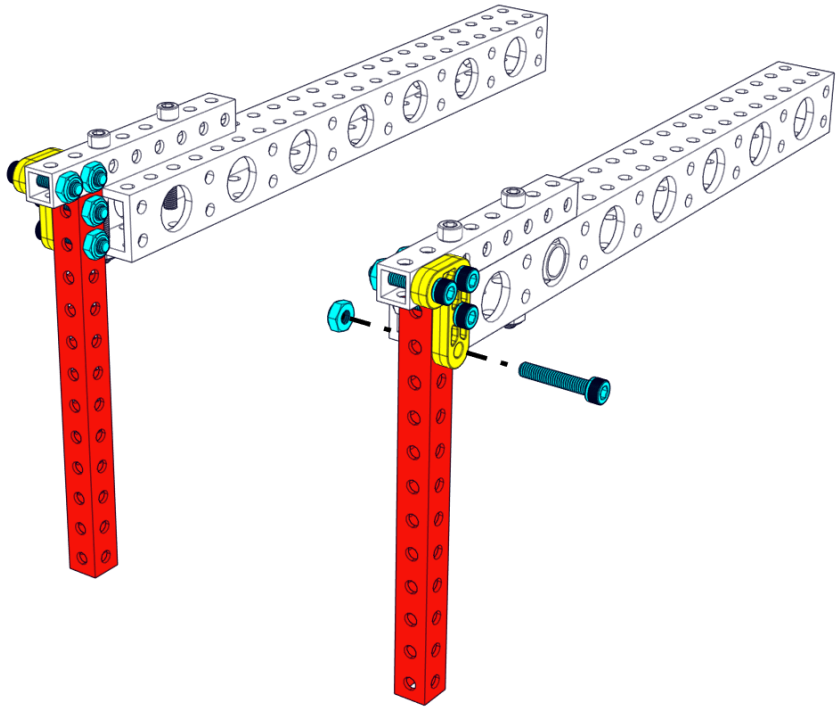
Horizontal Roller Assembly – Step 1

Attach [2] 4″ long 1/2" by 1/2" tubes (am-5001-0400) to [2] 11″ long 1″ by 1″ tubes (am-5002-1100) using [2] 1.75″ 10-32 screws (am-1048) and [2] 10-32 nuts (am-1063) each. These assemblies are mirror images of each other, not identical.



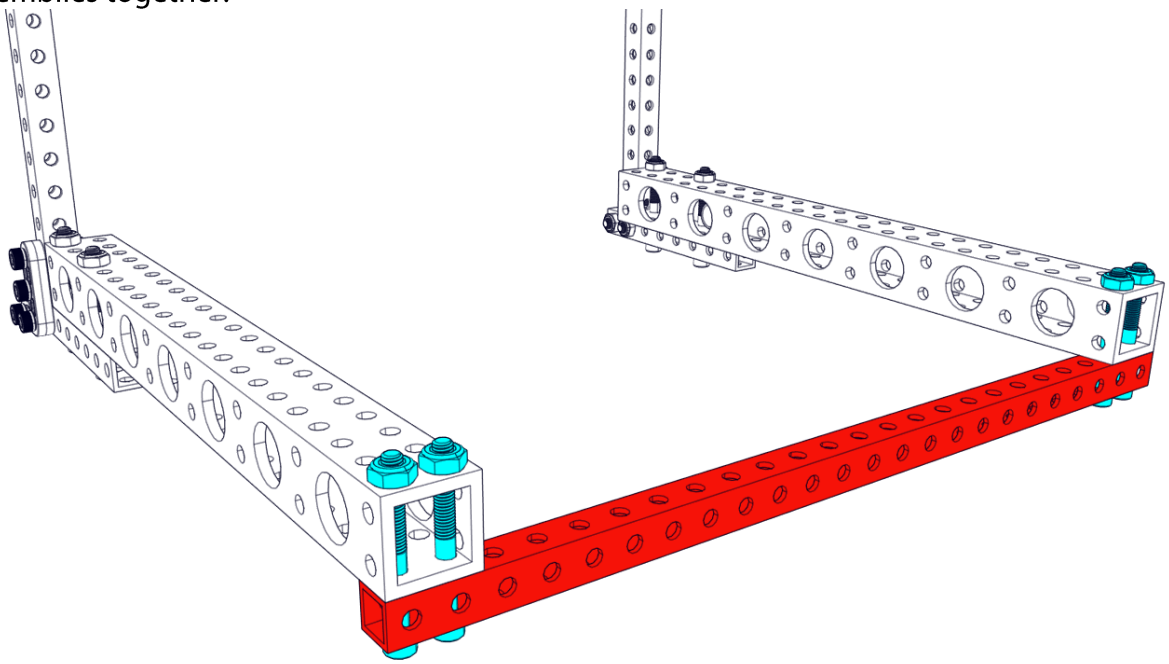
Horizontal Roller Assembly – Step 2

Attach [2] 6″ long 1/2" by 1/2" tubes (am-5001-0600) to the assemblies using [2] 2x3 L Gussets (am-5004_2x3), [4] 1″ 10-32 screws (am-1056), and [4] 10-32 nuts (am-1063) each.



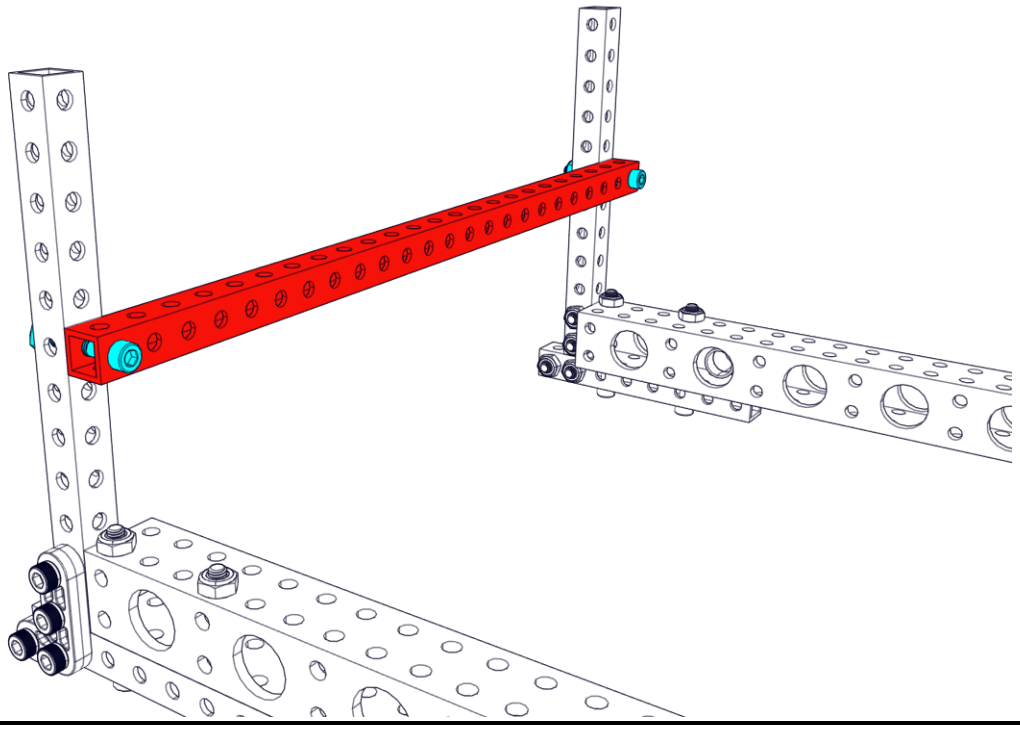
Horizontal Roller Assembly – Step 3

On the other end of the assemblies, add [1] 12″ long 1/2" by 1/2" tube (am-5001-1200) connected by [4] 1.75″ 10-32 screws (am-1048) and [4] 10-32 nuts (am-1063) to connect the assemblies together.



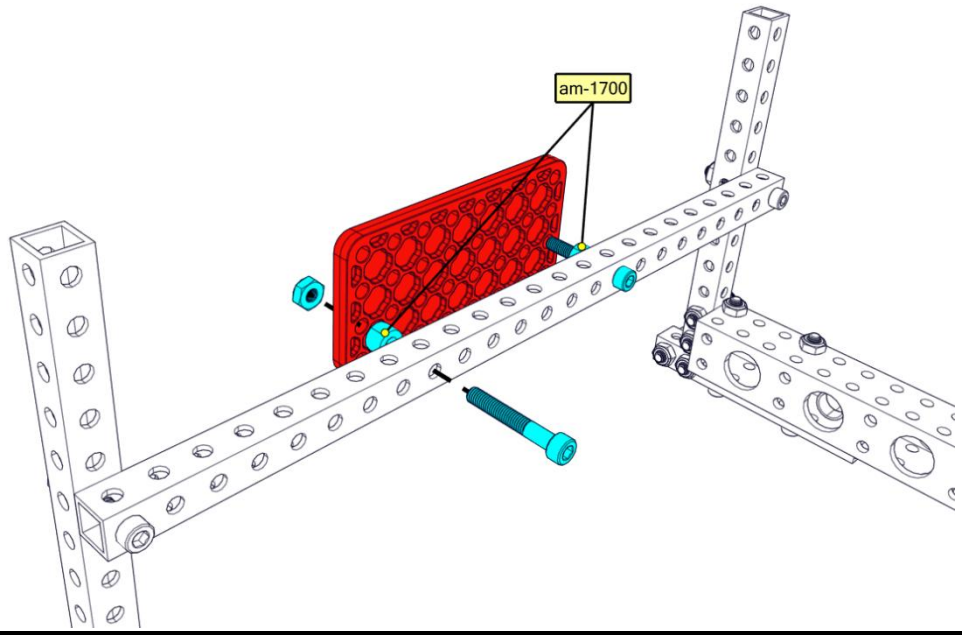
Horizontal Roller Assembly – Step 4

Attach [1] 12″ long 1/2" by 1/2" tube (am-5001-1200) to the 6″ long tubes using [2] 1.25″ 10-32 screws (am-1041) and [2] 10-32 nuts (am-1063).



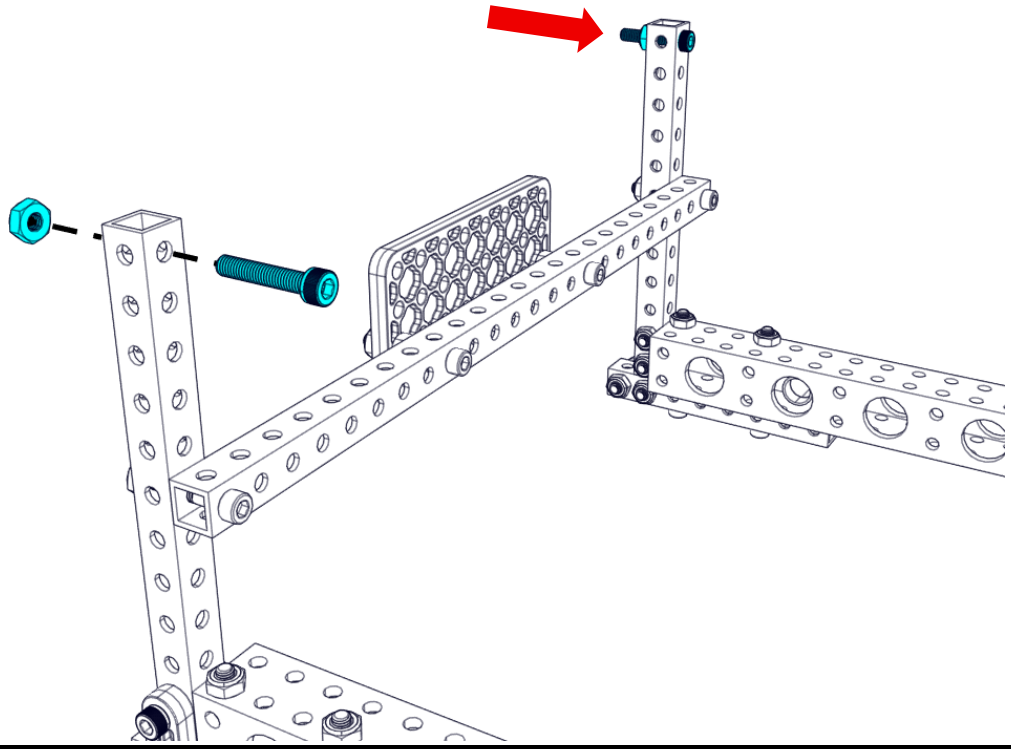
Horizontal Roller Assembly – Step 5

To the center of the tube attached in Step 4, add [1] 4x8 Plate Gusset (am-5006_4x8) connected using [2] 1.25" 10-32 screws (am-1041), [2] 0.25" screw spacers (am-1700), and [2] 10-32 nuts (am-1063).



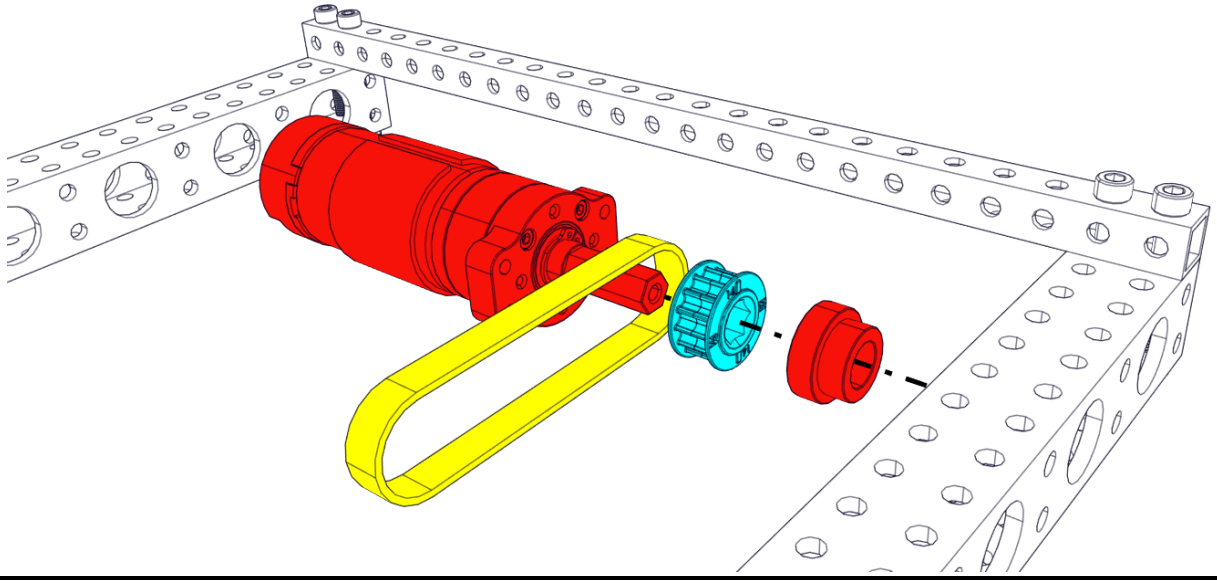
Horizontal Roller Assembly – Step 6

Attach [2] 1" 10-32 screws (am-1056) and [2] 10-32 nuts (am-1063) to act as feet to support the structure on end.



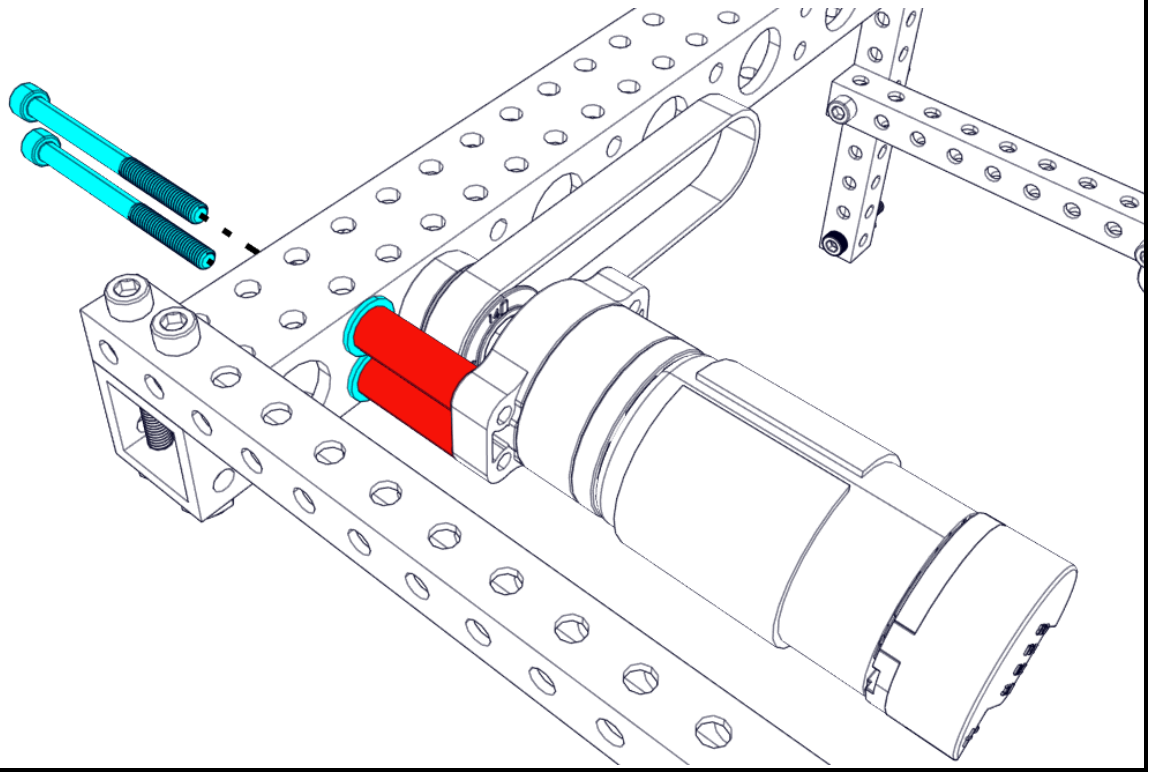
Horizontal Roller Assembly – Step 7

Slide [1] NeveRest Hex 3.7:1 (am-5550_0100_004) through the second hole from the end of one of the 1x1 tubes. On its shaft, slide on [1] 45 tooth belt (am-5209_45T), [2] 14 tooth pulley halves (am-4960_half), and [1] ROBITS Bushing (am-5021).



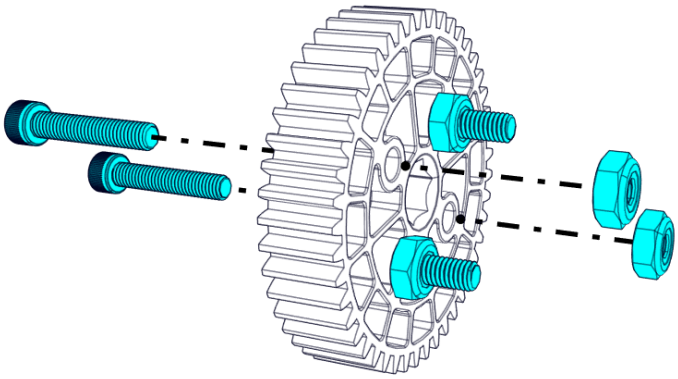
Horizontal Roller Assembly – Step 8

Attach the motor to the 1x1 tube using [2] 2.25" 10-32 screws (am-1156), [2] #10 washers (am-1026), and [2] 1" screw spacers (am-1696).



Horizontal Roller Assembly – Step 9

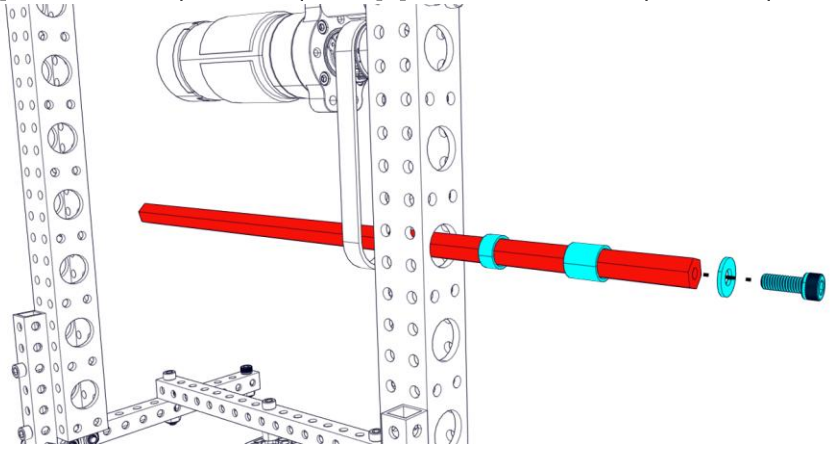
Slide [4] 1″ long 10-32 screws (am-1056) through [1] 45 tooth gear (am-5020_45) and secure them with [4] 10-32 nylock nuts (am-1063). Create [4] total of these assemblies.



4X

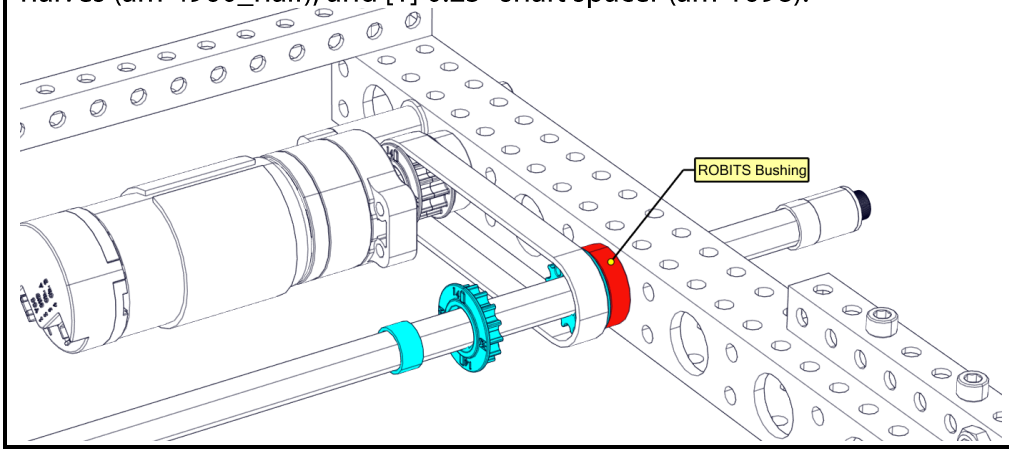
Horizontal Roller Assembly – Step 10

Slide [1] 12″ ROBITS shaft (am-5003-1200) through the fourth hole from the top of the 1x1 tube. Slide [1] 0.25″ shaft spacer (am-1698) and [1] 0.5″ shaft spacer (am-1699) onto it and cap the end with [1] #10 washer (am-1026) and [1] 0.5″ 10-32 screw (am-1002).



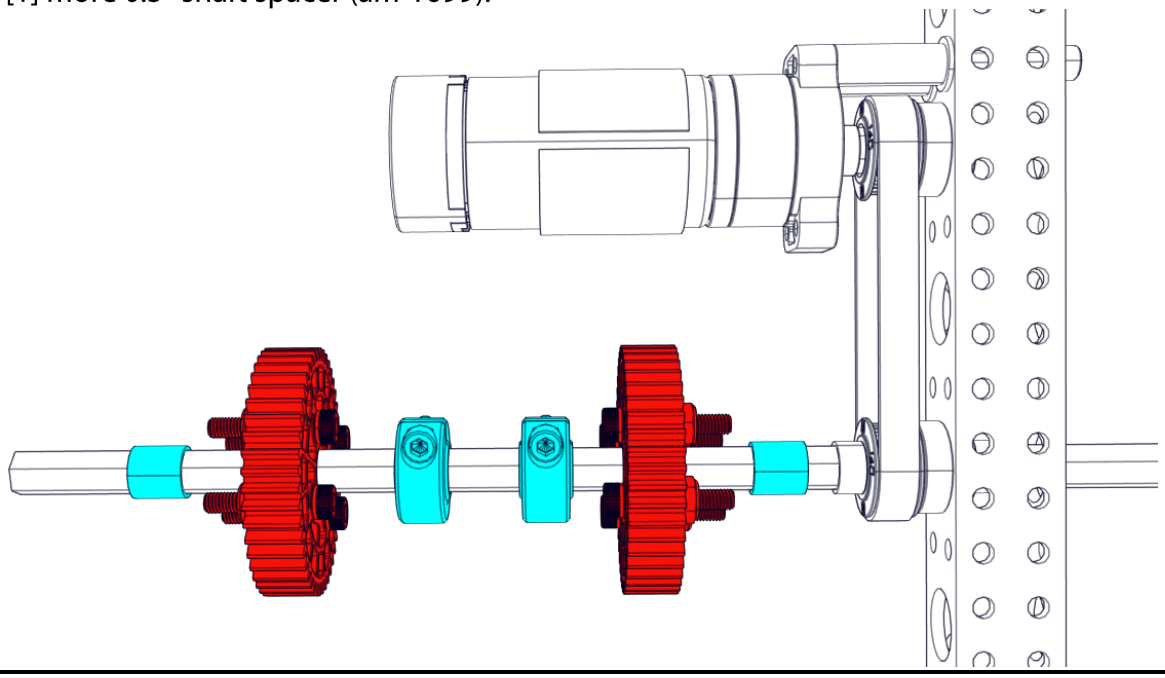
Horizontal Roller Assembly – Step 11

From the other side of the 1x1, slide on [1] ROBITS Bushing (am-5021), [2] 14 tooth pulley halves (am-4960_half), and [1] 0.25″ shaft spacer (am-1698).



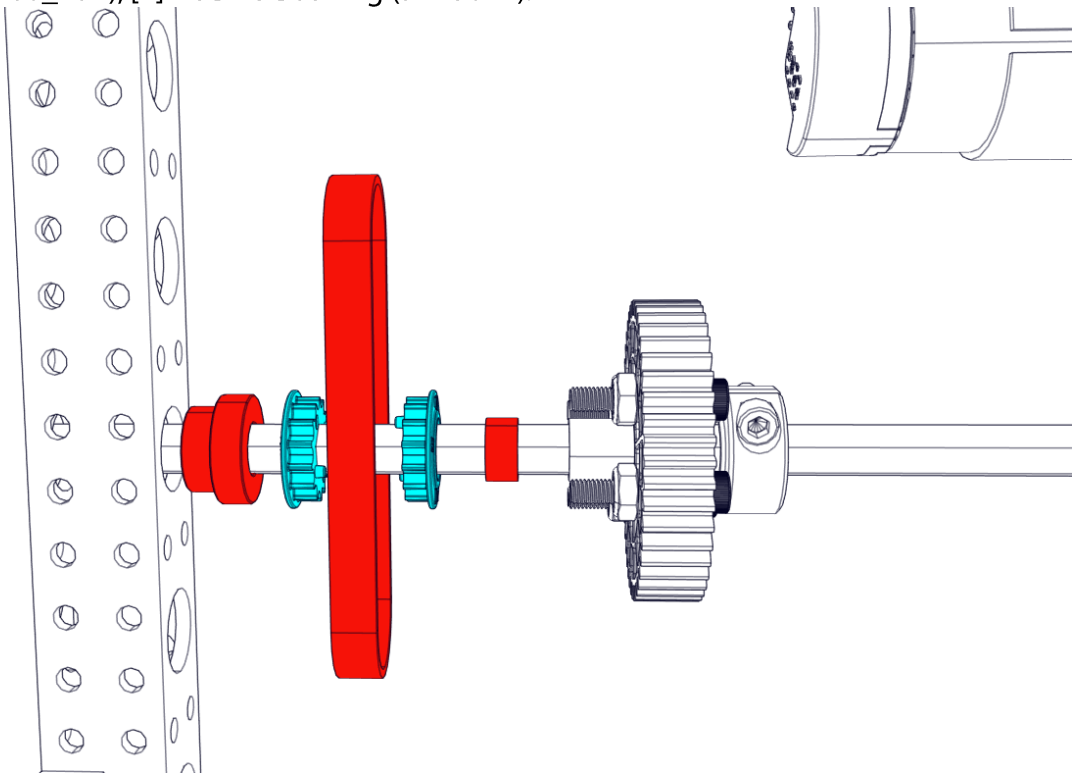
Horizontal Roller Assembly – Step 12

Slide on [1] 0.5" shaft spacer (am-1699), [1] of the assemblies from Step 9, [2] collar clamps (am-1637), [1] more of the assemblies from Step 9 facing the opposite direction of the first, then [1] more 0.5" shaft spacer (am-1699).



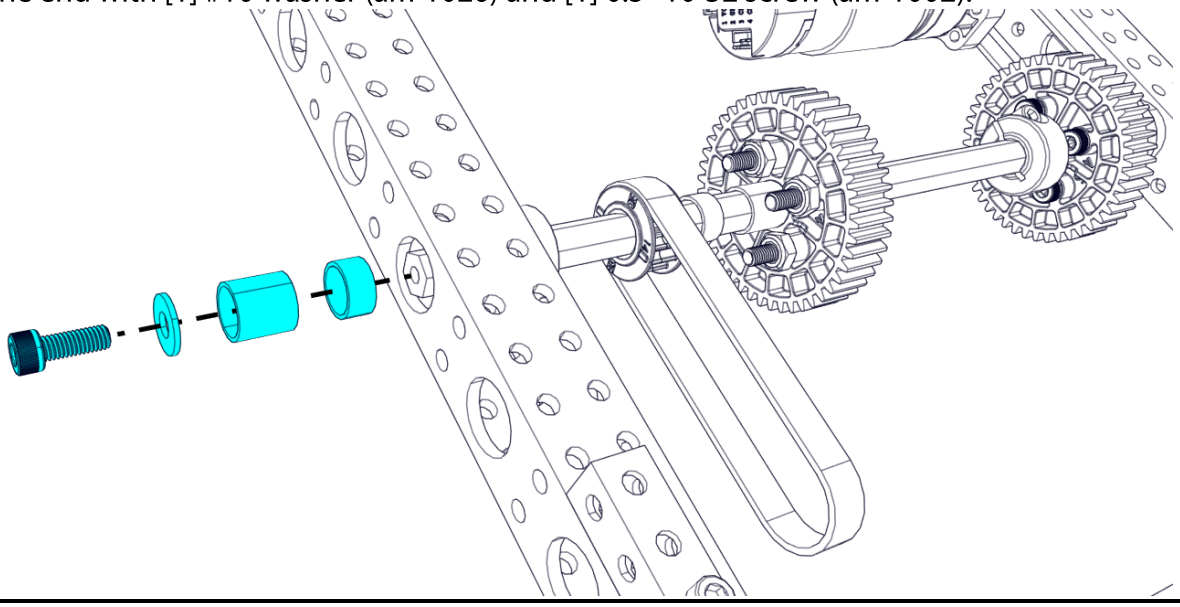
Horizontal Roller Assembly – Step 13

Slide on [1] 0.25" shaft spacer (am-1698), [1] 45 tooth belt (am-5209_45T), [2] 14 tooth pulley halves (am-4960_half), [1] ROBITS Bushing (am-5021).



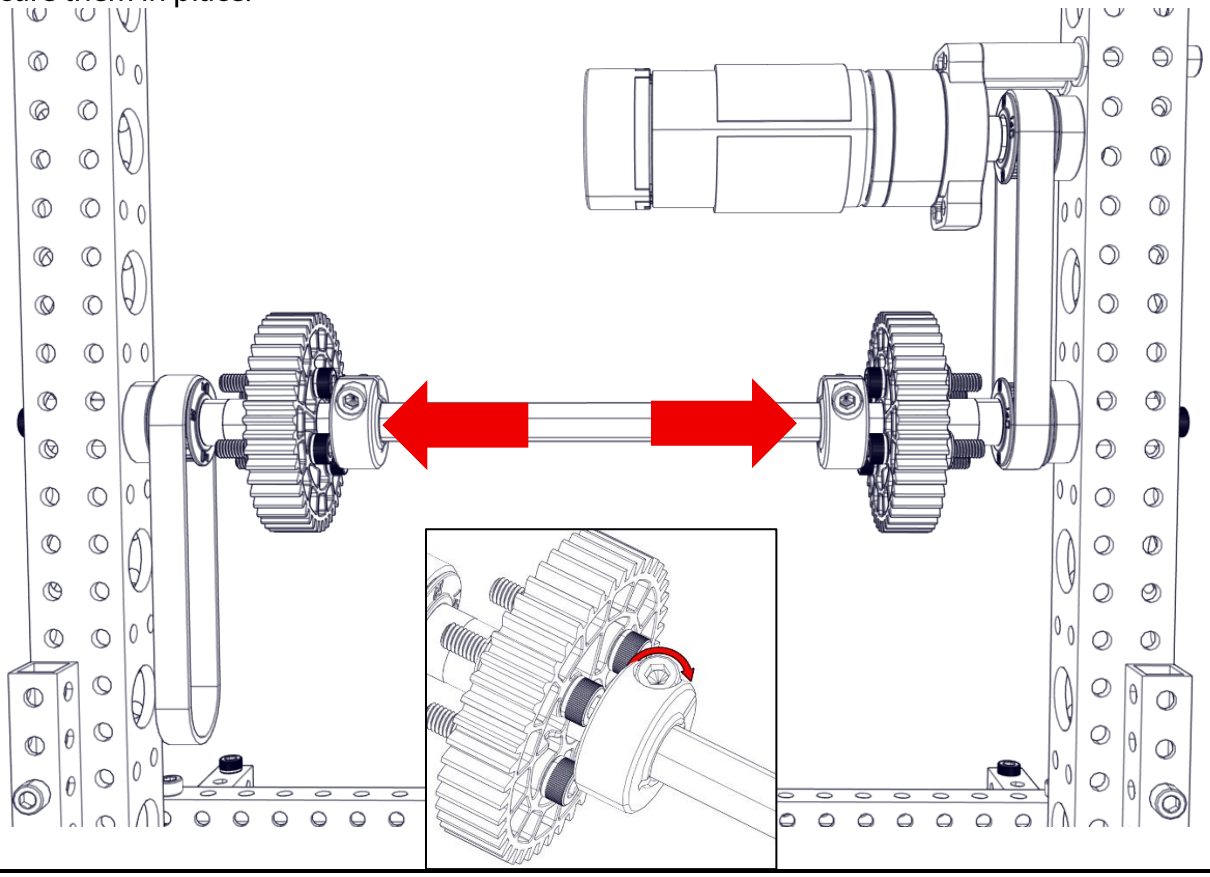
Horizontal Roller Assembly – Step 14

Slide [1] 0.25″ shaft spacer (am-1698) and [1] 0.5″ shaft spacer (am-1699) onto the shaft and cap the end with [1] #10 washer (am-1026) and [1] 0.5″ 10-32 screw (am-1002).



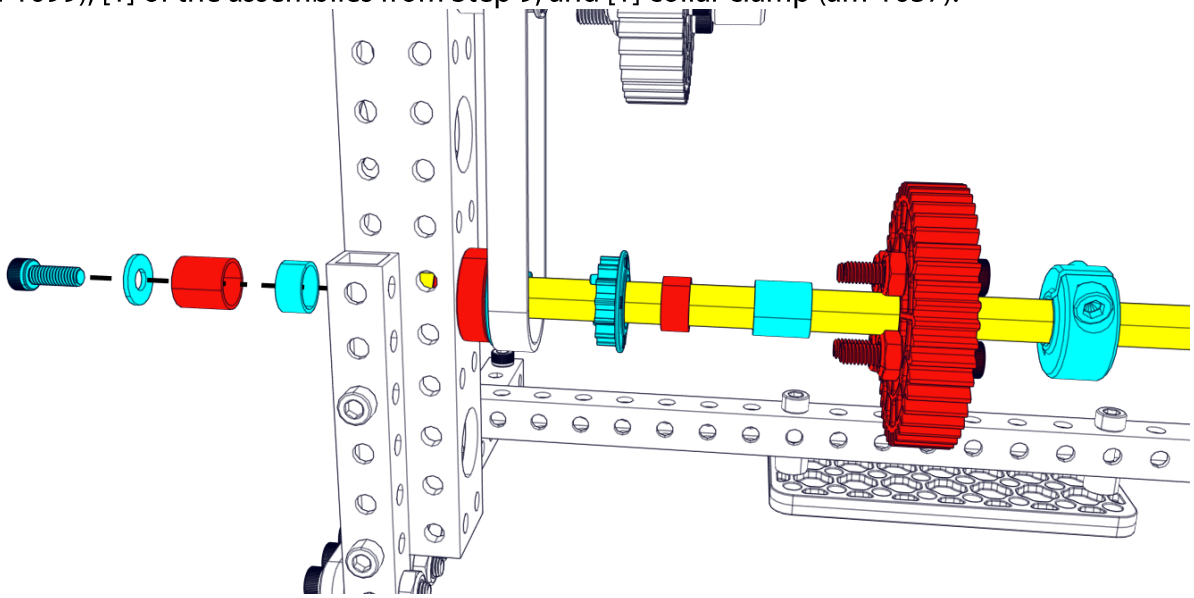
Horizontal Roller Assembly – Step 15

Spread the gear assemblies apart to either end of the shaft, then tighten the collar clamps to secure them in place.



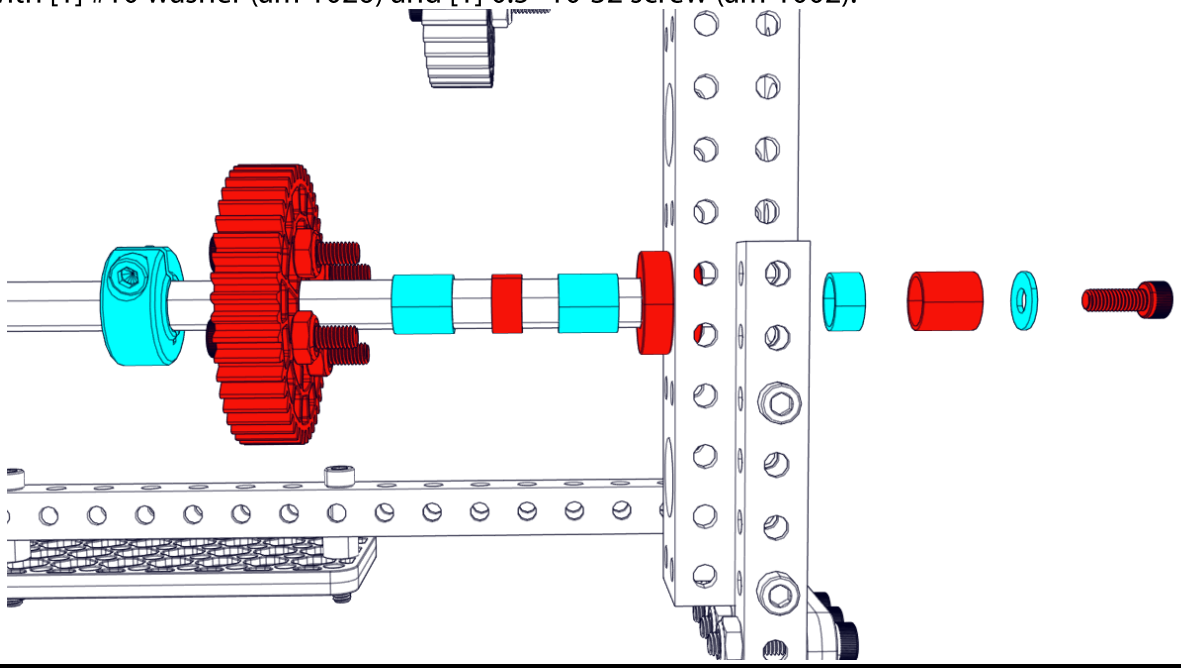
Horizontal Roller Assembly – Step 16

In an identical fashion to the other shaft, slide [1] 12″ ROBITS shaft (am-5003-1200) through the second hole from the bottom of the 1x1 tube. Then, slide [1] 0.25″ shaft spacer (am-1698) and [1] 0.5″ shaft spacer (am-1699) onto it and cap the end with [1] #10 washer (am-1026) and [1] 0.5″ 10-32 screw (am-1002). On the other side, slide on [1] ROBITS Bushing (am-5021), [2] 14 tooth pulley halves (am-4960_half), [1] 0.25″ shaft spacer (am-1698), [1] 0.5″ shaft spacer (am-1699), [1] of the assemblies from Step 9, and [1] collar clamp (am-1637).



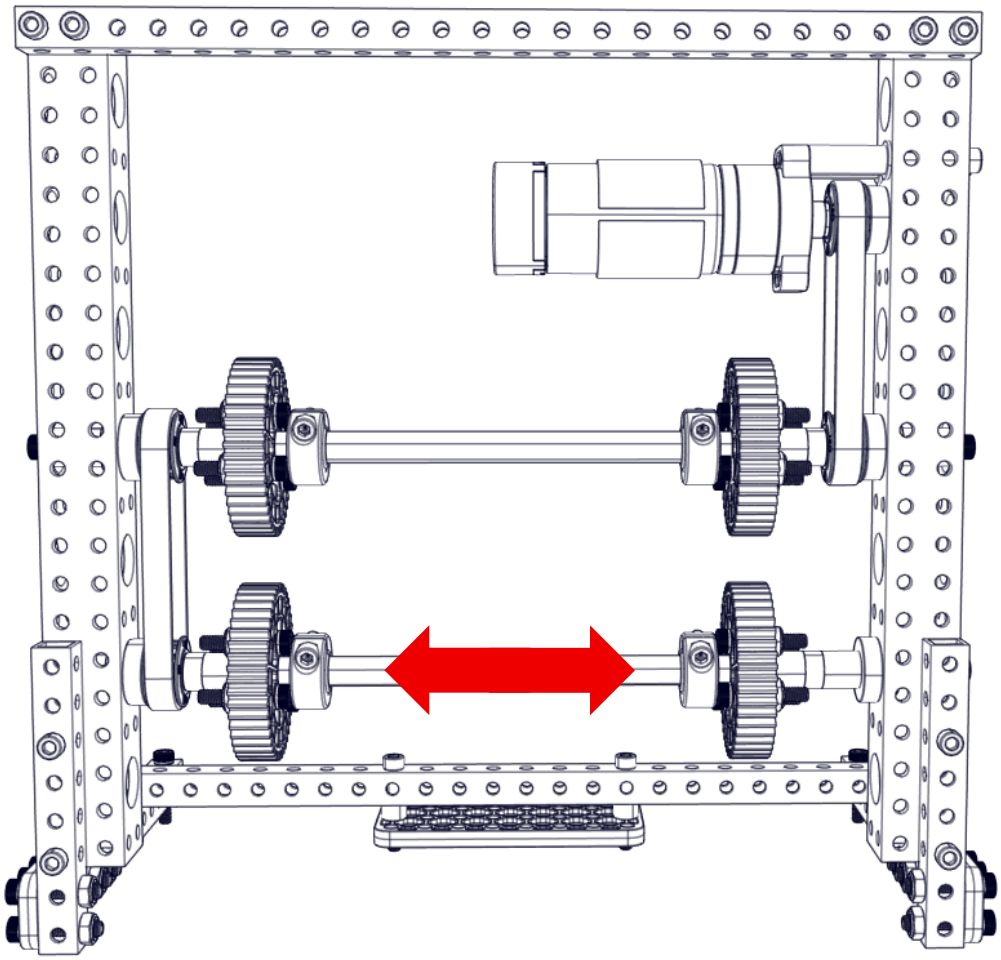
Horizontal Roller Assembly – Step 17

Slide on [1] collar clamp (am-1637), [1] of the assemblies from Step 9, [1] 0.5″ shaft spacer (am-1699), [1] 0.25″ shaft spacer (am-1698), [1] 0.5″ shaft spacer (am-1699), [1] ROBITS Bushing (am-5021), [1] 0.25″ shaft spacer (am-1698), [1] 0.5″ shaft spacer (am-1699), and cap the end with [1] #10 washer (am-1026) and [1] 0.5″ 10-32 screw (am-1002).



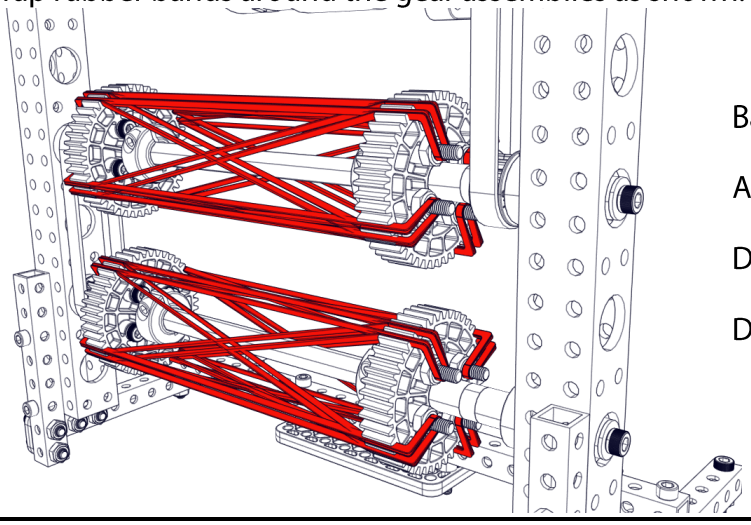
Horizontal Roller Assembly – Step 18

Spread the gear assemblies apart to either end of the shaft, then tighten the collar clamps to secure them in place.



Horizontal Roller Assembly – Step 19

Wrap rubber bands around the gear assemblies as shown.



Bands should connect:

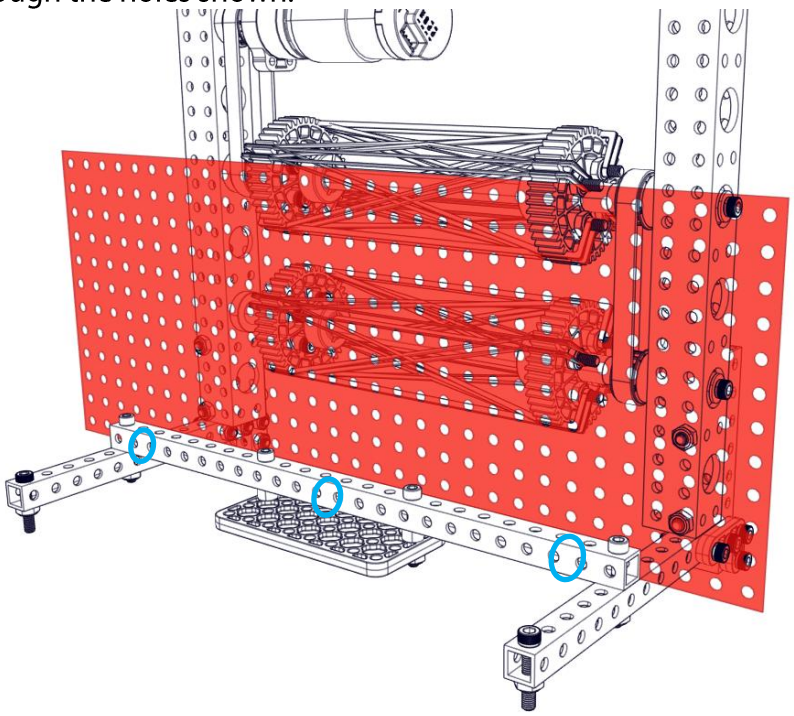
Across

Diagonally Up Right

Diagonally Up Left

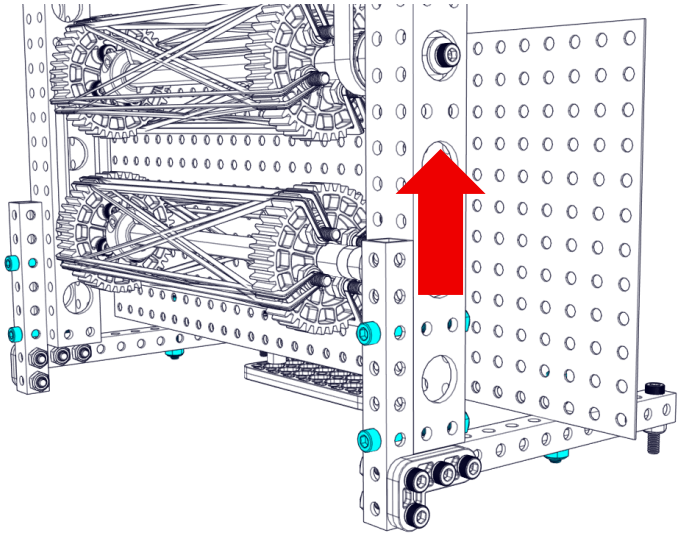
Horizontal Roller Assembly – Step 20

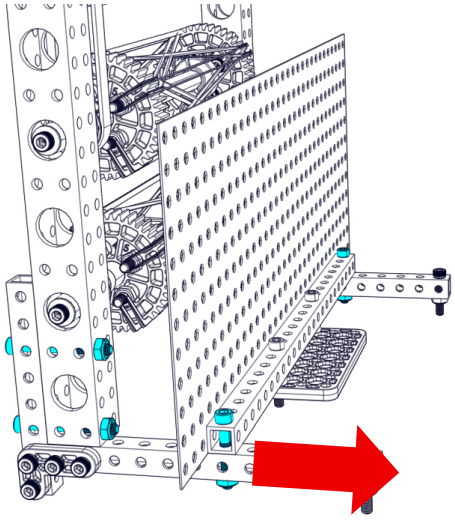
Attach [1] section of perforated polycarbonate (am-4964a) to the back of the assembly using [3] cable ties through the holes shown.



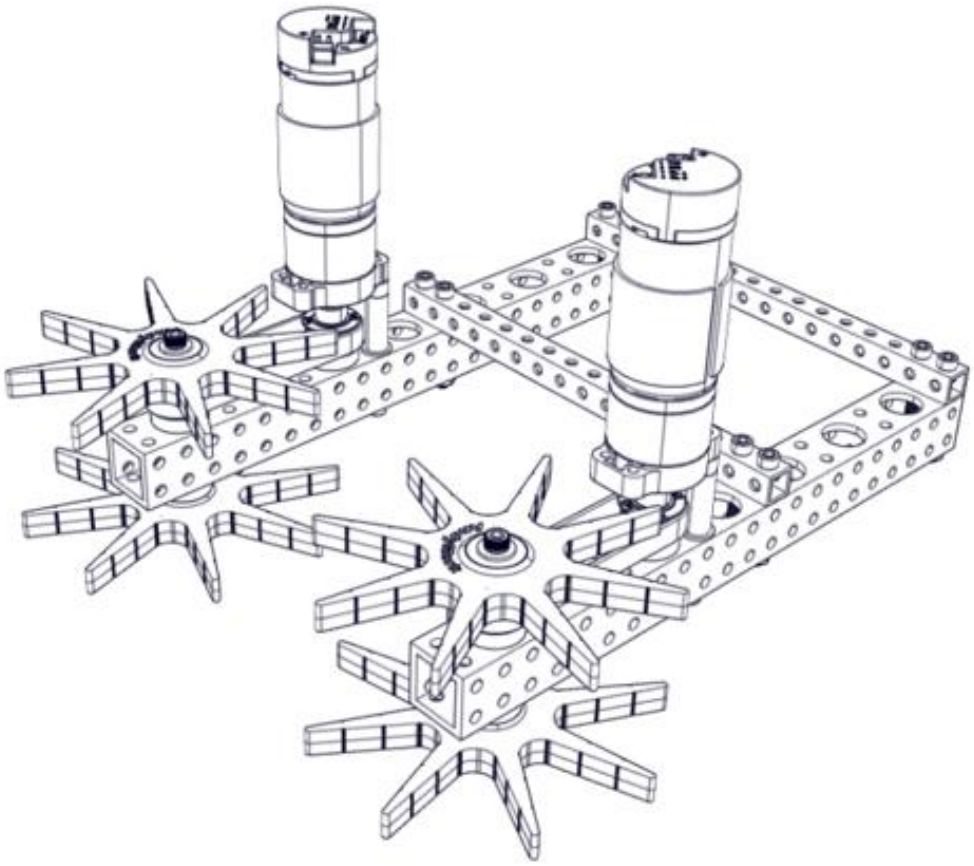
Horizontal Roller Assembly – Adjustments

To adjust this system for different ball diameters, you can shift the 1x1 tubes up and the polycarbonate backing back by placing the screws that mount them in different holes.



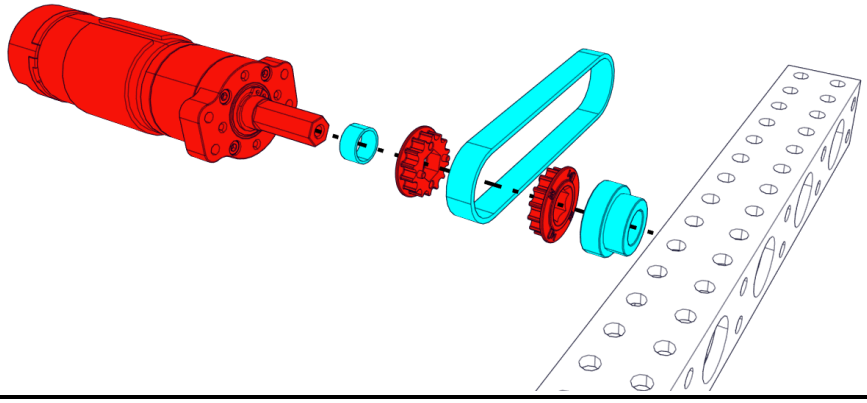


Dual Vertical Rollers



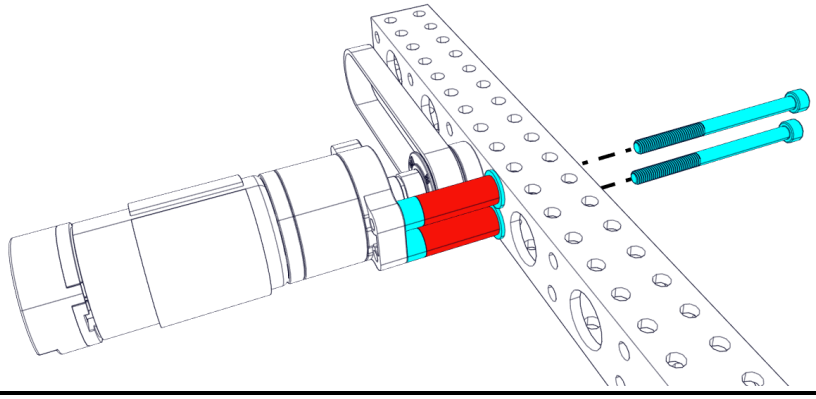
Dual Vertical Rollers Assembly – Step 1

Slide [1] NeveRest Hex 3.7:1 (am-5550_0100_004) through the third hole from the end of [1] 11″ long 1″ by 1″ tube (am-5002-1100). On its shaft, slide on [1] 0.25″ shaft spacer (am-1698), [1] 45 tooth belt (am-5209_45T), [2] 14 tooth pulley halves (am-4960_half), and [1] ROBITS Bushing (am-5021).



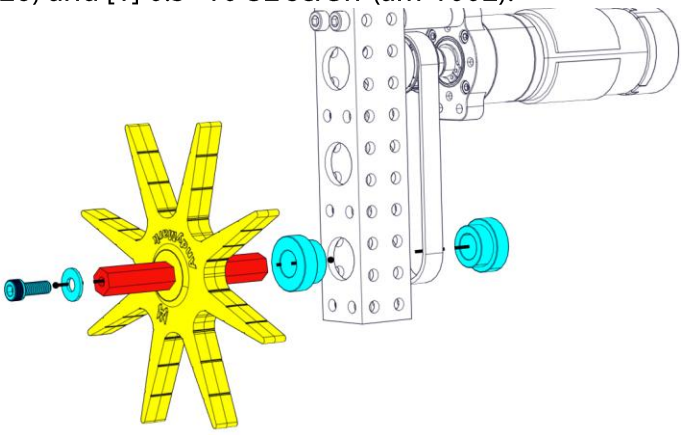
Dual Vertical Rollers Assembly – Step 2

Attach the motor to the 1x1 tube using [2] 2.25″ 10-32 screws (am-1156), [2] #10 washers (am-1026), [2] 1″ screw spacers (am-1696), and [2] 0.25″ screw spacers (am-1700).



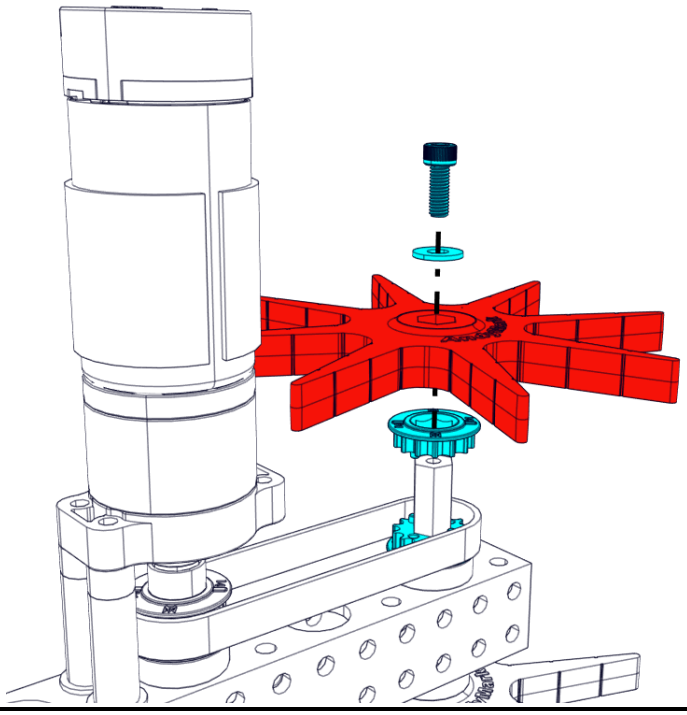
Dual Vertical Rollers Assembly – Step 3

To the closer end of the 1x1 tube, insert [1] 3″ hex shaft (am-5003-0300) through [2] ROBITS Bushings (am-5021). Slide [1] 5″ compliant star (am-5124_green) over the shaft and cap it with [1] #10 washer (am-1026) and [1] 0.5″ 10-32 screw (am-1002).



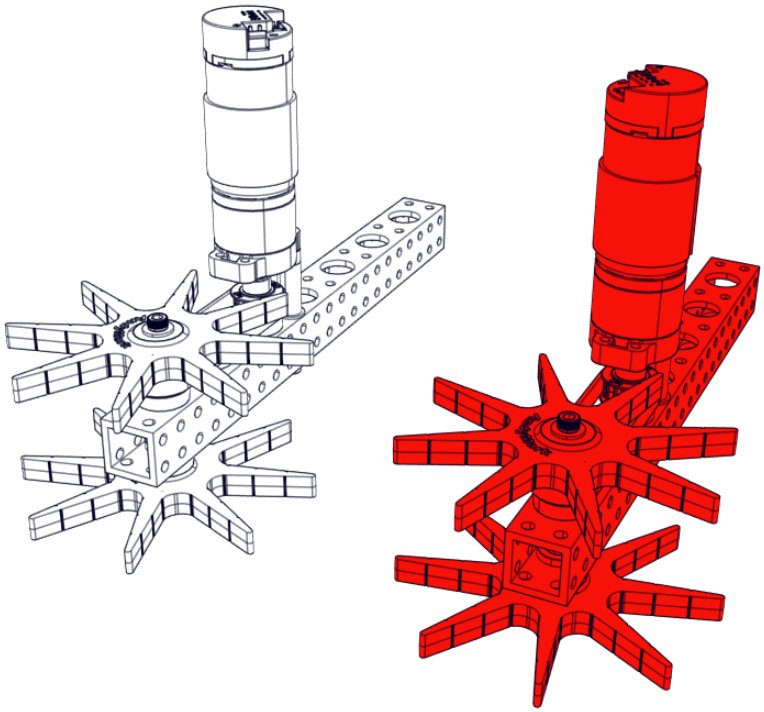
Dual Vertical Rollers Assembly – Step 4

On the other side of the 1x1 tube, slide on [2] 14 tooth pulley halves (am-4960_half), slip the timing belt around them, slide on [1] 5" compliant star (am-5124_green) and cap the shaft with [1] #10 washer (am-1026) and [1] 0.5" 10-32 screw (am-1002).



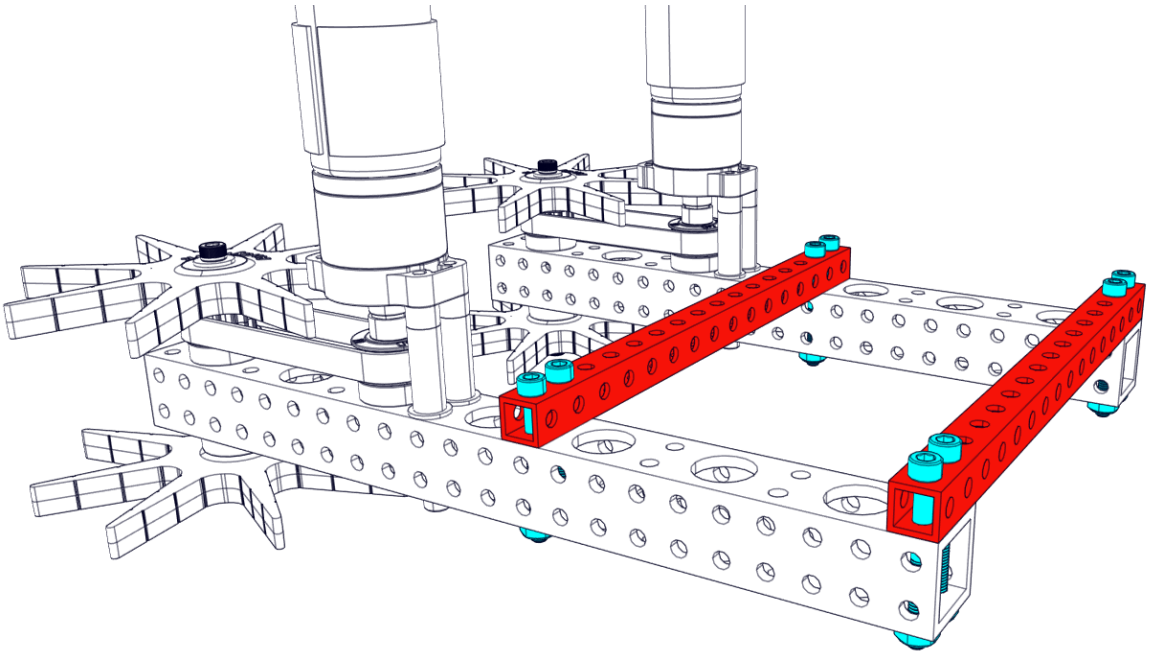
Dual Vertical Rollers Assembly – Step 5

Repeat Step 1 through Step 4 to build a second assembly.



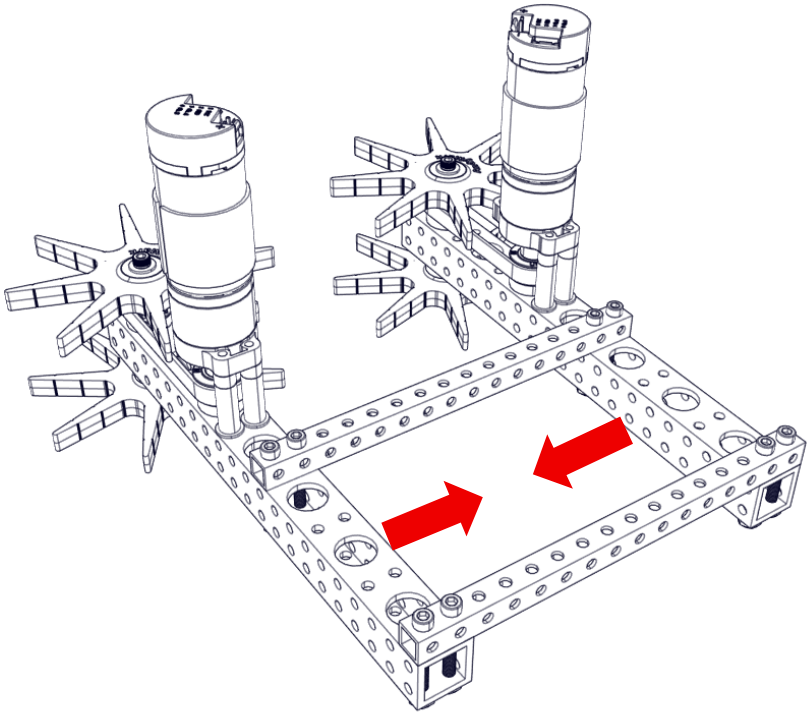
Dual Vertical Rollers Assembly – Step 6

Connect the two identical assemblies using [2] 8″ long 1/2" by 1/2" tubes (am-5001-0800), [8] 1.75″ long 10-32 screws (am-1048), and [8] 10-32 nuts (am-1063).

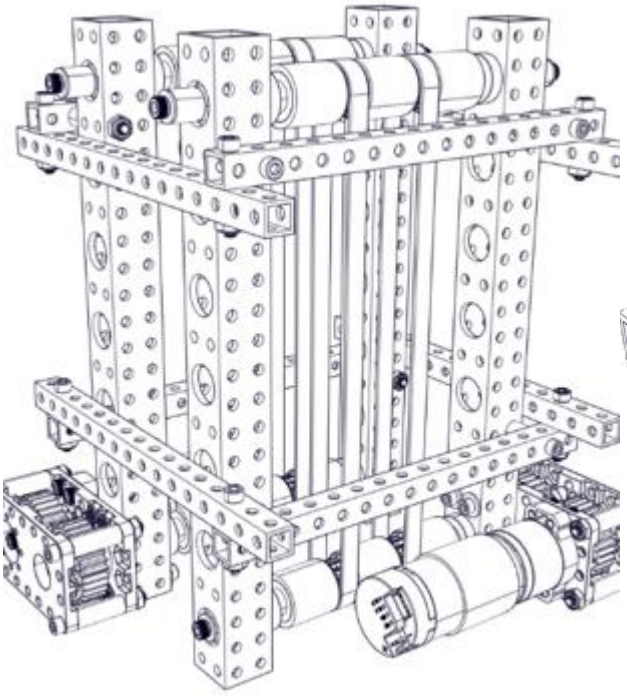


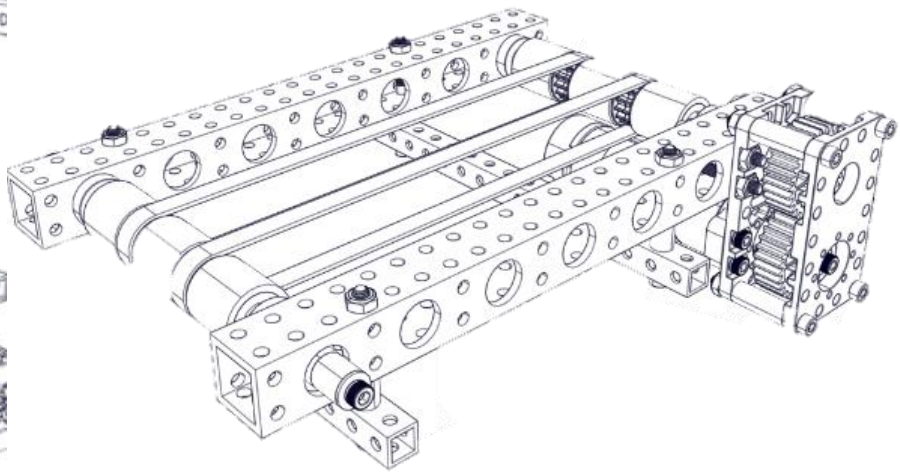
Dual Vertical Rollers – Adjustments

This assembly's compression can be adjusted by shifting the 1x1 tubes towards each other or by switching out the 5″ stars for 3″ starts or cutting either down to a smaller size.



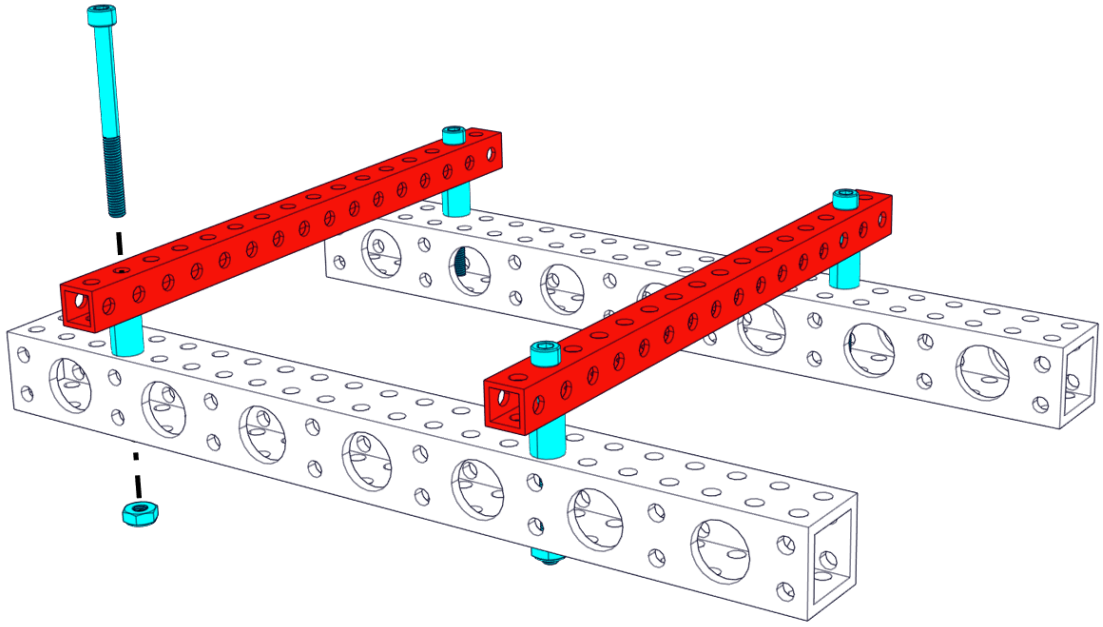
Single & Double Conveyor





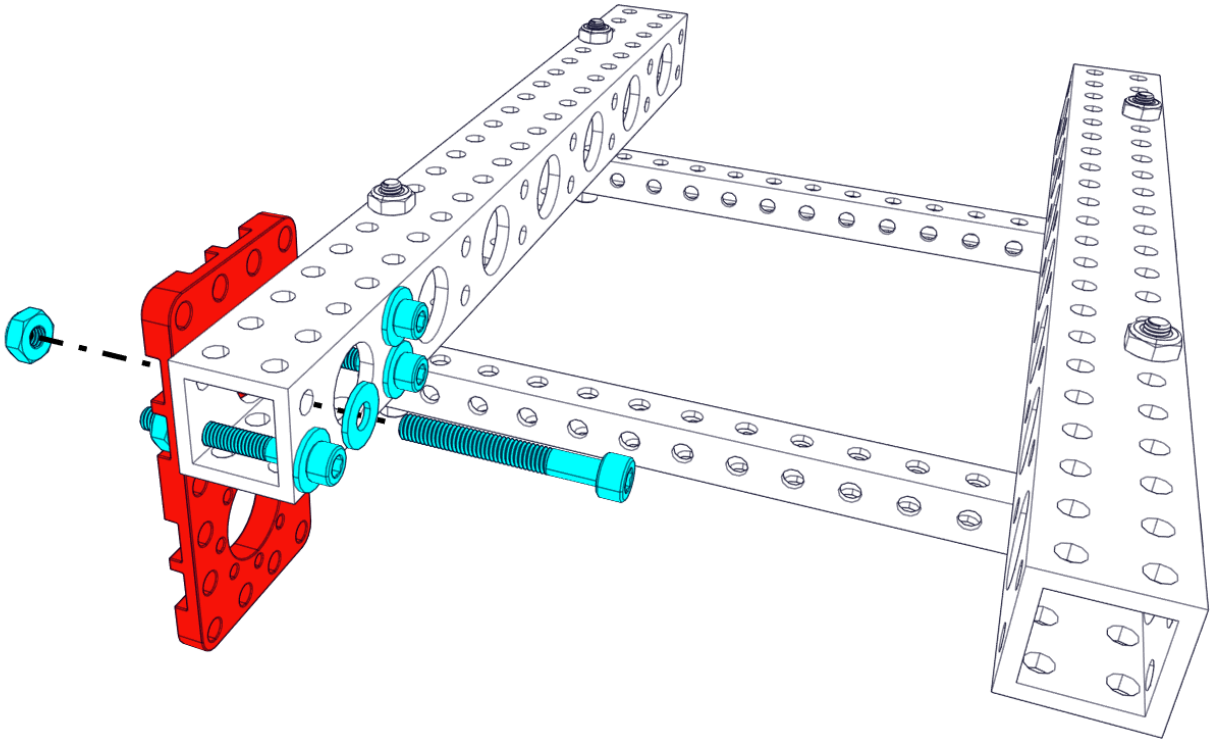
Single & Double Conveyors Assembly – Step 1

Connect [2] 11" long 1" by 1" tubes (am-5002-1100) using [2] 8" long 1/2" by 1/2" tubes (am-5001-0800) , [4] 2.25" 10-32 bolts (am-1156), [4] 0.5" screw spacers (am-1697), and [4] 10-32 nuts (am-1063).



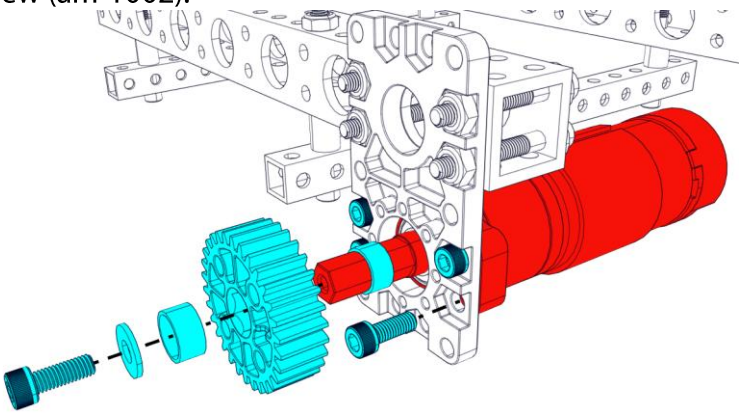
Single & Double Conveyors Assembly – Step 2

To one of the 1x1 tubes, attach [1] Pass Through Plate (am-5023) using [4] 1.5" 10-32 screws (am-1014), [4] #10 washers (am-1026), and [4] 10-32 nuts (am-1063).



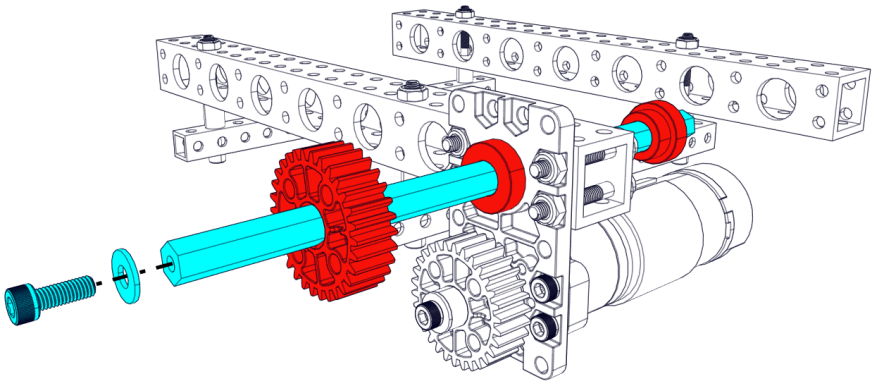
Single & Double Conveyors Assembly – Step 3

Connect [1] 13.7:1 NeveRest Hex Motor (am-5550_0100_014) to the pass-through plate using [4] 0.5" 10-32 screws (am-1002). Then affix [1] 0.25" shaft spacer (am-1698) and [1] 30 tooth gear (am-5020_30) and cap it with [1] 0.25" shaft spacer (am-1698), [1] #10 washer (am-1026), and [1] 0.5" 10-32 screw (am-1002).



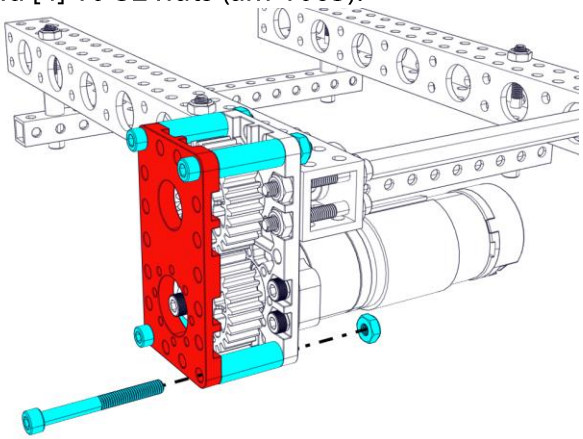
Single & Double Conveyors Assembly – Step 4

Slip [1] 8" long hex shaft (am-5003-0800) through [2] ROBITS Bushings (am-5021) and [1] 30 tooth gear (am-5020_30). Cap the shaft with [1] #10 washer (am-1026) and [1] 0.5" 10-32 screw (am-1002).



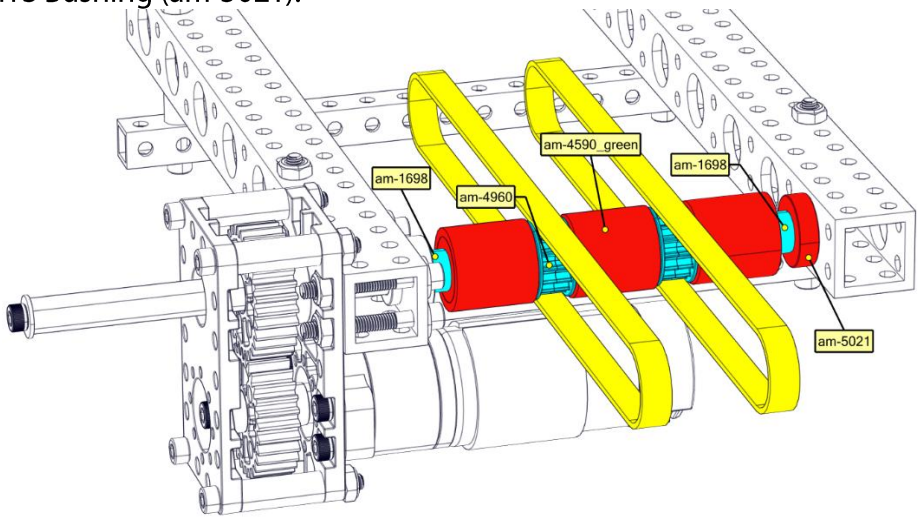
Single & Double Conveyors Assembly – Step 5

Secure [1] more Pass Through Plate (am-5023) using [4] 1.75" 10-32 screws (am-1048), [4] 1" screw spacers (am-1696), and [4] 10-32 nuts (am-1063).



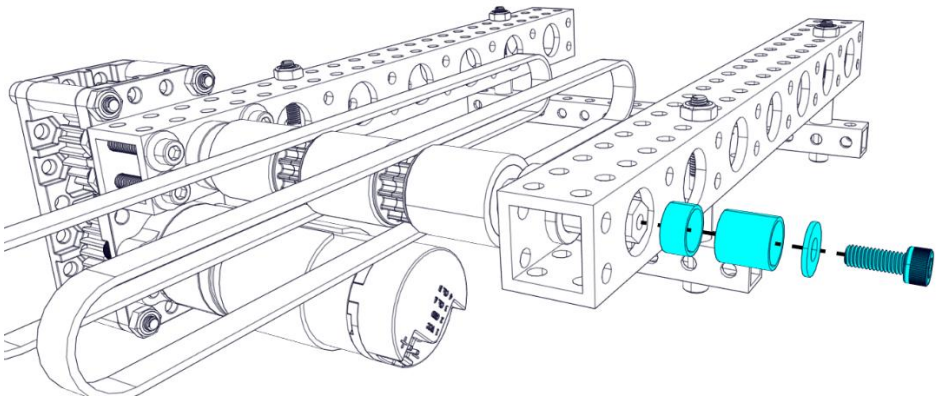
Single & Double Conveyors Assembly – Step 6

Onto the 8″ hex shaft, place [2] 0.25″ shaft spacers (am-1698), [3] Sushi Rollers (am-4590_green), [4] 14 tooth pulley halves (am-4960_half), [2] 106 tooth belts (am-5209_106T), and [1] ROBITS Bushing (am-5021).



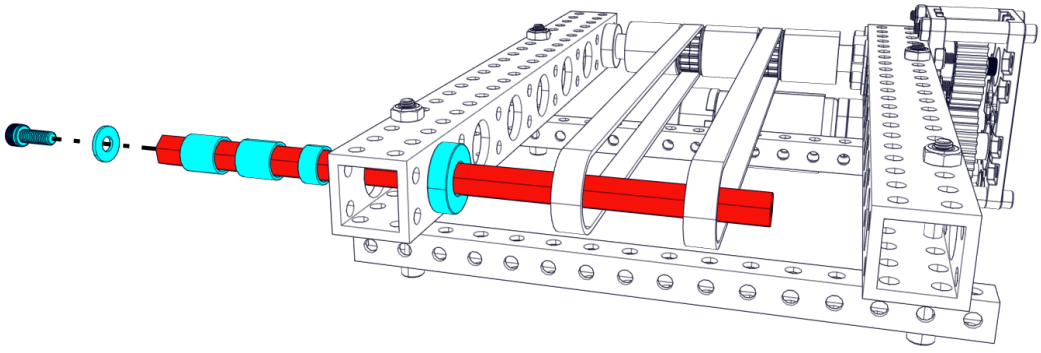
Single & Double Conveyors Assembly – Step 7

Cap the end of the hex shaft with [1] 0.25″ shaft spacer (am-1698), [1] 0.5″ shaft spacer (am-1699), [1] # 10 washer (am-1026), and [1] 0.5″ 10-32 screw (am-1002).



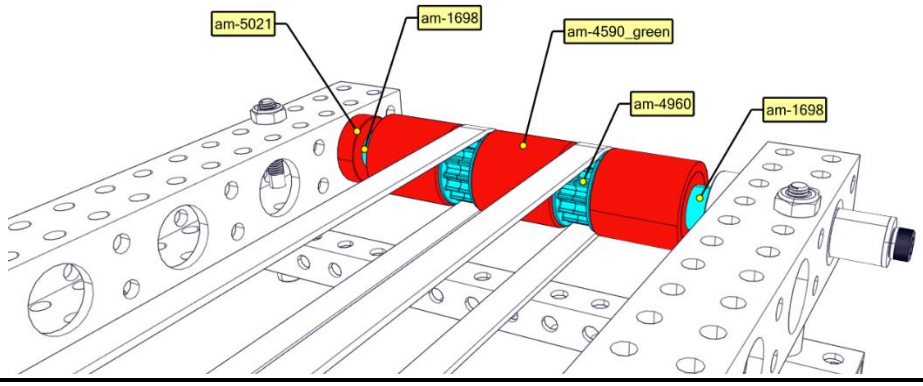
Single & Double Conveyors Assembly – Step 8

On the other side of the assembly, slip [1] 8″ long hex shaft (am-5003-0800) through [2] 0.5″ shaft spacers (am-1699), [1] 0.25″ shaft spacer (am-1698), and [1] ROBITS Bushing (am-5021). Cap the shaft with [1] #10 washer (am-1026) and [1] 0.5″ 10-32 screw (am-1002).



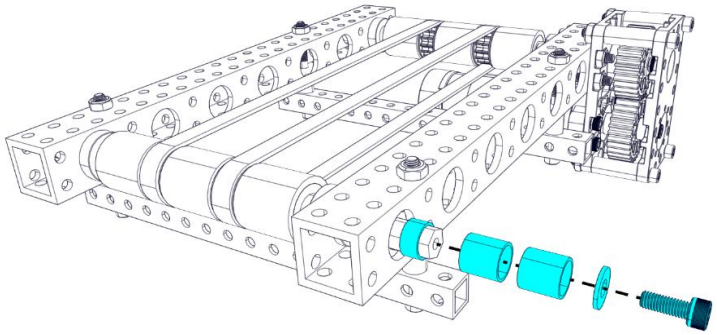
Single & Double Conveyors Assembly – Step 9

Onto the 8" hex shaft, place [2] 0.25" shaft spacers (am-1698), [3] Sushi Rollers (am-4590_green), [4] 14 tooth pulley halves (am-4960_half), and [1] ROBITS Bushing (am-5021). Don't forget to place the belts over the pulleys.



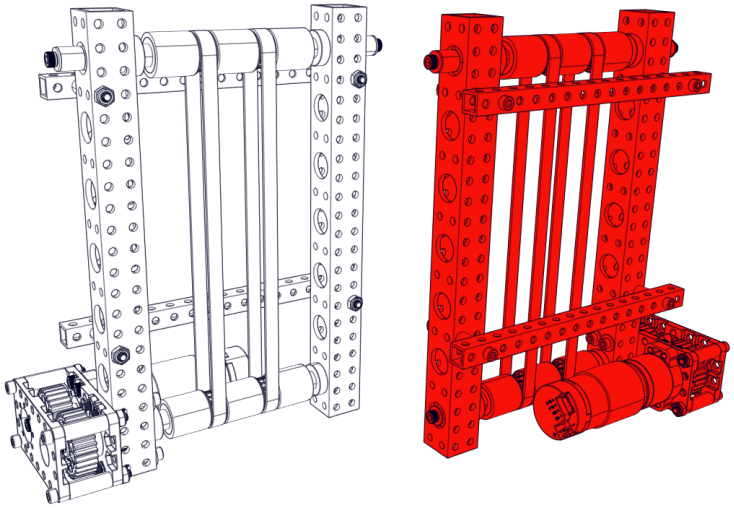
Single & Double Conveyors Assembly – Step 10

Cap the end of the hex shaft with [1] 0.25" shaft spacer (am-1698), [2] 0.5" shaft spacers (am-1699), [1] # 10 washer (am-1026), and [1] 0.5" 10-32 screw (am-1002).



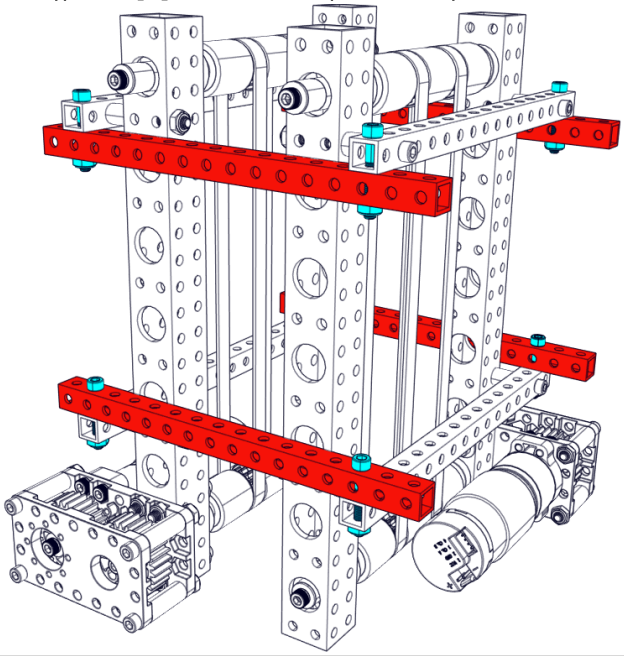
Single & Double Conveyors Assembly – Step 11

If you were intending to build a single conveyor, you are now done. If you'd like to build a double conveyor, start by completing Steps 1 through 10 again to construct a second conveyor.



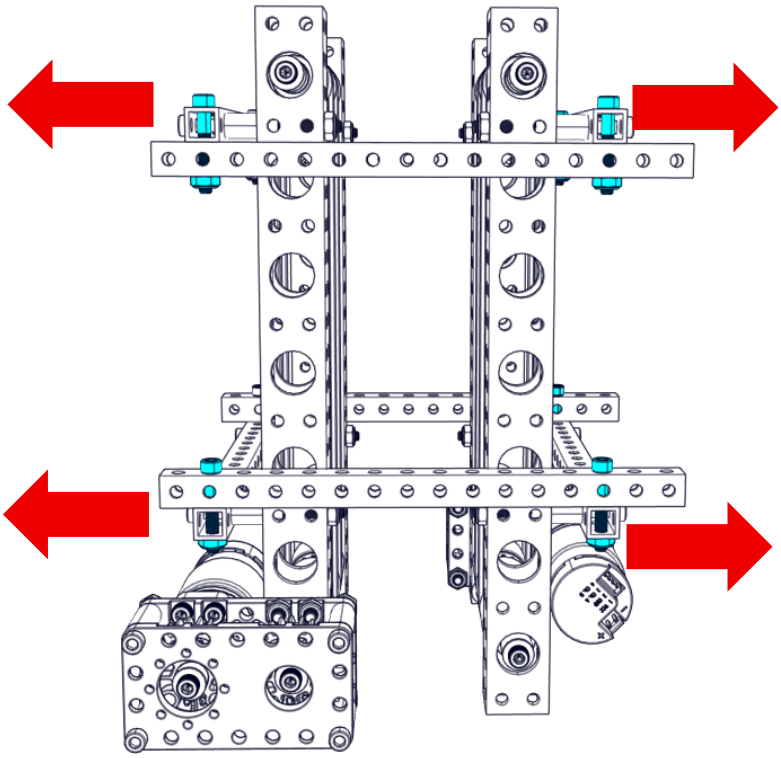
Single & Double Conveyors Assembly – Step 12

Connect the two conveyors together using [4] 8″ long 1/2" by 1/2" tubes (am-5001-0800), [8] 1.25″ 10-32 screws (am-1041), and [8] 10-32 nuts (am-1063).



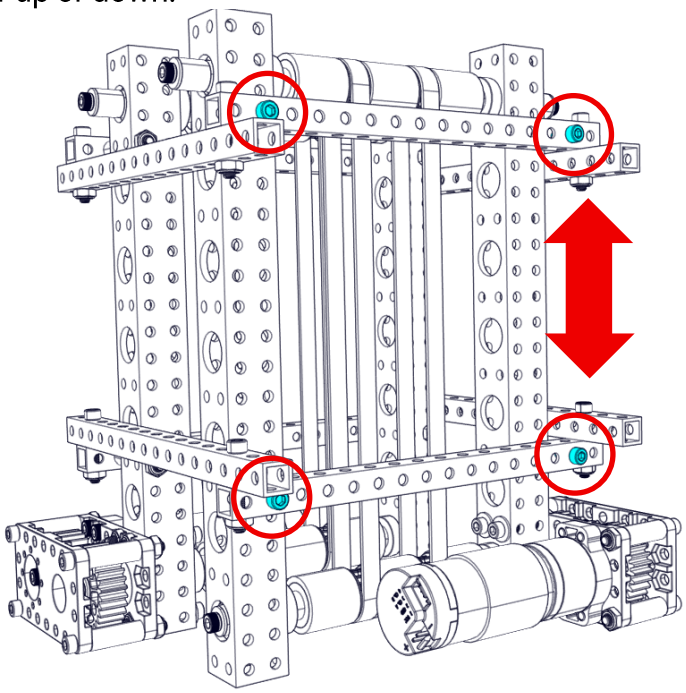
Single & Double Conveyors Assembly – Adjustments

The compression of the double conveyor can be adjusted by shifting the conveyors along the tubes that were just added by removing the 1.25″ bolts and reattaching them.



Single & Double Conveyors Assembly – Adjustments

One conveyor can be adjusted relative to the other by moving the highlighted screws and shifting that conveyor up or down.



Single & Double Conveyors Assembly – Adjustments

The length of each conveyor can be adjusted by moving the drive shafts to different holes and using a different belt.

