Build Guide - Ender 3 / CR10 / CR10S
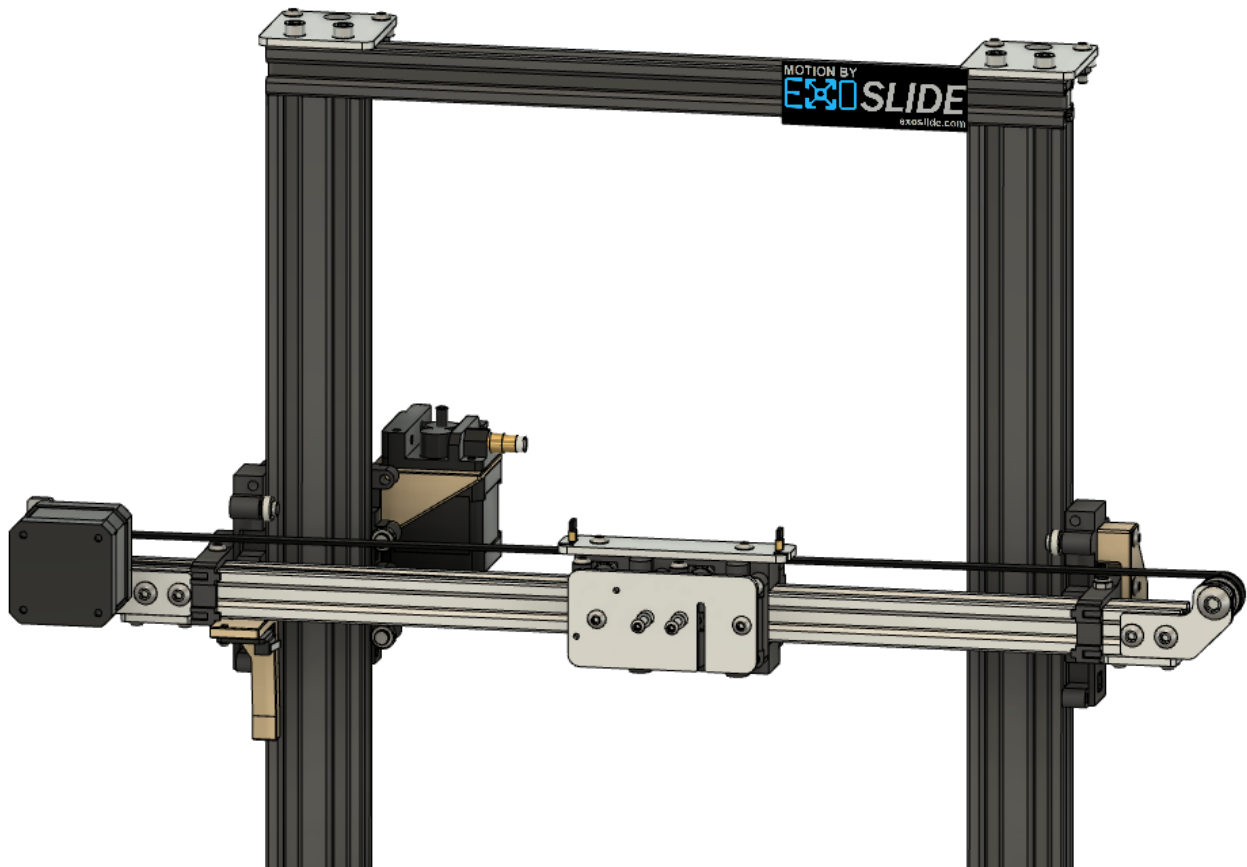# XZ ExoSlide Motion Kit

1/19/20

Note: the Ender 3, CR10, and CR10S XZ kits are very similar, but with the following differences:

	Ender 3	CR10	CR10S
2020 Extrusion	440mm	510mm	510mm
TR8 Lead screw	400mm	500mm	n/a
Z GT2 Pulleys	30t	20t	n/a
Z GT2 Closed Belt	640mm	760mm	n/a

0. Parts removal and prep:
    -Remove the top 2020 frame bar, set aside for later.
    -Loosen the Z motor coupling(s), and slide the entire carriage assembly up and off the top.
    -Remove the Z motor mount(s), set aside the Z motor(s) (and mounts if CR10S) for later.
    -Remove the X motor, X end-stop, idler bracket, extruder motor, and extruder; save all for later.
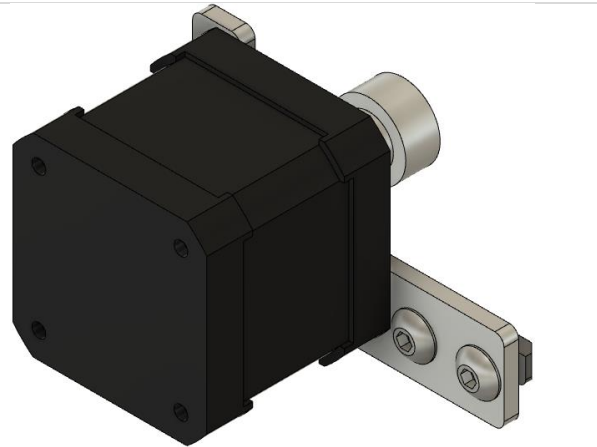   -Remove the hotend and shroud, save for later.

1. Motor Bracket Assembly:

Parts Needed: Motor bracket, 1x M3x6 bolt, 3x M5x8 bolt, 2x M5 T nut, 2x *Re-use:* Motor, pulley	

2. X Carriage Assembly:

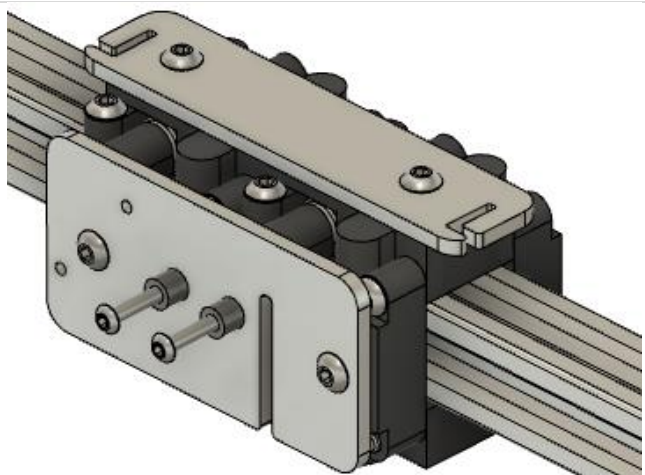|	
Parts Needed: ExoSlide 20P, 4x Hotend Bracket, 1x Belt X Bracket, M3x20 bolt, 2x M3x5 spacer, 2x M4x14 bolt, 4x M4x42 bolt, 8x *Re-use:* M3x4 bolts for fan shroud	

Notes:
-Tighten the eight M4x42 Nylock bolts down firmly that secure the four ExoSlides together.
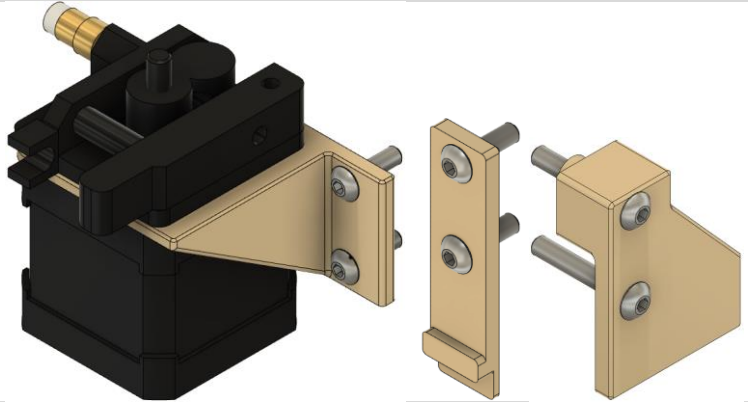
3. Extruder Bracket Assembly, Support Bracket Assemblies:

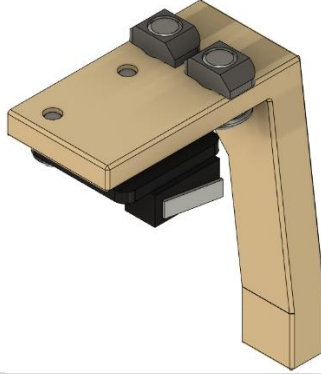| *Parts Needed:* Printed extruder bracket, 1x Printed support bracket R, 1x Printed support bracket L, 1x M4x14 bolt, 4x M4x25 bolt, 2x *Re-use:* Motor, extruder	

4. End-Stop Assembly:

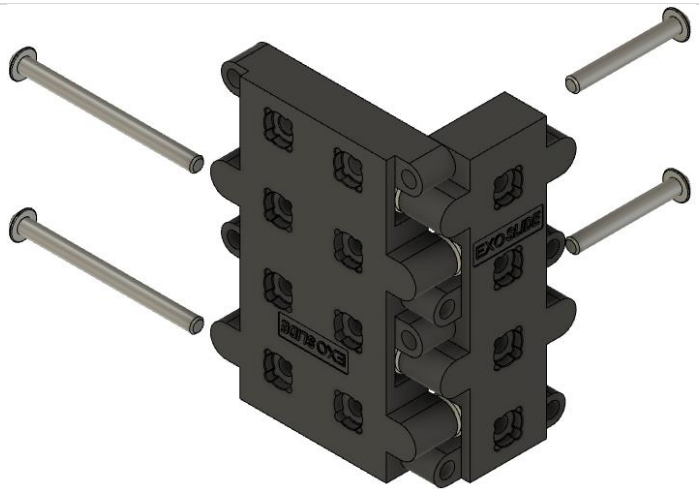| *Parts Needed:* Printed end-stop bracket, 1x M5x8 bolt, 2x M5 T nut, 2x *Re-use:* End-stop, M3x6 bolts	

5. Left Side ExoSlide Assembly:

| *Parts Needed:* ExoSlide 20S, 1x ExoSlide 40S, 1x M4x30 bolt, 2x M4x50 bolt, 2x	

Notes:
-Orient the slides as shown, with the 20mm slide having the ExoSlide logo facing up.

6. Gantry Assembly:

Parts Needed:
Motor Bracket Assembly, 1x
X Carriage Assembly, 1x
Extruder Bracket Assembly, 1x
Support Bracket Assembly R, 1x
Support Bracket Assembly L, 1x
End-Stop Assembly, 1x
Left Side ExoSlide Assembly, 1x
ExoBracket, 2x
M4x14 bolt, 4x
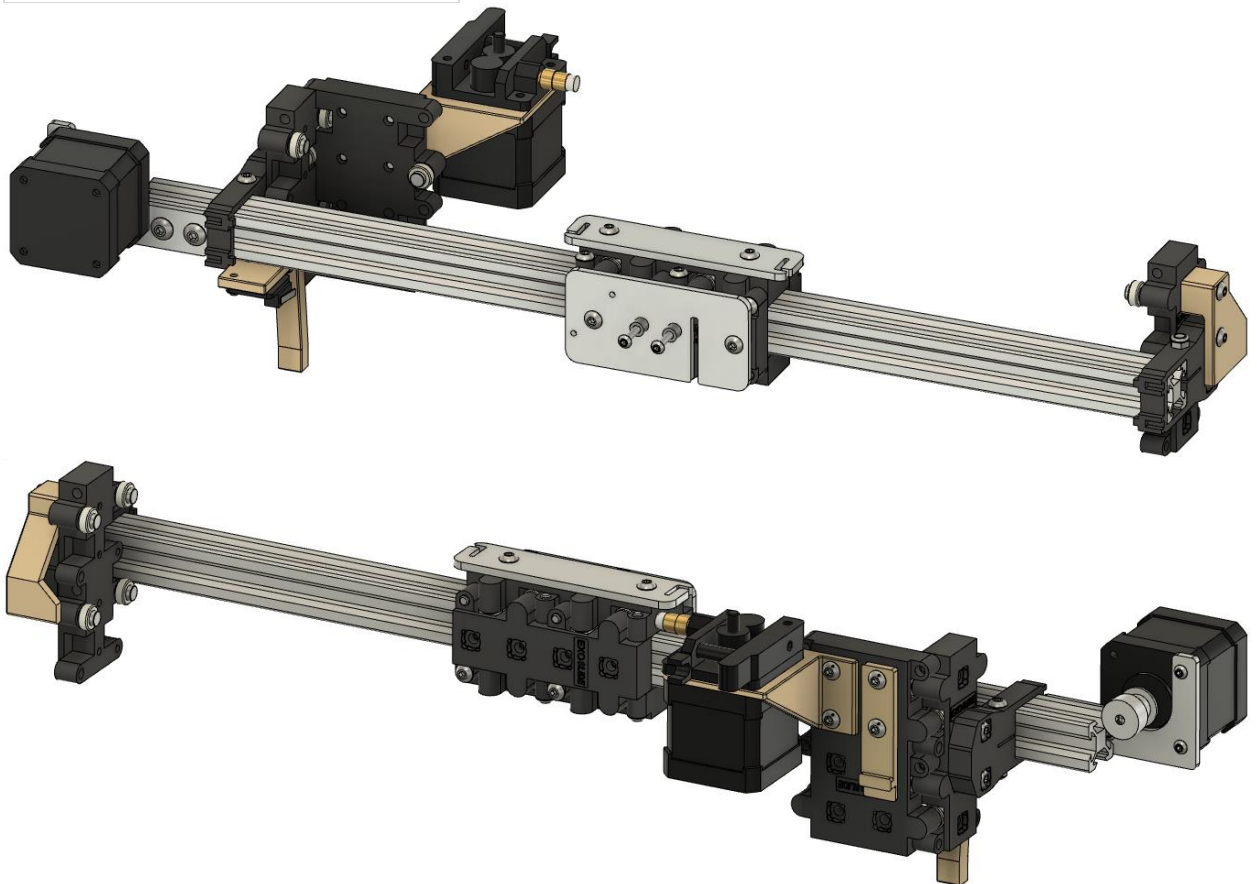
Notes:
-The left side ExoBracket should be placed 32mm from the end of the extrusion (this does not need to be exact, 30mm is ok, and you can use a 30mm bolt to gauge).
-The left motor mount should butt-up again the left side bracket. One M3 bolt head is covered by the 2020 X rail.
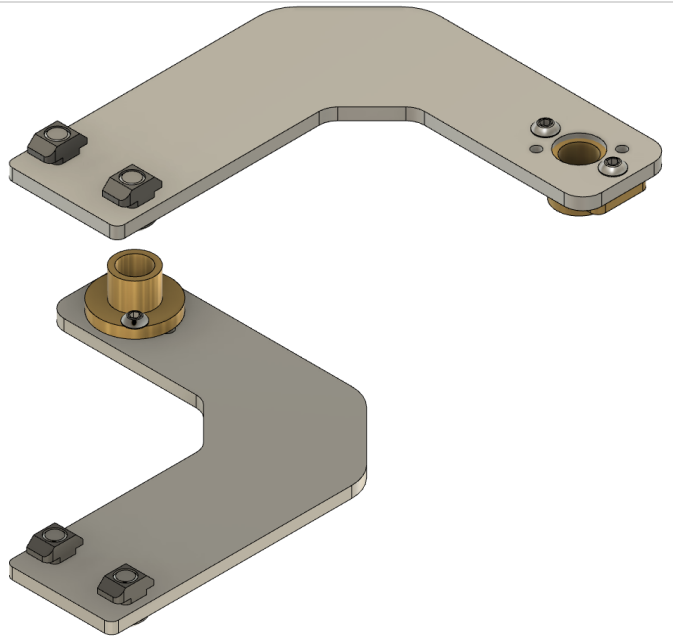-The right side ExoBracket should be flush with the extrusion for now. It will get positioned in a following step.

7. Z Support Assemblies:

Parts Needed:
Z support brackets, 2x
TR8 lead screw nut, 1x
M3x6 bolt, 4x
M5x8 bolt, 4x
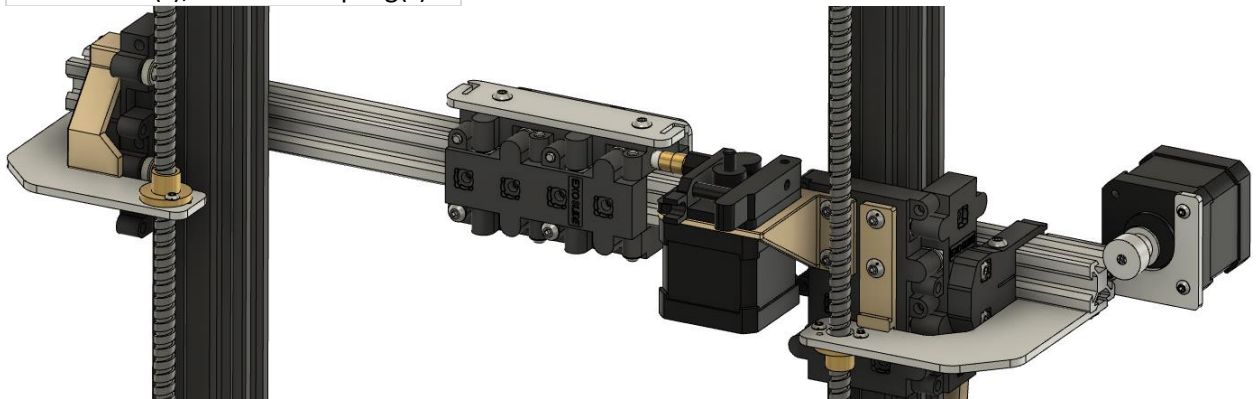M5 T nut, 4x

Re-use:
TR8 lead screw nut(s)

8. Gantry Assembly:

Parts Needed:
Z Support Assembly, L + R
Lead screw, 1x (Ender3/CR10 only)
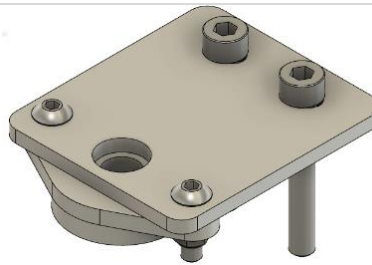
Re-use:
Lead screw(s), Z motor coupling(s)

Notes:
-Slide the single Exoslide/ExoBracket positioned so the inside face is 1mm from the extrusion.
-Install the left and right Z support assemblies.
-Re-install the Z motor coupling(s).
-Install the lead screws (on Ender3/CR10, the non-motor side rod will be loose for now).

9. Z Bearing Assembly (2x), **Ender3/CR10 (skip for CR10S)**:

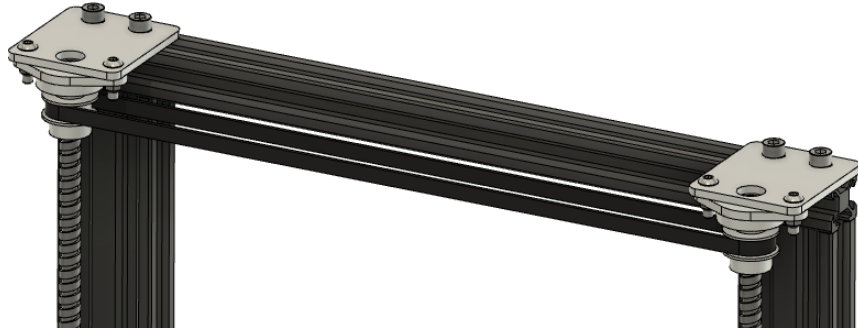| *Parts Needed:*	
Z bearing bracket, 2x Pillow bearing, 2x M5x35 bolt, 4x M4x14 bolt, 2x M4 nylock nut, 2x M5x35 bolt, 4x	

10. Z Rod Assembly, **Ender3/CR10 (skip for CR10S)**:

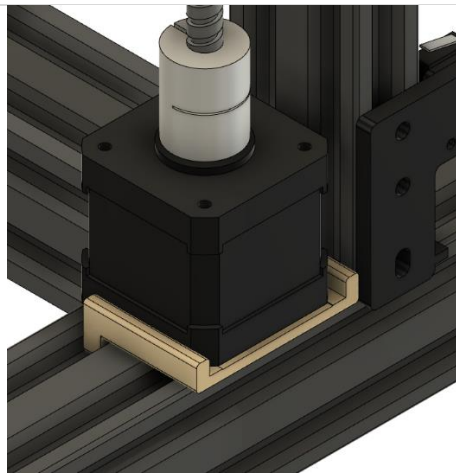| *Parts Needed:*	
Lead screw, 1x Pulley, 2x Closed belt, 1x Re-use: Lead screw (1x), Z motor coupling	

Notes:
-Drape the belt around the lead screws, install the pulleys, then the Z bearing supports.
-Tighten the grub screw on the pillow blocks bearings (ensuring the TR8 lead screws ends are even with the top of the bearings, and do not protrude into the aluminum brackets).
-Tighten the motor side Z bearing support bracket M5x35 bolts (centering the bracket).
-Pull the non-motor side Z bearing support bracket so Z belt is tight, and secure the M5x35 bolts.
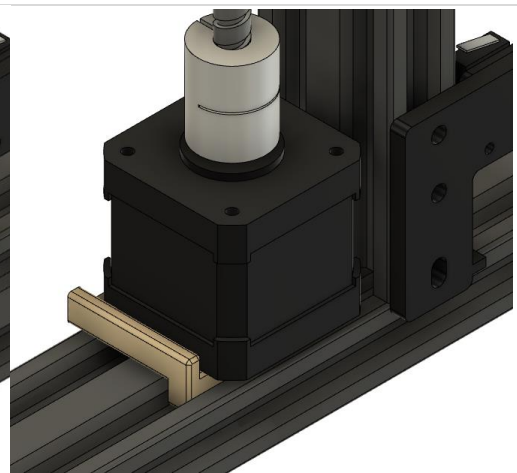-Level the Z brackets, and tighten the Z pulley grub screws

11. Z Motor Mount, **Ender3/CR10 (skip for CR10S)**:

Parts Needed:	
Printed motor bracket, 1x	

| Ender 3 | CR10 |

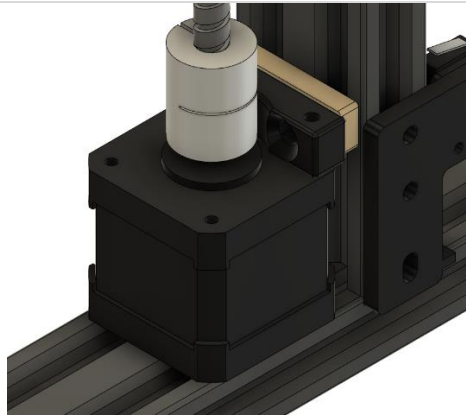Notes:
-Ensure bracket slides smoothly along the extrusion. The bracket only stops motor rotation

12. Z motor Mount, **CR10S (skip for Ender3/CR10)**:

Parts Needed: Printed motor spacer, 2x	

13. Idler Bracket Assembly:

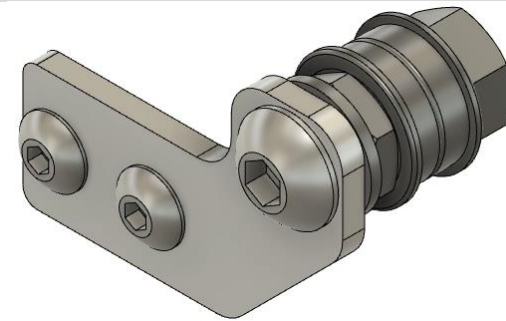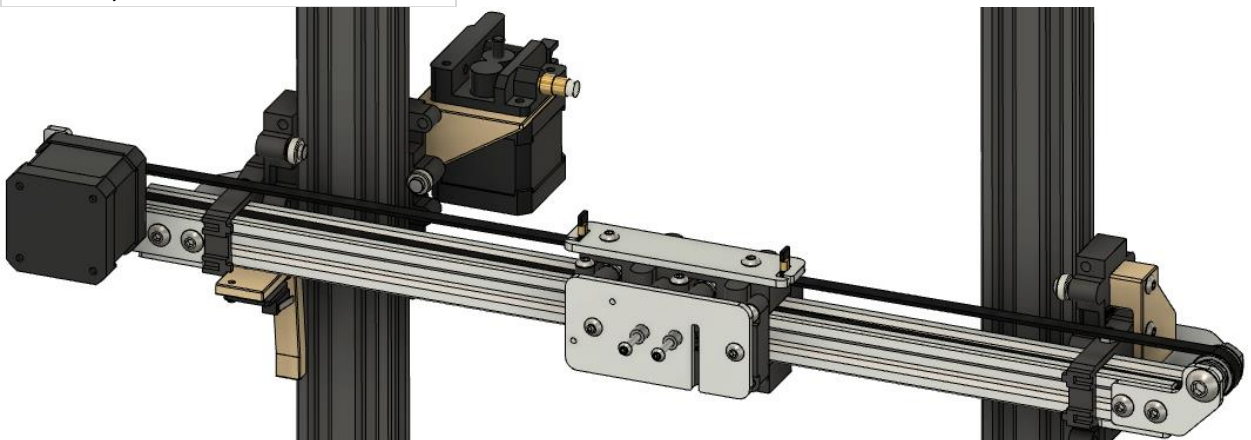| *Parts Needed:* Idler bracket, 1x M5x8 bolt, 2x M5 T nut, 2x M8 jam nut, 1x M8 washer, 1x *Re-use:* M8 bolt, large nut, bearings	

14. X Belt:

Parts Needed: Idler Bracket Assembly, 1x Belt X, 1x Re-use: Hot-end/cover	

Notes:
-Install idler on right side, Install belt and tension. Make cool stuff!

Ender3 / CR10/ CR10S XZ ExoSlide Motion Kit, BOM:

All Kits:
- ExoSlide 20P, 4x
- ExoSlide 20S, 2x
- ExoSlide 40S, 1x
- ExoBracket 20, 2x
- Aluminum motor bracket, 1x
- Aluminum idler bracket, 1x
- Aluminum gantry bracket, 1x
- Aluminum hotend bracket, 1x
- Aluminum Z nut bracket, 2x
- Printed end-stop bracket, 1x
- Printed extruder bracket, 1x
- Printed Z support bracket left, 1x
- Printed Z support bracket right, 1x
- Printed Z motor bracket, 1x
- Crimped X belt, 1x
- M3x6 bolt, 3x
- M3x20 bolt, 2x
- M3 spacer, 2x
- M4x14 bolt, 8x
- M4x18 bolt, 4
- M4x30 bolt, 2x
- M4x42 bolt, 8x
- M4x50 bolt, 2x
- M5x8 bolt, 10x
- M5 T-nut, 10x
- M8 jam nut, 1x
- M8 washer, 1x

Ender 3:
- Aluminum Z bearing bracket, 2x
- Printed Z motor bracket, 1x
- Closed Z belt 640mm, 1
- 2020 x 440mm X extrusion, 1x
- TR8 x 400mm lead screw and nut, 1x
- Pulley 30t, 2x
- Pillow bearing, 2x
- M4x14 bolt, 4x
- M4 nylock nut, 4x
- M5x35 bolt, 4x

CR10:
- Aluminum Z bearing bracket, 2x
- Printed Z motor bracket, 1x
- Closed Z belt 760mm, 1
- 2020 x 510mm X extrusion, 1x
- TR8 x 500mm lead screw and nut, 1x
- Pulley 20t, 2x
- Pillow bearing, 2x
- M4x14 bolt, 4x
- M4 nylock nut, 4x
- M5x35 bolt, 4x

CR10S:
- Printed Z motor spacer, 2x
- Printed Z capture spacer, 2x
- 2020 x 510mm X extrusion, 1x
- M4x18, 4x
- M4x25, 4x