Arm and Gripper Building Guide

Step 1

Parts Needed

- 1x 96 mm Channel
- 1x 160 mm Channel
- 3x 1/2" SHCS
- 3x Kep Nut

Tips

- Make sure all the internal screws are very secure, as they will be hard to retighten later.
- The 7/64", 5/64" and 3/32" hex keys will be needed to build this model.
- Use the 7/64" hex key for these screws throughout the model.
- Ensure that the teeth of the nut face the head of the screw.
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Step 2

Parts Needed

- 1x Single-Servo Motor Bracket
- 1x Gear Hub Spacer
- 3x Kep Nut
- 3x 1.5" SHCS

Tips

- Ensure that all screws are tightly secured at this point, as they will not be easily accessible later.
- Reminder: Ensure that the teeth of the nut face the head of the screw.
Parts Needed

- 1x 40-Tooth Gear
- 1x Servo Horn
- 4x 1/2" SHCS
- 4x Kep Nut

Step 3

Tip

• Ensure that the teeth of the nuts are facing the gear.
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Step 4

Parts Needed

- 1x 180° Servo Motor
- 4x 3/8" BHCS
- 4x Kep Nut
- 1x Servo Screw

Tips

- Use the Phillips head on the 4-in-1 screwdriver to tighten the servo screw. This will keep the servo horn attached to the servo motor.
- Use the 5/64" hex key for the BHCS.
Tip

• The 3/32" hex key is used on the axle hubs.
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Step 6

Parts Needed

- 2x Flat Bracket
- 2x 1” Stand-Off Post
- 1x L Bracket
- 5x 5/16” SHCS
- 1x Kep Nut

Tip

- Reminder: Ensure that the teeth of the nut face the head of the screw.
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Step 7

Parts Needed

- 2x 1/2" SHCS
- 2x Kep Nut

Tip

- Reminder: Ensure that the teeth of the nut face the head of the screw.
### Parts Needed

- 1x L Bracket
- 1x Servo Horn
- 3x 5/16” SHCS
- 3x Kep Nut

### Tip

- Reminder: Ensure that the teeth of the nut face the head of the screw.
Step 9

**Parts Needed**

- 2x 1" Stand-Off Post
- 2x 5/16" SHCS
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Step 10

Parts Needed

1x Single-Servo Motor Bracket
1x Flat Bracket
1x 2" Stand-Off Post
4x 5/16" SHCS
3x Kep Nut

Tip

• Reminder: Ensure that the teeth of the nut face the head of the screw.
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Step 11

Tip

• Use the Phillips head on the 4-in-1 screwdriver to tighten the servo screw. This will keep the servo horn attached to the servo motor.

Parts Needed

1x 180° Servo Motor
4x 3/8” BHCS
4x Kep Nut
1x Servo Screw
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Step 12

Parts Needed

2x 5/16" SHCS

Tip

• To keep the arm oriented properly, tighten the screws bit by bit, alternating between them.
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Step 13

Parts Needed

- 1x TETRIX® Hard Point Connector
- 1x 7-Module Beam
- 4x 3-Module Connector Peg with Friction

TETRIX® Getting Started Guide

Extensions
Arm and Gripper Building Guide

Step 14

Parts Needed

- 2x 3-Module Connector Peg with Friction
- 2x 5-Module Beam
- 1x NXT Touch Sensor
- 1x 20-Tooth Gear
- 1x 2-Module Axle
### Step 15

#### Parts Needed

- 2x 5/16” SHCS
- 2x Kep Nut

#### Tip

- Turn the screws only until the hard point connector is securely attached to the TETRIX® channel.
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Step 16

Parts Needed

- 2x 1/2" SHCS
- 2x Kep Nut
Final View
Arm and Gripper Building Guide

Servo Horn Adjustment

Note: Whenever a servo motor is used to attach an extension, care must be taken to properly adjust the servo motor position so that the desired range of motion is achieved. The best way to adjust the servo position is to unscrew the servo horn and use it, and the extension that has been built onto it, like a wrench.

Step 1 Starting Point:
Attach the servo horn to adjust the servo position.

Step 2 Rotate:
Rotate the servo so that it has been positioned at the end of its range of motion.

Step 3 Final Positioning:
Reattach the servo horn with the extension piece in the appropriate position for that servo location.
## Wiring Diagram

Tips

- Tighten the screws on the HiTechnic controller after the wires have been inserted.

⚠️ Complete all wiring before attaching the battery.