

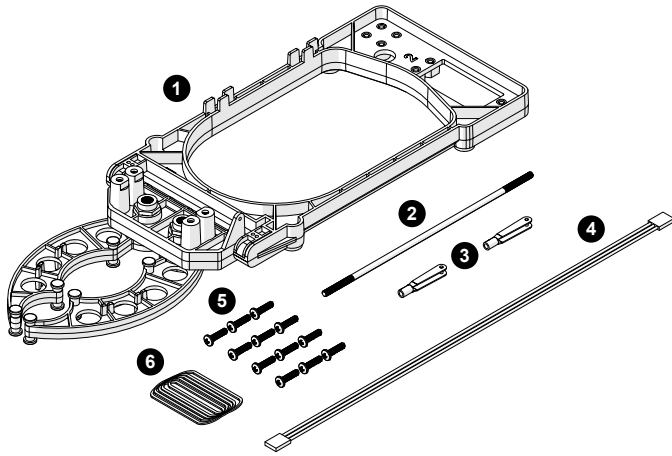
# PASCObot Gripper

PS-3325

## Overview

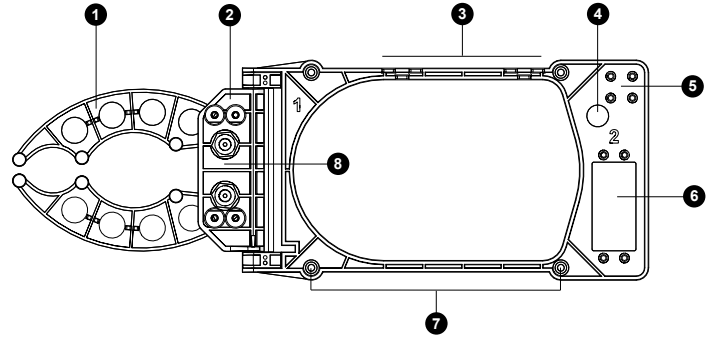
The PASCObot Gripper is an accessory that adds controllable grip and lift functionality to the PASCObot. The Gripper is operated using two servo motors (not included) controlled by a //control.Node. One servo motor opens and closes the arms, while a second servo lifts and lowers the arms.

## What's included



- 1 Gripper
- 2 Control rod
- 3 2× Clevis
- 4 Servo extension cable
- 5 12× Screw, 4-40×7/16"
- 6 100× Rubber band, #16

## Features




- 1 Arms  
Use the arms to grip objects. The arms have two curves of different radii to grip objects of various sizes. Attach rubber bands to the attachment points on the top and bottom of the arms to provide additional friction when gripping objects. Use servo motor 1 to open and close the arms.
- 2 Pivot  
Use the pivot to lift objects gripped by the arms. Use servo motor 2 to control the pivot angle.
- 3 Cable retainer  
Use the cable retainer to hold the cable attached to servo motor 1.
- 4 Cable routing hole  
Use the hole to route the cable attached to servo motor 1 to the //control.Node.
- 5 Screw storage  
Use the four threaded holes to store the screws used to mount the gripper to the bot when the screws are not in use.
- 6 Servo motor 2 mounts  
Use these mounts to attach the servo motor used to control the pivot.
- 7 PASCObot mounting holes  
Insert screws through these holes to mount the gripper to the PASCObot.
- 8 Servo motor 1 mounts  
Use these mounts to attach the servo motor used to control the arms.

# Assemble the Gripper

## Required items

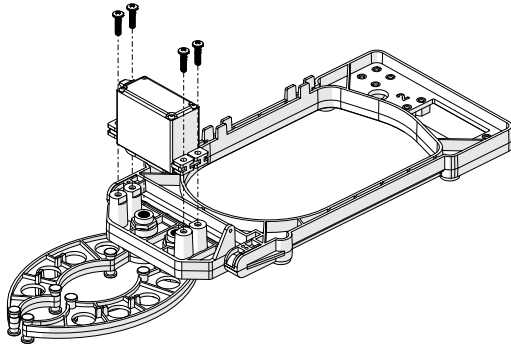
- PASCObot (fully assembled)
- 2× Servo Motor (SE-2975)
- SPARKvue or PASCO Capstone software
- Screwdriver

## Step 1: Set up the PASCObot

1. Assemble the PASCObot according to the PASCObot Body (PS-3318) manual, except don't attach the top frame yet.
2. Connect the //control.Node to SPARKvue or PASCO Capstone. If needed, see the //control.Node (PS-3232) manual.
3. Open the Code tool  in the software.
4. Build the code shown here. This code will be used later to set each servo at 0 degrees.

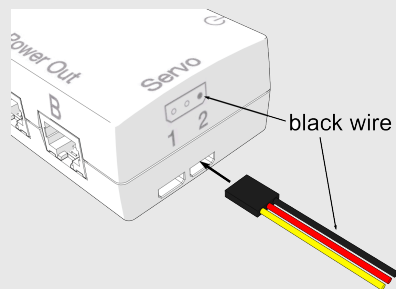
```
set servo for //control.Node port 1 to angle (°) 0
sleep for 1000 ms
set servo for //control.Node port 2 to angle (°) 0
sleep for 1000 ms
```

## Step 2: Attach servo motor 1



1. Remove the screw and horn from the servo (if attached).
2. Insert the servo cable through the cable routing hole from the top side of the Gripper.
3. Connect the servo extension cable to the servo cable. Connect the other end of the cable to Servo port 1 on the //control.Node.

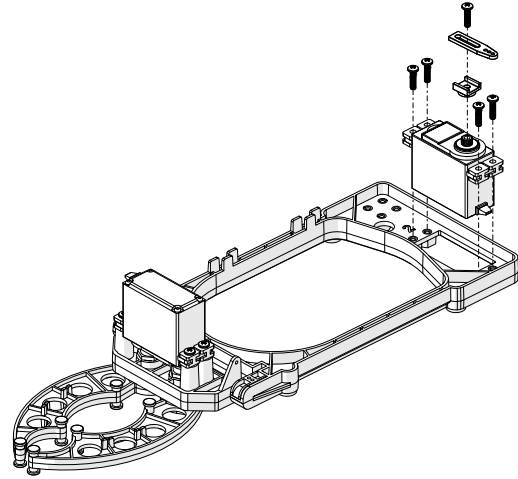
**⚠ Important:** The black wires on each cable must be aligned when connected. The extension cable must connect to the //control.Node with the black wire on the *right* side, as indicated by the dark dot on the Servo port label.



4. Set the servo to the 0° position by running the program in the Code tool.
5. With the gripper arms *closed*, attach the servo to mounting location 1 on the Gripper as shown.

6. Install four screws to hold the servo in place. Turn the screws until the rubber grommet starts to deform.
7. Insert the cable into the cable retainer to hold the cord in place. Leave some slack in the cable so that the pivot can rotate fully.

## Step 3: Attach servo motor 2

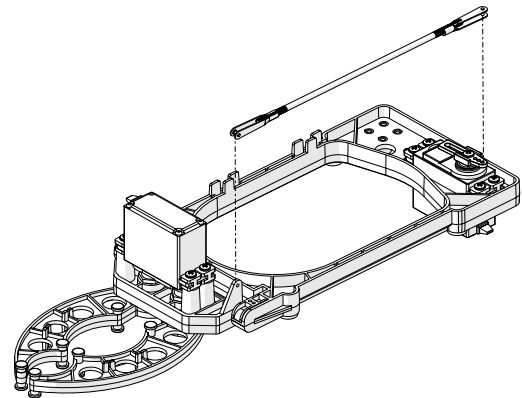


1. Insert the servo and cable through the square hole at location 2 from the top side of the Gripper.
2. Install four screws in place. Turn the screws until the rubber grommet starts to deform.
3. Connect the servo cable to Servo port 2 on the //control.Node.

**⚠ Important:** Remember to connect the cable to the //control.Node with the black wire on the *right* side, as indicated in the note from the previous section.

4. Set the servo to the 0° position by running the program in the Code tool.
5. Attach the adjustable horn to servo 2 as shown in the diagram. Note that the horn is parallel with the servo.

## Step 4: Attach the control rod

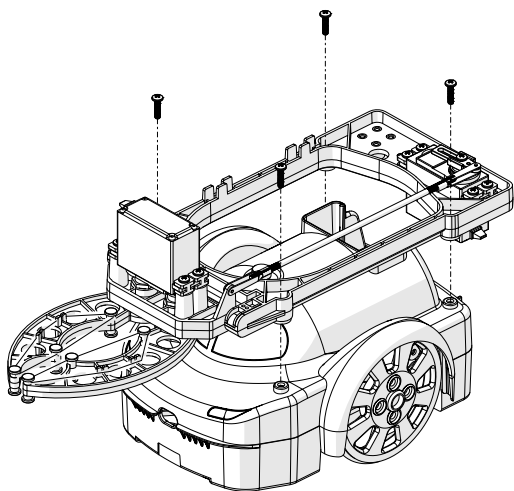


1. Attach a clevis to each side of the rod.
2. Open a clevis by gently prying the sides apart. Insert the clevis pin through the servo horn's outer hole.

**💡 Tip:** You can open the clevis by inserting a screwdriver between the clevis sides.

3. With the arms *parallel* to the Gripper body, insert the other clevis pin through the hole on the pivot. Adjust the control rod length and the horn position as needed.
4. Tighten the screw on the servo to hold the horn in place.



## Step 5: Attach the Gripper to the bot



1. Attach the PASCObot's top frame to the bottom. Use the hole on the back of the bot to route the servo cables.
2. Place the gripper on the PASCObot. Insert four screws to mount the gripper to the PASCO bot.
3. Attach the rubber bands to the top and bottom of the gripper arms.

## Import a sample program

To get started, import a program from the PASCO Code Library, provided in the Code tool.

1. Connect the //control.Node to the software.
2. Open the Code tool .
3. At the top right corner of the Code tool, click import code from PASCO Code Library .
4. Select the PASCObot category.
5. Select a program to import then click OK.

## Download an experiment

Download one of several student-ready activities from the PASCO Experiment Library that use the PASCObot Gripper. Experiments include editable student handouts and teacher notes. Go to [pasco.com/freelabs/PS-3325](https://www.pasco.com/freelabs/PS-3325) to access the files.

If you want to explore on your own, check out the SPARKvue and PASCO Capstone help guides to search for specific topics.

### SPARKvue

**Software:** Go to the Main Menu  then select Help.

**Online:** Go to [pasco.com/help/sparkvue](https://www.pasco.com/help/sparkvue).

### PASCO Capstone

**Software:** In the menu bar, click Help then select PASCO Capstone Help.

**Online:** Go to [pasco.com/help/capstone](https://www.pasco.com/help/capstone).

## Specifications and accessories

Visit the product page at [pasco.com/product/PS-3325](https://www.pasco.com/product/PS-3325) to view the specifications and explore accessories. You can also find experiment files and support documents on the product page.

## Technical Support

Need more help? Our knowledgeable and friendly Technical Support staff is ready to provide assistance with this or any other PASCO product.

Phone (USA) 1-800-772-8700 (Option 4)

Phone (International) +1 916 462 8384

Online [pasco.com/support](https://www.pasco.com/support)

## Warranty, Copyright, and Trademarks

### Limited Warranty

For a description of the product warranty, see the Warranty and Returns page at [www.pasco.com/legal](https://www.pasco.com/legal).

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