

# Learning KIT

VACUUM GRIPPERS



**E PICK**



**AIR PICK**

Level 101: Beginner  
Applicable Cobot: Universal  
Robots  
Program Template Explained

# PROGRAM TEMPLATE VACUUM GRIPPER

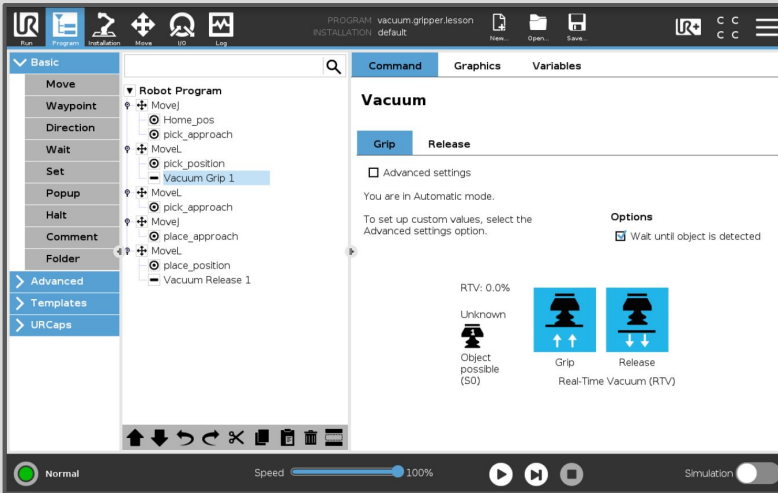




# What you will learn

Use this document to help you program your application, using the template for the **EPick** or **AirPick**. You can learn more about the required steps to program your first application using the supplied video available for this course.

Visit [support.robotiq.com](https://support.robotiq.com) for more details.



## What you will need

- Robotiq EPick or AirPick
- Latest URcap - Grippers
- Universal Robot UR3, UR5 or UR10
- Parts with Flat Surface:
  - EPick = Non-porous material
  - AirPick = Porous material
- Vacuum Grippers *Learn from the Pros video*
- Program Template: [vacuum.gripper.lesson.urp](https://support.robotiq.com)



The screenshot displays the Robotiq software interface. On the left, a tree view shows a 'Robot Program' with several steps: 'MoveJ', 'Home\_pos', 'pick\_approach', 'MoveL', 'pick\_position', 'Vacuum Grip 1', 'MoveL', 'pick\_approach', 'MoveJ', 'place\_approach', 'MoveL', 'place\_position', and 'Vacuum Release 1'. Two callouts are present: '1' points to 'Home\_pos' and '2' points to 'pick\_approach'. The main panel is titled 'Vacuum' and has tabs for 'Command', 'Graphics', and 'Variables'. The 'Command' tab is active, showing 'Grip' and 'Release' sub-tabs. Below these are options: 'Advanced settings' (unchecked), 'Options' (checked), and 'Wait until object is detected' (checked). The status shows 'RTV: 0.0%' and 'Unknown Object possible (S0)'. Two icons illustrate the 'Grip' (upward arrows) and 'Release' (downward arrows) actions. A toolbar at the bottom contains navigation icons.

**1 Home Position**  
Define an *Home\_pos* to start the sequence.

**2 Pick Approach Position**  
Define a safe *pick\_approach* position at the top of the part to pick.



The screenshot displays the 'Robot Program' tree on the left, with 'Vacuum Grip 1' selected and highlighted by a blue circle with the number '3'. The main panel shows the 'Vacuum' node configuration under the 'Command' tab. The 'Grip' sub-tab is active. The interface includes a search bar, tabs for 'Command', 'Graphics', and 'Variables', and a toolbar at the bottom. The 'Vacuum' configuration area contains the following elements:

- Vacuum** (Section Header)
- Grip** (Active sub-tab) and **Release** (Inactive sub-tab)
- Advanced settings
- You are in Automatic mode.
- To set up custom values, select the Advanced settings option.
- Options** section with  Wait until object is detected
- RTV: 0.0%
- Unknown status with a vacuum gripper icon and text: Object possible (S0)
- Two icons for 'Grip' (upward arrows) and 'Release' (downward arrows) with the label 'Real-Time Vacuum (RTV)' below them.

### 3 Vacuum URCap

Insert a **Vacuum** Node to control the Epick or Air Pick Gripper.

Select **Grip** to activate the vacuum on the suction cup.



The screenshot shows the 'Robot Program' tree on the left with 'Vacuum Grip 1' selected. The main panel displays the 'Vacuum' settings for the 'Grip' mode. The 'Advanced settings' checkbox is checked and highlighted with a circled '4'. The settings include:

- Maximum vacuum: 60 % (20 to 100)
- Minimum vacuum: 40 % (10 to MAX)
- Timeout: 3000 ms
- Options:  Wait until object is detected
- Continuous grip

At the bottom, the RTV (Real-Time Vacuum) status is shown as 0.0%. Below this, there are two icons: 'Object possible (S0)' and 'Unknown'. To the right, there are two vacuum icons: 'Grip' (with two upward arrows) and 'Release' (with two downward arrows).

## 4 Advanced Settings

The *Advanced settings* mode allows a complete customization of the vacuum distribution to meet the user's specific application needs.

Refer to the Product Manual for more details.



Robot Program

- Move
- Home\_pos
- pick\_approach
- MoveL
- pick\_position
- Vacuum Grip 1**
- MoveL
- pick\_approach
- Move
- place\_approach
- MoveL
- place\_position
- Vacuum Release 1

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Command Graphics Variables

### Vacuum

Grip Release

Advanced settings

Maximum vacuum:  % (20 to 100)

Minimum vacuum:  % (10 to MAX)

Timeout:  ms

Options

Wait until object is detected

Continuous grip

RTV: 0.0%

Unknown

Object possible (S0)

Grip Release

Real-Time Vacuum (RTV)

## 5 Motions

Create the motions to move the product at the top of the **place\_approach** position.

Move down to the **place\_position**.



Robot Program

- Movej
  - Home\_pos
  - pick\_approach
- MoveL
  - pick\_position
    - Vacuum Grip 1
  - pick\_approach
- Movej
  - place\_approach
- MoveL
  - place\_position
    - Vacuum Release 1

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Command Graphics Variables

### Vacuum

Grip Release

Advanced settings

You are in Automatic mode.

To set up custom values, select the Advanced settings option.

**7**  Wait until object is released

Options

RTV: 0.0%

Unknown

Object possible (S0)

Grip Release

Real-Time Vacuum (RTV)

## 6 Vacuum URcap

Insert a Vacuum Node to **Release** the object.

## 7 Release Options

Check this box to create a delay before leaving the position to make sure the Vacuum is released.