

## Overview

The Vision Guided Depalletizer (UR20) provides unprecedented flexibility for automating depalletization tasks with tall pallet stacks and 44 pound payload. Boxes are picked from a pallet and placed on a conveyor or onto another destination location.

Two pallet bays enable continuous pallet unloading. The self-contained design includes an arm-mounted vision guidance camera and a pedestal mounted UR20 robot arm.

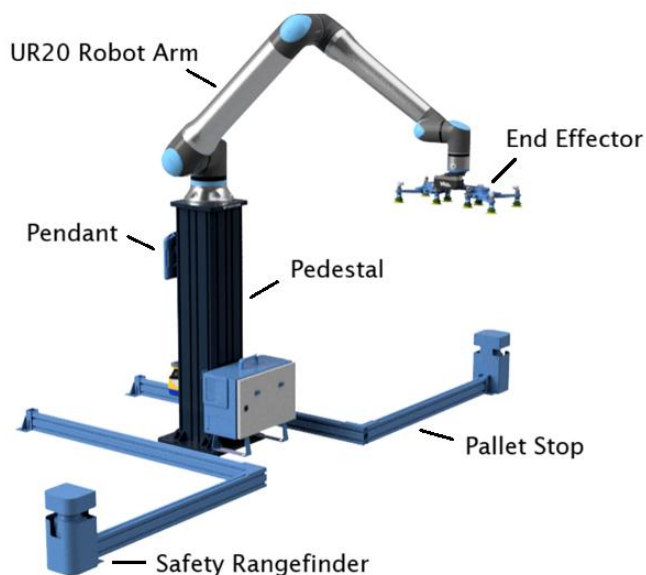
Advanced image processing, including Depth Map analysis and Template Matching locates even closely packed plain cardboard boxes, often challenging with other systems.

## Features

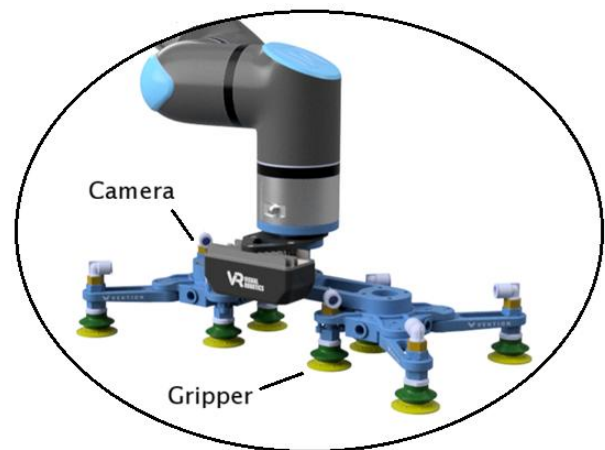
- Vision guided picking of boxes
  - Pre-Trained or custom appearance box detection
  - Box sorting by dimensions or appearance.
- Efficient box picking
  - Dual pallet bays
  - Destination sorting
- Compact design
  - Arm-mounted camera
  - UR20 robot
  - 44 pound payload

## Components

The Depalletizer comprises a Universal Robots UR20 robot arm mounted on a pedestal to in order to reach both pallets with a tall stack of boxes. Two pallet bays are provided, with easy access for a forklift. Boxes are located using a VIM-303 Vision Guidance Camera and grasped with a two zone suction gripper. Three safety rangefinders limit the robot's activity when humans are nearby.



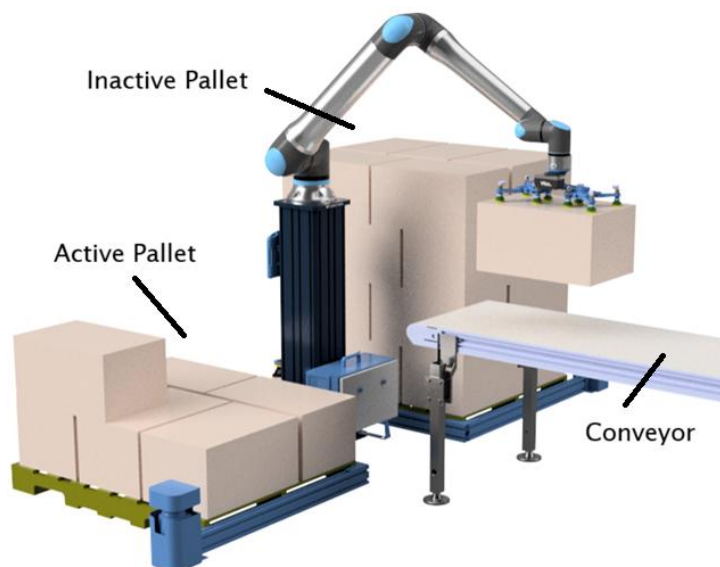
Depalletizer Components



End Effector Detail

## Operation

The Depalletizer uses Computer Vision (Depth Map analysis and Template Matching) to detect boxes in the field of view of the camera. The robot is directed to pick a box from the top layer and place it on the conveyor or other destination. Boxes are detected by dimensions and the visual pattern of the top of the box, allowing the Depalletizer to sort a pallet to multiple destinations. The Depalletizer works on the Active Pallet, allowing the Inactive Pallet to be loaded by a forklift. Once the Active Pallet has been emptied, the Depalletizer moves to the previously Inactive Pallet, which now becomes the Active Pallet.



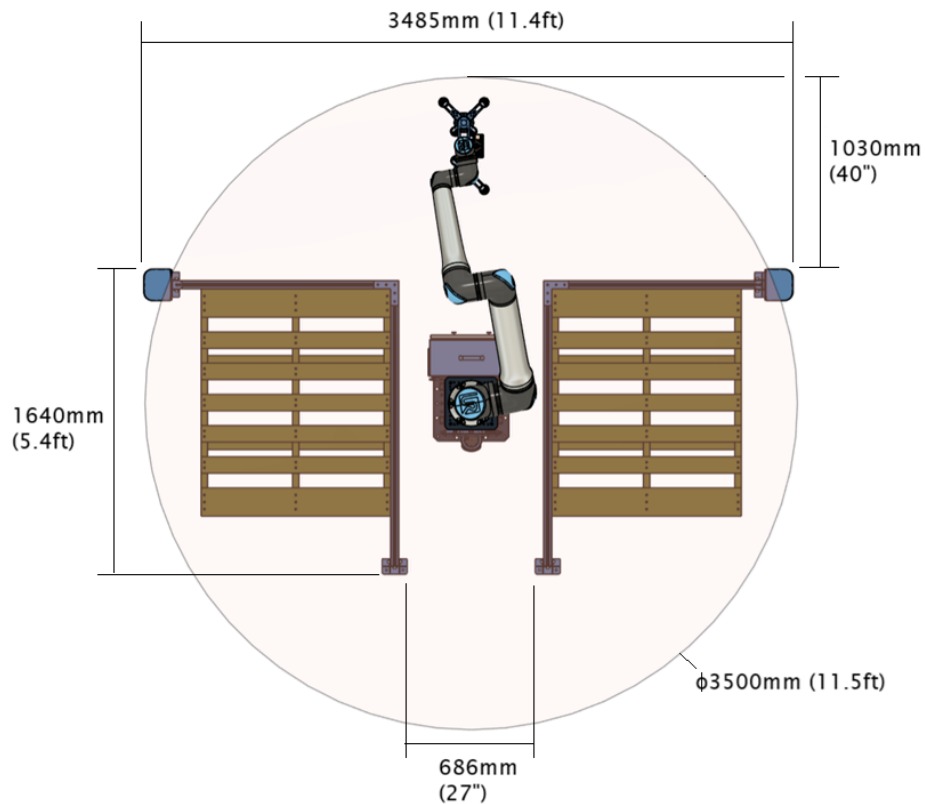
Computer Vision Box Detection

## Specifications

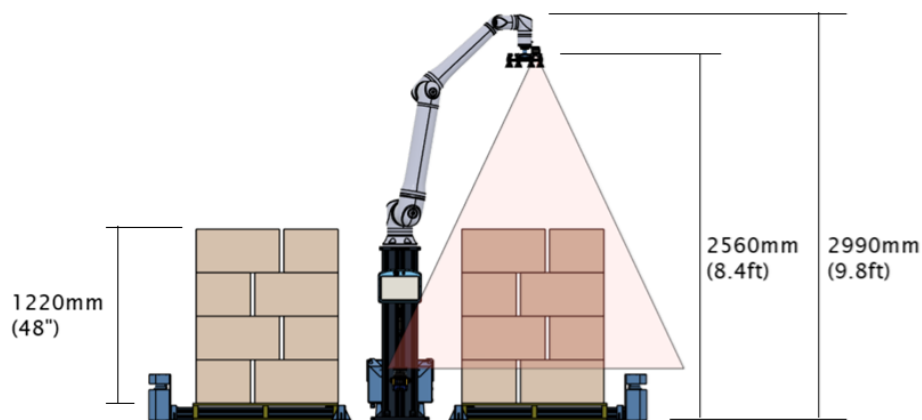
Capacity	20 kg (44 lbs)
Pallet Dimensions	Up to 1016 mm x 1220 mm (40 in x 48 in)
Stack Height	915 mm (36 in) maximum for 40 in x 48 in pallet
Cycle Time	10 sec
Camera FOV	3110 mm x 2425 mm at 2560 mm from floor 1.1689
Dimensions	3485 mm W x 1640 mm L x 2990 mm H (11.4ft W x 5.4ft L x 9.8ft H)

## Dimensions

The Depalletizer accommodates 2 standard size (40" x 48") pallets. The total footprint is 11.4ft x 5.4ft. A 48" high stack is within the Field of View of a 40" x 48" pallet.



**Top View**



**Side View**