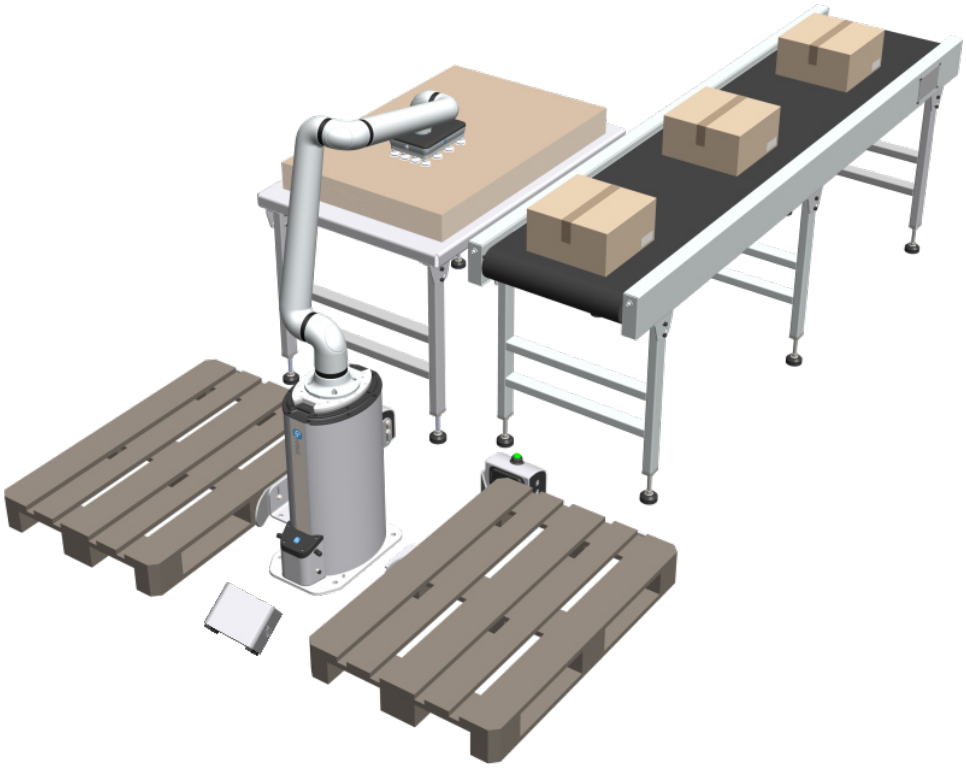
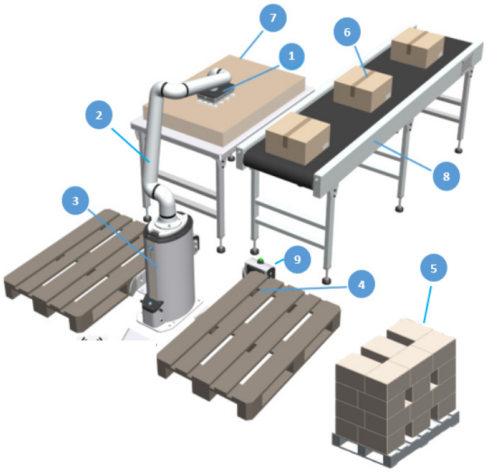


DATASHEET

D:PLOY - PALLETIZING APPLICATION

v1.0

Palletizing Application



1/ a.	**Grippers**	2FGP20		VG10			VGC10			VGP20	
1/ b.	**Tool mounting**	Quick Changer		Extender Bracket		Angle Bracket 45°			Angle Bracket 90°		
2.	**Robot brands**	ABB	Denso	Doosan	FANUC	FANUC CRX	Techman		UR		Omron TM
3.	**Robot mounting**	Lift100 v2			Lift100 v1				Any fixed pedestal		
4.	**Pallet sizes**	EUR1/ ISO1	EUR2/ ISO2	EUR6/ ISO0	UR1/ ISO3	US2/ ISO4	US3	ASIA/ ISO5	UK	AUSTRALIAN	Custom
5.	**Pattern options**	**Automatic** (optionally interlocked and/or having the labels facing outward, compacted or streched)					**Manual** (easy to use pattern editor, powerful suggestions, optionally have labels rotated outward, spacing within boxes or from edges for snapping)				
6.	**Box size/ weight/ type**	**Any size** (that the gripper can handle)			**Any weight** (that gripper and robot can handle)				**Cardboard** or **KLT box**		
7.	**Interlayer sheet**	**Cardboard** or **Paper**		Full or half size		Sheets can be picked from a **fixed position** (spring loaded tray) or based on thickness D:PLOY can “**search**" for the next one (normal tray)			**Horizontal** or **tilted** trays supported (recommended to place above the conveyor belt close to the infeed)		
8.	**Infeed type/ multiple boxes**	**Conveyor belt** or **Turn table**					**Single Box** or **Multiple Boxes** (two box at once for faster cycle time - requires two sensors in a twin signal configuration)				

9.	**Pallet detection/ positioning**	Automatic Pallet Station (with Lift100 v2)	Pallet Station (Lift100 v1)	No Pallet Station (Fixed pedestal)

Additional Information

1/a. Grippers

Only OnRobot tools are supported, but can be customized with any OnRobot accessory, or custom fingertip/vacuum accessory.

Grippers			
2FGP20	VG10	VGC10	VGP20
✓	✓	✓	✓

1/b. Tool mounting

Dual Quick Changer and HEX-E/H QC are not supported.

2. Robot brands

Supported robot models and controllers

Robot Type	ABB	Denso	Doosan	FANUC	FANUC CRX	Techman	UR	Omron TM
Robot Model	CRB 15000-5/0.95 IRB 1100-4/0.58 IRB 1100-4/0.47 IRB 120 IRB 1200-5/0.9 IRB 1200-7/0.7 IRB 1600-6/1.2 IRB 1600-6/1.45 IRB 1600-10/1.2 IRB 1600-10/1.45	VM-6083 VM-60B1 VP-6242 VS050A3 VS087A4 VP-5243 VS-050-S2 VS-087A4 VS-6577 VS-6556 VS-087	A0509 A0509s A0912 A0912s H2017 H2515 M0609 M0617 M1013 M1509	CR-4iA CR-7iA CR-7iA/L LR Mate 200iD LR Mate 200iD/4S LR Mate 200iD/7L LR Mate 200iD/14L	CRX-10iA CRX-10iA/L CRX-20iA/L CRX-25iA/L CRX-5iA	TM12 TM14 TM5-700 TM5-900	UR10 UR10e UR16e UR3 UR3e UR5 UR5e	TM12 TM14 TM5-700 TM5-900

Robot Type	ABB	Denso	Doosan	FANUC	FANUC CRX	Techman	UR	Omron TM
Robot Controller	IRC5 OmniCore	RC8	CS-03 CS-04	R-30iB R-30iB Plus R-30iB Mini Plus	R-30iB Mini Plus	TM	CB3 e-Series	TM

3. Robot mounting

The robot cannot be tilted while using the Lift100. The Lift100 v2 can move upwards in parallel with the robot.

4. Pallet types and sizes

Up to two pallets of the same type is supported. Any custom pallet sizes can be added easily.

Pallet type	Size (L x W x H)	Unit
North America/US 1/ISO3	1016 x 1219 x 127 40 x 47.99 x 5	[mm] [inch]
North America/Drums/US 3	1219 x 1219 x 127 47.99 x 47.99 x 5	[mm] [inch]
Australia/US 2/ISO4	1165 x 1165 x 150 45.87 x 45.87 x 5.91	[mm] [inch]
EUR 1/ISO1	1200 x 800 x 144 47.24 x 31.50 x 5.67	[mm] [inch]
EUR 6/ISO0	600 x 800 x 144 23.62 x 31.51 x 5.67	[mm] [inch]
EUR 2/ISO2	1200 x 1000 x 145 47.24 x 39.37 x 5.71	[mm] [inch]
Asia/ISO5	1100 x 1100 x 135 43.31 x 43.31 x 5.31	[mm] [inch]
Custom	Min.: 600 x 800 Max.: 1250 x 1250	[mm]
	Min.: 23.62 x 31.50 Max.: 49.21 x 49.21	[inch]

5. Pattern options

All calculations are done in the cloud, using fast servers to save time for users.

6. Box type/size/weight

NOTE:

For KLT boxes to stack properly, the minimum tolerance needed is +/- 5 mm.

- Minimum box size: The recommended minimum box size is 200 x 200 x 100 mm (7.87 x 7.87 x 3.94 inches).
- Minimum box weight: The recommended minimum weight for the box is 0.5 kg (1.1 lb) for the default speed and acceleration.

7. Interlayer sheet

This is optional, and only shown if **Interlayer sheet sensor** device is configured in the cell setup. The sensor can be any ultrasonic, laser/infra or any other type 24V digital sensor.

Sheets can be picked from a fixed position (spring loaded tray) or based on thicknessű, D:PLOY can “search” for the next one (normal tray).

8. Infeed type/multiple boxes

Two boxes at once for faster cycle time - requires two sensors in a twin signal configuration during the cell setup.

With Multiple boxes, if the pattern has an odd number of boxes, D:PLOY automatically handles this (by changing back to Single Box when needed).

Integrator needs to take care of the conveyor belt driving and timing (based on the infeed sensor). The infeed sensor can be any ultrasonic, laser/infra or any other type 24V digital sensor.

9. Pallet detection/positioning

- **Automatic Pallet Station** (with Lift100 v2): no sensor setup is needed, position is prefilled - automatically added to the cell setup
- **Pallet Station** (with Lift100 v1): digital I/O sensor setup is needed, position is prefilled - **Pallet Station** device to be added to the cell setup
- **No Pallet Station** (in case of a fixed pedestal): digital I/O sensor setup is needed, position needs to be manually tought (3 corners) - **Pallet sensor** device to be added to the cell setup

In any case, the non-level floor (or any mounting issue) can be solved by swicthing to manual pallet postion teaching (3 corners with a box). The **Pallet sensor** can be any ultrasonic, laser/infra or any other type 24V digital sensor.

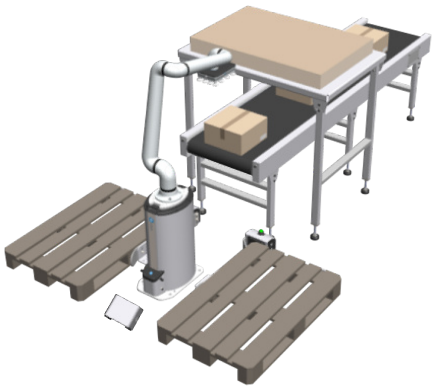
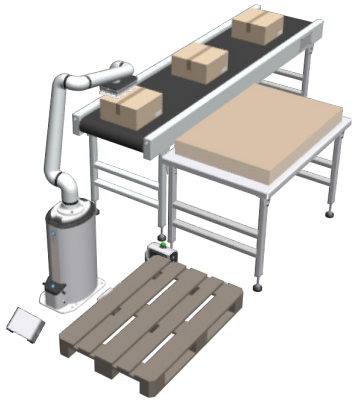
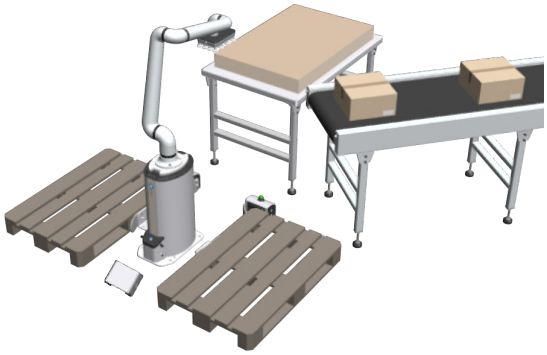
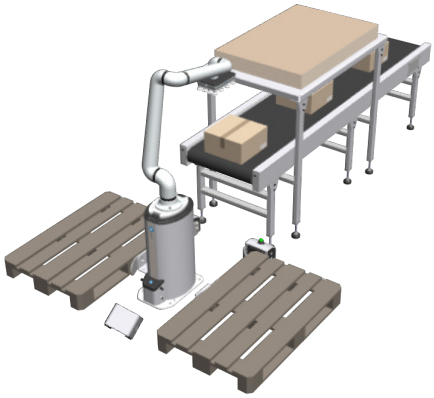
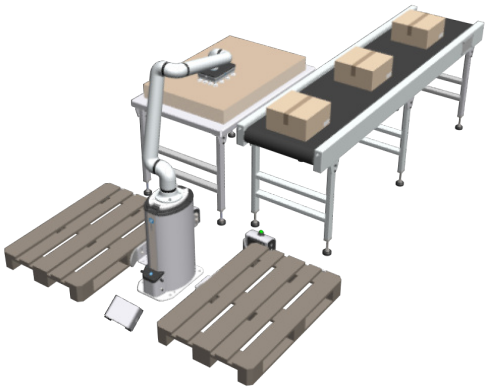
Estimated cycle time

The displayed cycle time in D:PLOY is an estimate. The actual cycle time might vary, depending on the parameters of your application and your robot:

- For ABB, the error on the estimation is expected to be less than 5%.
- For Denso, the error on the estimation is expected to be less than 5%.
- For Doosan, the error on the estimation is expected to be less than 15%.
- For FANUC, the error on the estimation is expected to be less than 10%.

- For Techman, the error on the estimation is expected to be less than 10%.
- For UR, the error on the estimation is expected to be less than 5%.
- For Omron TM, the error on the estimation is expected to be less than 10%.

Layout configuration

- One or two pallets
- With or without interlayer sheet
- Single or multiple boxes being picked
- Infeed/Interlayer at any angle

Examples