

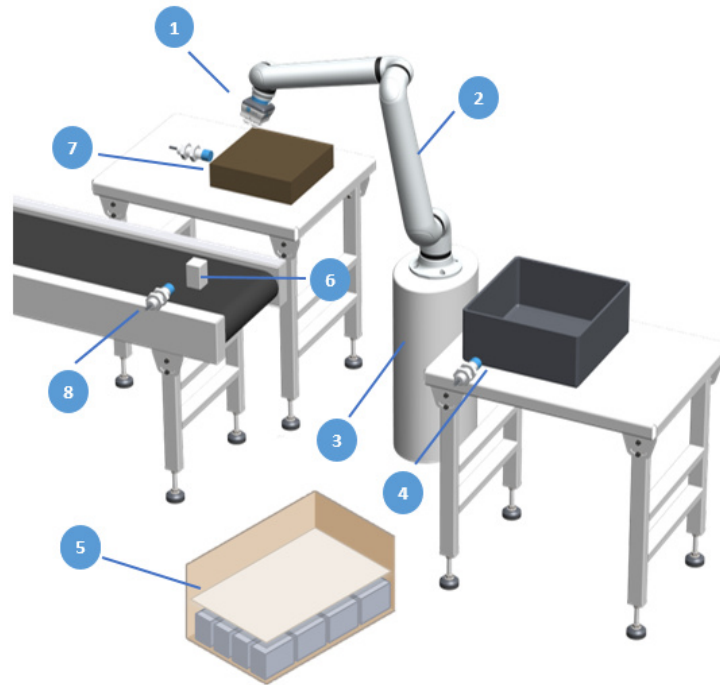


# DATASHEET

D:PLOY - PACKAGING APPLICATION

v1.0.800

# Packaging Application



|      |  |   |       |          |                   |   |   |                   |   |      |         |
|------|--|---|-------|----------|-------------------|---|---|-------------------|---|------|---------|
| 1/a. | Grippers                               | 2FG7  | 2FG14 | 2FGP20   |                   | 3FG15   | 3FG25   | MG10              | RG2   | RG6  |         |
|      |  | SG-a-H/SG-b-H   |       | VG10     | VGC10             | VGP20   | Gecko Gripper   |                   | G2FG  | G3FG | GVG     |
| 1/b. | Tool mounting                          | Quick Changer   |       |          | Angle Bracket 45° |   |   | Angle Bracket 90° |   |      |         |
| 2.   | Robot brands                           | ABB   | Denso | Doosan   |                   | Elite   |   | FANUC             | FANUC CRX   |      | Jaka    |
|      |  | Kawasaki  |       | Omron TM |                   | Schneider   |   | Techman           |   | UR   | Yaskawa |
| 3.   | Robot mounting                         | Can be mounted at any height  |       |          |                   |   | Can be tilted 0°, 30°, 45° or 90°   |                   |   |      |         |
| 4.   | Outfeed container (parts to pack into) | <b>Any size</b> (that the gripper and the robot can handle)                                   |       |          |                   | Can be mounted at any height, and <b>tilted at any angle</b> (container needs to be tough - 1/2/3 points) |   |                   | <b>Outfeed container</b> device required. It keeps track of how full, and <b>stop until it is emptied</b> |      |         |
| 5.   | Pattern options                        | <b>Automatic</b> (optionally having the labels facing outward, can calculate pattern to fill) |       |          |                   |   | <b>Manual</b> (easy to use pattern editor, optionally have labels rotated outward, spacing within parts or from edges for snapping) |                   |   |      |         |

|    |                              |  |   |  |
|----|------------------------------|--|---|--|
| 6. | Product size/ weight/ type   | Any size that the gripper can handle   | Any weight that the gripper and robot can handle  | Cuboid or Cylindrical (both may not available on a given gripper)                |
| 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 (can be placed anywhere within robot reach) |
| 8. | Infeed type / multiple parts | Conveyor belt or Turn table            | Single part or grouped parts (multiple parts at once for faster cycle time - recommended to use two sensors in a twin signal configuration) | Can be at any height, and tilted at any angle                                    |

Additional information

1a. Grippers

Grippers can be customized with any OnRobot accessory or custom fingertip/vacuum accessory.

|                            |             | Finger grippers |      |       |       |       |     |     |      |      |
|----------------------------|-------------|-----------------|------|-------|-------|-------|-----|-----|------|------|
|                            |             | 2FGP20          | 2FG7 | 2FG14 | 3FG15 | 3FG25 | RG2 | RG6 | G2FG | G3FG |
| Can grip - single part     | Cuboid      | ✓               | ✓    | ✓     | ✗     | ✗     | ✓   | ✓   | ✓    | ✗    |
|                            | Cylindrical | ✓               | ✓*   | ✓     | ✓     | ✓     | ✓*  | ✓*  | ✓    | ✓    |
| Can grip - multiple parts  | Cuboid      | ✗               | ✗    | ✗     | ✗     | ✗     | ✗   | ✗   | ✗    | ✗    |
| Can pick interlayer sheets |             | ✗               | ✗    | ✗     | ✗     | ✗     | ✗   | ✗   | ✗    | ✗    |
| Can drop part              |             | ✓               | ✓    | ✓     | ✓     | ✓     | ✓   | ✓   | ✓    | ✓    |

|                            |             | Vacuum grippers |       |       |     | Special grippers |      |    |
|----------------------------|-------------|-----------------|-------|-------|-----|------------------|------|----|
|                            |             | VG10            | VGC10 | VGP20 | GVG | Gecko Gripper    | MG10 | SG |
| Can grip - single part     | Cuboid      | ✓               | ✓     | ✓     | ✓   | ✓                | ✓    | ✓  |
|                            | Cylindrical | ✓               | ✓     | ✓     | ✓   | ✓                | ✓    | ✓  |
| Can grip - multiple parts  | Cuboid      | ✓**             | ✓**   | ✓***  | ✓   | ✗                | ✗    | ✗  |
| Can pick interlayer sheets |             | ✓               | ✓     | ✓     | ✓   | ✗                | ✗    | ✗  |

|               |   |   |   |   |   |   |   |
|---------------|---|---|---|---|---|---|---|
| Can drop part | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ |
|---------------|---|---|---|---|---|---|---|

\* With special fingertips.

\*\* Up to two parts.

\*\*\* Up to four parts.

### 1b. Tool mounting

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

### 2. Robot brands

#### Supported robot models and controllers

| Robot Type         | ABB                   | Denso     | Doosan | Elite | FANUC | FANUC CRX | Jaka        |
|--------------------|-----------------------|-----------|--------|-------|-------|-----------|-------------|
| <b>Robot Model</b> | CRB 1100<br>-4/0.58   |           |        |       |       |           |             |
|                    | CRB 15000<br>-5/0.95  |           |        |       |       |           |             |
|                    | CRB 15000<br>-10/1.52 |           |        |       |       |           |             |
|                    | CRB 15000<br>-12/1.27 |           |        |       |       |           |             |
|                    | IRB 1100<br>-4/0.58   |           |        |       |       |           | Zu3<br>Zu3S |
|                    | IRB 1100<br>-4/0.47   | VM-6083   | A0509  |       |       |           | Zu5<br>Zu5S |
|                    | IRB 120               | VM-60B1   | A0509s |       |       |           | Zu7         |
|                    | IRB 1200              | VP-6242   | A0912  |       |       |           | Zu7S        |
|                    | IRB 1200<br>-5/0.9    | VS050A3   | A0912s | CS63  |       |           | Zu12        |
|                    | IRB 1200 -7/0.7       | VS087A4   | H2017  | CS66  |       |           | Zu12S       |
|                    | IRB 1200 -7/1.4       | VP-5243   | H2515  | CS612 |       |           | Zu18        |
|                    | IRB 1300<br>-10/1.15  | VS-050-S2 | M0609  | CS620 |       |           | Zu18S       |
|                    | IRB 1300<br>-11/0.9   | VS-087A4  | M0617  | CS625 |       |           | Zu20        |
|                    | IRB 1300<br>-12/1.4   | VS-6577   | M1013  |       |       |           | Pro5        |
|                    | IRB 1300 -6/1.2       | VS-6556   | M1509  |       |       |           | Pro12       |
|                    | IRB 1600<br>-6/1.45   | VS-087    | E0509  |       |       |           | Pro16       |
|                    | IRB 1600<br>-10/1.2   |           |        |       |       |           |             |
|                    | IRB 1600-<br>10/1.45  |           |        |       |       |           |             |

| Robot Type              | ABB              | Denso | Doosan | Elite                               | FANUC                                     | FANUC CRX        | Jaka               |
|-------------------------|------------------|-------|--------|-------------------------------------|---|------------------|--------------------|
| <b>Robot Controller</b> | IRC5<br>OmniCore | RC8   | CS-03  | EliRobot<br>+<br>EliServer<br>CS-04 | R-30iB<br>R-30iB Plus<br>R-30iB Mini Plus | R-30iB Mini Plus | Electrical cabinet |

| Robot Type              | Kawasaki   | Omron TM   | Schneider   | Techman  | UR   | Yaskawa  |
|-------------------------|--|--|---|--|--|--|
| <b>Robot Model</b>      | RS003N<br>RS005L<br>RS005N<br>RS006L<br>RS007N<br>RS007L<br>RS010L<br>RS010N<br>RS013N<br>RS015X<br>RS020N<br>RS025N<br>RS030N<br>RS050N<br>RS080N | TM5-700<br>TM5X-700<br>TM5-900<br>TM5X-900<br>TM5S<br>TM5S-X<br>TM7S<br>TM7S-X<br>TM12<br>TM12X<br>TM12S<br>TM12S-X<br>TM14<br>TMX14<br>TM14S<br>TM14S-X<br>TM16<br>TM16X<br>TM20<br>TM20X<br>TM25S<br>TM25S-X | RL03<br>RL05<br>RL07<br>RL12<br>RL18                                    | TM5-700<br>TM5X-700<br>TM5-900<br>TM5X-900<br>TM5S<br>TM5S-X<br>TM7S<br>TM7S-X<br>TM12<br>TM12X<br>TM12S<br>TM12S-X<br>TM14<br>TMX14<br>TM14S<br>TM14S-X<br>TM16<br>TM16X<br>TM20<br>TM20X<br>TM25S<br>TM25S-X | UR3<br>UR3e<br>UR5<br>UR5e<br>UR10<br>UR10e<br>UR16e<br>UR20<br>UR30 | GP4, GP4FGG<br>GP7, GP7FGG<br>GP8, GP8FGG,<br>GP8FGG HS<br>GP8L<br>GP12, GP12FGG<br>GP20<br>GP20HL<br>GP25, GP25FGG<br>GP25-12<br>GP35L<br>HC10<br>HC10DT<br>HC10DTP,<br>HC10DTPF,<br>HC10DTP Classic<br>HC20<br>HC20DT<br>HC20DTP<br>HC30PL |
| <b>Robot Controller</b> | E01<br>E02<br>F01<br>F02<br>F60  | TM   | LXMRL03S000<br>LXMRL05S000<br>LXMRL05S000<br>LXMRL12S000<br>LXMRL12S000 | TM   | CB3<br>e-Series<br>CB5.3+  | YRC1000<br>YRC1000 Micro   |

### 3. Robot mounting

The robot cannot be facing downward (ceiling mounted).

### 4. Outfeed container (parts to pack into)

Only one outfeed container is supported. The **Outfeed container** sensor can be any ultrasonic, laser/infra or any other type 24V digital sensor.

## 5. Pattern options

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

## 6. Product size/weight/type

For parts smaller than the gripper, **drop part** function can be used if bottom cannot be reached.

## 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.

## 8. Infeed type / multiple parts

Integrator must 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.

## 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

- With or without interlayer sheet
- Single or grouped parts being picked
- Infeed/interlayer at any angle

## Examples

