

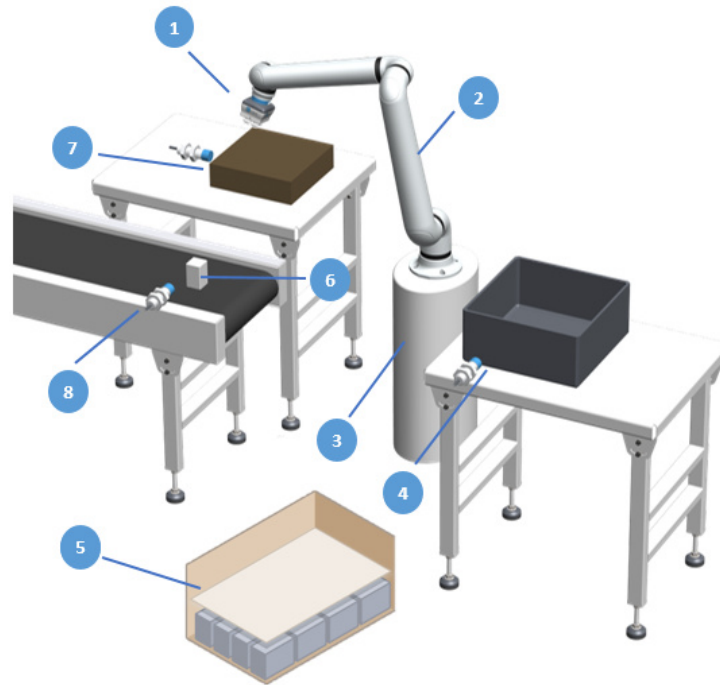


# DATASHEET

## D:PLOY - PACKAGING APPLICATION

v1.1.010

## Packaging Application



|          |                                        |                                                                                        |       |          |       |                                                                                                           |               |                                                                                                                              |                                                                                                    |      |         |
|----------|----------------------------------------|----------------------------------------------------------------------------------------|-------|----------|-------|-----------------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------|---------|
| 1/<br>a. | Grippers                               | 2FG7                                                                                   | 2FG14 | 2FGP20   |       | 3FG15                                                                                                     | 3FG25         | MG10                                                                                                                         |                                                                                                    | RG2  | RG6     |
|          |                                        | SG-a-H/SG-b-H                                                                          | VG10  | VGC10    | VGP20 | VGP30                                                                                                     | Gecko Gripper |                                                                                                                              | G2FG                                                                                               | G3FG | GVG     |
| 1/<br>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) | Any size (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) |               |                                                                                                                              | Outfeed container device required. It keeps track of how full, and <b>stop until it is emptied</b> |      |         |
| 5.       | Pattern options                        | Automatic (optionally having the labels facing outward, can calculate pattern to fill) |       |          |       |                                                                                                           |               | Manual (easy to use pattern editor, optionally have labels rotated outward, spacing within parts or from edges for snapping) |                                                                                                    |      |         |

|    |                              |                                               |                                                                                                                                                           |                                                                                         |
|----|------------------------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 6. | Product size/ weight/ type   | <b>Any size</b> that the gripper can handle   | <b>Any weight</b> that the gripper and robot can handle                                                                                                   | <b>Cuboid or Cylindrical</b> (both may not be available on a given gripper)             |
| 7. | Interlayer sheet             | <b>Cardboard or Paper</b> (full or half size) | Sheets can be picked from a <b>fixed position</b> (spring loaded tray) or based on thickness<br>D:PLOY can <b>“search”</b> for the next one (normal tray) | <b>Horizontal or tilted</b> trays supported (can be placed anywhere within robot reach) |
| 8. | Infeed type / multiple parts | <b>Conveyor belt or Turn table</b>            | <b>Single part or grouped parts</b> (multiple parts at once for faster cycle time - recommended to use two sensors in a twin signal configuration)        | Can be at any height, and <b>tilted at any angle</b>                                    |

### 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 | VGP30 | GVG | Gecko Gripper    | MG10 | SG |
| Can grip - single part    | Cuboid      | ✓               | ✓     | ✓     | ✓     | ✓   | ✓                | ✓    | ✓  |
|                           | Cylindrical | ✓               | ✓     | ✓     | ✓     | ✓   | ✓                | ✓    | ✓  |
| Can grip - multiple parts | Cuboid      | ✓ **            | ✓ **  | ✓ *** | ✓ **  | ✓   | ✗                | ✗    | ✗  |

|                            |   |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|---|
| Can pick interlayer sheets | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ |
| Can drop part              | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ |

\* 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   |
|                    | IRB 1100<br>-4/0.47   | VM-6083   | A0509  |       | CR-7iA               |            | Zu3S  |
|                    | IRB 120               | VM-60B1   | A0509s |       | CR-7iA/L             |            | Zu5   |
|                    | IRB 1200              | VP-6242   | A0912  |       | CR-14iA/L            |            | Zu5S  |
|                    | IRB 1200<br>-5/0.9    | VS050A3   | A0912s | CS63  | CR-15iA              | CRX-5iA    | Zu7   |
|                    | IRB 1200 -7/0.7       | VS087A4   | H2017  | CS66  | CR-35iB              | CRX-10iA   | Zu7S  |
|                    | IRB 1300 -7/1.4       | VP-5243   | H2515  | CS612 | LR Mate<br>200iD     | CRX-10iA/L | Zu12  |
|                    | IRB 1300<br>-10/1.15  | VS-050-S2 | M0609  | CS620 | LR Mate<br>200iD/4S  | CRX-20iA/L | Zu12S |
|                    | IRB 1300<br>-11/0.9   | VS-087A4  | M0617  | CS625 | LR Mate<br>200iD/7L  | CRX-25iA   | Zu18  |
|                    | IRB 1300<br>-12/1.4   | VS-6577   | M1013  |       | LR Mate<br>200iD/14L | CRX-30iA   | Zu18S |
|                    | IRB 1600 -6/1.2       | VS-6556   | M1509  |       |                      |            | Zu20  |
|                    | IRB 1600<br>-6/1.45   | VS-087    | E0509  |       |                      |            | Pro5  |
|                    | IRB 1600<br>-10/1.2   |           | P3020  |       |                      |            | Pro12 |
|                    | IRB 1600-<br>10/1.45  |           |        |       |                      |            | Pro16 |

| Robot Type              | ABB              | Denso | Doosan                     | Elite                      | FANUC                                     | FANUC CRX        | Jaka               |
|-------------------------|------------------|-------|----------------------------|----------------------------|-------------------------------------------|------------------|--------------------|
| <b>Robot Controller</b> | IRC5<br>OmniCore | RC8   | CS-03<br>CS-04<br>CS-11/12 | EliRobot<br>+<br>EliServer | 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<br><br>CL103N<br>CL105N<br>CL108N<br>CL110N | 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<br>TM30S<br>TM30S-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<br>TM30S<br>TM30S-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

