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# Kawasaki Robot LINEUP

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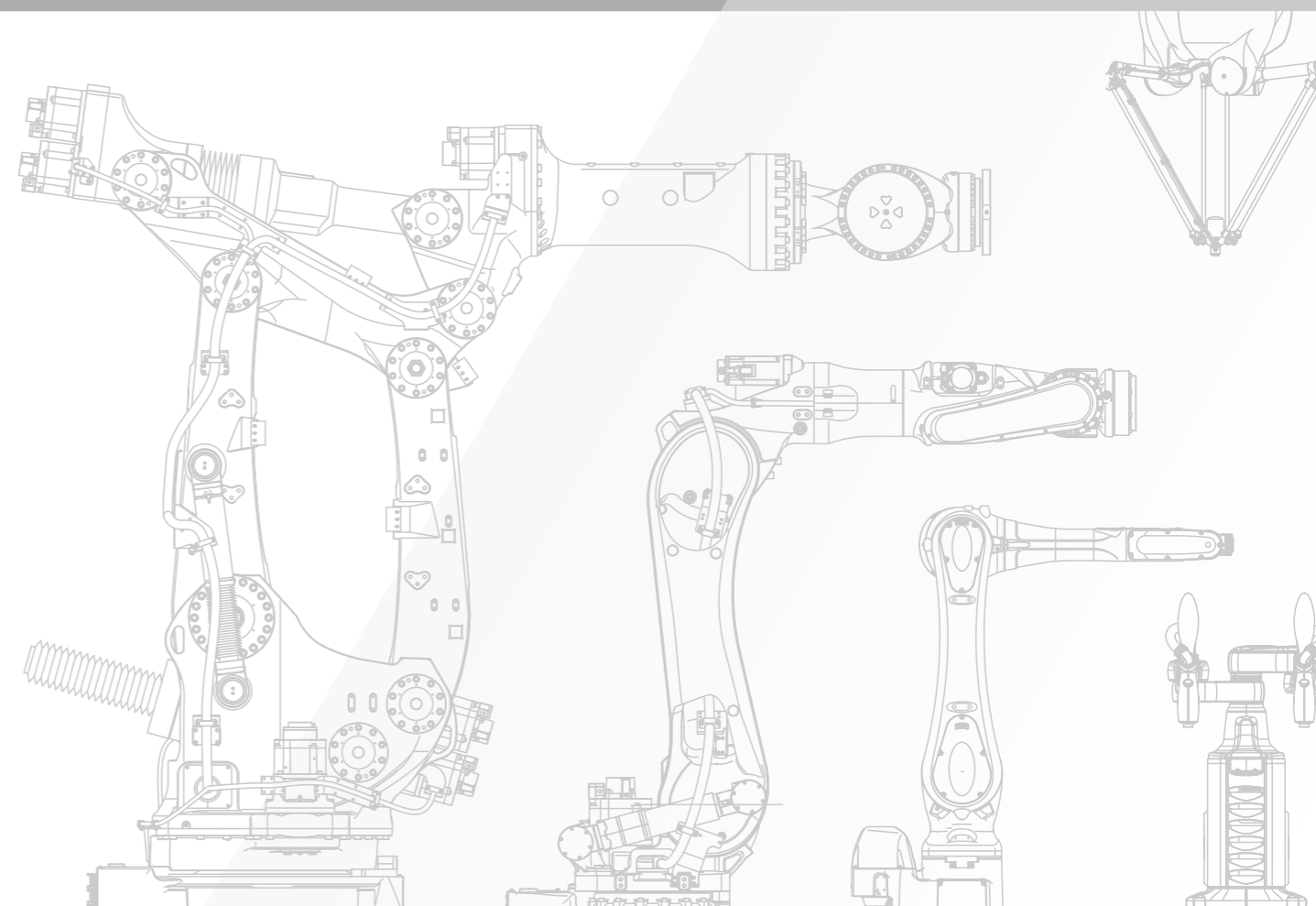
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#### CAUTIONS TO BE TAKEN TO ENSURE SAFETY

- For any persons involved with the operation / servicing of your system, including Kawasaki Robot, they must strictly observe all safety regulations at all times. Please carefully read the Manuals and other related safety documents.
- Products described in this catalogue are general industrial robots. Therefore, if a customer wishes to use the Robot for special purposes, which might endanger operators, or if the Robot has any problems, please contact us. We will be happy to help you.
- Please be careful as Photographs illustrated in this catalogue are frequently taken after the removal of safety fences and other safety devices stipulated in the safety regulations from the Robot operation system.



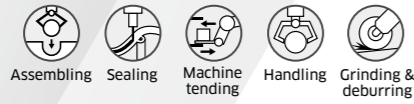
# Unlocking Human Ingenuity to Create Robotics that Enrich the Future

With a vision of a prosperous society where people and robots coexist, we strive to deliver our robots to everyone who seeks them. As a comprehensive robot manufacturer that stands close to our customers, Kawasaki will continue to take on new challenges.

Backed by more than half a century of experience and proven achievements in the industrial robot field, Kawasaki Robotics delivers optimal automation and labor-saving solutions tailored to a wide range of industries and applications.

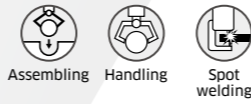
## Small-to-Medium Robots up to 80kg payload P03

RS series



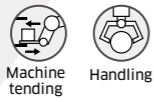
## Large Robots up to 300kg payload P04

BXP/BTP series  
BX series ZX series



## Extra Large Robots up to 1,500kg payload P05

MXP series MG series



## Explosion-Proof Painting Robots P05-06

K series



## Sealing Robots P06

BU series



## Collaborative Robots P06

duAro series



## Arc Welding Robots P07

BA series RA series



## Palletizing Robots P07

CP series RD series



## Medical & Pharmaceutical Robots P08

MC series



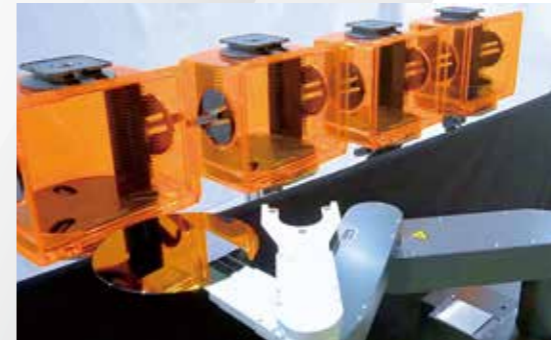
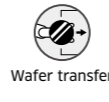
## Picking Robots P08

YF series



## Wafer Transfer Robots P08

NTJ series TTJ series NTH series  
NX series NV series



## Solution P09

Visual Inspection Robot System



Depalletizing Solution

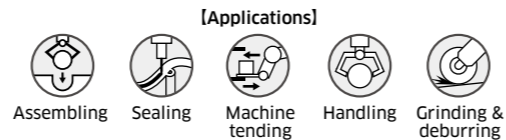


## Controllers / Teach Pendant P09

## Option / Software P10

# Small-to-Medium Robots up to 80kg payload

## RS series



- Wide range of lineup for every application.
- Industry-leading operation speed.
- Compact, yet wide work range.



|                               |                    | RS series                                  |                           |                               |             |                        |
|-------------------------------|--------------------|--|---------------------------|-------------------------------|-------------|------------------------|
|                               |                    | RS003N                                     | RS007N                    | RS007L                        | RS010L      | RS013N                 |
| Degree of freedom (axes)      |                    | 6  |                           |                               |             |                        |
| Payload (kg)                  |                    | 7  |                           |                               |             |                        |
| Max.reach(mm)                 |                    | 620  | 730                       | 930                           | 1,925       | 1,460                  |
| Position repeatability*1 (mm) |                    | ±0.02                                      | ±0.02                     | ±0.03                         | ±0.05       | ±0.03                  |
| Motion range (°)              | Arm rotation (JT1) | ±180                                       |                           |                               |             |                        |
|                               | Arm out-in (JT2)   | +150 - -60                                 | ±135                      |                               | ±155 - -105 | +138 - -105            |
|                               | Arm up-down (JT3)  | +120 - -150                                | ±155                      | ±157                          | +150 - -163 | +135 - -159            |
|                               | Wrist swivel (JT4) | ±360                                       | ±200                      |                               | ±270        | ±200                   |
|                               | Wrist bend (JT5)   | ±135                                       | ±125                      |                               | ±145        | ±125                   |
|                               | Wrist twist (JT6)  | ±360                                       |                           |                               |             |                        |
| Max. speed (°/s)              | Arm rotation (JT1) | 360  | 470                       | 370                           | 190         | 265                    |
|                               | Arm out-in (JT2)   | 250  | 380                       | 310                           | 205         | 250                    |
|                               | Arm up-down (JT3)  | 225  | 520                       | 410                           | 210         | 265                    |
|                               | Wrist swivel (JT4) | 540  | 550                       |                               | 400         | 475                    |
|                               | Wrist bend (JT5)   | 225  | 550                       |                               | 360         | 475                    |
| Wrist twist (JT6)             | 540                | 1,000                                      |                           | 610                           | 730         |                        |
| Mass(kg)                      | 20                 | 35   | 36                        | 230                           | 170         |                        |
| Mounting                      |                    | Floor, Ceiling                             |                           |                               |             |                        |
| Degrees of protection         |                    | All axes: IP54                             | Wrist: IP67 or equivalent | Base axes: IP65 or equivalent |             | All axes: IP67         |
| Cleanliness                   |                    | Class 6 equivalent *Not a guaranteed value |                           |                               |             |                        |
| Controller/Power requirements |                    | F60/2.0kVA                                 | F60/2.0kVA, F01/5.6kVA    |                               | F01/5.6kVA  | F60/2.0kVA, F01/5.6kVA |

\*1: Conforms to ISO9283.

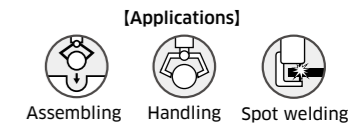


|                               |                    | RS series  |                |             |                           |                               |        |
|-------------------------------|--------------------|--|----------------|-------------|---------------------------|-------------------------------|--------|
|                               |                    | RS015X   | RS025S         | RS025N      | RS030N                    | RS050N                        | RS080N |
| Degree of freedom (axes)      |                    | 6  |                |             |                           |                               |        |
| Payload (kg)                  |                    | 15   | 25             | 30          |                           | 50                            | 80     |
| Max.reach(mm)                 |                    | 3,150  | 1,325          | 1,885       | 2,100                     |                               |        |
| Position repeatability*1 (mm) |                    | ±0.06  | ±0.04          |             | ±0.06                     |                               |        |
| Motion range (°)              | Arm rotation (JT1) | ±180   |                |             |                           |                               |        |
|                               | Arm out-in (JT2)   | +140 - -105  | +131 - -100    |             | +140 - -105               |                               |        |
|                               | Arm up-down (JT3)  | +135 - -155  | +145 - -155    | +145 - -161 | +135 - -155               |                               |        |
|                               | Wrist swivel (JT4) | ±360   | ±270           |             | ±360                      |                               |        |
|                               | Wrist bend (JT5)   | ±145   |                |             |                           |                               |        |
|                               | Wrist twist (JT6)  | ±360   |                |             |                           |                               |        |
| Max. speed (°/s)              | Arm rotation (JT1) | 180  | 215            |             | 180                       |                               |        |
|                               | Arm out-in (JT2)   | 180  | 215            |             | 180                       |                               |        |
|                               | Arm up-down (JT3)  | 200  | 270            |             | 185                       | 160                           |        |
|                               | Wrist swivel (JT4) | 410  | 290            | 420         | 260                       | 185                           |        |
|                               | Wrist bend (JT5)   | 360  | 410            | 420         | 260                       | 165                           |        |
| Wrist twist (JT6)             | 610                | 730  | 780            | 360         | 280                       |                               |        |
| Mass(kg)                      | 545                | 265  | 270            | 555         |                           |                               |        |
| Mounting                      |                    | Floor, Ceiling   | Floor          |             | Floor, Ceiling            |                               |        |
| Degrees of protection         |                    | Wrist: IP67 or equivalent<br>Base axes: IP65 or equivalent | All axes: IP67 |             | Wrist: IP67 or equivalent | Base axes: IP65 or equivalent |        |
| Cleanliness                   |                    | Class 6 equivalent *Not a guaranteed value                 |                |             |                           |                               |        |
| Controller/Power requirements |                    | F02/7.5kVA   |                |             |                           |                               |        |

\*1: Conforms to ISO9283.

# Large Robots up to 300kg payload

## BXP/BTP series



- Higher speed thanks to new F series controller.
- Built-in cables and hoses.
- Lighter and more compact.



|                               |                    | BXP series                |           |         |         |                               |            | BTP series   |         |
|-------------------------------|--------------------|---------------------------|-----------|---------|---------|-------------------------------|------------|--|---------|
|                               |                    | BXP110S                   | BXP110L   | BXP135X | BXP165N | BXP165L                       | BXP210L    | BTP165L  | BTP210L |
| Degree of freedom (axes)      |                    | 6                         |           |         |         |                               |            | 6  |         |
| Payload (kg)                  |                    | 110                       |           |         |         |                               |            | 165  | 210     |
| Max.reach(mm)                 |                    | 1,634                     | 2,597     | 2,991   | 2,325   | 2,597                         | 3,151      |  |         |
| Position repeatability*1 (mm) |                    | ±0.06                     |           |         |         |                               |            | ±0.08  |         |
| Motion range (°)              | Arm rotation (JT1) | ±160                      |           |         |         |                               |            | ±160   |         |
|                               | Arm out-in (JT2)   | +120 - -65                | +76 - -60 |         |         |                               | +80 - -130 |  |         |
|                               | Arm up-down (JT3)  | +90 - -81                 | +90 - -75 |         |         |                               | +90 - -75  |  |         |
|                               | Wrist swivel (JT4) | ±210                      |           |         |         |                               |            | ±210   |         |
|                               | Wrist bend (JT5)   | ±125                      |           |         |         |                               |            | ±125   |         |
|                               | Wrist twist (JT6)  | ±210                      |           |         |         |                               |            | ±210   |         |
| Max. speed (°/s)              | Arm rotation (JT1) | 140                       |           |         |         |                               |            | 125  | 115     |
|                               | Arm out-in (JT2)   | 130                       | 105       | 130     | 115     | 105                           | 115        | 90   |         |
|                               | Arm up-down (JT3)  | 170                       | 135       | 140     | 135     | 130                           | 130        | 115  |         |
|                               | Wrist swivel (JT4) | 220                       |           | 190     |         | 140                           | 190        | 140  |         |
|                               | Wrist bend (JT5)   | 185                       | 200       |         | 180     | 135                           | 180        | 135  |         |
| Wrist twist (JT6)             | 300                |                           | 300       |         | 290     | 240                           | 290        | 240  |         |
| Mass(kg)                      | 700                | 870                       | 880       | 855     | 870     |                               | 1,030      |  |         |
| Mounting                      |                    | Floor                     |           |         |         |                               |            | Shelf  |         |
| Degrees of protection         |                    | Wrist: IP67 or equivalent |           |         |         | Base axes: IP54 or equivalent |            | Wrist: IP67 or equivalent<br>Base axes: IP54 or equivalent |         |
| Controller/Power requirements |                    | F02/7.5kVA                |           |         |         |                               |            | F02/7.5kVA   |         |

\*1: Conforms to ISO9283.

## BX series

- Built-in cables and hoses.
- Slim design and small footprint for high-density installations.



|                               |                    | BX series                 |            |                               |        |
|-------------------------------|--------------------|---------------------------|------------|-------------------------------|--------|
|                               |                    | BX100N                    | BX200X     | BX250L                        | BX300L |
| Degree of freedom (axes)      |                    | 6                         |            |                               |        |
| Payload (kg)                  |                    | 100                       | 200        | 250                           | 300    |
| Max.reach(mm)                 |                    | 2,200                     | 3,412      | 2,812                         |        |
| Position repeatability*1 (mm) |                    | ±0.06                     | ±0.07      |                               |        |
| Motion range (°)              | Arm rotation (JT1) | ±180                      |            |                               |        |
|                               | Arm out-in (JT2)   | +120 - -65                | +76 - -60  |                               |        |
|                               | Arm up-down (JT3)  | +90 - -77                 | +90 - -110 | +90 - -120                    |        |
|                               | Wrist swivel (JT4) | ±210                      |            |                               |        |
|                               | Wrist bend (JT5)   | ±125                      |            |                               |        |
|                               | Wrist twist (JT6)  | ±210                      |            |                               |        |
| Max. speed (°/s)              | Arm rotation (JT1) | 135                       | 125        |                               |        |
|                               | Arm out-in (JT2)   | 110                       | 102        | 120                           | 102    |
|                               | Arm up-down (JT3)  | 140                       | 85         | 100                           | 85     |
|                               | Wrist swivel (JT4) | 200                       | 105        | 140                           | 105    |
|                               | Wrist bend (JT5)   | 200                       | 120        | 140                           | 110    |
|                               | Wrist twist (JT6)  | 300                       | 200        |                               | 180    |
| Mass(kg)                      | 740                | 1,450                     | 1,460      |                               |        |
| Mounting                      |                    | Floor                     |            |                               |        |
| Degrees of protection         |                    | Wrist: IP67 or equivalent |            | Base axes: IP54 or equivalent |        |
| Controller/Power requirements |                    | F02/7.5kVA                |            |                               |        |

\*1: Conforms to ISO9283.

## ZX series

- Wide range of applications for every industry.
- Suitable for harsh environment thanks to wrist motors located at the shoulder.
- Wide motion range of 360°.

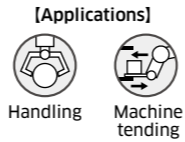


|                               |                    | ZX series   |        |        |        |        |
|-------------------------------|--------------------|-------------|--------|--------|--------|--------|
|                               |                    | ZX130S      | ZX130L | ZX165U | ZX200S | ZX300S |
| Degree of freedom (axes)      |                    | 6           |        |        |        |        |
| Payload (kg)                  |                    | 130         |        | 165    | 200    | 300    |
| Max.reach(mm)                 |                    | 2,651       | 2,951  | 2,651  | 2,501  |        |
| Position repeatability*1 (mm) |                    | ±0.3        |        |        |        |        |
| Motion range (°)              | Arm rotation (JT1) | ±180        |        |        |        |        |
|                               | Arm out-in (JT2)   | +75 - -60   |        |        |        |        |
|                               | Arm up-down (JT3)  | +250 - -120 |        |        |        |        |
|                               | Wrist swivel (JT4) | ±360        |        |        |        |        |
|                               | Wrist bend (JT5)   | ±130        |        |        |        |        |
|                               | Wrist twist (JT6)  | ±360        |        |        |        |        |
| Max. speed (°/s)              | Arm rotation (JT1) | 130         | 110    |        | 105    | 100    |
|                               | Arm out-in (JT2)   | 130         | 110    |        | 85     | 85     |
|                               | Arm up-down (JT3)  | 130         | 110    | 115    | 105    | 85     |
|                               | Wrist swivel (JT4) | 180         | 140    |        | 120    | 90     |
|                               | Wrist bend (JT5)   | 180         | 135    | 155    | 120    | 90     |
|                               | Wrist twist (JT6)  | 280         | 230    | 260    | 200    | 150    |
| Mass(kg)                      | 1,350              | 1,400       | 1,350  | 1,400  |        |        |
| Mounting                      |                    | Floor       |        |        |        |        |
| Degrees of protection         |                    | -           |        |        |        |        |
| Controller/Power requirements |                    | E02/7.5kVA  |        |        |        |        |

\*1: Conforms to ISO9283.

# Extra Large Robots up to 1,500kg payload

## MXP/MG series



- Max. payload of 1,500kg suitable for heavy workpieces, e.g. cast iron.
- Dynamic, yet accurate operations due to high positioning repeatability.
- The MG series has a slim body without a counter weight, allowing for a wide motion range and high rigidity.



|                               | MXP series         |             |             | MG series |
|-------------------------------|--------------------|-------------|-------------|-----------|
|                               | MXP360L            | MXP410X     | MXP710L     | MG15HL    |
| Degree of freedom (axes)      | 6                  |             |             | 6         |
| Payload (kg)                  | 360                | 410         | 710         | 1,500     |
| Max.reach(mm)                 | 3,234              | 3,763       | 2,930       | 4,005     |
| Position repeatability*1 (mm) | ±0.08              | ±0.12       | ±0.08       | ±0.1      |
| Motion range (°)              | Arm rotation (JT1) | ±160 (±185) | ±160 (±180) |           |
|                               | Arm out-in (JT2)   | +90 - -75   | +90 - -64   |           |
|                               | Arm up-down (JT3)  | +50 - -120  | +40 - -120  |           |
|                               | Wrist swivel (JT4) | ±360        |             |           |
|                               | Wrist bend (JT5)   | ±125        | ±122        |           |
|                               | Wrist twist (JT6)  | ±360        |             |           |
| Max. speed (°/s)              | Arm rotation (JT1) | 100         | 82          | 65**      |
|                               | Arm out-in (JT2)   | 86          | 70          | 33.5**    |
|                               | Arm up-down (JT3)  | 86          | 70          | 37.5**    |
|                               | Wrist swivel (JT4) | 105         | 110         | 90        |
|                               | Wrist bend (JT5)   | 105         | 110         | 90        |
|                               | Wrist twist (JT6)  | 165         | 160         | 90        |
| Mass(kg)                      | 1,550              | 2,800       | 2,750       | 6,550     |
| Mounting                      | Floor              |             |             | Floor     |
| Controller/Power requirements | F02/7.5kVA         |             | F04/12kVA   | E58/15kVA |

\*1: Conforms to ISO9283.  
\*2: Max. working range varies depending on the load mass and load torque.  
\*3: The values in the table are maximum values and vary depending on conditions such as load and motion range.

# Sealing Robots

## BU series



- Built-in hoses.
- Reduced interferences thanks to the symmetric arm design.
- Suitable for complex tasks because of its long reach and the 7-axis construction (UB015X).

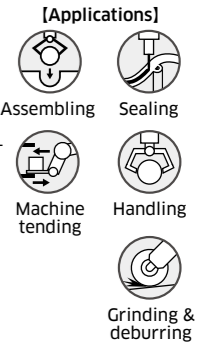


|                               | BU series          |                           |
|-------------------------------|--------------------|---------------------------|
|                               | BU015N             | BU015X                    |
| Degree of freedom (axes)      | 6                  | 7                         |
| Payload (kg)                  | 15                 |                           |
| Max.reach(mm)                 | 1,550              | 2,887.5                   |
| Position repeatability*1 (mm) | ±0.04              | ±0.06                     |
| Motion range (°)              | Arm rotation (JT1) | ±180                      |
|                               | Arm out-in (JT2)   | +140 - -105               |
|                               | Arm up-down (JT3)  | +155 - -120    +30 - -170 |
|                               | Wrist swivel (JT4) | ±210                      |
|                               | Wrist bend 1 (JT7) | -    +110 - -130          |
|                               | Wrist bend 2 (JT5) | ±120                      |
|                               | Wrist twist (JT6)  | ±360                      |
| Max. speed (°/s)              | Arm rotation (JT1) | 250                       |
|                               | Arm out-in (JT2)   | 250                       |
|                               | Arm up-down (JT3)  | 215                       |
|                               | Wrist swivel (JT4) | 280                       |
|                               | Wrist bend 1 (JT7) | -    170                  |
|                               | Wrist bend 2 (JT5) | 280                       |
|                               | Wrist twist (JT6)  | 360                       |
| Mass(kg)                      | 160                | 590                       |
| Mounting                      | Floor              |                           |
| Controller/Power requirements | E51/5.6kVA         | E52/10kVA                 |

\*1: Conforms to ISO9283.

# Collaborative Robots

## Dual-arm duAro series



- Space-saving without safety fences.\*
- With its two arms, duAro can perform as efficient tasks as human workers.
- Easy programming using a tablet and the direct teaching function.

\*: Users are required to carry out a safety risk assessment before use.

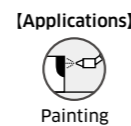


|                               | duAro series       |                   |                   |                   |                   |
|-------------------------------|--------------------|-------------------|-------------------|-------------------|-------------------|
|                               | duAro1             |                   | duAro2            |                   |                   |
| Degree of freedom (axes)      | 4x2 arms           |                   |                   |                   |                   |
| Payload (kg)                  | 2x2 arms           |                   | 3x2 arms          |                   |                   |
| Max.reach(mm)                 | 760                |                   | 785               |                   |                   |
| Position repeatability*1 (mm) | ±0.05              |                   |                   |                   |                   |
| Motion range (°)              | Arm rotation (JT1) | Arm 1 (lower arm) | Arm 2 (upper arm) | Arm 1 (lower arm) | Arm 2 (upper arm) |
|                               |                    | ±170 (JT1)        | -140 - +500 (JT1) | ±170 (JT1)        | -140 - +500 (JT1) |
|                               | Arm up-down*1 (mm) | ±140 (JT2)        |                   | -130 - +140 (JT2) |                   |
|                               |                    | 0 - +150 (JT3)    |                   | 0 - +550 (JT3)    |                   |
| Wrist swivel*1 (°)            | ±360 (JT4)         |                   |                   |                   |                   |
| Mass (kg)*2                   | about 210          |                   | about 220         |                   |                   |
| Mounting                      | Floor              |                   |                   |                   |                   |
| Controller/Power requirements | F61/2.0kVA         |                   |                   |                   |                   |

\*1: Specification varies in case of other options or conversion.  
\*2: Without options.

# Explosion-Proof Painting Robots

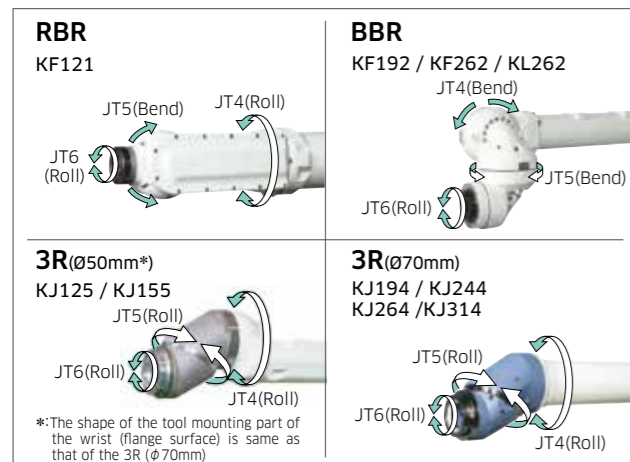
## K series



- Extensive product range for painting small parts to large automobile bodies.
- Hollow wrist to prevent painting defects due to paint mist.
- Packaged painting systems for an easy and quick installation and start up.



### [Variation of Wrists]



\*: The shape of the tool mounting part of the wrist (flange surface) is same as that of the 3R (φ70mm)

|                               | K series                |                 |            | K series        |                       |               |                    |              |              |             |                      |
|-------------------------------|-------------------------|-----------------|------------|-----------------|-----------------------|---------------|--------------------|--------------|--------------|-------------|----------------------|
|                               | KF121                   | KF192           |            | KF262           | KF262                 | KJ155         | KJ194(Floor)       | KJ244(Floor) | KJ264(Floor) | KJ314(Wall) | KL262(Floor)         |
| Degree of freedom (axes)      | 6                       |                 |            | 6               |                       |               |                    |              |              |             |                      |
| Payload (kg)                  | 5                       | Wrist:12 Arm:20 |            | Wrist:12 Arm:20 | Wrist:8 Arm:5         | Wrist:8 Arm:5 | Wrist:15 Arm:25    |              |              |             | Wrist:45             |
| Max.reach*1 (mm)              | 1,240                   | 1,973           |            | 2,665           | 1,299                 | 1,545         | 1,940              | 2,490        | 2,640        | 3,100       | 2,640                |
| Position repeatability*2 (mm) | ±0.2                    | ±0.5            |            | ±0.5            |                       |               |                    |              |              |             |                      |
| Motion range (°)              | Arm rotation (JT1)      | ±160/±60(Shelf) | ±150       | ±150            | ±160                  |               | ±120               |              |              |             |                      |
|                               | Arm out-in (JT2)        | ±90             | +110 - -60 | +110 - -60      | +130 - -80            | +130 - -80    |                    |              |              |             |                      |
|                               | Arm up-down (JT3)       | ±150            | +90 - -80  | +90 - -80       | +90 - -75             |               | +90 - -65          |              |              |             |                      |
|                               | Wrist swivel (JT4)      | ±270            | ±360       | ±360            | ±720                  |               |                    |              |              |             |                      |
|                               | Wrist bend (JT5)        | ±145            | ±360       | ±360            | ±720                  |               |                    |              |              |             |                      |
|                               | Wrist twist (JT6)       | ±360            | ±360       | ±360            | ±410                  |               |                    |              |              |             |                      |
|                               | Arm swing (JT7)         | -               | -          | -               | ±90                   |               |                    |              |              |             |                      |
| Painting speed (m/s)          | 1.5                     | 2               |            | 2               | 1.5                   |               | 1.5                |              |              |             | 1.6                  |
| Mass(kg)                      | 140                     | 690             |            | 720             | 190                   | 195           | 530                | 540          | 540          | 720         | 600                  |
| Mounting                      | Floor, Ceiling, Shelf*3 |                 |            | Floor, Shelf    | Floor, Ceiling, Shelf |               | Floor, Shelf, Wall |              |              |             | Floor, Shelf         |
| Power requirements*4 (kVA)    | 1.5                     | 5               |            | 5               | 3                     |               | 5                  |              |              |             |                      |
| Controller                    | North America           | E37, F35        |            | -               | E35, F35              |               | E35, F35           |              |              |             | -                    |
|                               | Europe                  | E47, F45        | E45, F45   |                 |                       |               | E45, F45           |              |              |             | -                    |
|                               | Japan & Asia            | E27, F25        | E25, F25   |                 |                       |               | E25, F25           |              |              |             | E25, F25(Japan only) |

\*1: RBR : Distance between centers of JT1 and JT5. 3R : Distance from JT1 center to the intersection of JT4 and JT5 rotation axes. BBR : Distance from JT1 center to the intersection of JT4 rotation axes. \*2: Conforms to ISO9283. \*3: Floor and wall mount for North America. \*4: Depends on the payload and motion patterns.

# Arc Welding Robots

## BA/RA series

[Applications]



Arc welding

- Full lineup for a wide range of workpieces with various sizes.
- Easy one-cable connection between the robot and welding equipment.
- Built-in welding cables.



|                               | BA series              |            |            |            | RA series      |                        |        |            |             |             |
|-------------------------------|------------------------|------------|------------|------------|----------------|------------------------|--------|------------|-------------|-------------|
|                               | BA006N                 | BA006L     | BA013N     | BA013L     | RA005L         | RA010N                 | RA010L | RA020N     |             |             |
| Degree of freedom (axes)      | 6                      |            |            |            | 6              |                        |        |            |             |             |
| Payload (kg)                  | 6                      |            |            |            | 5              | 10                     |        |            | 20          |             |
| Max.reach(mm)                 | 1,445                  | 2,036      | 1,492      | 2,093      | 903            | 1,450                  | 1,925  | 1,725      |             |             |
| Position repeatability*1 (mm) | ±0.06                  | ±0.08      | ±0.04      | ±0.06      | ±0.03          |                        | ±0.05  | ±0.04      |             |             |
| Motion range (°)              | Arm rotation (JT1)     | ±165       |            |            | ±180           |                        |        |            |             |             |
|                               | Arm out-in (JT2)       | +150 - -90 |            | +150 - -95 |                | +135 - -80             |        |            | +145 - -105 | +155 - -105 |
|                               | Arm up-down (JT3)      | +90 - -175 |            | +90 - -185 |                | +118 - -172            |        |            | +150 - -163 |             |
|                               | Wrist swivel (JT4)     | ±180       |            | ±200       |                | ±360                   |        |            | ±270        |             |
|                               | Wrist bend (JT5)       | ±135       |            |            |                | ±145                   |        |            |             |             |
|                               | Wrist twist (JT6)      | ±360       |            |            |                | ±360                   |        |            |             |             |
| Max. speed (°/s)              | Arm rotation (JT1)     | 240        | 210        | 265        | 215            | 300                    | 250    | 190        |             |             |
|                               | Arm out-in (JT2)       | 240        | 210        | 250        | 215            | 300                    | 250    | 205        |             |             |
|                               | Arm up-down (JT3)      | 220        |            | 265        | 270            | 300                    | 215    | 210        |             |             |
|                               | Wrist swivel (JT4)     | 430        |            | 470        | 440            | 460                    | 365    | 400        |             |             |
|                               | Wrist bend (JT5)       | 430        |            | 475        | 475            | 460                    | 380    | 360        |             |             |
|                               | Wrist twist (JT6)      | 650        |            | 730        | 730            | 740                    | 700    | 610        |             |             |
| Mass(kg)                      | 150                    | 160        | 265        | 280        | 37             | 150                    | 230    |            |             |             |
| Mounting                      | Floor, Ceiling         |            |            |            | Floor, Ceiling |                        |        |            |             |             |
| Controller/Power requirements | F60/2.0kVA, F01/5.6kVA |            | F01/5.6kVA | F02/7.5kVA | F60/2.0kVA     | F60/2.0kVA, F01/5.6kVA |        | F01/5.6kVA |             |             |

\*1: Conforms to ISO9283.

# Palletizing Robots

## CP/RD series

[Applications]



Palletizing

- Products suitable for a wide range of applications and payloads.
- High throughput and efficient palletizing thanks to speed.
- Monitoring function for safe operations and space-saving operations (optional).



|                               | CP series                |            |        |            |        | RD series   |
|-------------------------------|--------------------------|------------|--------|------------|--------|-------------|
|                               | CP110L                   | CP180L     | CP300L | CP500L     | CP700L | RD080N      |
| Degree of freedom (axes)      | 4                        |            |        |            |        | 5           |
| Payload (kg)                  | 110                      | 180        | 300    | 500        | 700    | 80          |
| Max.reach(mm)                 | 2,505                    | 3,255      |        |            | 2,100  |             |
| Position repeatability*1 (mm) | ±0.05                    | ±0.5       |        |            | ±0.07  |             |
| Motion range (°)              | Arm rotation (JT1)       | ±180       |        |            |        | ±160        |
|                               | Arm out-in (JT2)         | +100 - -40 |        | +95 - -46  |        | +140 - -105 |
|                               | Arm up-down (JT3)        | +13 - -112 |        | +15 - -110 |        | +40 - -205  |
|                               | Wrist swivel (JT4)       | ±360       |        |            |        | ±360        |
|                               | Wrist compensation (JT5) | -          |        |            |        | ±10*2       |
| Max. speed (°/s)              | Arm rotation (JT1)       | 145        | 130    | 100        | 85     | 75          |
|                               | Arm out-in (JT2)         | 140        | 125    | 90         | 80     | 65          |
|                               | Arm up-down (JT3)        | 170        | 125    | 90         | 80     | 65          |
|                               | Wrist swivel (JT4)       | 420        | 330    | 220        | 180    | 170         |
| Mass(kg)                      | 820                      | 1,600      |        | 1,650      |        | 540         |
| Mounting                      | Floor                    |            |        |            |        |             |
| Controller/Power requirements | F03/12kVA                |            |        |            |        |             |

\*1: Conforms to ISO9283. \*2: Operating angle of the JT5 is ±10 degrees perpendicular to the ground.

# Medical & Pharmaceutical Robots

## MC series

[Applications]



Medical & pharmaceutical

- Built-in cables and hoses.
- Meets ISO class 5 (Fed-class 100) without vacuum piping.
- Special sealing material enables VHP sterilization (MC004V).



|                               | MC series  |  |
|-------------------------------|--|--|
|                               | MC004N/MC004V  | MC006V                                     |
| Degree of freedom (axes)      | 6  |  |
| Payload (kg)                  | 4  | 6  |
| Max.reach(mm)                 | 505.8  | 610  |
| Position repeatability*1 (mm) | ±0.028   | ±0.03                                      |
| Motion range (°)              | Arm rotation (JT1)                                       | ±180                                       |
|                               | Arm out-in (JT2)   | +135 - -95                                 |
|                               | Arm up-down (JT3)  | +60 - -155                                 |
|                               | Wrist swivel (JT4)                                       | ±270                                       |
|                               | Wrist bend (JT5)   | ±120                                       |
|                               | Wrist twist (JT6)  | ±270                                       |
| Max. speed (°/s)              | Arm rotation (JT1)                                       | 200  |
|                               | Arm out-in (JT2)   | 180  |
|                               | Arm up-down (JT3)  | 225  |
|                               | Wrist swivel (JT4)                                       | 700  |
|                               | Wrist bend (JT5)   | 500  |
|                               | Wrist twist (JT6)  | 350  |
| Mass(kg)                      | 25   | 44   |
| Mounting                      | Floor, Ceiling   | Floor, Shelf, Wall                         |
| Degrees of protection         | Wrist: IP67 or equivalentBase axes: IP65 or equivalent*2 | IP67 or equivalentBase (CNB section: IP65) |
| Controller/Power requirements | F60/2.0kVA   |  |

\*1: Conforms to ISO9283.

\*2: The flange must be closed in case of using the built-in piping.

\*3: Special sealing material that enables sterilization by VHP (MC004V/MC006V).

# Wafer Transfer Robots

## NTJ series T TJ series NTH series NX series NV series

[Applications]



Wafer transfer

- Original drive mechanism provides highly accurate and smooth operations.
- High-speed transfer in high and low pass-lines, thanks to a unique high-rigidity telescopic mechanism.
- The long arm that is offset from the center of the base can access 4FOUP without a track.
- Installation in a small space is possible, thanks to its compact arm construction.
- High-vacuum compatible wafer transfer robot with a wide range of motion.



|                               | NTJ series                      |            |       | T TJ series                     |            | NTH series                      | NX series                   |            | NV series                                      |
|-------------------------------|---------------------------------|------------|-------|---------------------------------|------------|---------------------------------|-----------------------------|------------|--|
|                               | NTJ10                           | NTJ20      | NTJ11 | T TJ10                          | T TJ20     | NTH20                           | NX420                       | NX411      | NV121  |
| Degree of freedom (axes)      | 4                               | 5          |       | 5                               |            | 5                               | 5                           |            | 4  |
| Max. reach (mm)               | 1,067.2 (for 350mm hand length) |            |       | 1,067.2 (for 350mm hand length) |            | 1,226.6 (for 350mm hand length) | 736 (for 320mm hand length) |            | 1,050  |
| Position repeatability*1 (mm) | ±0.05                           |            |       | ±0.05                           |            | ±0.05                           | ±0.05                       |            | ±0.1   |
| Motion range (°)              | θ1axis (rotation JT2)(°)        | ±170       |       | ±170                            |            | ±170                            | +313 - -323                 |            | ±360   |
|                               | Zaxis (up-down JT3)(mm)         | 470        |       | 740                             |            | 470                             | 330                         |            | 50   |
|                               | θ2axis (rotation JT4)(°)        | ±170       |       | ±170                            |            | ±170                            | +180 - -150                 |            | 830  |
|                               | Faxis (rotation JT5)(°)         | -          | ±∞    |                                 | -          | -                               | ±∞                          |            | 830  |
| Mounting                      | H1axis (rotation JT6)(°)        | ±190       |       | ±190                            |            | ±190                            | ±190                        |            | 1.0 × 10 <sup>-5</sup> ~ 1.1 × 10 <sup>5</sup> |
|                               | H2axis (rotation JT7)(°)        | -          | ±190  |                                 | -          | ±190                            | ±190                        | -          | -  |
|                               | Controller/Power requirements   | F60/0.5kVA |       |                                 | F60/0.5kVA |                                 | F60/0.5kVA                  | F60/0.5kVA |  |

\*1: Conforms to ISO9283.

\*1: The result is based on the measurement conditions set by Kawasaki using the wafer center position of Kawasaki standard end effector (in compliance with ISO 9283: 1998/ JIS B 8432: 1999).

## Controllers / Teach Pendant

Kawasaki offers technologically advanced product controllers, built on decades of robotics experience, with features such as reduced size and energy consumption, integrated technology, and global usability.



F60

### F Controllers

- Universal controller has common specifications to be used worldwide.
- Drastic downsizing has achieved very compact dimensions and light weight (8.3kg). It is easy for a person to carry the controller.

|                       | F60                |
|-----------------------|--------------------|
| Dimensions (mm)       | W300 × D320 × H130 |
| Mass (kg)             | 8.3                |
| Degrees of protection | IP20 or equivalent |



F01/02/03/04

- Dimensions and weight have been reduced from its previous E-controller.
- This universal controller has common specifications that can be used globally. (An optional transformer unit is necessary in the region where the power supply and safety standard differ.)

|                       | F01                | F02 | F03 | F04 |
|-----------------------|--------------------|-----|-----|-----|
| Dimensions (mm)       | W420 × D530 × H278 |     |     |     |
| Mass (kg)             | 20                 | 25  | 30  | 25  |
| Degrees of protection | IP54 or equivalent |     |     |     |



Gen II

### Teach Pendant

- Industry-leading lightweight teaching pendant (690g).
- USB memory support, extended cable options, and detachable connectors deliver enhanced performance, usability, and ease of maintenance.

|                       | Teach Pendant Gen II                |
|-----------------------|-------------------------------------|
| Dimensions (mm)       | L323 × W162 × D58                   |
| Mass (kg)             | 0.69                                |
| Degrees of protection | F60, F01, F02, F03, F04 controllers |

### Explosion-proof F Controllers

- Compared to the conventional E-series controller, its volume has been reduced by over 50%, and its weight significantly lightened.
- Furthermore, since the air panel can be mounted directly on top of the controller, installation space can be efficiently utilized.



F25/F35/F45

|                 | F25                | F35 | F45 |
|-----------------|--------------------|-----|-----|
| Dimensions (mm) | W560 × D415 × H790 |     |     |
| Mass (kg)       | 70                 | 95  | 100 |

## New Solution Areas Kawasaki Is Addressing

### Visual Inspection Robot System



Kawasaki's visual inspection robot system utilizes the "Tool Tip Displacement Output Function", enabling motion along curved surfaces and maximizing the performance of high-resolution line scan cameras.

### Depalletizing Solution



Automated depalletizing of cases using a 3D AI vision system that recognizes cases without master data, handling both single-load and mixed-load configurations.

## Option / Software

Standard

### AS language

#### Robot Programming Language

Kawasaki's original AS language is a versatile, multi-functional robot programming language that supports monitor instructions, programming commands and functions. It enables programming with high-level operation and sequence controls. The AS language is equipped standard with all the Kawasaki robots.

Programming Tools



#### Robot Programming Support Software "neoROSET"

neoROSET is a programming tool that allows for robot programming and accurate simulation on a PC. By conducting offline verification in advance, it reduces the risks associated with the introduction of robot systems.



Simultaneous simulation of multiple robots is possible.

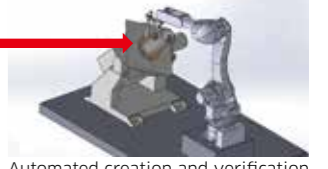


#### Automated Robot Programming Software "KCONG"

Programming cost can be reduced by creating robot programs from 3D CAD data of the workpiece. Small-volume in great-variety production is possible without programming and operation skills.



Read-in of the workpiece



Automated creation and verification of the robot operation program.

Vision system



#### 2D Vision system "K-VFinder"

It is possible to recognize both regular objects (e.g. PCB holes) and irregular objects (e.g. food materials). Without using a complicated indexing device, object's precise position can accurately be identified.



Compensation of the gripping position by fixed or hand cameras.

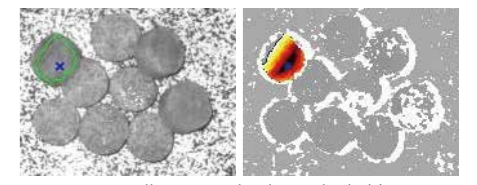


Detection of the present object position in synchronizing with a conveyor.



#### 3D Vision system "K-VStereo"

It can recognize randomly stacked irregular objects. In a palletizing and de-palletizing process, objects can be identified automatically without prior registration of objects' data.



It can discern randomly stacked objects.



#### AI Vision system

AI vision enables higher perception by combining AI with images acquired by 2D and 3D cameras. It can flexibly respond to workpieces with irregular shapes and arrangements, which were difficult in the previous vision, as well as new products that have not been registered.



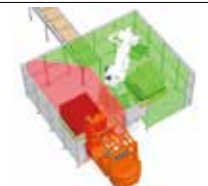
There is no need to register varieties and stacking patterns in advance, and it can handle unknown workpieces and random placements.

Safety Monitoring Option



#### Robot monitoring function for safety

Putting a limit on the robot motion range and monitoring the speed, force and collision assures operators' safety. Limits on the motion range provides the robot system with safer operation and space-saving. Compliant with ISO 10218-1, 13849-1 (PLd/Category 3) and IEC61508 (SIL2).



Limiting the motion range according to operator's working area.

Operation / Maintenance Monitoring Tool



#### Full-service service package with state-of-art technology

Overall support of the robot system over the life cycle time is provided for safety on production. All-time monitoring and collection of operation data enables preventive maintenance. K-COMMIT for life cycle support is targeted to achieve no down-time.

