

SPECIFICATION OF ROBOT

YS002NDE91

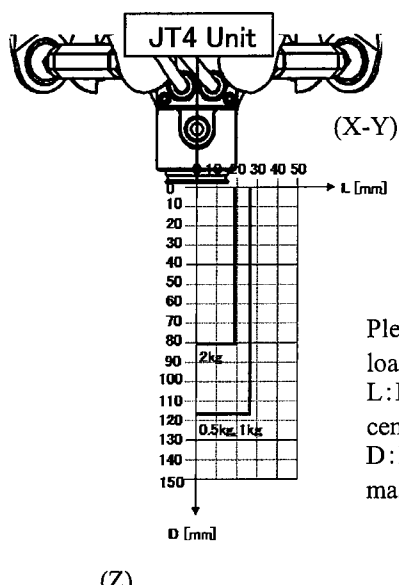
1st Edition : Nov.7.2012

KAWASAKI HEAVY INDUSTRIES LTD.
ROBOT DIV.

Doc. No: 90101-2100DEA

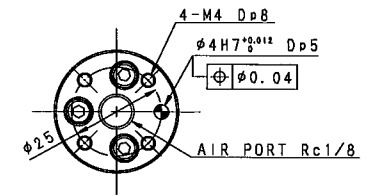
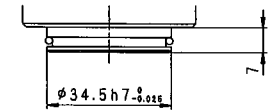
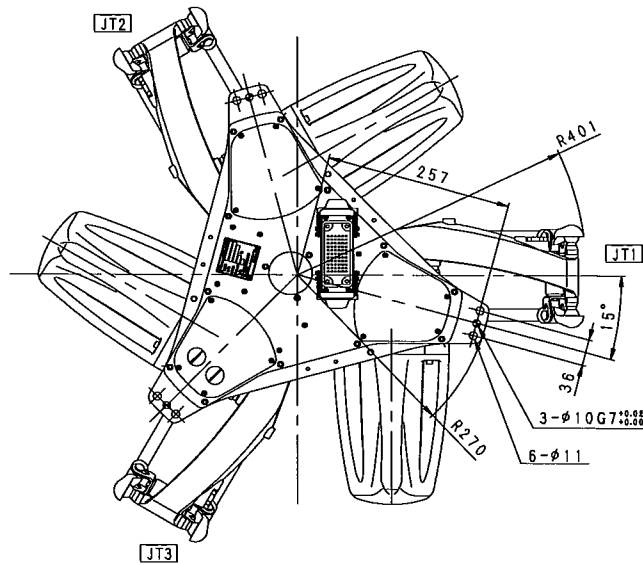
1. Specification of Robot

[1] Robot Arm

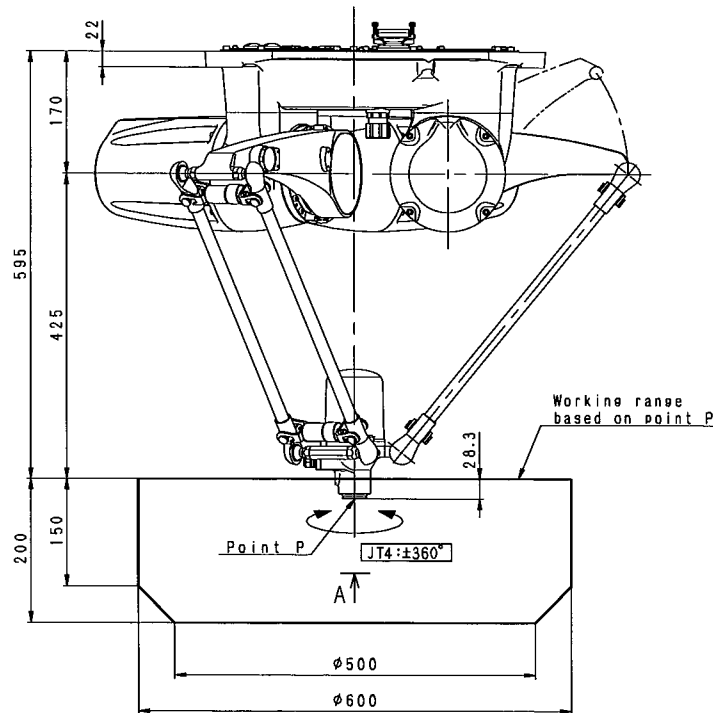
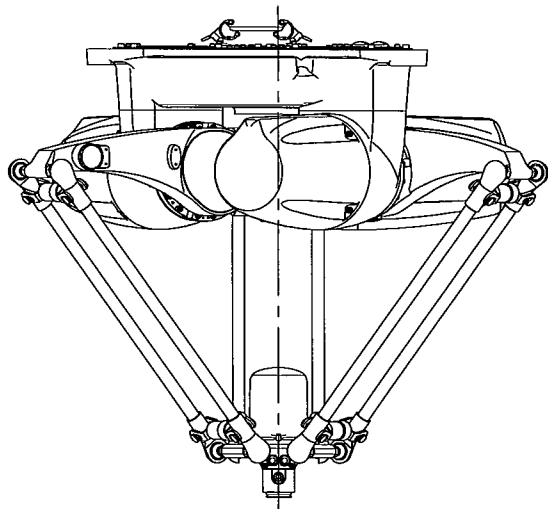
| 1. Model | YS002N-B | | | | | | | | | | | | | | |
|-----------------------------------|---|----------------------|------------|----------|-----------------|-----------------|-------|------|------|-----|------|------|-----|------|------|
| 2. Type | Delta Parallel Robot | | | | | | | | | | | | | | |
| 3. Degree of freedom | 4 axes | | | | | | | | | | | | | | |
| 4. Axis specification | Operating axis | Max. operating range | Max. speed | | | | | | | | | | | | |
| | Arm rotation 1 (JT1) | +77° ~ -34.5° | 490 °/s | | | | | | | | | | | | |
| | Arm rotation 2 (JT2) | +77° ~ -34.5° | 490 °/s | | | | | | | | | | | | |
| | Arm rotation 3 (JT3) | +77° ~ -34.5° | 490 °/s | | | | | | | | | | | | |
| | Wrist twist (JT4) | +360° ~ -360° | 1714.3 °/s | | | | | | | | | | | | |
| 5. Palletizing Capacity (Maximum) | <p>Approx. 200 pieces/min (0.5kg weight, only robot arm) Approx. 166 pieces/min (2kg weight, only robot arm) On the condition that robot moves 25 mm stroke in up-down direction and 305 mm stroke in right-left direction. *1 Excluding picking up and placing time *2 With a limit in continuous operations</p> | | | | | | | | | | | | | | |
| 6. Position Repeatability | ±0.04mm | | | | | | | | | | | | | | |
| 7. Angular Repeatability | ±0.10° | | | | | | | | | | | | | | |
| 8. Max. payload | 2kg | | | | | | | | | | | | | | |
| 9. Max. liner speed | 3300mm/sec | | | | | | | | | | | | | | |
| 10. Load capacity of wrist | <div style="display: flex; align-items: center;">  <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>load [-]</th> <th>Max Torque [Nm]</th> <th>Max Moment [Nm]</th> </tr> </thead> <tbody> <tr> <td>0.5kg</td> <td>0.13</td> <td>0.57</td> </tr> <tr> <td>1kg</td> <td>0.25</td> <td>1.15</td> </tr> <tr> <td>2kg</td> <td>0.37</td> <td>1.57</td> </tr> </tbody> </table> </div> <p style="margin-left: 20px;">Please put the center of mass inside of the line of the each load capacity. L: Distance in X-Y dimension from Z-axis to the mass center of gravity of the load. D: Distance in Z dimension from X-Y dimension to the mass center of gravity of the load.</p> | | | load [-] | Max Torque [Nm] | Max Moment [Nm] | 0.5kg | 0.13 | 0.57 | 1kg | 0.25 | 1.15 | 2kg | 0.37 | 1.57 |
| load [-] | Max Torque [Nm] | Max Moment [Nm] | | | | | | | | | | | | | |
| 0.5kg | 0.13 | 0.57 | | | | | | | | | | | | | |
| 1kg | 0.25 | 1.15 | | | | | | | | | | | | | |
| 2kg | 0.37 | 1.57 | | | | | | | | | | | | | |
| 11. Driving motor | Brushless AC Servomotor | | | | | | | | | | | | | | |
| 12. Working range | See attached drawing | | | | | | | | | | | | | | |
| 13. Mass | 60 kg (without options) | | | | | | | | | | | | | | |
| 14. Color | Munsell 10GY9/1 equivalent | | | | | | | | | | | | | | |
| 15. Installation | Ceiling mounting | | | | | | | | | | | | | | |
| 16. Environment cond. | (Temperature) 0 ~ 40 °C, (Relative Humidity) 35 ~ 85 % (non-condensation) | | | | | | | | | | | | | | |
| 17. Degree of Protection | IP65 equivalent | | | | | | | | | | | | | | |
| 18. Built-in utilities | none | | | | | | | | | | | | | | |
| 19. Options | | | | | | | | | | | | | | | |
| 20. Others | Consult Kawasaki about maintenance parts and spare parts. | | | | | | | | | | | | | | |

| [2] Controller | | |
|-----------------------------------|--|---|
| 1. Model | E91 | |
| 2. Enclosure | Enclosed, indirect cooling type | |
| 3. Dimensions | See attached drawing | |
| 4. Number of controlled axes | Max.6 axes | |
| 5. Servo control and drive system | Full Digital Servo System | |
| 6. Type of control | Teach mode | Joint, Base, Tool, Fixed Tool (option) operation mode |
| | Repeat mode | PTP, CP control mode |
| | | Joint, Linear, Circular (option) interpolation |
| 7. Teaching method | Teaching or AS language programming | |
| 8. Memory capacity | 8 MB | |
| 9. External operation signals | External Motor Power Off, External Hold, etc. | |
| 10. General purpose signals | Input signals | 32 channels (Includes dedicated signals) |
| | Output signals | 32 channels (Includes dedicated signals) |
| 11. Operation panel | FastCheck/Teach/Repeat SW, Emergency Stop SW, Control power lamp | |
| 12. Cable length | Power/Signal cable | 10 m |
| | Teach Pendant cable | 10 m |
| 13. Mass | See attached drawing | |
| 14. Power requirement | AC200 V - AC230 V \pm 10%, 50/60 Hz, 1 phase, Max. 4 kVA | |
| 15. Ground | Less than 100 Ω (robot dedicated ground) Leakage current: max. 100 mA | |
| 16. Ambient temperature | 0 - 40°C | |
| 17. Relative humidity | 35 - 85 % (non-condensation) | |
| 18. Surface Treatment | Munsell: 10GY9/1 | |
| 19. Teach Pendant | TFT color display (6.4 inch LCD) with touch panel Emergency Stop, Teach Lock and Deadman Switches(3 position) | |
| 20. Safety Circuit | Category: 3, Performance Level: d (EN ISO13849-1: 2008) ★ | |
| 21. Options | | |
| General purpose signals | Input signals | 64/96 channels |
| | Output signals | 64/96 channels |
| I/O connector | D-SUB 37pin(male,female) with cover | |
| Power/Signal cable | 5m, 15m | |
| Teach Pendant cable | 5m, 15m | |
| Motor brake release | Manual brake release switch BOX | |
| Auxiliary storage | USB memory | |
| PC cable | 1.5 m, 3 m | |
| Teach Pendant option | Connector for TP less | |
| Others | Field BUS, Software PLC, Analog input/output, Conveyor Synchronization, Vision and so on | |
| 22. Others | Consult Kawasaki about maintenance parts and spare parts. | |

★ Category and Performance level (PL) are determined by the whole system and conditions.
The safety circuit of this controller is available in the system of category: up to 3, PL: up to d.



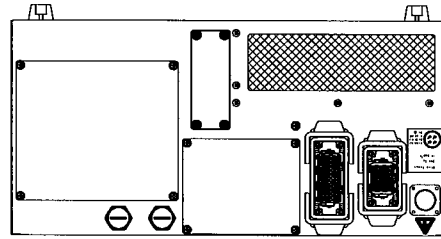
VIEW A



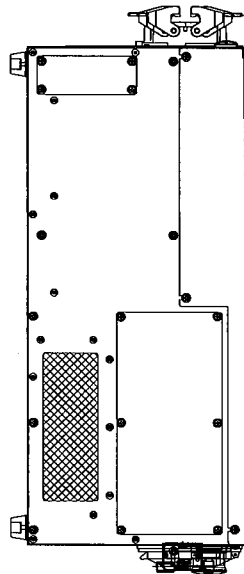
YS002N-B
WORKING RANGE

E91 CONTROLLER

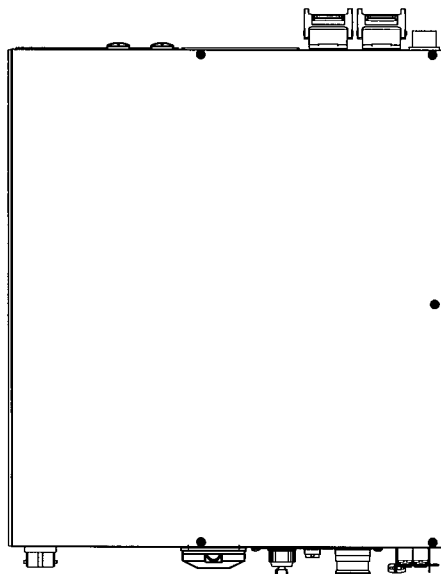
MASS : 40 K g



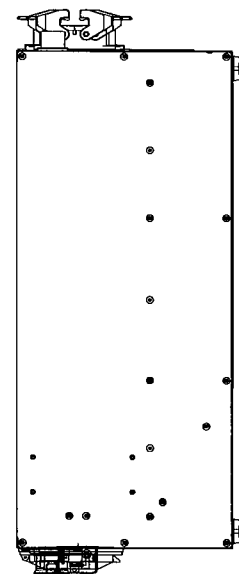
REAR VIEW



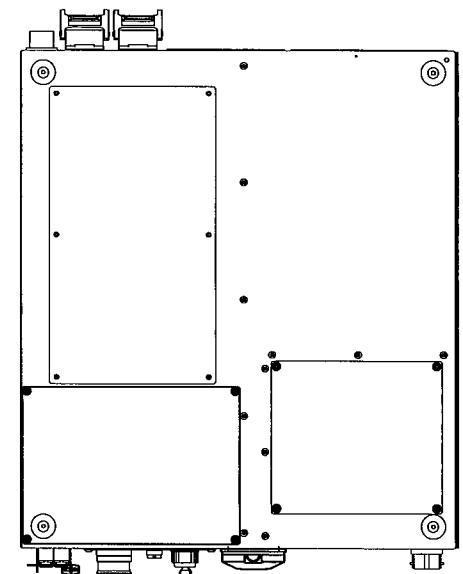
SIDE VIEW



TOP VIEW



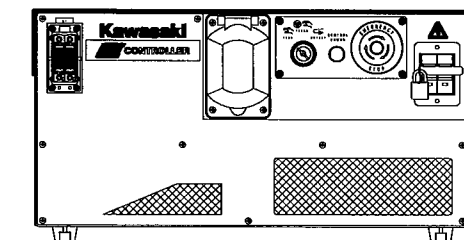
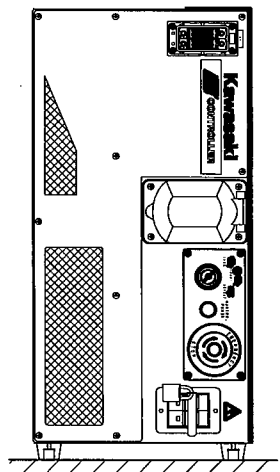
SIDE VIEW



BOTTOM VIEW

(50)
580
(34)

Vertical Mount
縦置の場合



FRONT VIEW

250
18
500

