

# Standard specifications

MX350LFE04001

April 27, 2015

KAWASAKI HEAVY INDUSTRIES, LTD.

ROBOT DIVISION

|                 |               |
|-----------------|---------------|
| Specification : | 90101-2345DEA |
| (Arm) :         | 90151-0060DEA |
| (Controller) :  | 90152-0015DEA |

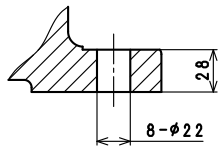
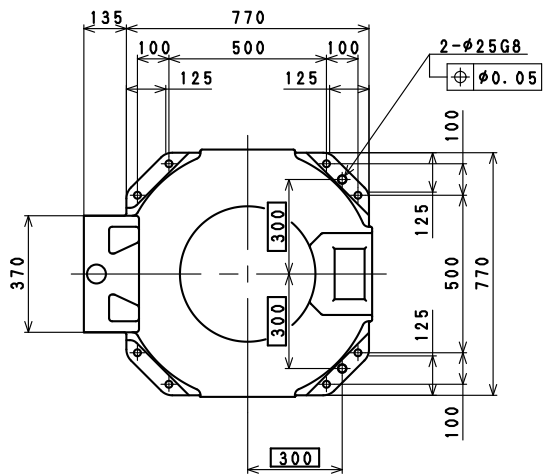
# 1. Specification of Robot

## [1] Robot Arm

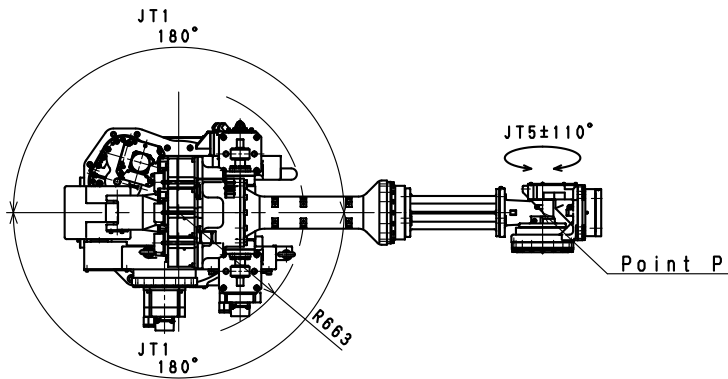
|                                    |  |   |                       |
|------------------------------------|--|---|-----------------------|
| 1. Model                           | MX350L-D   |   |                       |
| 2. Type                            | Articulated robot  |   |                       |
| 3. Degree of freedom               | 6 axes (Option 7 axes)   |   |                       |
| 4. Axis specification              | Operating axis   | Max. operating range  | Max. speed            |
|                                    | Arm rotation (JT1)   | +180° - 180°  | 80° /s                |
|                                    | Arm out-in (JT2)   | +90° - 45°  | 70° /s                |
|                                    | Arm up-down (JT3)  | +20° - 115°   | 70° /s                |
|                                    | Wrist swivel (JT4)   | +360° - 360°  | 80° /s                |
|                                    | Wrist bend (JT5)   | +110° - 110°  | 80° /s                |
|                                    | Wrist twist (JT6)  | +360° - 360°  | 120° /s               |
|                                    | Linear traverse ( - )  | 2000 mm (Standard)  | 1000 mm/s             |
| 5. Repeatability                   | ±0.5 mm (at the tool mounting surface)   |   |                       |
| 6. Max. payload                    | 350 kg   |   |                       |
| 7. Max. linear interpolation speed | 2000 mm/s  |   |                       |
| 8. Load capacity of wrist          |  | Max. torque   | Moment of inertia*    |
|                                    | JT4  | 2740 N·m  | 400 kg·m <sup>2</sup> |
|                                    | JT5  | 2740 N·m  | 400 kg·m <sup>2</sup> |
|                                    | JT6  | 1960 N·m  | 259 kg·m <sup>2</sup> |
|                                    | Note* Each value in this table shows allowable moment of inertia of JT4/JT5/JT6 when max. allowed torque is applied to each axis. If more detailed data is required for your application, please contact Kawasaki. |   |                       |
| 9. Driving motor                   | Brushless AC Servomotor  |   |                       |
| 10. Working range                  | See attached drawing.  |   |                       |
| 11. Mass                           | 2800 kg (without options)  |   |                       |
| 12. Color                          | Munsell 10GY9/1 equivalent   |   |                       |
| 13. Installation                   | Floor mounting   |   |                       |
| 14. Built-in utilities             | Pneumatic piping (φ 12 × 2lines)   |   |                       |
|                                    | Wirings for valves to operate the hand (DC24 V × 7 circuits)   |   |                       |
| 15. Environment cond.              | (Temperature) 0 ~ 45 °C, (Humidity) 35 ~ 85 %, no dew, nor frost allowed   |   |                       |
| 16. Options                        | Color  | Color (Munsell )  |                       |
|                                    | Mechanical stopper   | JT1, JT2, JT3   |                       |
|                                    | Limit switch   | JT1, JT2, JT3   |                       |
|                                    | Solenoid valves  | Double solenoid valve × 2 Double solenoid valve × 3             |                       |
|                                    | Optional harness   | Type C0, Type H0(NPN), Type H0(PNP), Type E0(NPN), Type E0(PNP) |                       |
|                                    | Servo on lamp  | Comply UL Standard  |                       |
|                                    | Jig for conveyance   | Fork pockets  |                       |
|                                    | 17. Others   | Consult Kawasaki about maintenance parts and spare parts.       |                       |

| [2] Controller                    |   |   |
|-----------------------------------|---|---|
| 1. Model                          | E04   |   |
| 2. Enclosure                      | Enclosed structure / Indirect cooling system  |   |
| 3. Dimensions                     | See attached drawing  |   |
| 4. Number of controlled axes      | Max.8 axes (standard 6 axes, option 2 axis)   |   |
| 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   | Joint, Linear, Circular (option) interpolation        |
| 7. Teaching method                | Teaching or AS language programming   |   |
| 8. Memory capacity                | 8 MB  |   |
| 9. External operation signals     | External Emergency stop, External Hold, etc.  |   |
| 10. Number of IO slots            | 3 slots   |   |
| 11. Operation panel               | Teach/Repeat SW, Emergency Stop SW, Control power lamp  |   |
| 12. Communication I/F             | Ethernet(100BASE-TX) , USB, RS-232C<br>each 2port (1port on panel, 1port inside controller)         |   |
| 13. Mass                          | See attached drawing  |   |
| 14. Power requirement             | AC200 V - AC220 V±10%, 50/60 Hz, 3 phases,<br>Max. 12 kVA   |   |
| 15. Ground                        | Less than 100 Ω (robot dedicated ground)<br>Leakage current: max. 100 mA                            |   |
| 16. Ambient temperature           | 0 - 45°C  |   |
| 17. Relative humidity             | 35 - 85 % (non-condensation)  |   |
| 18. Color                         | Munsell: 10GY9/1 equivalent   |   |
| 19. Teach Pendant                 | TFT color display (5.7 inch LCD) with touch panel<br>Emergency Stop SW, Teach Lock SW and Enable SW |   |
| 20. Safety Circuit                | Category: 4, Performance Level: e (EN ISO13849-1) ★   |   |
| 21. Standard Options              |   |   |
| General purpose IO board          | IN:32 OUT:32 NPN(sink) type or PNP(source) type   |   |
| TP sheet language                 | English or Japanese or Chinese  |   |
| I/O connector                     | D-SUB 37pin(male, female) with cover  |   |
| Power/Signal cable                | 5m, 10m, 15m  |   |
| Teach Pendant cable               | 5m, 10m, 15m  |   |
| Transformer unit                  | AC380V-415V / AC440V-480V by tap selection  |   |
| 22. Other Options                 |   |   |
| Additional IO board               | IN:64/96 OUT:64/96 NPN(sink) type or PNP(source) type   |   |
| Motor brake release               | Manual brake release switch BOX   |   |
| PC cable (RS-232C)                | 1.5 m, 3 m  |   |
| External axes control             | Additional amplifier for external axis  |   |
| Extended safety functions         | Cubic-S(Motion area monitoring, Joint monitoring, Speed monitoring etc.)                            |   |
| Teach Pendant option              | Connector for TP less   |   |
| Fast check mode                   | Fast check mode Switch  |   |
| Others                            | Field BUS, Software PLC, Analog input/output,<br>Conveyor Synchronization                           |   |
| 23. Others                        | Consult Kawasaki about maintenance parts and spare parts.   |   |

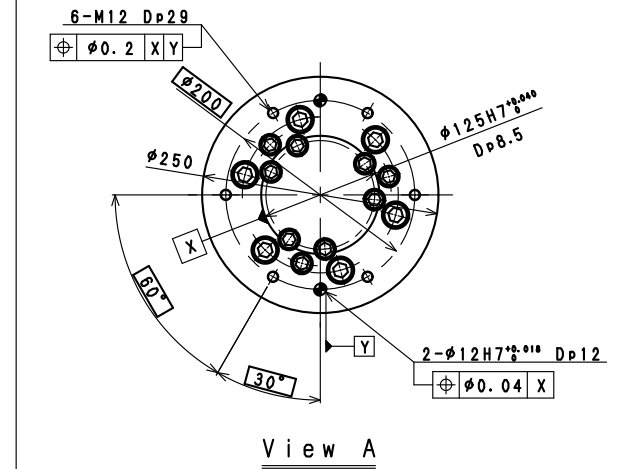
★ Category and Performance level (PL) are determined by the whole system and conditions.  
The safety circuit of this controller is available in the system of category: up to 4, PL: up to e.



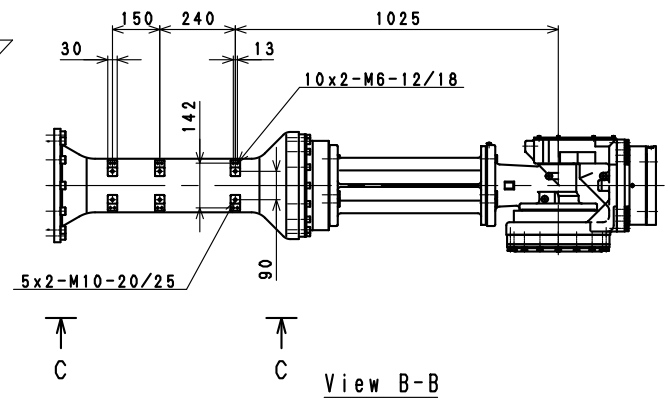
Installation Dimensions



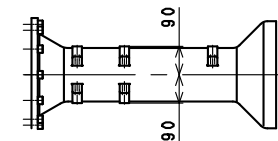
Working range based on point P



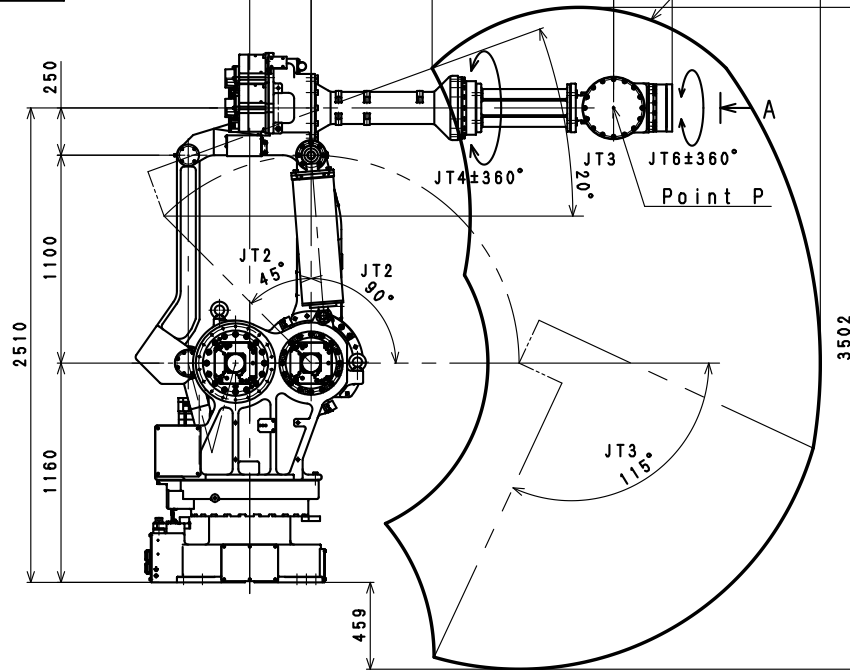
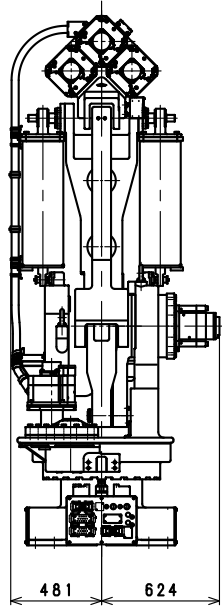
View A



View B-B



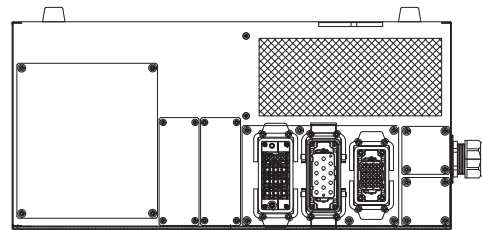
View C-C



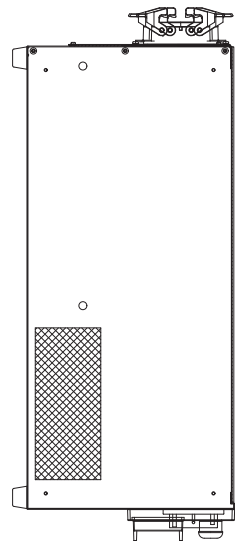
MX350L  
WORKING RANGE

E 0 4   C O N T R O L L E R

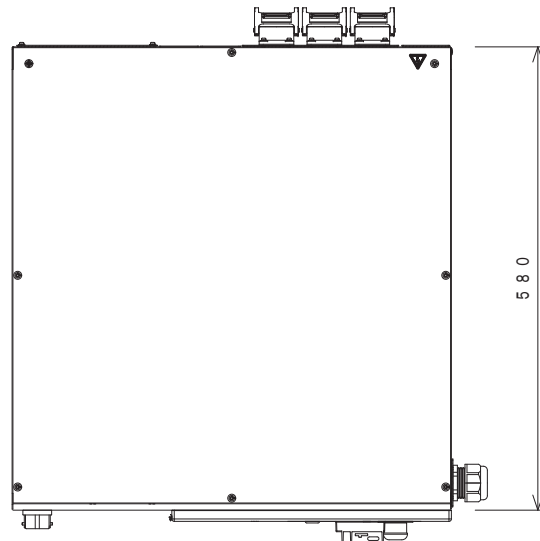
M A S S : 4 0 K g



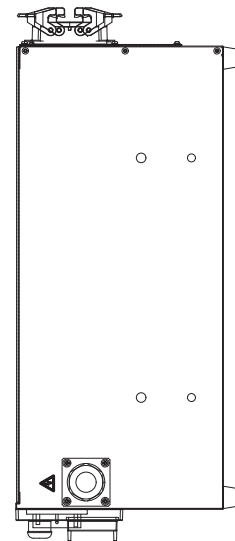
R E A R   V I E W



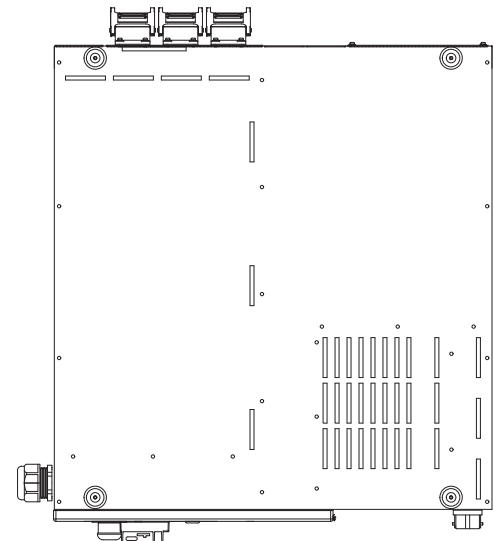
S I D E   V I E W



T O P   V I E W

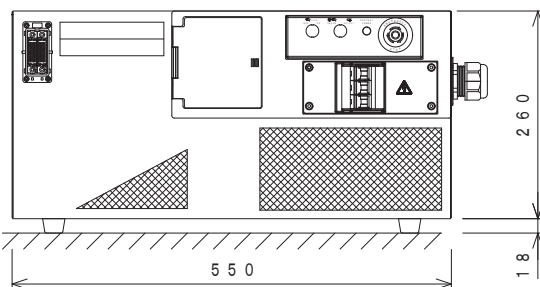
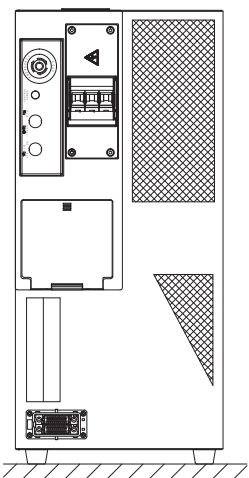


S I D E   V I E W



B O T T O M   V I E W

V e r t i c a l   M o u n t



F R O N T   V I E W

