Kawasaki Robotics

Standard specifications

MG15HL*E58

1st Edition : January 15, 2018
2nd Edition : January 18, 2019

KAWASAKI HEAVY INDUSTRIES, LTD.

ROBOT DIVISION

Specification :	90101-2814DEB
(Arm) :	90151-0180DEB
(Controller) :	90152-0052DEA

*・・・F,G,R,S…

1. Specification of Robot

[1] Robot Arm

1. Model	MG15HL-B
2. Type	Articulated robot
3. Degree of freedom	6 axes

4. Axis specification

Operating axis		Max. operating range	Max. speed
Arm rotation	(JT1)	+150 ° ～ -150 °	65 ° /s
Arm out-in	(JT2)	+90 ° ～ -40 °	33.5 ° /s
Arm up-down	(JT3)	+30 ° ～ -110 ° *	37.5 ° /s
Wrist swivel	(JT4)	±360 °	36 °/s
Wrist bend	(JT5)	±120 °	36 °/s
Wrist twist	(JT6)	±360 °	80 ° /s

Note* The value depends on load mass and load torque.

5. Repeatability	±0.10 mm (at the tool mounting surface)
6. Max. payload	1500 kg
7. Max. applying force	15000 N The value depends on usage conditions. If detailed data is required for your application, please contact Kawasaki.
8. Max. speed	5000 mm/s (at the tool mounting surface) * It isn't linear motion speed.

9. Load capacity of wrist

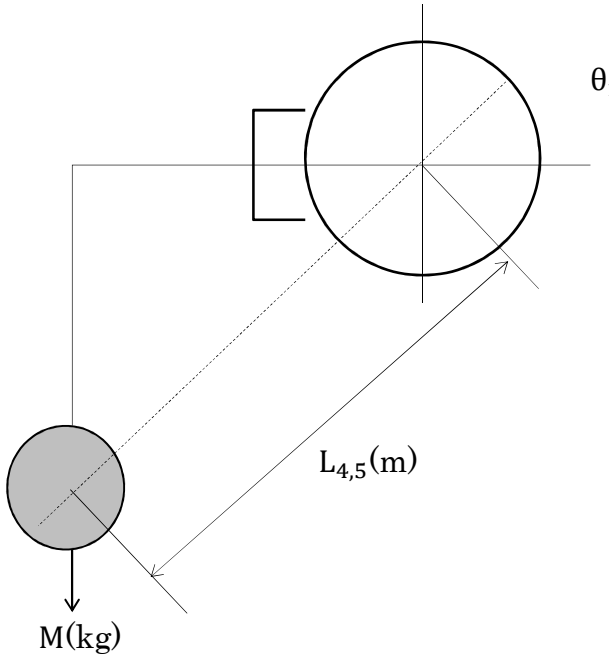
	Max. torque	Moment of inertia*
JT4	15000 N・m	2250 kg・m^2
JT5	15000 N・m	2250 kg・m^2
JT6	4410 N・m	1200 kg・m^2

Note* Value in this table shows allowable moment of inertia of JT4/JT5/JT6 when max. allowed torque is applied to the axis. If more detailed data is required for your application, please contact Kawasaki.

10. Driving motor	Brushless AC Servomotor
11. Position detector	Absolute encoder
12. Working range	See attached drawing
13. Mass	6550 kg (without options)
14. Color	Munsell 10GY9/1 equivalent
15. Installation	Floor mounting
16. Environment cond.	(Temperature) 0 ～ 45 °C, (Humidity) 35 ～ 85 %, no dew, nor frost allowed
17. Options	
Color	Color (Munsell)
Mechanical stopper	JT1
Solenoid valves	Double solenoid valve ×2 Double solenoid valve×3
Option harness	Type C0, Type H0(NPN), Type H0(PNP), Type E0(NPN), Type E0(PNP),
Air cleaning equipment	Filter, Regulator, Mistseparator
18. Others	Consult Kawasaki about maintenance parts and spare parts. Consult Kawasaki about your application because the motor could become high temperature depending on your application.

Upper motion range limit of arm up-down (JT3)

Upper motion range limit of JT3 axis varies depending on load mass (M) and length from JT4(5) axis rotation center to load center of gravity ($L_{4,5}$). This Length is limited by max. load torque. Upper motion range limit of JT3 axis can be calculated by the expression below. A relation among load mass, this length and upper motion range limit of JT3 axis is shown on Figure 1.



$$\theta_{max} = \frac{53362 - 18.290 \times M - L_{4,5} \times M \times 9.8}{825.343 - 0.178 \times M}$$

IF $\theta_{max} \geq 30°$, then $\theta_{max} = 30°$

θ_{MAX}	(°)	:Upper motion range limit of JT3 axis
M	(kg)	:Load mass (including workpiece)
$L_{4,5}$	(m)	:Length from JT4(5) axis rotation center to load center of gravity

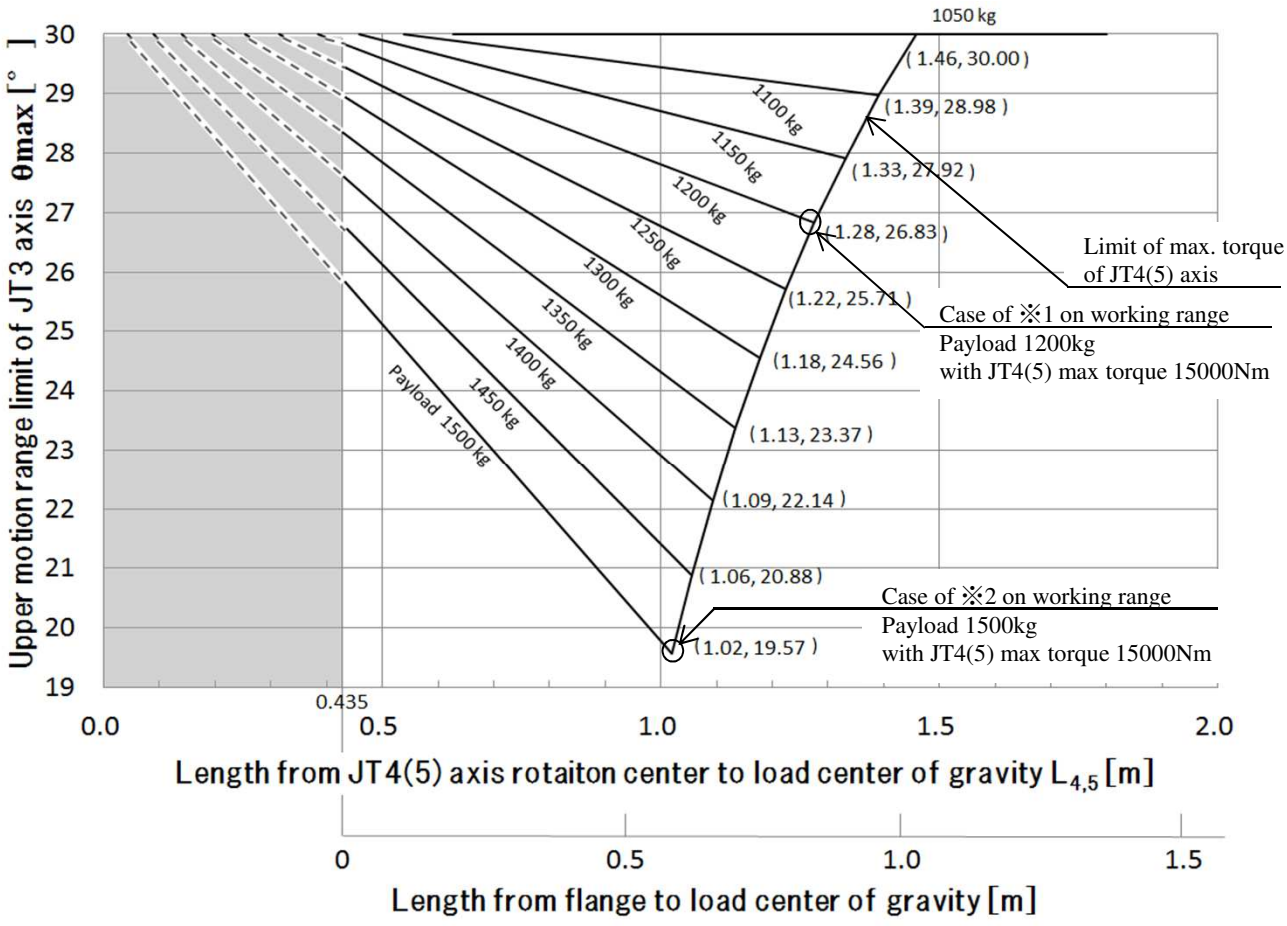
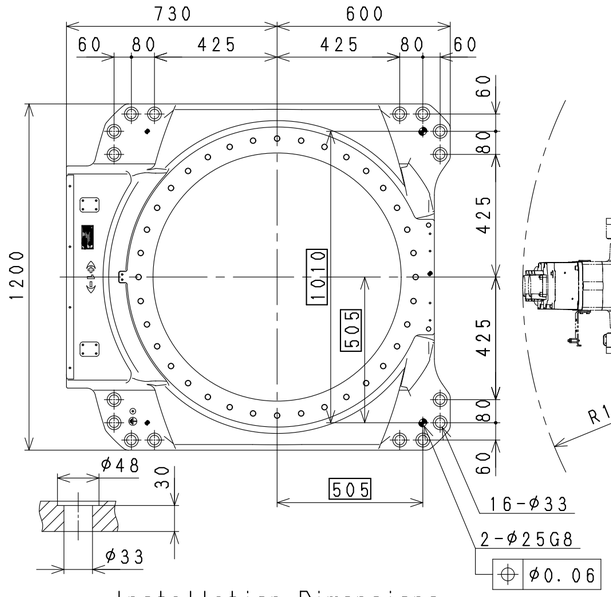


Figure 1 Relationship of load mass, length from JT4(5) axis rotation center to load center of gravity and upper motion range limit of JT3 axis

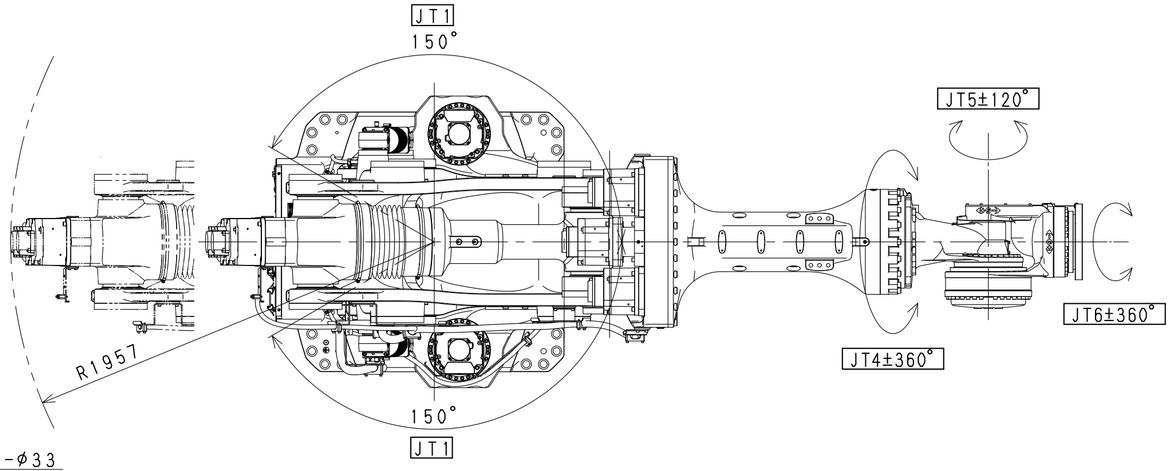
〔2〕Controller

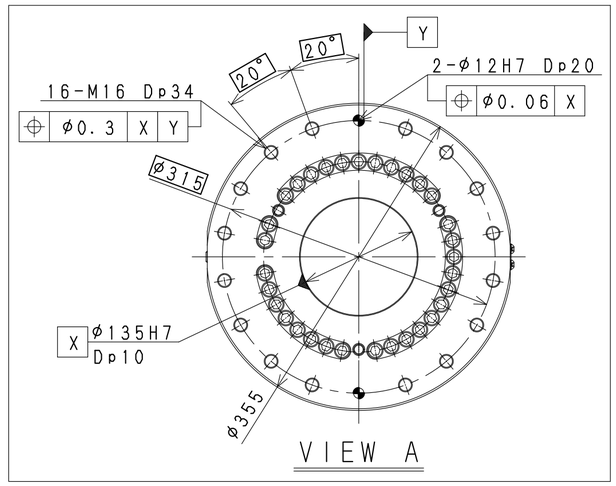
1.	Model	E58	
2.	Enclosure	Enclosed structure / Indirect cooling system	
3.	Dimensions	See attached drawing	
4.	Number of controlled axes	9 axes Max.15 axes (external additional amplifier, option)	
5.	Servo control and drive system	Full Digital Servo System	
6.	Type of control	Teach mode	Joint, Base, 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.	General purpose signals	Input signals	32 channels（Includes dedicated signals）
		Output signals	32 channels（Includes dedicated signals）
11.	Operation panel	Teach/Repeat SW, Emergency Stop SW, Control power lamp	
12.	Cable length	Power/Signal cable	5m
		Teach Pendant cable	5m
13.	Mass	See attached drawing	
14.	Power requirement	AC200 - AC220 V±10%, 50/60 Hz, 3 phases, Max 15 kVA	
15.	Ground	Less than 100 Ω (robot dedicated ground) Leakage current: max. 100 mA	
16.	Ambient temperature	0 - 45 ℃	
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 Emergency Stop SW, Teach Lock SW and Enable SW	
20.	Motor brake release	Manual brake release switch	
21.	Safety Circuit	Category: 4, Performance Level: e (EN ISO13849-1) ★	
22.	Options		
	General purpose signals	Input signals	64/96/128 channels
		Output signals	64/96/128 channels
	I/O connector	D-SUB 37pin (male, female) with cover	
	Operation panel	Motor Power ON, Cycle start, RUN/HOLD, Error reset, Error lamp	
	Power/Signal cable	10 m, 15 m	
	Teach Pendant cable	10 m, 15 m	
	Auxiliary storage	USB memory	
	Transformer	AC380V-415V / AC440V-480V by tap selection	
	PC cable	1.5 m, 3 m	
	Extended safety functions	Cubic-S (Motion area monitoring, Joint monitoring, Speed monitoring etc.)	
	Teach Pendant option	Teach Pendant Stand, Cable hook, connector for TP less	
	Fast check mode	Fast check mode Switch	
	Others	Cooler, LED Light, Field BUS, Software PLC, Analog input/output, Conveyor Synchronization	
23.	Others	Consult Kawasaki about maintenance parts and spare parts.	

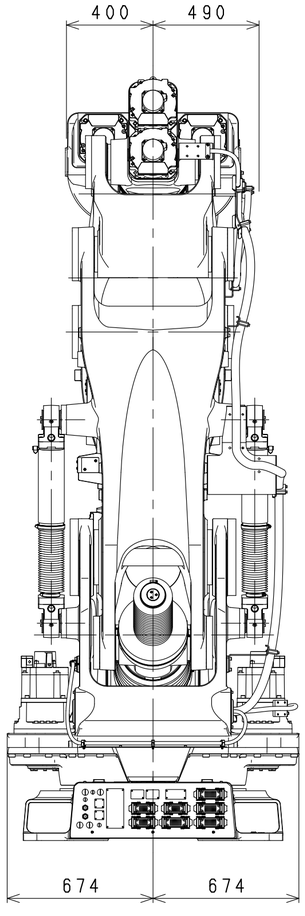
★ Category and Performance level (PL) are determined by the whole system and conditions.
The safety circuit of this controller is available in the system of category: up to 4, PL: up to e.

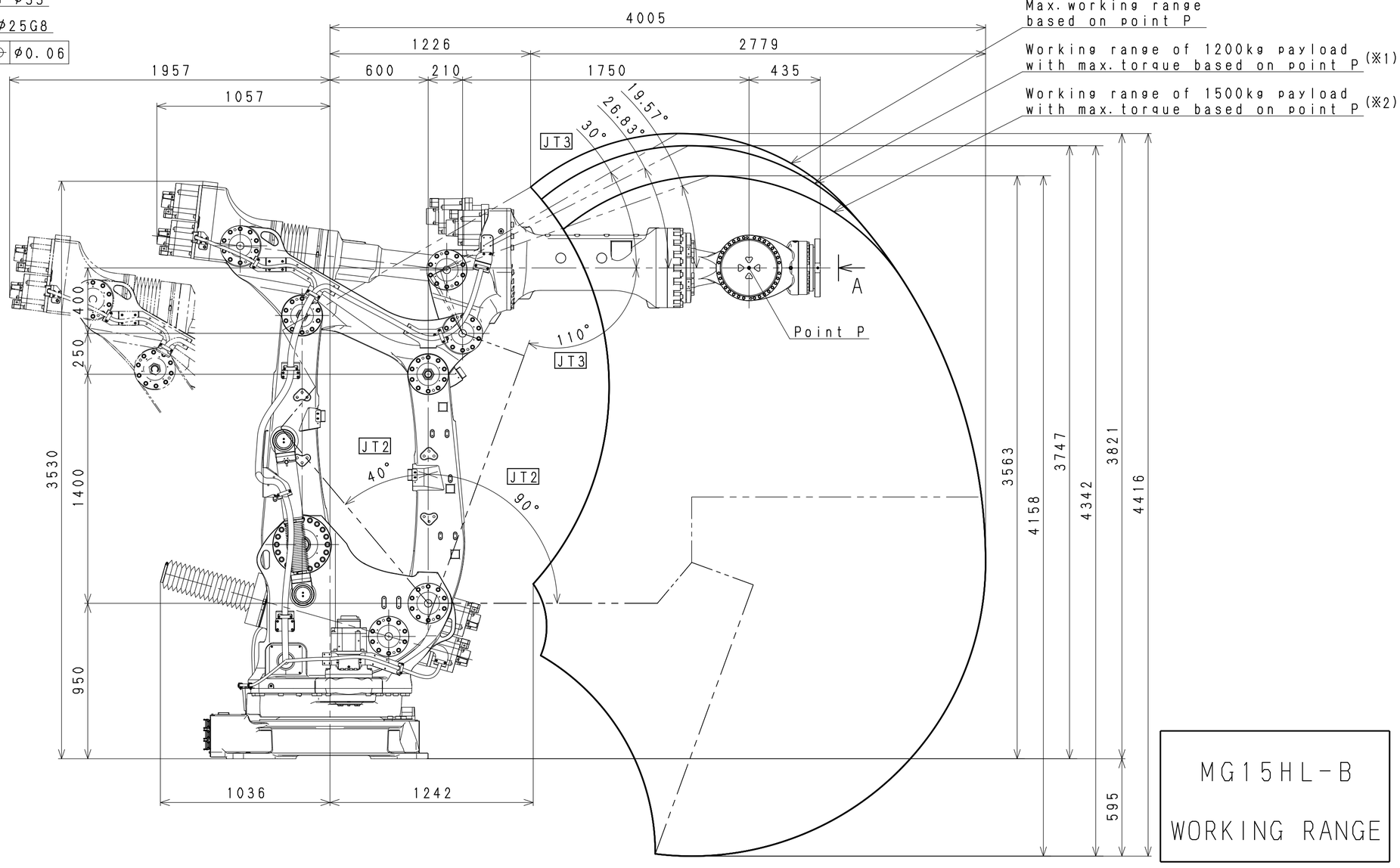


Installation Dimensions







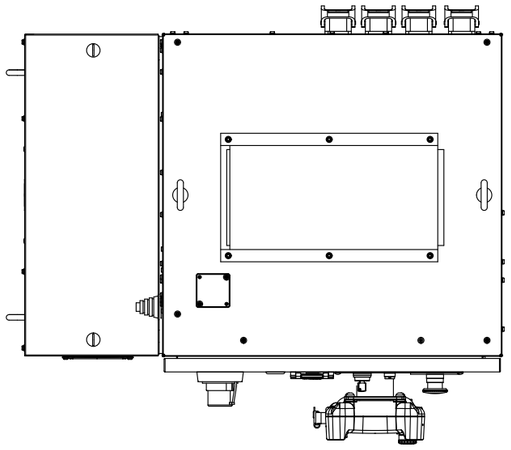


MG15HL-B

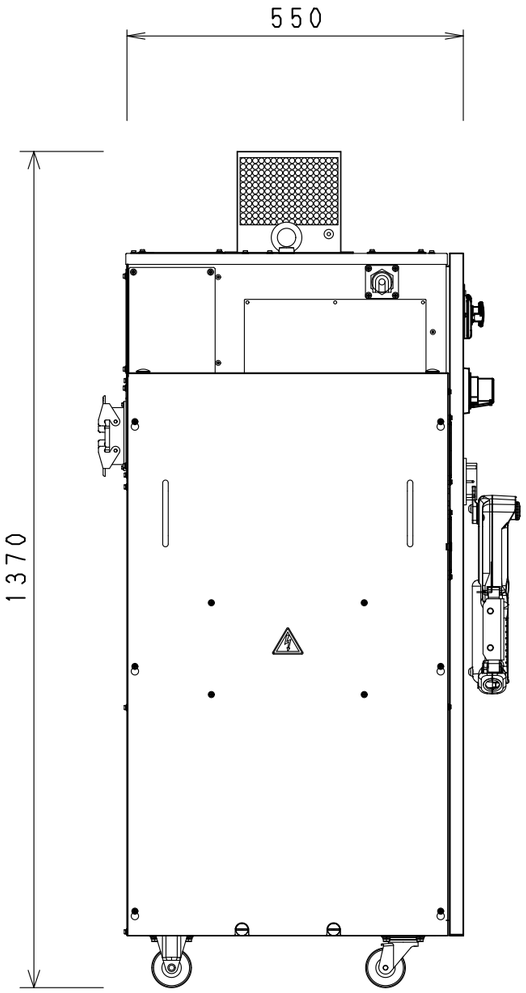
WORKING RANGE

E58 CONTROLLER

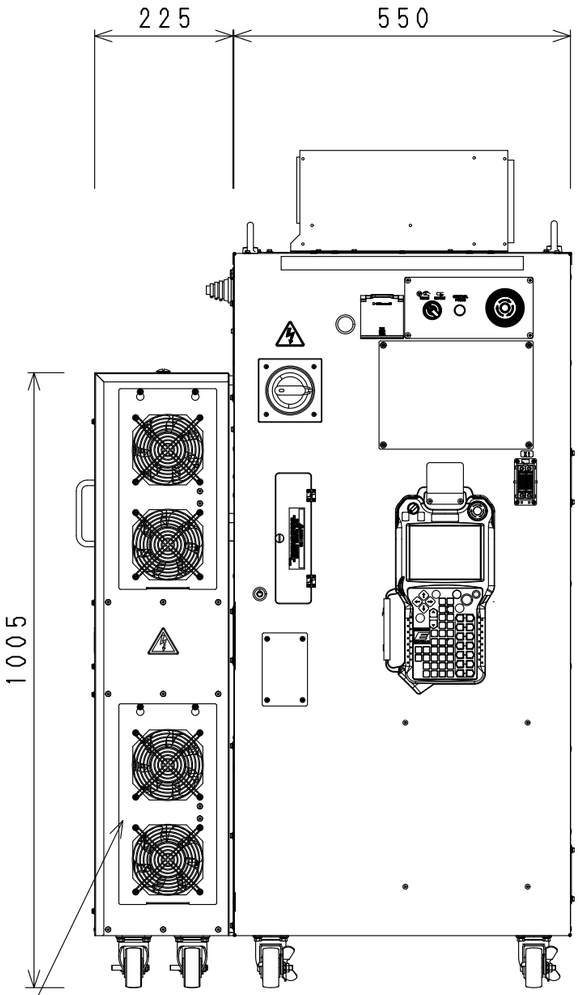
MASS:165kg(without primary power trans.)
MASS:215kg(with primary power trans.)



TOP VIEW

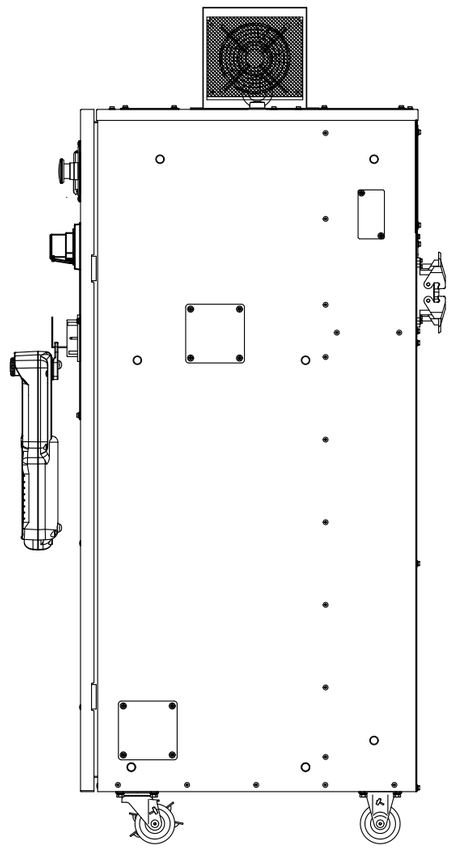


SIDE VIEW

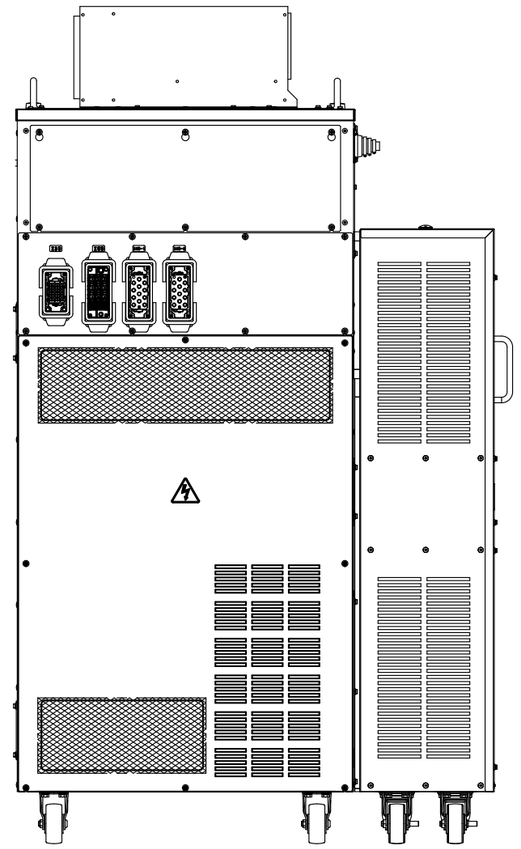


FRONT VIEW

Transformer FAN
(for primary power transformer spec.)



SIDE VIEW



REAR VIEW