

SPECIFICATION OF ROBOT

KF193EFE45

1st Edition : Dec.15.2011

KAWASAKI HEAVY INDUSTRIES LTD.

ROBOT DIV.

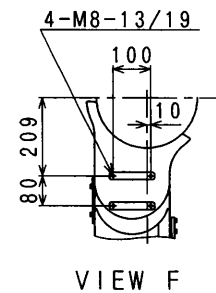
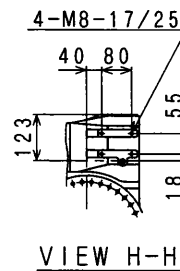
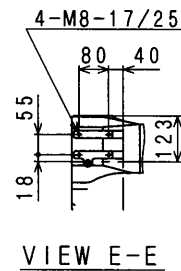
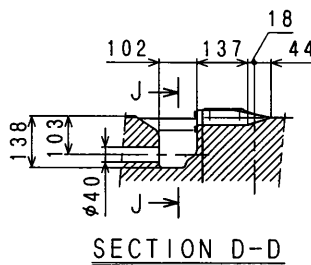
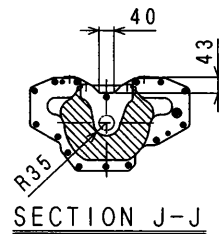
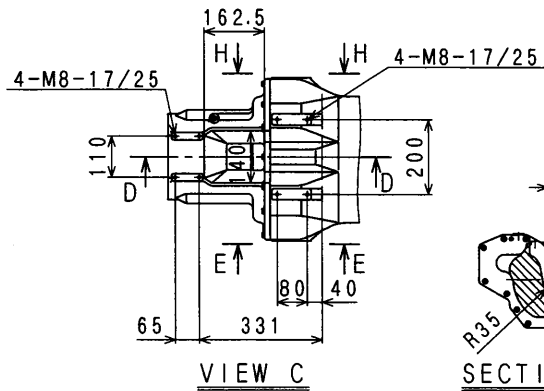
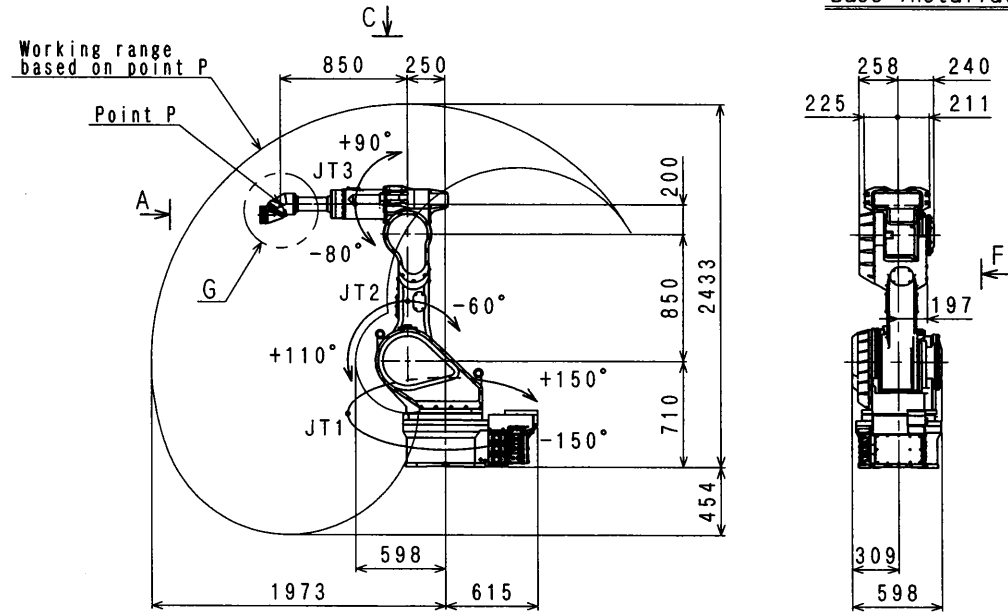
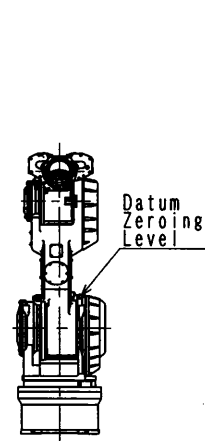
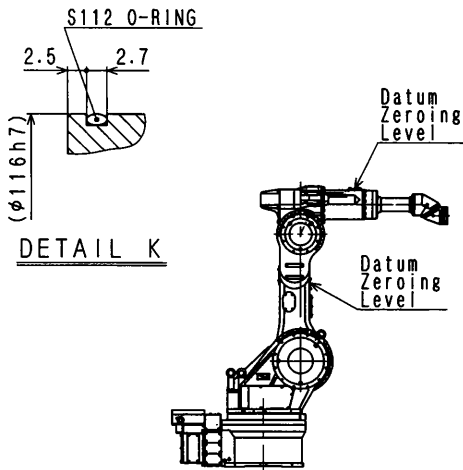
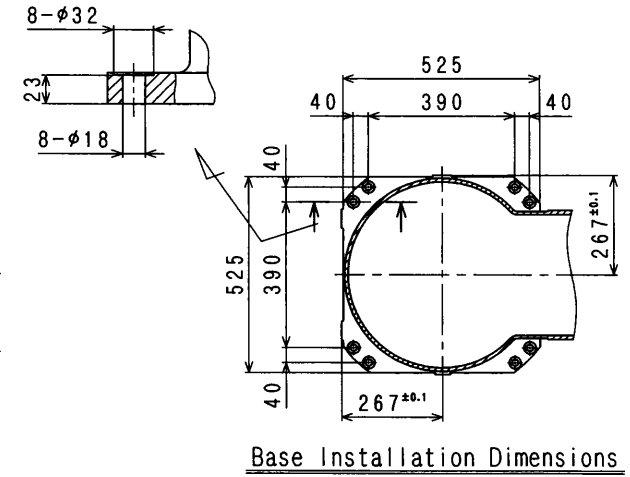
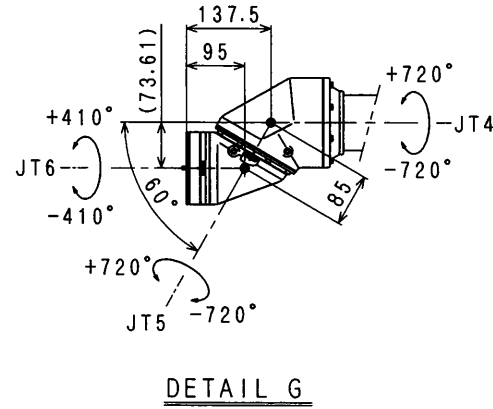
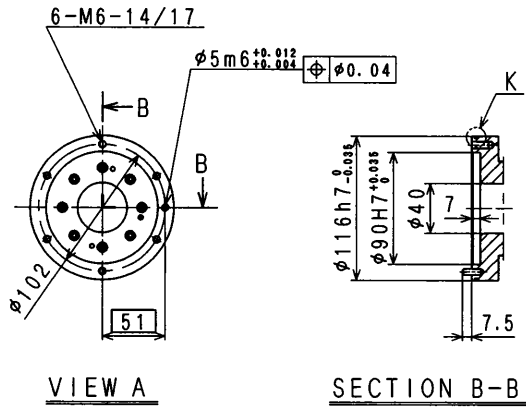
Doc, No : 90101 — 2039DEA

1. Specification of Robot

[1] Robot Arm

1. Model	KF193E-C001		
2. Type	Articulated robot		
3. Degree of freedom	6 axes		
4. Axis specification	Operating axis	Max. operating range	
	Arm rotation (JT1)	±150°	
	Arm out-in (JT2)	+110° ~ -60°	
	Arm up-down (JT3)	+90° ~ -80°	
	Wrist roll (JT4)	±720°	
	Wrist roll (JT5)	±720°	
	Wrist roll (JT6)	±410°	
5. Repeatability	±0.5 mm (at the tool mounting surface)		
6. Playback Accuracy	±1.0 mm (at the tool mounting surface)		
7. Max. payload	Wrist : 12 kg (at the tool mounting surface)		
	Upper arm : 20 kg (on the Upper Arm)		
8. Max. painting speed	1200 mm/s (at the center of tool mounting surface)		
9. Max. linear interpolation speed	2000 mm/s		
10. Load capacity of wrist			
		Max. torque	Moment of inertia*
	JT4	33.1 N·m	1.27 kg·m ²
	JT5	26.7 N·m	0.82 kg·m ²
	JT6	7.9 N·m	0.10 kg·m ²
	Note * Each value in this table shows allowable payload 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.		
11. Driving motor	Brushless AC Servomotor		
12. Working range	See attached drawing		
13. Mass	720 kg (without options)		
14. Color	Munsell 10GY9/1 equivalent		
15. Installation	Floor and Wall mounting		
16. Environment cond.	(Temperature) 0 ~ 40 °C, (Humidity) 35 ~ 85 %, no dew, nor frost allowed		
17. Explosion proof	Pressurized and intrinsically safe		
18. Air supply to the manipulator	Clean & dry air : 0.5 Nm ³ /min, 0.4~0.7 MPa		
	Dew point : -17 °C or less at atmospheric pressure.		
	Solid material : 0.01 μm or less		
	Oil content : Mist separation 99.9999% or more		
19. Options	Adjustable Mechanical Stopper : JT1/JT2/JT3		
	Jig set for Zeroing		
20. Others	Consult Kawasaki about maintenance parts and spare parts.		

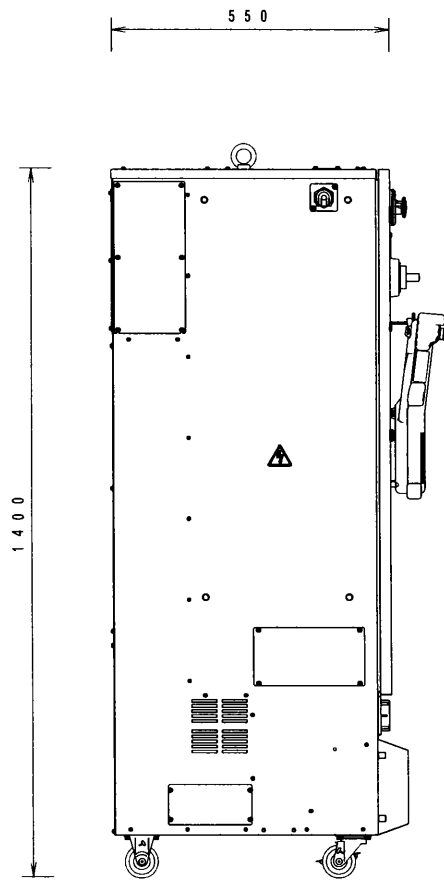
[2] Controller		
1. Model	E45/E47	
2. Construction	Self-supported type	
3. Dimensions	See attached drawing	
4. Number of controlled axes	6 axes 7/8/9 axes(built-in addition, option)	
5. Servo control and drive system	Full Digital Servo System	
6. Type of control	Teach mode	Joint, Base, Tool, Fixed Tool (option) operation mode
	Repeat mode	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	Basic Operation Switches (Teach/Repeat SW, Emergency Stop SW, Control power lamp)	
12. Cable length	Power/Signal cable in non hazardous area	3 m
	Power/Signal cable in hazardous area	3 m
	Teach Pendant cable	10 m
13. Mass	See attached drawing	
14. Power requirement	AC 380 - 415 V \pm 10%, 50/60 Hz, 3 phases, Max 5.1 kVA(E47), Max 7.3 kVA(E45)	
15. Ground	PE (Standard for Robots) Leakage current: max. 10 mA	
16. Ambient temperature	0 - 45 °C	
17. Relative humidity	35 - 85 % (non-condensation)	
18. Color	Munsell: 10GY9/1 equivalent	
19. Teach Pendant	Intrinsically safe construction, Color display (7.2 inch LCD) with touch panel Emergency Stop, Teach Lock and Deadman Switches	
20. AC Outlet	AC 220 - 240V Outlet (depends on Primary input voltage)	
21. Motor brake release	Manual brake release switch	
22. Safety circuit	Category3; Performance Level = d (EN ISO 13849-1:2008)	
23. Options		
General purpose signals	Input signals	64/96/128 channels (Includes dedicated signals)
	Output signals	64/96/128 channels (Includes dedicated signals)
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	in non hazardous area	5,7,10,15,20,25,30m
	in hazardous area	1,5,7,10,15m
		Total length: max. 40 m
Teach Pendant cable	5m, 15m, 20m, 25m	
Teach pendant Connector Box	in non hazardous area	3,5,7,10,15,20,25,30m
	in hazardous area	1,3,5,7,10,15,20,25,30m
		Total length: max. 50 m
Power requirement	AC 380 - 415 V, AC 440 - 480 V, AC 515 V, AC 575 V \pm 10%, 50/60 Hz, 3 phases, Max 7.3 kVA(E45/E47)	
Auxiliary storage	USB memory	
PC cable	1.5 m, 3 m	
Teach Pendant option	Cable hook, connector for TP less	
Others	LED Light, Field BUS, Software PLC, Analog input/output, Conveyor Synchronization, Paint Equipment Control and so on	
24. Others	Consult Kawasaki about maintenance parts and spare parts.	



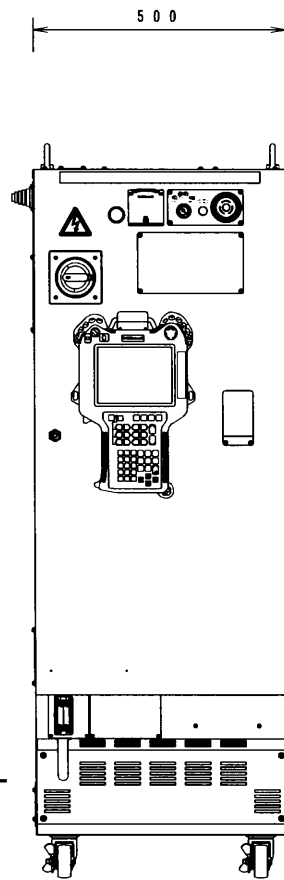
KF193E
WORKING RANGE

E 4 5 C O N T R O L L E R

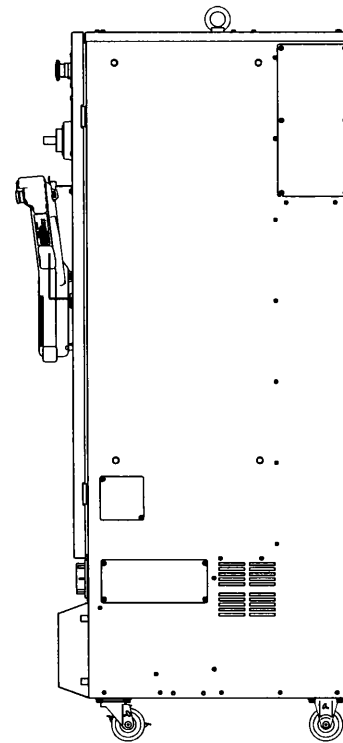
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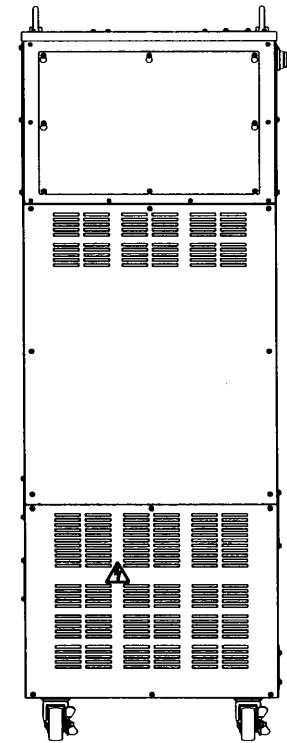
S I D E V I E W



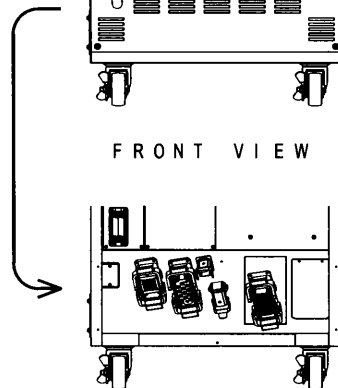
F R O N T V I E W



S I D E V I E W



R E A R V I E W



W I T H O U T C O N N E C T O R C O V E R