

## Standard specifications

WD002NLF61602

**duAro**  
Q A

1st Edition: March 19, 2019

2nd Edition: June 13, 2019

KAWASAKI HEAVY INDUSTRIES, LTD.

ROBOT DIVISION

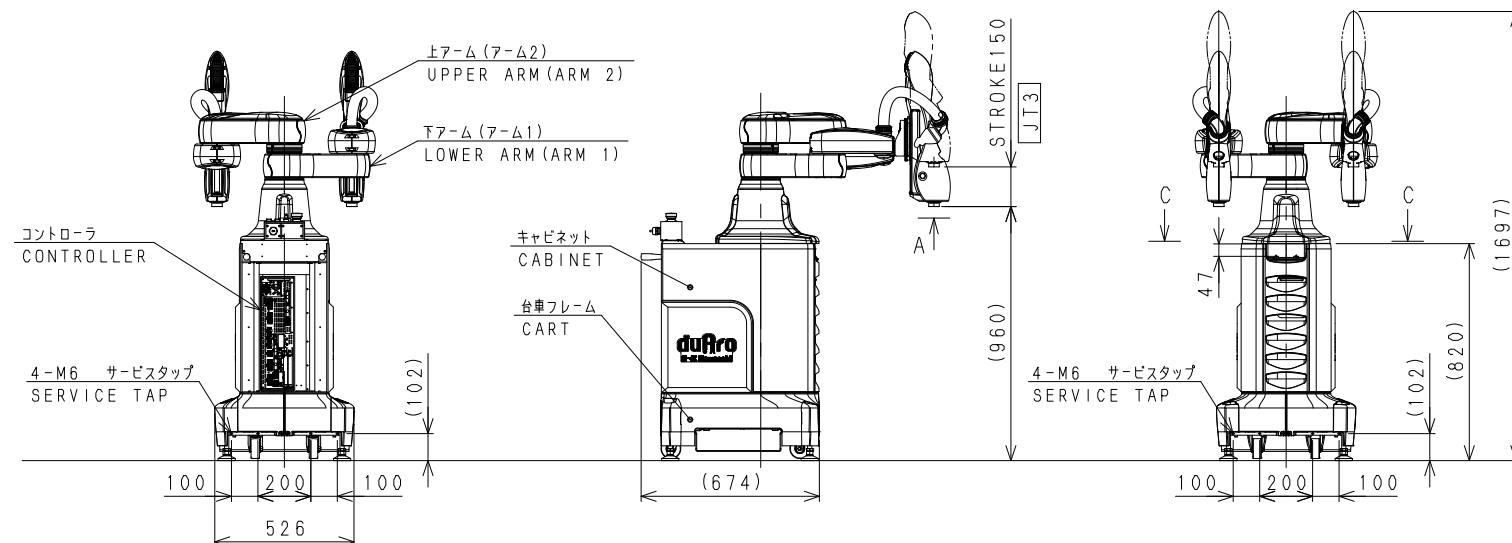
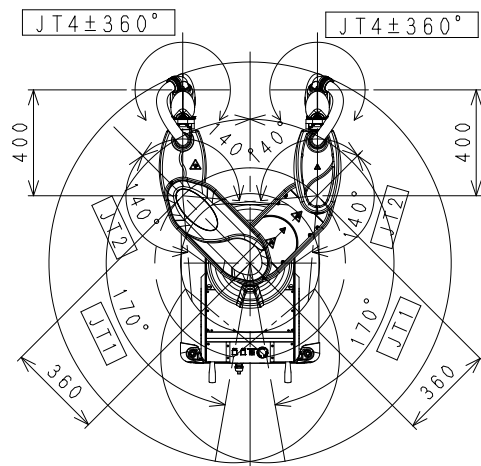
Specification : 90101-2912DEB

## 1. Robot Specifications

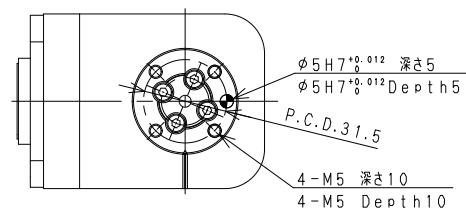
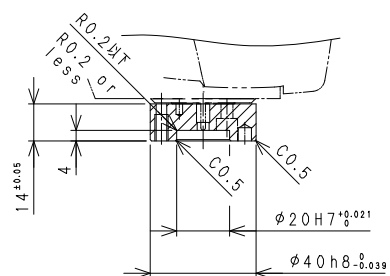
[1] Robot Arm					
1.	Model	WD002NF602			
2.	Type	Horizontal articulated robot			
3.	Degree of freedom	4 axes each arm			
4.	Axis specification	Operating axis		Max. operating range	Remarks
		Lower arm (Arm 1)	Arm rotation (JT1)	− 170 ° ∼ + 170 °	
			Arm rotation (JT2)	− 140 ° ∼ + 140 °	
			Arm up-down (JT3)	0mm ∼ + 150mm	
			Wrist swivel (JT4)	− 360 ° ∼ + 360 °	
		Upper arm (Arm 2)	Arm rotation (JT1)	− 140 ° ∼ + 500 °	
			Arm rotation (JT2)	− 140 ° ∼ + 140 °	
			Arm up-down (JT3)	0mm ∼ + 150mm	
Wrist swivel (JT4)	− 360 ° ∼ + 360 °				
5.	Repeatability	±0.05mm (at the tool mounting surface)			
6.	Max. payload	2kg each arm (4kg both arms)			
7.	Load capacity of wrist	Joint No.	Moment of Allowable load	Moment of inertia*1	
		JT4	3.9 N・m	0.086 kg・m <sup>2</sup>	
8.	Driving motor	Synchronous brushless motor JT1:80W、JT2:80W、JT3:80W、JT4:50W			
9.	Working range	Refer to the attached drawings.			
10.	Mass	Integrated: About 207kg , Separation: About 87kg (without options)			
11.	Color	Arm: Equivalent to Munsell N-95			
12.	Installation	Floor mounting			
13.	Air pressure requirement	0.2∼0.6MPa			
14.	Installation environment	Ambient temperature	5 - 40℃	*2	
		Storage temperature	-25 - 70℃	*2	
		Relative humidity	35 - 85 % (non-condensation)	*2	
		Altitude	0 - 1000m	*2	
15.	Build-in (include) items	Air tube, φ6 each arm.			
		Build-in solenoid valves (two-position double solenoid valves, 2 valves on each arm)			
		Arm ID board (input signals : 12, output signals : 8 channels each arm)			
		*output signals are not available if build-in solenoid valve option is occupied.			
16.	Options	Air filter-regulator-mist separator combination			
		Additional solenoid valve (max. 4 double-solenoid valves for each arm)			
17.	Others	Please contact Kawasaki for maintenance parts and spare parts.			
*1 Please contact Kawasaki for details.					
*2 Please contact Kawasaki for the use of exceeding the conditions described above.					

[2] Controller		
1. Model of controller	F61	
2. Structure	Outside air intake cooling system	
3. Dimensions	Refer to the attached drawings.	
4. Number of controlled Axes	Max. 10 axes (standard:4 axes each arm, option:2 axes)	
5. Drive system	Full digital servo	
6. Types of motion control	Manual mode	Coordinated arm operation, Single arm operation (Interpolation mode)Joint, Base, Tool operation mode
	Auto mode	Coordinated arm operation, Single arm operation (Interpolation mode) joint, Linear
7. Teaching method	Direct teaching or Simple programming by tablet	
8. Memory capacity	16 MB	
9. External operation signals	External Emergency stop	
10. Number of option board slots	2 slots	
11. Operation panel	Manual/Auto SW, Start/Stop SW, Emergency Stop SW	
12. Communication I/F	Ethernet (1000BASE-T/100BASE-TX/10BASE-T)	2 port
	RS-232C	1 port
	USB2.0	2 ports *option
	USB3.0	1 ports *option
13. Mass	Refer to the attached drawings.	
14. Power requirement	AC200-AC230V ± 10% , 50/60Hz±2% , single phase, Max. 2.0kVA *1	
15. Ground	Less than 100 Ω (robot dedicated ground), Leakage current: max. 10 mA	
16. Ambient temperature	5～40 °C	
17. Relative humidity	35 - 85 % (non-condensation)	
18. Color	Munsell 5Y8.5/1 equivalent	
19. General purpose signals	Input : 16, Output : 16	
20. Options	Power/Signal cable	
	Operation BOX	
	Number of additional I/O signals (IN:32 OUT:32 - max IN:64 OUT:64)	
	Field BUS	
	Primary power source cable	
	Tablet PC(Android OS) with application software	
	Cubic-S *3	
21. Others	Please contact Kawasaki for maintenance parts and spare parts.	
<div>*1 Inrush current several to ten of times as many as steady current shall be caused instantaneously when the power is supplied or servo is turned on. Ensure to have enough power supply for the instantaneous high intensity since power supply voltage may drop because of the inrush current.</div> <div>*2 Please contact Kawasaki for the use of exceeding the conditions described above.</div> <div>*3 Cubic-S is safety unit that shut off the power of robot based on ISO10218-1, when the robot motion is over the range, or detect external force.</div>		

duAro1 一体型  
duAro1 INTEGRATED

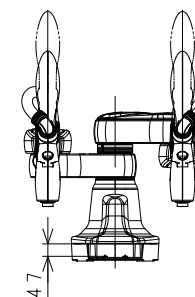
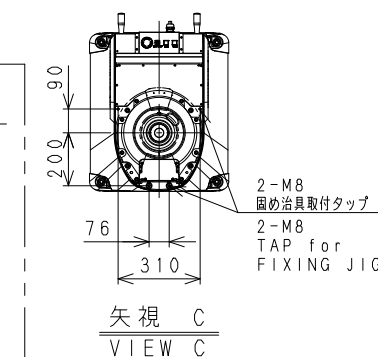
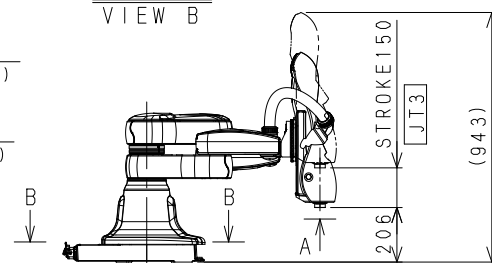
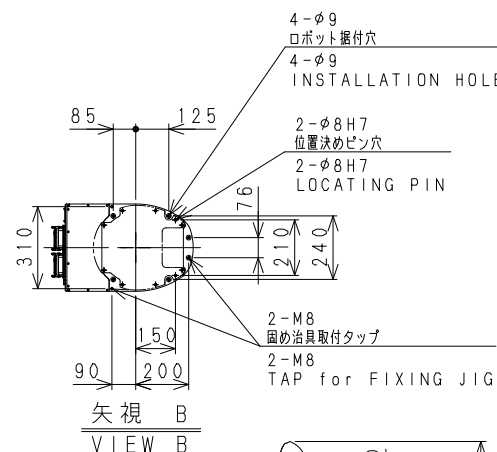
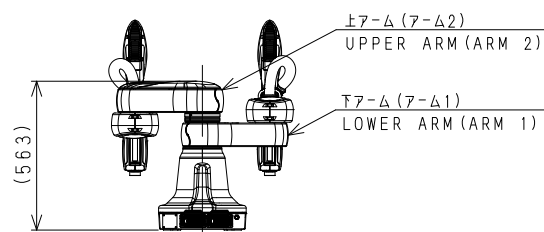
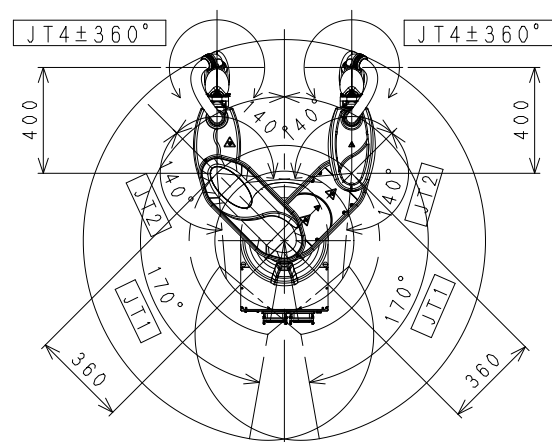


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SEPARATION TYPE



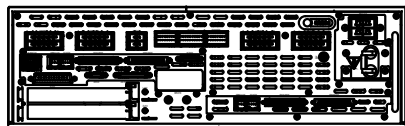
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V I E W A (Scale=1/2)

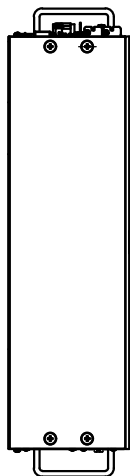


F61 CONTROLLER

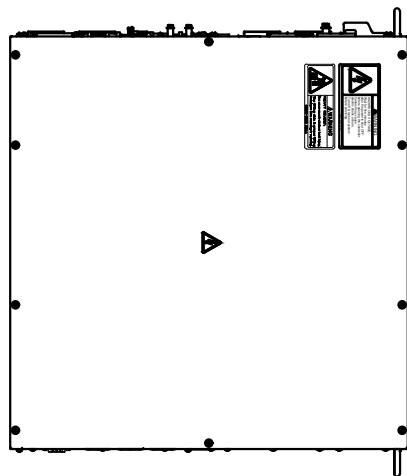
MASS: 13.7Kg (Without any options)



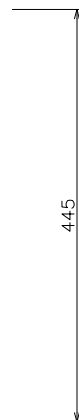
REAR VIEW



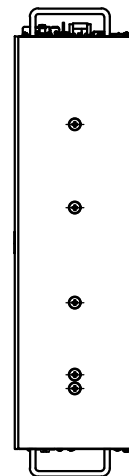
SIDE VIEW



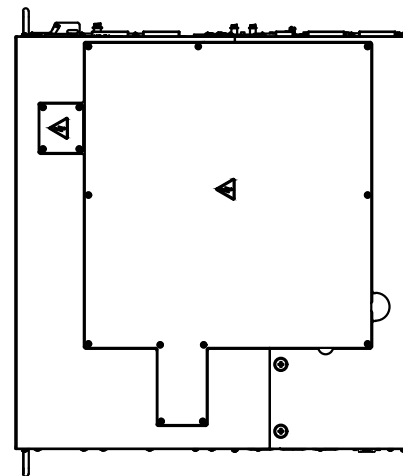
TOP VIEW



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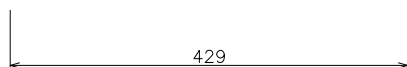
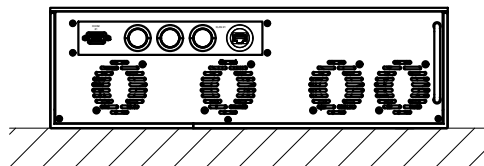
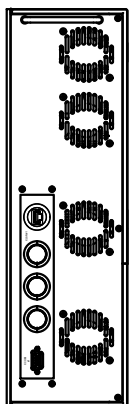


SIDE VIEW



BOTTOM VIEW

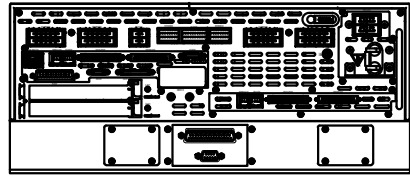
VERTICAL MOUNT



FRONT VIEW



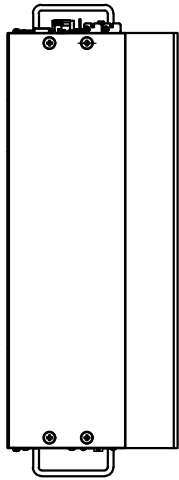
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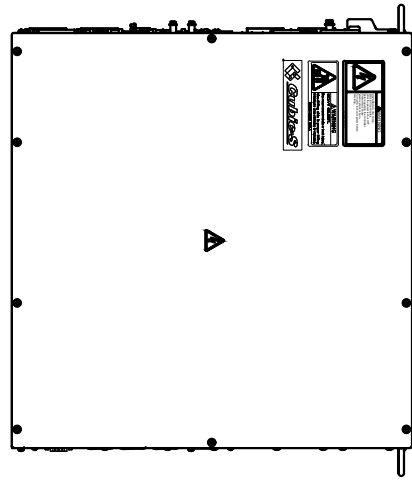
REAR VIEW

# F61 CONTROLLER

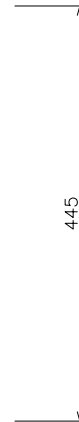
MASS: 18.1Kg (With Cubic-S options)



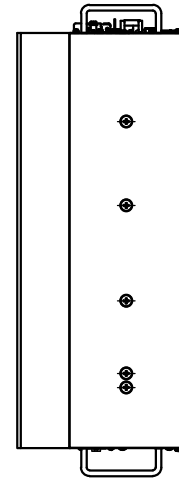
SIDE VIEW



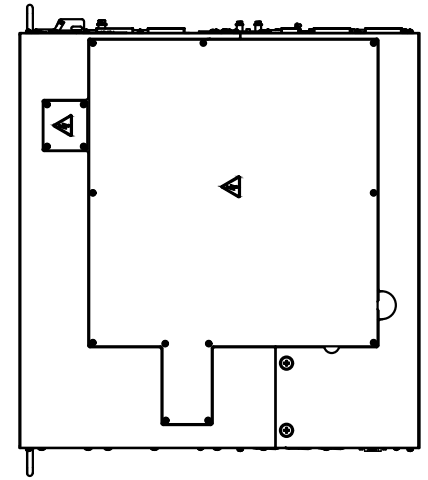
TOP VIEW



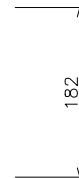
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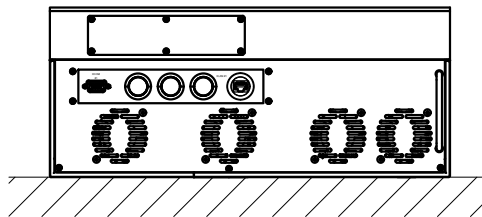
SIDE VIEW



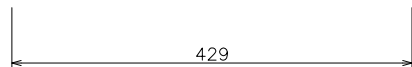
BOTTOM VIEW



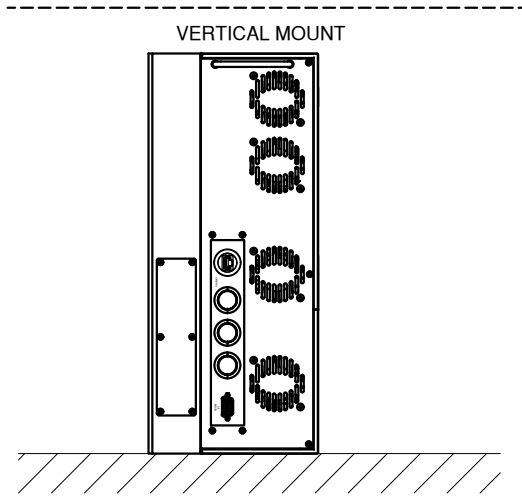
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FRONT VIEW



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VERTICAL MOUNT