

SPECIFICATION OF ROBOT

MD400NED44

3rd Edition : Dec.16.2004

KAWASAKI HEAVY INDUSTRIES LTD.
ROBOT DIV.

Doc, No: 90101-1531DEC

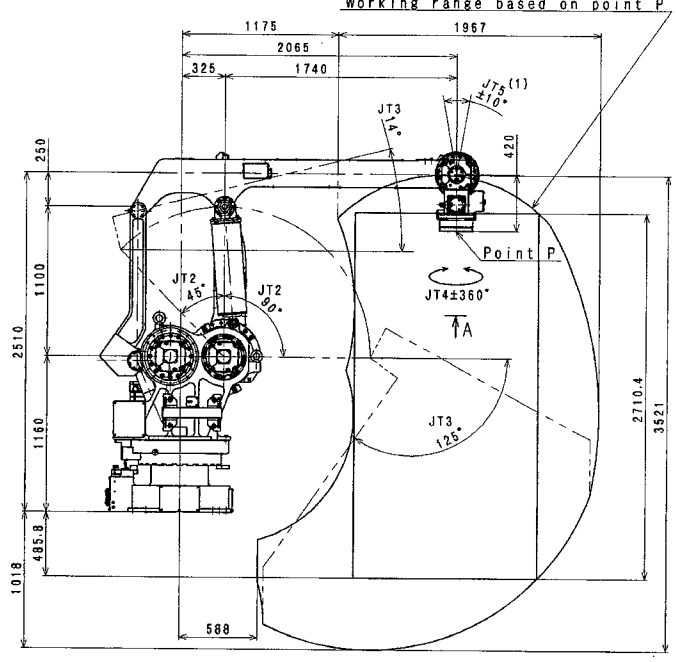
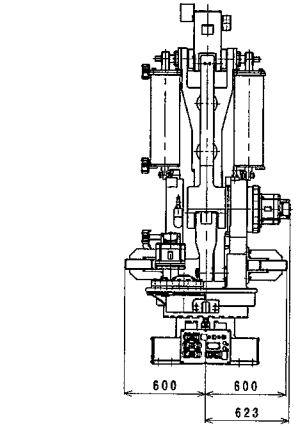
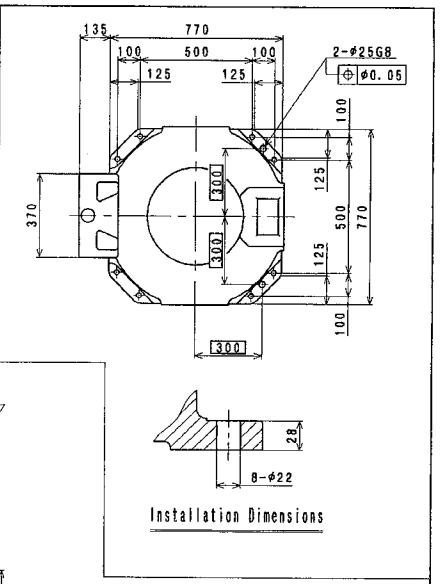
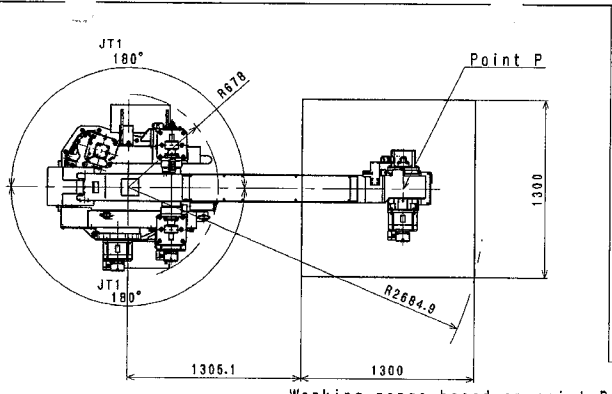
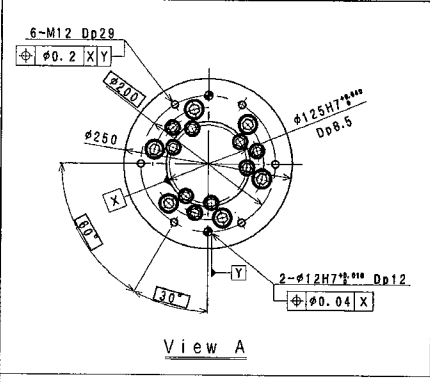
1. Specification of Robot

[1] Robot Arm

1. Model	MD400N-A		
2. Type	Articulated robot		
3. Degree of freedom	5 axes (Option 6 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)	+ 14° ~ -125°	70°/s
	Wrist swivel (JT4)	+360° ~ -360°	180°/s
	Wrist bend (JT5)	+ 10° ~ - 10°*	—
	Linear traverse (—)	2000 mm (Standard)	1000 mm/s
	Note* Working range of JT5 is ±10° to the vertical direction.		
5. Palletizing Capacity (Maximum)	Approx. 740 cycles/h (400 kg)		
	On the condition that robot moves 400 mm stroke upward-downward and 2000 mm stroke in right-left direction.		
6. Repeatability	±0.5 mm		
7. Max. payload	400 kg		
8. Max. linear interpolation speed	2000 mm/s		
9. Load capacity of wrist		Max. torque	Moment of inertia*
	JT4	—	200 kg·m ²
	Note* Value in this table shows allowable moment of inertia of JT4 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. Working range	See attached drawing		
12. Mass	2650 kg (without options)		
13. Color	Munsell 10GY9/1 equivalent		
14. Installation	Floor mounting		
15. Environment cond.	(Temperature) 0 ~ 45 °C, (Humidity) 35 ~ 85 %, no dew, nor frost allowed		
16. Built-in utilities	Air tube to operate the hand (φ 12 × 1 line)		
	Air tube for vacuum (φ 12 × 1 line)		
	Wirings for valves to operate the hand (DC24 V × 7 circuits)		
	Sensor harness to operate the hand (4 circuits)		
17. Options	Adjustable mechanical stoppers JT1/JT2/JT3		
	Limit switches JT1/JT2/JT3		
	Fork pocket		
	Guide protector for wrist motors		
	Signal harness, wired inside robot arm		
	Sensor harness, wired inside robot arm		
	Valve harness, wired inside robot arm		
	Hand (for box gripping)		
	Hand (for bag gripping)		
	Hand (for vacuum, blower)		
	Color (Munsell)		
	Traverse unit (Stroke mm)		
	Pneumatic pipings for blower (φ 1 in. × 1 line)		
	Air cleaning equipment (filter, regulator, mistseparator)		
18. Others	Consult Kawasaki about maintenance parts and spare parts.		

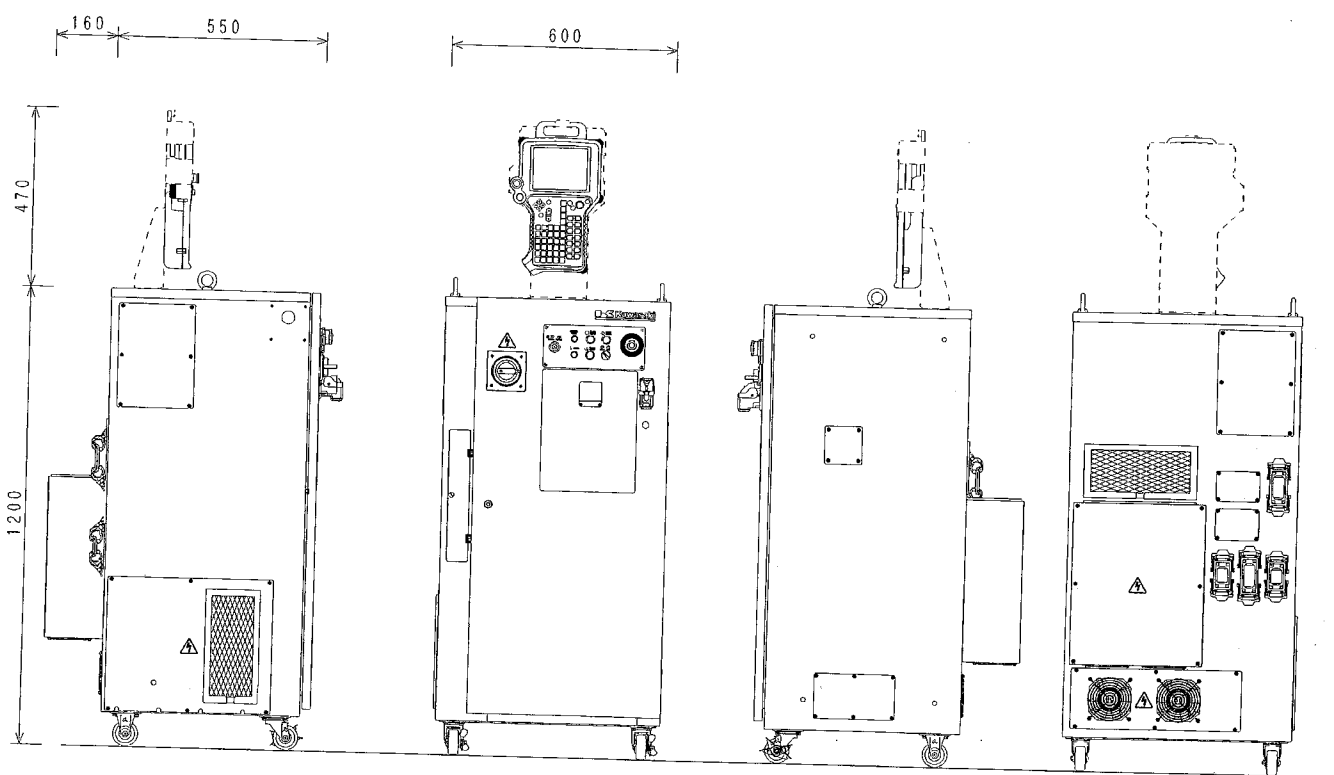
[2] Controller

1. Model	D40/D42/D43/D44	
2. Construction	Self-supported type	
3. Dimensions	See attached drawing	
4. Number of controlled axes	6 axes for D40/D42/D44, 4 axes for D43(Std.), 5 axes for D44-MD(Std.) 7/8 axes(built-in addition,option), Max.16 axes(external addition by amplifier built-in motor, 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	1 MB (Includes system memory)	
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 (Motor Power On, Cycle Start, Error Reset, Emergency Stop, Hold/Run, Teach/Repeat)	
12. Cable length	Power/Signal cable	10 m
	Teach Pendant cable	10 m
13. Mass	155 kg(D40), 190 kg(D42/D44), 200 kg(D43, D44-MD) with transformer	
14. Power requirement	AC380/400/415/440 V±10% with transformer, 50/60 Hz, 3 phases, 5.9 kVA(D40), 11.4 kVA(D42/D43/D44)	
15. Ambient temperature	0 - 45 °C	
16. Relative humidity	35 - 85 % (non-condensation)	
17. Ground	Less than 100 Ω (robot dedicated ground) Leakage current: max. 10 mA	
18. Color	Munsell: 10GY9/1 equivalent	
19. Teach Pendant	Color display (6.4 inch LCD) with touch panel Emergency Stop, Teach Lock and Deadman Switches 58 hardware keys	
20. Auxiliary storage	PC card interface	
21. Options		
Memory capacity	4 MB (Includes system memory)	
General purpose signals	Input signals	64/96/128 channels (Includes dedicated signals)
	Output signals	64/96/128 channels (Includes dedicated signals)
Power/Signal cable	5 m, 15 m	
Teach Pendant cable	5 m, 15 m	
PC card	16/32/64/128 MB	
Memory storage	FD drive	
PC cable	1.5 m, 3 m	
Others	Built-in vision board, built-in PLC, LAN, Interbus-S, analog input and so on	
22. Others	Consult Kawasaki about maintenance parts and spare parts.	



Note (1) Working range of JT5 is $\pm 10^\circ$ to the vertical direction.

MD400N
 WORKING RANGE



SIDE VIEW

FRONT VIEW

SIDE VIEW

REAR VIEW

D44 (MD) CONTROLLER