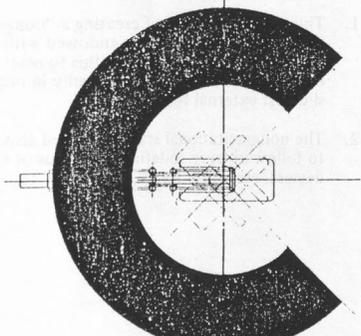
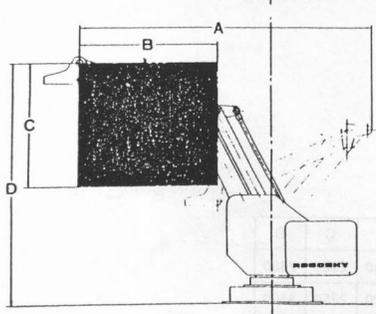
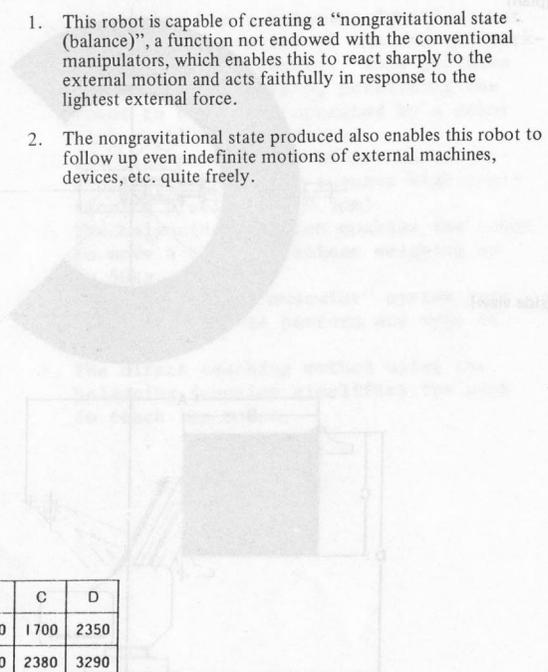
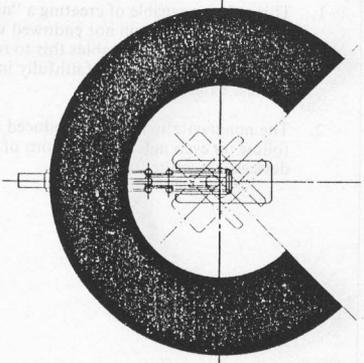
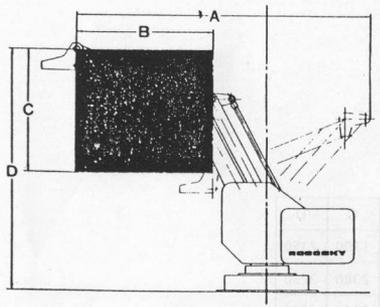


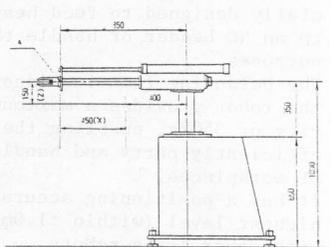
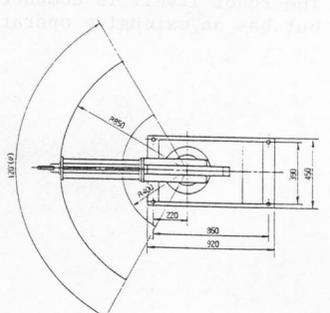
Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		16-13, Nishi-shinjuku, 6-chome, Shinjuku-ku, Tokyo Tel. (03) 348-6311																					
Model Name		ROBOSKY SD-250		Main applications		Heavy duty handling, palletizing, tool change																					
Classification		a. Input information and teaching mode		Variable sequence robot		Degree of freedom of motion																					
		b. Motion form		Cylindrical coordinates robot		Load capacity																					
						250 kg																					
Axes		Operating space		Speed		Axes																					
Right-left traverse						Right-left swing																					
Right-left turning		350°				Up-down swing																					
Up-down traverse						Right-left traverse																					
Up-down turning		210°				Up-down traverse																					
In-out						Revolution																					
Revolution		120°				Finger Clamp																					
Travelling						Remarks																					
Repeatability (Positioning precision)		± 0.5 mm		Allowable environmental conditions		0°C ~ 40°C																					
Moving control function		Sequential mode		Teaching functions		Sequential mode																					
		Positioning				Matrix switch																					
		Miscellany				Position and speed																					
Power-External-Internal		Hydraulics, Pneumatics, DC servo motor		Memory mode		Memory capacity																					
Internal measuring ability		P.T.P.		Miscellany		1000 steps																					
External measuring/Recognizing ability		Potentiometer		Auxiliary functions, options etc.																							
Outward figure		Operation space		Characteristics of the robot																							
(plan)				<ol style="list-style-type: none"> 1. This robot is capable of creating a "non-gravitational state (balance)", a function not endowed with the conventional manipulators, which enables this to react sharply to the external motion and acts faithfully in response to the slightest external force. 2. The nongravitational state produced also enables this robot to follow up even indefinite motions of external machines, devices, etc. quite freely. 																							
(side view)																											
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	A	B	C	D																							
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SD-250-71	2230	1440	1925	2450																							
SD-250-91	2890	1920	2475	3150																							

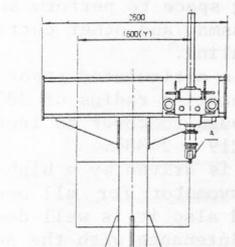
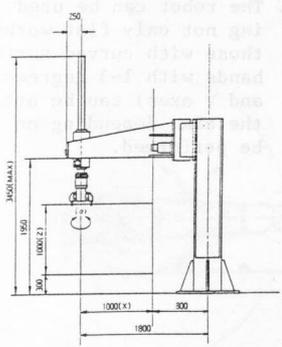
Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		16-13, Nishi-shinjuku 6-chome, Shinjuku-ku, Tokyo Tel. (03) 348-6311		
Model Name		ROBOSKY SD-350		Main applications		Heavy duty handling, palletizing, tool changing		
Classification		a. Input information and teaching mode		Variable sequence robot		Degree of freedom of motion		
		b. Motion form		Cylindrical coordinates robot		Load capacity 350 kg		
Axes		Operating space		Speed		Axes		
Arm	Right-left traverse				Right-left swing			
	Right-left turning		180°		Up-down swing			
	Up-down traverse				Right-left traverse			
	Up-down turning		210°		Up-down traverse			
	In-out				Revolution			
	Revolution		90°		Finger		Clamp	
Travelling		300 mm		Remarks				
Repeatability (Positioning precision)		± 0.5 mm		Allowable environmental conditions		0°C ~ 40°C		
Moving control function	Sequential mode				Sequential mode			
	Positioning		Hydraulic, DC servo motor		Position and speed			
	Miscellany		P.T.P.		Memory mode			
Power-External -Internal		Potentiometer		Teaching functions		Memory capacity 250 steps		
Internal measuring ability				Miscellany				
External measuring/ Recognizing ability				Auxiliary functions, options etc.				

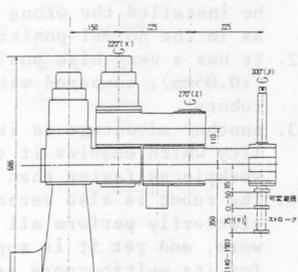
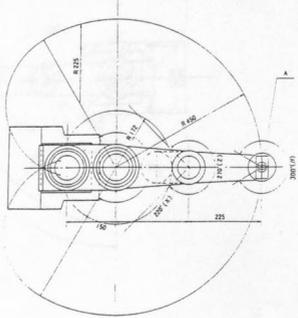
Outward figure	Operation space	Characteristics of the robot																				
<p>(plan)</p>  <p>(side view)</p> 		<ol style="list-style-type: none"> This robot is capable of creating a "nongravitational state (balance)", a function not endowed with the conventional manipulators, which enables this to react sharply to the external motion and acts faithfully in response to the lightest external force. The nongravitational state produced also enables this robot to follow up even indefinite motions of external machines, devices, etc. quite freely. 																				
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	A	B	C	D																		
SD-350-51	2230	1360	1700	2350																		
SD-350-71	3170	2040	2380	3290																		
SD-350-91	4110	2720	3060	4230																		

Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		16-13, Nishi-shinjuku, 6-chome, Shinjuku-ku, Tokyo Tel. (03) 348-6311																					
Model Name		ROBOSKY SD-500		Main applications		Heavy duty handling, palletizing, tool change																					
Classification		a. Input information and teaching mode		Variable sequence robot		Degree of freedom of motion																					
		b. Motion form		Cylindrical coordinates robot		Load capacity 500 kg																					
Axes		Operating space		Speed		Axes																					
Arm	Right-left traverse				Hand		Right-left swing 180°																				
	Right-left turning		300°				Up-down swing																				
	Up-down traverse						Right-left traverse																				
	Up-down turning						Up-down traverse 210°																				
	In-out						Revolution 90°																				
	Revolution				Fin- ger		Clamp																				
Travelling				Remarks																							
Repeatability (Positioning precision)		Stroke: ± 0.5% ~ 2%		Allowable environmental conditions		0°C ~ 40°C																					
Moving control function	Sequential mode				Teaching functions	Sequential mode Matrix switch																					
	Positioning		Hydraulics, DC-servo motor			Position and speed																					
	Miscellany		P.T.P. (C-P)			Memory mode																					
Power-External -Internal		Potentiometer		Memory capacity		32 steps																					
Internal measuring ability				Miscellany																							
External measuring/ Recognizing ability				Auxiliary functions, options etc.																							
Outward figure		Operation space		Characteristics of the robot																							
(plan)				<ol style="list-style-type: none"> This robot is capable of creating a "nongravitational state (balance)", a function not endowed with the conventional manipulators, which enables this to react sharply to the external motion and acts faithfully in response to the slightest external force. The nongravitational state produced also enables this robot to follow up even indefinite motions of external machines, devices, etc. quite freely. 																							
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	A	B	C	D																							
SD-500-4I	2960	1440	2200	2800																							
SD-500-5I	3780	1920	2750	3500																							
SD-500-6I	4600	2400	3300	4200																							

Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		Kosai Industrial Complex, Kosaimachi, Nakakoma-gun, Yamanashi 05528(2)5581	
Model Name		BA-4700		Main applications		Heavy duty material handling, palletizing	
Weight of robot itself		3200kg		Degree of freedom of motion		6	
Classification		a. Input information and teaching mode		Playback robot		Load capacity	
		b. Motion form		Cylindrical coordinates robot		350kg(Max.)	
Axes		Operating space		Speed		Axes	
Operating space		Speed		Axes		Operating space	
Speed		Axes		Operating space		Speed	
Arm	Right-left traverse			Hand	Right-left swing	±135°	45°/sec
	Right-left turning	±135°	40°/sec		Up-down swing	±60°	45°/sec
	Up-down traverse	1350mm	400mm/sec		Right-left traverse		
	Up-down turning				Up-down traverse		
	In-out	1480mm	400mm/sec		Revolution	180°	45°/sec
	Revolution				Fin-ger	Clamp	
Travelling				Remarks			
Repeatability (Positioning precision)		±1.0mm		Allowable environmental conditions		0 - 45°C	
Moving control function	Sequential mode	Microcomputer		Teaching functions	Sequential mode	Direct teaching with input through the teaching box	
	Positioning	Electric DC servo			Position and speed	- do -, speed can be set at any of 8 levels.	
	Miscellany	CP control/various interpolating functions			Memory mode	IC memory	
Power-External -Internal	AC200/220V 50/60Hz 45kVA 7.0kg/cm ² G 600Nℓ/min		Memory capacity		1000 steps (Max.3000 steps)		
Internal measuring ability	Optical shaft encoder		Miscellany	PTP teaching			
External measuring/Recognizing ability			Auxiliary functions, options etc.	Self-diagnostic function			
Outward figure		Operation space		Characteristics of the robot			
(plan)				<ol style="list-style-type: none"> 1. This is a large, high-grade robot specially designed to feed heavy workpieces to an NC bender or handle them for other purposes. 2. The balancing function incorporated in the robot provides a maximum load capacity of 350kg, enabling the robot to efficiently carry and handle all types of workpieces. 3. It has a positioning accuracy of the highest level (within ±1.0mm), compared with other large robots. 4. Good operating qualities are provided by the playback system. 5. The robot itself is compactly designed but has an extensive operating space. 			
(side view)							

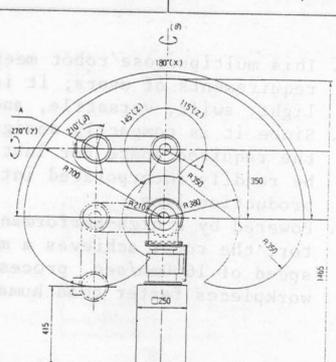
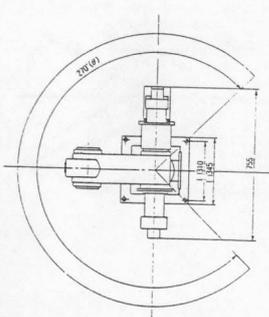
Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		Kosai Industrial Complex, Kosaimachi, Nakakoma-gun, Yamanashi 05528(2)5581		
Model Name		HANBOT		Main applications		Loading/unloading of workpieces		
						Weight of robot itself		
						135kg		
Classification		a. Input information and teaching mode		Variable sequence robot		Degree of freedom of motion		
						3		
		b. Motion form		Cylindrical coordinates robot		Load capacity		
						10kg(Max.)		
Axes		Operating space		Speed		Axes		
						Operating space		
						Speed		
Arm	Right-left traverse		150mm		Max.600mm/sec		Hand	
	Right-left turning		±60°		Max.90°/sec		Right-left swing	
	Up-down traverse						Up-down swing	
	Up-down turning						Right-left traverse	
	In-out		450mm		Max.600mm/sec		Up-down traverse	
	Revolution						Revolution	
Travelling						Finger		
						Clamp		
						Remarks		
						Swing and swivel functions of the hand available by option		
Repeatability (Positioning precision)		±0.2mm		Allowable environmental conditions		0 - 45°		
Moving control function	Sequential mode		Sequential control with the program controller		Teaching functions		Sequential mode	
	Positioning		Mechanical stopper				Position and speed	
	Miscellany		(Electric servo available by option)				Memory mode	
Power-External -Internal		AC200/220V 50/60Hz 0.5kVA 6.0kg/cm ² G 300N&/min				Memory capacity		
Internal measuring ability				Miscellany				
External measuring/ Recognizing ability				Auxiliary functions, options etc.				
Outward figure		Operation space		Characteristics of the robot				
(plan)				<ol style="list-style-type: none"> 1. This is a cylindrical coordinates, single-purpose, adaptable robot. 2. Many versions are available because different mixes of modules can be added to the standard model, depending on the user's requirements. 3. Many different combinations of driving systems, such as a pneumatic linear actuator, rotary actuator, and electric servo, are available for the robot. 4. Some additional arms and multi-axis hands can be readily attached to the robot as necessary. 5. All driving forces are supplied by the pneumatic system which has a simple mechanical construction for easy maintenance. 				
(side view)								

Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		Kosai Industrial Complex, Kosaimachi, Nakakoma-gun, Yamanashi 05528(2)5581	
Model Name		PALEBOT 150		Main applications		Palletizing/depalletizing, sorting by type and class, and separation of rejects	
Classification		a. Input information and teaching mode		Playback robot		Degree of freedom of motion	
		b. Motion form		Cartesian coordinates robot		Load capacity	
						1800kg	
						4	
						150kg(Max.)	
Axes		Operating space		Speed		Axes	
Operating space		Speed		Axes		Operating space	
Speed		Axes		Operating space		Speed	
Arm	Right-left traverse	1600mm	600mm/sec	Hand	Right-left swing		
	Right-left turning				Up-down swing		
	Up-down traverse	1000mm	600mm/sec		Right-left traverse		
	Up-down turning				Up-down traverse		
	In-out	1000mm	600mm/sec		Revolution		
	Revolution	90°(or 180°)	60°/sec	Finger	Clamp		
Travelling				Remarks		Bending function of the hand available by option	
Repeatability (Positioning precision)		±1.0mm		Allowable environmental conditions			
Moving control function	Sequential mode	Microcomputer		Teaching functions	Sequential mode	Direct teaching with input through the teaching box	
	Positioning	Electric servo			Position and speed	- do -, speed can be set at any of 8 levels	
	Miscellany	CP control/various interpolating functions			Memory mode	IC memory	
Power-External -Internal	AC200/220V 50/60Hz 3.5kVA		Memory capacity		1000 steps (Max.3000 steps)		
Internal measuring ability	Optical shaft encoder		Miscellany	PTP teaching			
External measuring/ Recognizing ability			Auxiliary functions, options etc.	Self-diagnostic function			
Outward figure		Operation space		Characteristics of the robot			
(plan)				<ol style="list-style-type: none"> 1. This is a cartesian coordinates robot primarily designed for palletizing. 2. A wide variety of fingers/hands and attachments are available for palletizing different types of workpieces. 3. Workpieces on the pallet can be arranged in many different ways and combinations. 4. The operating space can be easily changed. 5. The robot has a well-designed construction with linear motion characteristics which is capable of conveying workpieces at a high speed. 6. It is equipped with a sensor to separate rejects or correct the position of workpieces if placed incorrectly. 7. The robot may be supplied by option in a special configuration that can load and unload workpieces or materials to and from more than one machine tool. 			
(side view)							

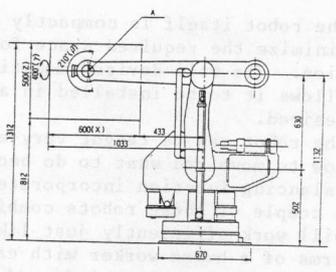
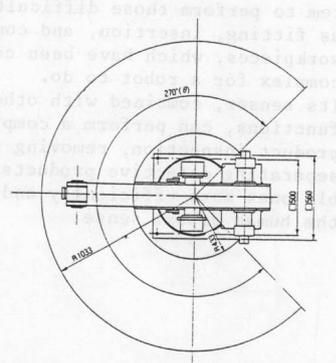
Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		Kosai Industrial Complex, Kosaimachi, Nakakoma-gun, Yamanashi 05528(2)5581	
Model Name		PT-200H		Main applications		Assembly, sealing, and conveyance	
Classification		a. Input information and teaching mode		Playback robot		Degree of freedom of motion	
		b. Motion form		Articulated robot		Load capacity	
						45kg	
						2kg(Max.)	
Axes		Operating space		Speed		Axes	
Operating space		Speed		Axes		Operating space	
Speed		Axes		Operating space		Speed	
Arm	Right-left turning	(θ) ±120°	120°/sec	Hand	Right-left swing		
	Right-left turning	(X) ±135°	120°/sec		Up-down swing		
	Up-down traverse	75mm	120mm/sec		Right-left traverse		
	Up-down turning				Up-down traverse		
	In-out				Revolution		
	Revolution	±150°	120°/sec	Finger	Clamp		
Travelling				Remarks			
Repeatability (Positioning precision)		±0.05mm		Allowable environmental conditions		0 - 45°C	
Moving control function	Sequential mode	Microcomputer		Teaching functions	Sequential mode	Direct teaching with input through the teaching box	
	Positioning	Electric DC servo			Position and speed	- do -, speed can be set at any of 8 levels	
	Miscellany	CP control/various interpolat- ing functions			Memory mode	IC memory	
Power-External -Internal	AC200/220V 50/60Hz 45kVA (6.5kg/cm ² G 25N&/m)		Memory capacity		1000 steps (Max.3000 steps)		
Internal measuring ability	Optical shaft encoder		Miscellany	PTP teaching			
External measuring/ Recognizing ability			Auxiliary functions, options etc.	Self-diagnostic function			
Outward figure		Operation space		Characteristics of the robot			
(plan)				<ol style="list-style-type: none"> 1. This small, light robot, primarily designed for assembly, requires only a very small space for installation; it can be easily incorporated into an existing production line. 2. Its articulated construction provides an extensive operating space. 3. The well-designed robot, even while operating at a high speed (1400mm/sec), works stably and accurately (within ±0.05mm of the specified position). 4. Its simple mechanism makes maintenance work easier. 5. Dainichi's years of experience and expertise have been incorporated in the robot to provide good operating qualities. 			
(side view)							

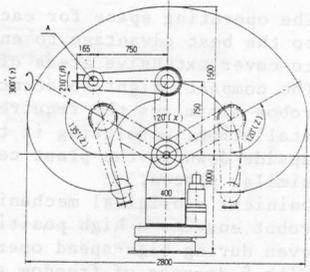
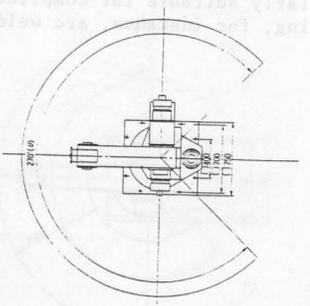
Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		Kosai Industrial Complex, Kosaimachi, Nakakoma-gun, Yamanashi 05528(2)5581		
Model Name		PT-200V		Main applications		Assembly, sealing and loading		
Classification		a. Input information and teaching mode		Playback robot		Degree of freedom of motion		
		b. Motion form		Articulated robot		Load capacity		
						5		
						2kg(Max.)		
Axes		Operating space		Speed		Axes		
						Operating space		
						Speed		
Arm	Right-left traverse				Right-left swing			
	Right-left turning		$\pm 150^\circ$		120°/sec		Up-down swing	
	Up-down turning		$\pm 120^\circ$		120mm/sec		$\pm 120^\circ$	
	Up-down turning		$\pm 135^\circ$		120°/sec		120°/sec	
	In-out						Hand	
	Revolution		$\pm 200^\circ$		240°/sec		Right-left traverse	
						Up-down traverse		
						Revolution		
						Finger		
						Clamp		
Travelling						Remarks		
Repeatability (Positioning precision)		$\pm 0.05\text{mm}$		Allowable environmental conditions		0 - 45°C		
Moving control function	Sequential mode		Microcomputer		Teaching functions	Sequential mode		
	Positioning		Electric DC servo			Direct teaching with input through the teaching box		
	Miscellany		CP control/various interpolat- ing functions			- do -, speed can be set at any of 8 levels		
Power-External -Internal		AC200/220V 50/60Hz 45kVA		Memory mode		IC memory		
Internal measuring ability		Optical shaft encoder		Miscellany		Memory capacity		
External measuring/ Recognizing ability				Auxiliary functions, options etc.		1000 steps (Max.3000 steps)		
						PTP teaching		
						Self-diagnostic function		
Outward figure		Operation space		Characteristics of the robot				
(plan)				<ol style="list-style-type: none"> 1. This is a very small, light robot which can be installed the wrong way around as well as in the normal position. 2. It has a very high positioning accuracy ($\pm 0.05\text{mm}$), compared with other assembly robots. 3. Another advantage is its high-speed capability which enables it to properly handle workpieces faster than human workers. 4. The robot is also versatile enough to satisfactorily perform all types of assembly work, and yet it is supplied at a low price for its multipurpose capabilities. 				
(side view)								

Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		Kosai Industrial Complex, Kosaimachi, Nakakoma-gun, Yamanashi 05528(2)5581		
Model Name		PT-300H		Main applications		Weight of robot itself		
				Assembly, sealing, chamfering, loading, screw driving, and boring		125kg		
Classification		a. Input information and teaching mode		Playback robot		Degree of freedom of motion		
		b. Motion form		Articulated robot		Load capacity		
						4		
						5kg(Max.)		
Axes		Operating space		Speed		Axes		
Arm	Right-left turning		$(\theta) \pm 90^\circ$		90°/sec		Right-left swing	
	Right-left turning		$(X) \begin{matrix} +145^\circ \\ -115^\circ \end{matrix}$		90°/sec		Up-down swing	
	Up-down traverse						Hand	
	Up-down turning						Right-left traverse	
	In-out		100mm		100mm/sec		Up-down traverse	
	Revolution		$\pm 150^\circ$		90°/sec		Finger	
						Revolution		
Travelling						Remarks		
Repeatability (Positioning precision)		$\pm 0.1\text{mm}$		Allowable environmental conditions		0 - 45°C		
Moving control function	Sequential mode		Microcomputer		Sequential mode		Direct teaching with input through the teaching box	
	Positioning		Electric DC servo		Position and speed		- do -, speed can be set at any of 8 levels	
	Miscellany		CP control/various interpolating functions		Memory mode		IC memory	
					Memory capacity		1000 steps (Max.3000 steps)	
Power-External -Internal		AC200/220V 50/60Hz 45kVA		Miscellany		PTP teaching		
Internal measuring ability		Optical shaft encoder		Auxiliary functions, options etc.		Self-diagnostic function		
External measuring/ Recognizing ability								
Outward figure		Operation space		Characteristics of the robot				
(plan)				<ol style="list-style-type: none"> 1. This multipurpose robot meets nearly all requirements of users; it is compact, light, swift, versatile, and inexpensive. 2. Since it is compactly designed to minimize the required space for installation, it can be readily incorporated into an existing production line. 3. Powered by a high-performance DC servomotor, the robot achieves a maximum resultant speed of 1600mm/sec, processing or handling workpieces faster than human workers. 				
(side view)								

Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		Kosai Industrial Complex, Kosaimachi, Nakakoma-gun, Yamanashi 05528(2)5581	
Model Name		PT-300V		Main applications		Assembly, handling, arc welding and sealing	
Classification		a. Input information and teaching mode		Playback robot		Degree of freedom of motion	
		b. Motion form		Articulated robot		Load capacity	
						155kg	
						5	
						5kg(Max.)	
Axes		Operating space		Speed		Axes	
Operating space		Speed		Axes		Operating space	
Speed		Axes		Operating space		Speed	
Arm	Right-left traverse				Right-left swing		
	Right-left turning	(θ) $\pm 135^\circ$	90°/sec		Up-down swing	$\pm 105^\circ$	90°/sec
	Up-down turning	(X) $\pm 90^\circ$	90°/sec	Hand	Right-left traverse		
	Up-down turning	(Z) $+145^\circ$ -115°	90°/sec		Up-down traverse		
	In-out				Revolution	$\pm 135^\circ$	90°/sec
	Revolution				Finger	Clamp	
Travelling				Remarks			
Repeatability (Positioning precision)		$\pm 0.1\text{mm}$		Allowable environmental conditions		0 - 45°C	
Moving control function	Sequential mode	Microcomputer		Teaching functions	Sequential mode	Direct teaching with input through the teaching box	
	Positioning	Electric DC servo			Position and speed	- do -, speed can be set at any of 8 levels	
	Miscellany	CP control/various interpolat- ing functions			Memory mode	IC memory	
Power-External -Internal	AC200/220V 50/60Hz 45kVA (6.5kg/cm G)		Memory capacity		1000 steps (Max.3000 steps)		
Internal measuring ability	Optical shaft encoder		Miscellany	PTP teaching			
External measuring/ Recognizing ability			Auxiliary functions, options etc.	Self-diagnostic function			
Outward figure		Operation space		Characteristics of the robot			
(plan)				<ol style="list-style-type: none"> 1. The compact, light structure of the robot permit it to be installed on the plant ceiling or other similar places and readily incorporated into an existing production line. 2. The special "dome-shaped" operating space of the robot covers such an area of work that cannot be performed by conventional robotized systems. 3. The DC servomotor installed in the robot ensures fast, accurate operation (within $\pm 0.1\text{mm}$), and the robot can be relied on for good workmanship and high product quality. 4. It is a multipurpose robot whose program can be easily changed to meet the requirements of a wide variety of work. 			
(side view)							

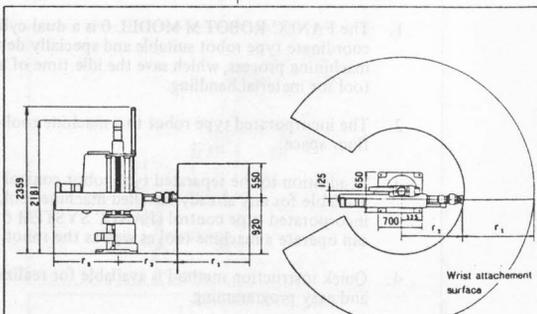
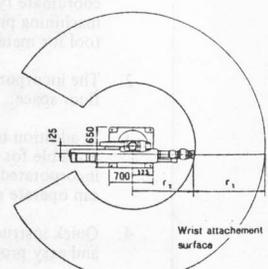
Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		Kosai Industrial Complex, Kosaimachi, Nakakoma-gun, Yamanashi 05528(2)5581	
Model Name		PT-500		Main applications		Handling, assembly and arc welding	
Weight of robot itself		180kg		Degree of freedom of motion		4	
Classification		a. Input information and teaching mode		Playback robot		Load capacity	
		b. Motion form		Cylindrical coordinates robot		5kg(Max.)	
Axes		Operating space		Speed		Axes	
Operating space		Speed		Axes		Operating space	
Speed		Axes		Operating space		Speed	
Arm	Right-left traverse			Hand	Right-left swing		
	Right-left turning	$\pm 100^\circ$	$75^\circ/\text{sec}$		Up-down swing		
	Up-down traverse	400mm	400mm/sec		Right-left traverse		
	Up-down turning				Up-down traverse		
	In-out	400mm	400mm/sec		Revolution	$\pm 135^\circ$	$75^\circ/\text{sec}$
	Revolution			Finger	Clamp		
Travelling				Remarks			
Repeatability (Positioning precision)		$\pm 0.2\text{mm}$		Allowable environmental conditions		0 - 45°C	
Moving control function	Sequential mode	Microcomputer		Teaching functions	Sequential mode	Direct teaching with input through the teaching box	
	Positioning	Electric DC servo			Position and speed	- do -, speed can be set at any of 32 levels	
	Miscellany	CP control/various interpolating functions			Memory mode	IC memory	
Power-External -Internal	AC200/220V 50/60Hz 2.0kVA 6.0kg/cm ² G		Memory capacity		1000 steps (Max.3000 steps)		
Internal measuring ability	Optical shaft encoder		Miscellany	PTP teaching			
External measuring/Recognizing ability			Auxiliary functions, options etc.	Sensing function			
Outward figure		Operation space		Characteristics of the robot			
(plan)				<ol style="list-style-type: none"> The robot itself is compactly designed to minimize the required space for installation. Its well devised mounting flange allows it to be installed in any position desired. The robot can be taught very easily exactly how to move and what to do because of the balancing function incorporated in it. A couple of these robots combined properly will work efficiently just like the two arms of a human worker with each of them handling a workpiece independently of the other. This will enable the robotized system to perform those difficult jobs, such as fitting, insertion, and combination of workpieces, which have been considered too complex for a robot to do. Its sensor, combined with other excellent functions, can perform a complicated job of product inspection, removing rejects or separating defective products from acceptable ones more efficiently and reliably than the human visual sense. 			
(side view)							

Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		Kosai Industrial Complex, Kosaimachi, Nakakoma-gun, Yamanashi 05528(2)5581		
Model Name		PT-550		Main applications		Arc welding, as- sembly, handling and sealing		
Weight of robot itself		350kg		Degree of freedom of motion		5		
Classification		a. Input information and teaching mode		Playback robot		Load capacity		
		b. Motion form		Cylindrical coordinates robot		7kg(Max.)		
Axes		Operating space		Speed		Axes		
Operating space		Speed		Axes		Operating space		
Speed		Axes		Operating space		Speed		
Arm	Right-left traverse				Right-left swing			
	Right-left turning		$\pm 135^\circ$		Up-down swing		$\pm 105^\circ$	
	Up-down traverse		500mm		500mm/sec		90°/sec	
	Up-down turning				Hand		Right-left traverse	
	In-out		600mm		500mm/sec		Up-down traverse	
	Revolution				Revolution		$\pm 200^\circ$	
Travelling				Remarks		180°/sec		
Repeatability (Positioning precision)		$\pm 0.2\text{mm}$		Allowable environmental conditions		0 - 45°C		
Moving control function	Sequential mode		Microcomputer		Sequential mode		Direct teaching with input through the teaching box	
	Positioning		Electric DC servo		Position and speed		- do -, speed can be set at any of 32 levels	
	Miscellany		CP control/various interpolat- ing functions		Memory mode		IC memory	
	Power-External -Internal		AC200/220V 50/60Hz 2.0kVA 6.0kg/cm ² G		Memory capacity		1000 steps (Max.3000 steps)	
Internal measuring ability		Optical shaft encoder		Miscellany		PTP teaching		
External measuring/ Recognizing ability				Auxiliary functions, options etc.		Sensing function		
Outward figure		Operation space		Characteristics of the robot				
(plan)				<ol style="list-style-type: none"> 1. This articulated robot uses Dainichi's original parallel link technique for its arm, the fore end of which moves in a manner as described in cylindrical coordinates. These features make it easier for the operator to teach the robot. 2. A pneumatic balancing function is used for the X/Z-axes that are directly affected by applied load. This special technique developed by Dainichi helps reduce applied load and save the required power to move work-pieces, while ensuring a stable motion of the robot whatever position the arm may be in. 3. The robot is made as light and rigid as possible so that it can operate at a high speed (1000mm/sec). 4. It has an extensive operating space but requires only a small space for installation. 5. Advanced software technology used to control the position of the wrist makes the robot available for such complicated jobs as arc welding. 6. Linear and arc interpolating functions are provided by the simultaneous 5-axis control system. 				
(side view)								

Name of company/ Department in charge		Dainichi Kiko Co., Ltd.		Address/ Telephone		Kosai Industrial Complex, Kosaimachi, Nakakoma-gun, Yamanashi 05528(2)5581		
Model Name		PT-800		Main applications		Handling, spot arc welding, automatic gas cutting, and sealing		
Classification		a. Input information and teaching mode		Playback robot		Degree of freedom of motion		
		b. Motion form		Articulated robot		Load capacity		
						5		
						25kg(Max.)		
Axes		Operating space		Speed		Axes		
						Operating space		
						Speed		
Arm	Right-left traverse				Right-left swing			
	Right-left turning		$(\theta) \pm 135^\circ$		60°/sec		Up-down swing	
	Up-down turning		$(X) \pm 60^\circ$		60°/sec		$\pm 105^\circ$	
	Up-down turning		$(Z) \begin{matrix} +135^\circ \\ -120^\circ \end{matrix}$		60°/sec		Right-left traverse	
	In-out						Up-down traverse	
	Revolution						Revolution	
						$\pm 150^\circ$		
						90°/sec		
						Finger		
						Clamp		
Travelling						Remarks		
Repeatability (Positioning precision)		$\pm 0.5\text{mm}$		Allowable environmental conditions		0 - 45°C		
Moving control function	Sequential mode		Microcomputer		Teaching functions	Sequential mode		
	Positioning		Electric DC servo			Direct teaching with input through the teaching box		
	Miscellany		CP control/various interpolating functions			Position and speed		
				- do -, speed can be set at any of 8 levels				
Power-External-Internal		AC200/220V 50/60Hz 45kVA (6.5kg/cm ² G, 100N/m)		Memory mode		IC memory		
Internal measuring ability		Optical shaft encoder		Memory capacity		1000 steps (Max.3000 steps)		
External measuring/Recognizing ability				Miscellany		PTP teaching		
				Auxiliary functions, options etc.		Self-diagnostic function		
Outward figure		Operation space		Characteristics of the robot				
(plan)				<ol style="list-style-type: none"> 1. This robot can carry a thing weighing up to 25kg, a large load capacity for a multipurpose industrial robot. It works at a high speed even when carrying a heavy assembly such as a spot gun with a built-in transformer. 2. Its special "dome-shaped" operating space covers such an area of work that cannot be performed by conventional robots. 3. Another advantage is that the robot can be easily incorporated into an existing production line as it requires only a small space for installation. 				
(side view)								

Name of company/ Department in charge		FANUC LTD.		Address/ Telephone		5-1, Asahigaoka 3-chome, Hino-shi, Tokyo 191, Japan Tel. (0425) 84-1111	
Model Name		FANUC ROBOT MODEL 00		Main applications		Unmanned machining	
						Weight of robot itself Arm 60 kg Workpiece feeder 100 kg	
Classification		a. Input information and teaching mode		Variable sequence robot		Degree of freedom of motion	
		b. Motion form		Cylindrical coordinate robot		Load capacity	
						3 (up to wrist)	
						Max. 20 kg at wrist	
Axes		Operating space		Speed		Axes	
Arm		Right-left traverse		150 mm (on-off)		500 mm/s	
		Right-left turning		(by workpiece feeder)		3s/pallet)	
		Up-down traverse		(by workpiece feeder 300 mm)		80 mm/s)	
		Up-down turning		60° (on-off)		90°/s	
		In-out					
		Revolution					
						Hand	
						Right-left swing	
						Up-down swing	
						Right-left traverse	
						Up-down traverse	
						Revolution	
						270° (4 positions)	
						90°/s	
						Fin-ger	
						Clamp	
						Fanuc Hand D6/D7	
Travelling						Remarks	
Repeatability (Positioning precision)		±0.3 mm		Allowable environmental conditions		0 ~ 45°C, 20 ~ 90% RH	
Moving control function		Sequential mode		Memory		Sequential mode	
		Positioning		Air cylinder, and DC motor		Position and speed	
		Miscellany		Palletizing function		Memory mode	
						Memory capacity	
						Variable	
						Adjustable	
						C-MOS memory	
						600 points	
Power-External -Internal		AC 200 ~ 550 V, 1 φ, 0.3 kVA Air supply 5 ~ 7 kg/cm ²		Miscellany			
Internal measuring ability		Limit switch, position sensor		Auxiliary functions, options etc.			
External measuring/Recognizing ability							
Outward figure		Operation space		Characteristics of the robot			
(plan)				<p>The FANUC ROBOT M-MODEL 00 is a machine tool built-in type robot specially developed for loading/unloading workpieces to/from a CNC lathe, and it features lower price, quick positioning and small outer dimensions (patent pending).</p> <ol style="list-style-type: none"> 1. The FANUC ROBOT M-MODEL 00 is a cylindrical coordinate type robot suitable for loading/unloading to/from a lathe. 2. The incorporated type robot on the lathe can save floor space. 3. Pneumatic control for the robot can realize lower price. 4. Application of the robot with a rotary workpiece feeder is available. 5. Motion path of the robot can be changed easily by mechanical adjustment incorporated in the robot. 			

Name of company/ Department in charge		FANUC LTD.		Address/ Telephone		5-1, Asahigaoka 3-chome, Hino-shi, Tokyo 191, Japan Tel. (0425) 84-1111		
Model Name		FANUC ROBOT M-MODEL 0		Main applications		Unmanned machining, handling		
Weight of robot itself		Mechanical Unit 110 kg Control Unit 100 kg		Degree of freedom of motion		Equivalent to 6 (up to wrist)		
Classification		a. Input information and teaching mode		Playback robot		Load capacity		
		b. Motion form		Dual Cylindrical coordinate robot		Max. 20 kg at wrist		
Axes		Operating space		Speed		Remarks		
Arm	Right-left traverse		120 mm		Max. 500 mm/s		Right-left swing	
	Right-left turning		120°		Max. 120°/s		Up-down swing	
	Up-down traverse		150 mm		Max. 500 mm/s		Right-left traverse	
	Up-down turning		90°		Max. 120°/s		Up-down traverse	
	In-out						Revolution	
	Revolution		180°		Max. 120°/s		-90°, 0, 90°, 180° (on-off) Max. 90°/s	
Travelling						Clamp		
						Various FANUC HANDs available		
Repeatability (Positioning precision)		±0.5 mm		Allowable environmental conditions		0 ~ 45°C, 20 ~ 90% RH		
Moving control function	Sequential mode		Memory		Sequential mode		Variable, Teaching in any sequence	
	Positioning		DC servo motors (Wrist and hand by air pressure)		Position and speed		Variable	
	Miscellany				Memory mode		C-MOS memory	
Power-External -Internal		AC 200 ~ 550 V, 3 φ, 2 kVA Air supply 5 ~ 7 kg/cm ²		Memory capacity		Max. 1320 points		
Internal measuring ability		Pulse coder, limit switch, etc.		Miscellany				
External measuring/Recognizing ability				Auxiliary functions, options etc.		Bubble cassette (Max. 2700 points), Program control, quick instruction method, etc.		
Outward figure		Operation space		Characteristics of the robot				
(side view)				<p>The FANUC ROBOT M-MODEL 0 is an industrial robot to automate the loading/unloading of workpieces, etc. and to realize an unmanned operation as a machining cell to be attached to a CNC machine tool (patent pending).</p> <ol style="list-style-type: none"> 1. The FANUC ROBOT M-MODEL 0 is a dual cylindrical coordinate type robot suitable and specially developed for machining process, which save the idle time of a machine tool for material handling. 2. The incorporated type robot to a machine tool can save floor space. 3. In addition to the separated type robot control to be available for any already installed machine tool, the CNC incorporated type control (FANUC SYSTEM 6 series) can operate a machine tool as well as the robot. 4. Quick instruction method is available for realization of quick and easy programming. 				

Name of company/ Department in charge		FANUC LTD.		Address/ Telephone		5-1, Asahigaoka 3-chome, Hino-shi, Tokyo 191, Japan Tel. (0425) 84-1111																	
Model Name		FANUC ROBOTM-MODEL 1		Main applications		Unmanned machining Handling, etc.																	
Weight of robot itself		Mechanical Unit 570 kg Control Unit 200 kg		Degree of freedom of motion		3 ~ 5 (up to wrist)																	
Classification		a. Input information and teaching mode		Playback robot		Load capacity																	
		b. Motion form		Cylindrical coordinate robot		Max. 47 kg at wrist																	
Axes		Operating space		Speed		Axes																	
Right-left traverse						Right-left swing																	
Right-left turning		300°		Max. 60°/s		Up-down swing																	
Up-down traverse		550 mm		Max. 500 mm/s		190°																	
Up-down turning						Max. 60°/s																	
In-out		500/800/1100 mm		Max. 1000 mm/s		Right-left traverse																	
Revolution						Up-down traverse																	
						Revolution																	
						300°																	
						Max. 90°/s																	
Travelling						Finger																	
						Clamp																	
						Various FANUC HANDs available																	
Repeatability (Positioning precision)		±1 mm		Allowable environmental conditions		0 ~ 45°C, 20 ~ 90% RH																	
Moving control function		Sequential mode		Memory		Sequential mode																	
		Positioning		DC servo motors, Hand by air pressure		Variable, teaching in any sequence																	
		Miscellany		Linear control, and Hand direction control (option)		Position and speed																	
						Variable																	
						Memory mode																	
						Bubble memory																	
						Memory capacity																	
						Max. 6000 points																	
Power-External		AC 200 ~ 550 V, 4 kVA, 3 φ		Internal measuring ability		Miscellany																	
-Internal		Air supply 5 ~ 7 kg/cm ² for wrist B		Pulse coder, limit switch, etc.																			
External measuring/Recognizing ability						Auxiliary functions, options etc.																	
						Bubble cassette (Max. 2700 points), Palletizing C/D, Program control, Quick instruction method, Two machine control, etc.																	
Outward figure		Operation space		Characteristics of the robot																			
(side view)		(plan)		The FANUC ROBOT M-MODEL 1 is an industrial robot to automate the loading/unloading of workpieces etc. and to realize an unmanned operation as a machining cell to one or two CNC machine tools (patent pending).																			
				<ol style="list-style-type: none"> 1. Cylindrical coordinate type robot. 2. Operating space is with the range of up/down 550 mm, rotation 300° as well as in/out 500 mm, 800 mm or 1100 mm. 3. 5-axis-at-a-time control driven by DC servo motors. 4. Linear control is also available. 5. Palletizing, external data input, control of feeder and quick instruction method etc. are provided. 																			
		<table border="1"> <thead> <tr> <th>mm</th> <th>r₁</th> <th>r₂</th> <th>r₃</th> </tr> </thead> <tbody> <tr> <td>R500</td> <td>500</td> <td>547</td> <td>637</td> </tr> <tr> <td>R800</td> <td>800</td> <td>635</td> <td>849</td> </tr> <tr> <td>R1100</td> <td>1,100</td> <td>735</td> <td>1,049</td> </tr> </tbody> </table>		mm	r ₁	r ₂	r ₃	R500	500	547	637	R800	800	635	849	R1100	1,100	735	1,049				
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R500	500	547	637																				
R800	800	635	849																				
R1100	1,100	735	1,049																				

Name of company/ Department in charge		FANUC LTD.		Address/ Telephone		5-1, Asahigaoka 3-chome, Hino-shi, Tokyo 191, Japan Tel. (0425) 84-1111	
Model Name		FANUC ROBOT M-MODEL 2		Main applications		Unmanned machining	
Classification		a. Input information and teaching mode		Playback robot		Degree of freedom of motion	
		b. Motion form		Cylindrical coordinate robot		Load capacity	
Mechanical Unit		550 kg		Control Unit		120 kg	
Weight of robot itself		4 (up to wrist)		Max. 60 kg at wrist			
Degree of freedom of motion		4 (up to wrist)		Max. 60 kg at wrist			
Load capacity		Max. 60 kg at wrist					
Operating space		Speed		Operating space		Speed	
Right-left traverse		500 mm		Max. 500 mm/s			
Right-left turning							
Up-down traverse		300 mm		Max. 500 mm/s		Hand	
Up-down turning		180°		Max. 60°/s			
In-out						Revolution	
Revolution						300°	
Clamp				Various FANUC HANDs available			
Travelling				Remarks			
Repeatability (Positioning precision)		±1 mm		Allowable environmental conditions		0 ~ 45°C, 20 ~ 90% RH	
Moving control function		Sequential mode		Memory		Teaching functions	
		Positioning		DC servo motors, Hand by air pressure		Sequential mode	
		Miscellany				Variable, teaching in any sequence	
Power-External		AC 200 ~ 550 V, 3 φ, 2 kVA				Position and speed	
-Internal		Air supply 5 ~ 7 kg/cm ²				Variable	
Internal measuring ability		Pulse coder, limit switch, etc.				Memory mode	
						C-MOS memory	
External measuring/Recognizing ability						Memory capacity	
						Max. 840 points	
Miscellany							
Auxiliary functions, options etc.						Bubble cassette (Max. 2700 points), Program control, Quick instruction method, etc.	

Outward figure		Operation space		Characteristics of the robot	
				<p>The FANUC ROBOT M-MODEL 2 is an industrial robot to automate the loading/unloading of workpieces etc. and to realize an unmanned operation as a machining cell to be attached to a CNC machine tool (patent pending).</p> <ol style="list-style-type: none"> 1. The FANUC ROBOT M-MODEL 2 is a cylindrical coordinate type robot suitable and specially developed for machining process, which save the idle time of a machine tool for material handling. 2. The incorporated type robot to a machine tool can save floor space and serve operator's area. 3. Max. handleable weight of workpiece is 40 kg (20 kg × 2) 4. Quick instruction method is available for realization of quick and easy programming. 	

Name of company/ Department in charge		FANUC LTD.		Address/ Telephone		5-1, Asahigaoka 3-chome, Hino-shi, Tokyo 191, Japan Tel. (0425) 84-1111			
Model Name		FANUC ROBOT M-MODEL 3		Main applications		Machining, Handling, Heavy material transfer			
				Weight of robot itself		Mechanical unit 1600 kg Control unit 250 kg			
Classification		a. Input information and teaching mode		Playback robot		Degree of freedom of motion			
		b. Motion form		Cylindrical coordinate robot		Load capacity			
						5 (up to wrist)			
						Max. 80 kg at wrist			
Axes		Operating space		Speed		Axes			
						Operating space			
						Speed			
Arm		Right-left traverse				Right-left swing			
		Right-left turning		300°		Max. 60°/s		Up-down swing	
		Up-down traverse		1200 mm		Max. 500 mm/s		190°	
		Up-down turning						Max. 80°/s	
		In-out		1200 mm		Max. 1000 mm/s		Right-left traverse	
		Revolution						Up-down traverse	
						Revolution			
						300°			
						Max. 80°/s			
						Clamp			
						Variable FANUC HANDs available			
Travelling						Remarks			
Repeatability (Positioning precision)		±1 mm		Allowable environmental conditions		0 ~ 45°C, 20 ~ 90% RH			
Moving control function		Sequential mode		Memory		Sequential mode			
		Positioning		DC servo motor, Air pressure for HAND		Position and speed			
		Miscellany		Linear control, and hand direction control (option)		Memory mode			
						Bubble memory			
						Memory capacity			
						Max. 6000 points			
Power-External -Internal		AC 200 ~ 550 V, 3 φ, 15 kVA Air supply 5 ~ 7 kg/cm ²		Miscellany		Bubble cassette (Max. 2700 points) Palletizing C/D, Program control, Quick instruction method, Two machine control			
Internal measuring ability		Pulse coder, limit switches		Auxiliary functions, options etc.					
External measuring/ Recognizing ability									
Outward figure		Operation space		Characteristics of the robot					
(plan)									

