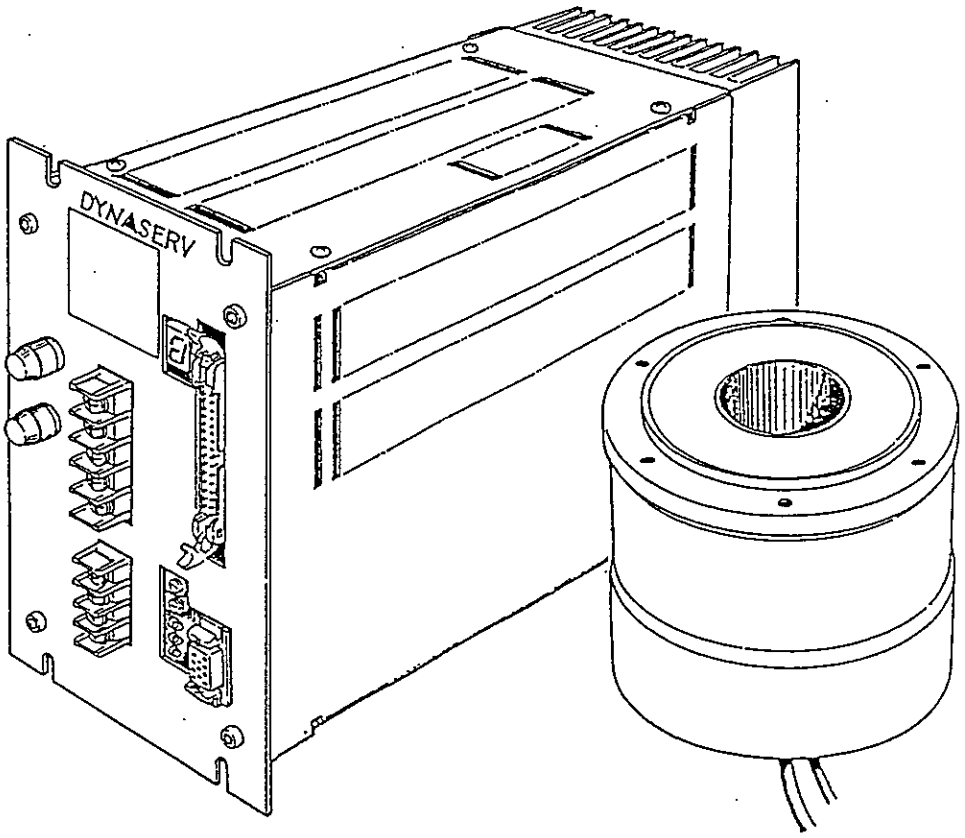
Instruction Manual

DYNASERV

DD SERVO-ACTUATOR DR-A/B/E SR-A/B/E SERIES

— 8-bit Microcomputer Bus Interface Model —



YOKOGAWA ◆
Yokogawa MAT Corporation

IM A202-E
IMar. 16 2000

Introduction

Thank you for purchasing our DYNASERV DD servo actuator.
The DYNASERV is a high torque, high speed, highly accurate outer rotor type servo actuator which can be used in a wide range of field applications related to factory automation, including with industrial robots, indexes, etc.
Be sure to read this instruction manual prior to operating the DYNASERV.

Cautions

- ◆ It is prohibited to reproduce or copy part or whole of the contents of this instruction manual.
- ◆ The contents of this instruction manual may subject to change without notice.
- ◆ If you find an error or if you have any questions regarding the contents, please contact our sales section or the people in charge of service.
- ◆ For damage or indirect damage caused by our unintentional error occurring when our product is used, we may not bear the responsibility for the damage.

Operating cautions

1. The driver is adjusted in conjunction with the coupled motor. Therefore, do not change the motor-driver combination.

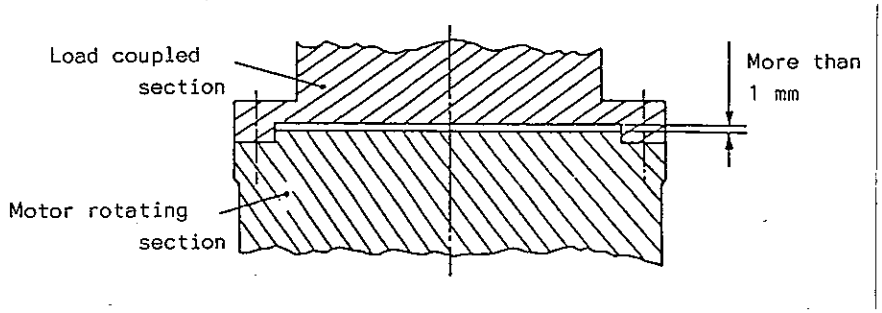
2. Never conduct opposite mounting of rotating the stator with the motor rotor fixed.

3. Before removing the driver side plate to set the jumper, always turn the power OFF, since it is dangerous to touch the high-voltage generation section inside the DYNASERV.

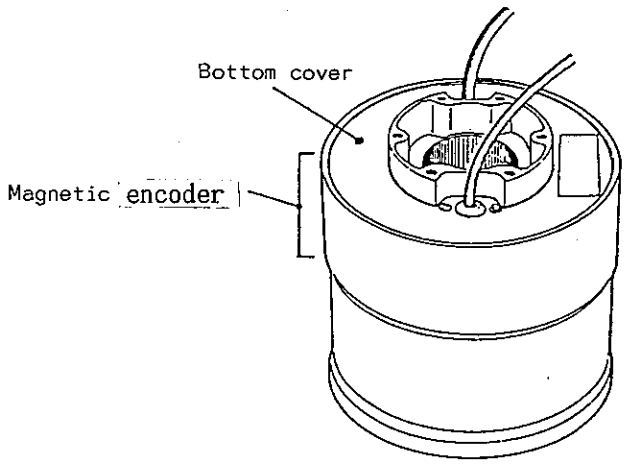
4. This motor rotates at high speed and high torque, so be careful of the rotating radius in order to prevent danger accident when operating with a load connected.

5. Always ground the grounding terminal.

6. When coupling the load to the motor rotor, keep a clearance of more than 1 mm between the load and the motor's upper surface to maintain surface accuracy. (See the Figure shown below.)



7. The magnetic encoder is built into the motor section in the Figure shown below. Therefore, do not apply a strong force, shock and/or a magnetic field to the above section.



(1) Standard motor/driver combination specification (Note : Numberical values shown below : Typical values) (Table 8.1)

Series Model No.	A type (1 0 ")						E type (8 ")						B type (6 ")			
Motor Model No.	DR1400A	DR1300A	DR1200A	DR1150A	DR1100A	DR1050A	DR1250E	DR1220E	DR1160E	DR1130E	DR1100E	DR1070E	DR1060B	DR1045B	DR1030B	DR1015B
Max. output torque N.m(Kgf.m)	400 (40)	300 (30)	200 (20)	150 (15)	100 (10)	50 (5)	250 (25)	220 (22)	160 (16)	130 (13)	100 (10)	70 (7)	60 (6)	45 (4.5)	30 (3)	15 (1.5)
Rated No. of revolutions ① rps *	0.5		1.0			1.5	1.0				1.5	2.0	1.5	2.0		
Encoder revolution p/rev	819,200						614,400						507,904			
Absolute positioning accuracy	±30						±45						±45			
Repetitive reproducibility accuracy sec.	±5						±5						±5			
Velocity ripple ② %	3						3						3			

(2) Standard motor specification (Tab-8.2)

Rotor inertia Kg.m^2	400X10^{-3}	340X10^{-3}	285X10^{-3}	230X10^{-3}	200X10^{-3}	180X10^{-3}	185X10^{-3}	170X10^{-3}	140X10^{-3}	125X10^{-3}	100X10^{-3}	85X10^{-3}	33X10^{-3}	26X10^{-3}	24X10^{-3}	21X10^{-3}
Axial load N Direct Axial load (Kgf) Reverse	4 ×10^4 (4 ×10^3) 2 ×10^4 (2 ×10^3)						4 ×10^4 (4 ×10^3) 2 ×10^4 (2 ×10^3)						3 ×10^4 (3 ×10^3) 1 ×10^4 (1 ×10^3)			
Moment load N.m(Kgf.m)	400 (40)						400 (40)						200 (20)			
Axial stiffness mm/N Direct Axial stiffness (mm/Kgf) Reverse	2 ×10^{-8} (2 ×10^{-5}) 3 ×10^{-8} (3 ×10^{-5})						2 ×10^{-8} (2 ×10^{-5}) 3 ×10^{-8} (3 ×10^{-5})						3 ×10^{-8} (3 ×10^{-5}) 4 ×10^{-8} (4 ×10^{-5})			
Moment stiffness rad/N.m (rad/Kgf.m)	4 ×10^{-7} (4 ×10^{-6})						4 ×10^{-7} (4 ×10^{-6})						2 ×10^{-8} (2 ×10^{-5})			
Weight ③ Kg	68	57	46	37	31	26	48	44	36	32	26	22	15.5	13.0	11.0	9.0
Length (L) mm	358	304	250	212	185	158	355	327	271	243	210	183	207	179	151	123
Common specification	Insulation class: F	Dielectric strength	1 min. at 1500 V AC	Insulation resistance	More than 10 KΩ	Construction:	Fully closed self cooling	Coupling method	Direct coupling	Exciting method	3-phase					

①: Indicates when power supply is 200 V AC.
②: When mechanical resonance filter is built in the DYNASERV
③: Light weight type is also available.

(3) Standard driver specification

(Table 8.3)

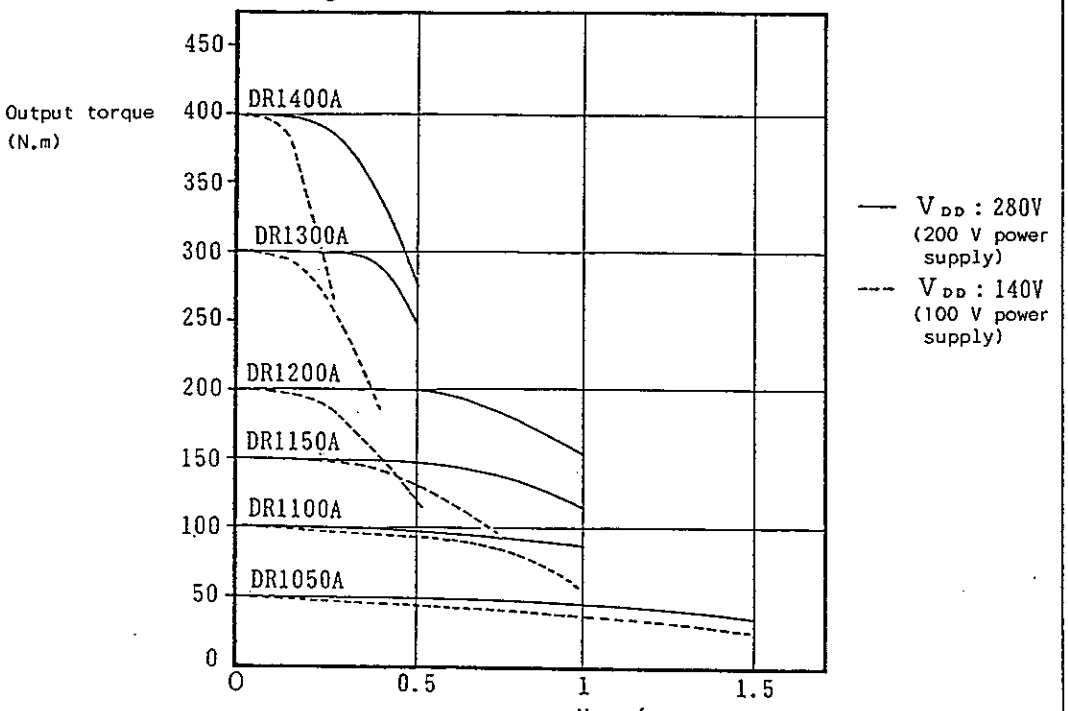
Series Model No.		A type (1 0 ")						E type (8 ")						B type (6 ")			
Motor Model No.		DR1400A	DR1300A	DR1200A	DR1150A	DR1100A	DR1050A	DR1250E	DR1220E	DR1160E	DR1130E	DR1100E	DR1070E	DR1060B	DR1045B	DR1030B	DR1015B
Driver Model No.		SR1400A	SR1300A	SR1200A	SR1150A	SR1100A	SR1050A	SR1250E	SR1220E	SR1160E	SR1130E	SR1100E	SR1070E	SR1060B	SR1045B	SR1030B	SR1015B
8-bit bus interface I/O signal	Model type selection	CS0~CS3 Input : TTL level															
	Address bus	A0~A3 Input : TTL level															
	Date	D0~D7 I_{OL} MAX.=24mA Input : TTL level															
Power consumption (At 200 V)																	
Input power supply		AC100V$^{+10\%}_{-15\%}$ or AC200V$^{+10\%}_{-15\%}$ 50/60Hz															
Weight (Kg)		100 V power supply type : 5 Kg / 200 V power supply type : 6 Kg															

(4) Environmental specification

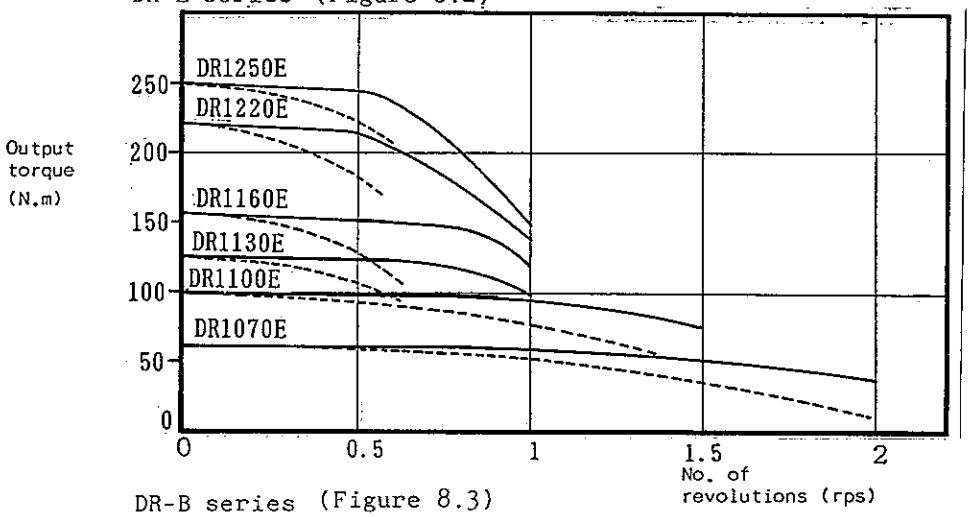
		Motor	Driver	Remarks
Under operation	Temperature	0~45℃	0~50℃	
	Humidity	20~85% R.H	20~90% R.H	No dew condensation
Under storage	Temperature	-20~85℃	-20~85℃	
	Humidity	20~85% R.H	20~90% R.H	No dew condensation
Environment		No corrosive gas and dust should exist.		

8.2 No. of Revolutions/Torque Characteristic

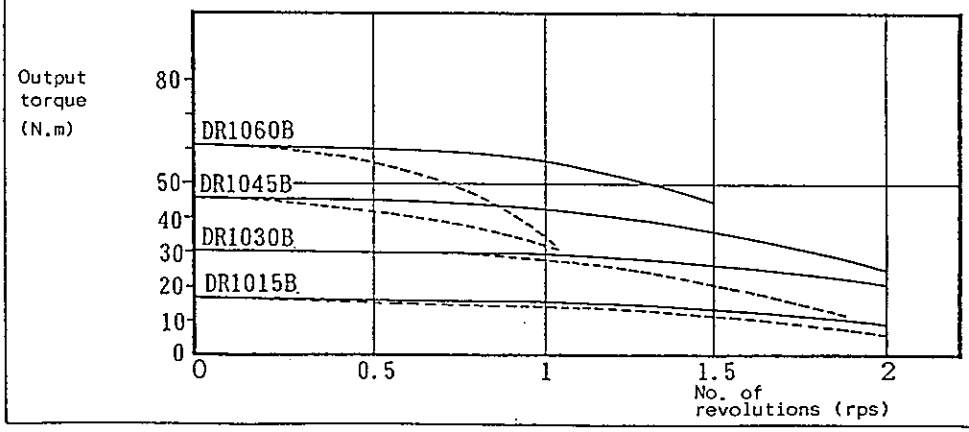
DR-A series (Figure 8.1)



DR-E series (Figure 8.2)



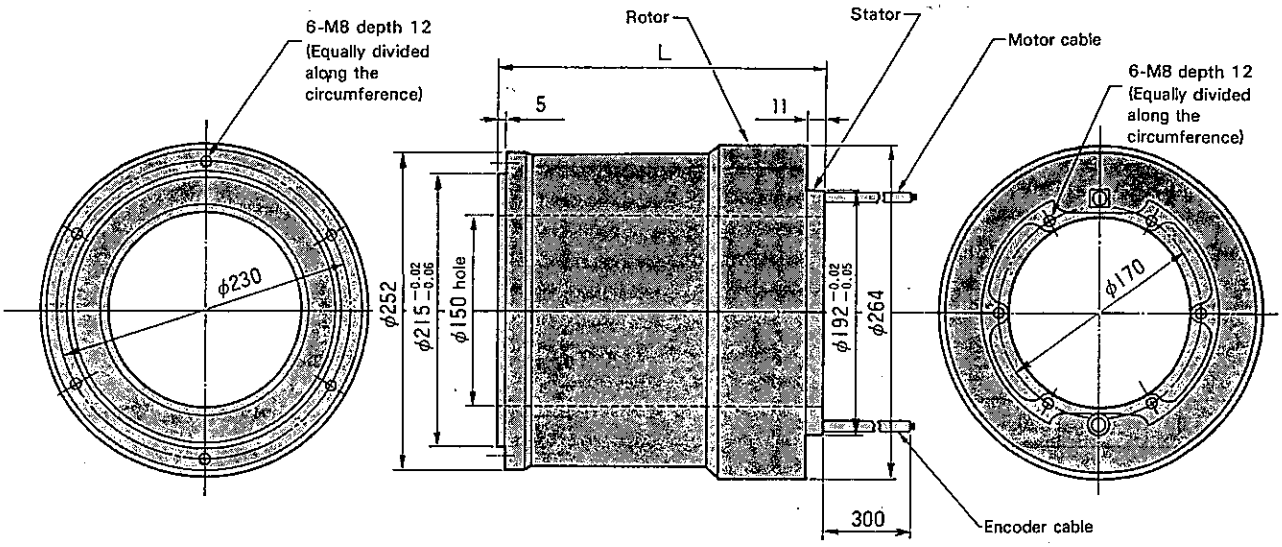
DR-B series (Figure 8.3)



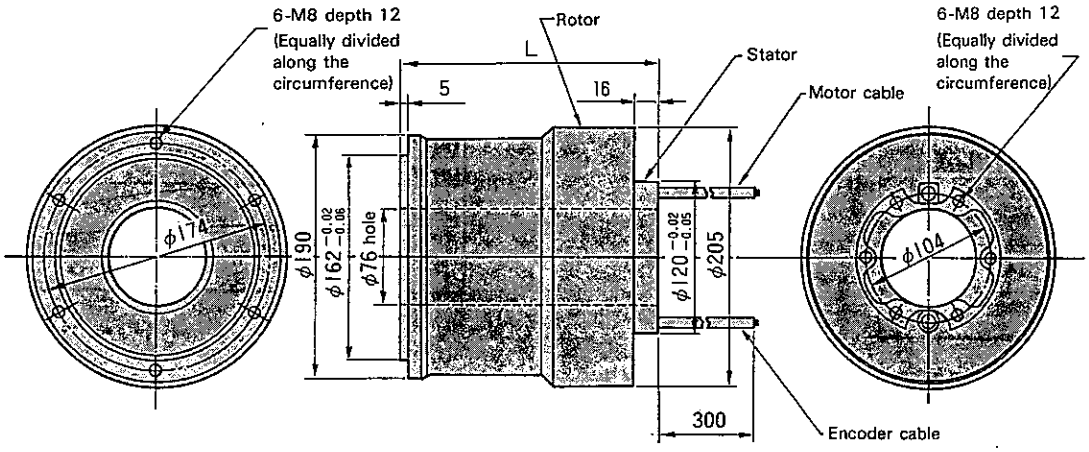
8.3 Dimensional Outline Drawing Unit: mm

(1) Motor (L: Indicated in motor specification)

(1) Type A (Figure 8.4)



(2) Type E (Figure 8.5)



(3) Type B (Figure 8.6)

