DD Motor Designation

DD Motor Designation

MDM – D D None 34 D NO H – I

Motor Type
D: DD MOTOR

Input Power Supply
None: 200VAC

Rated Speed
A : 300rpm
D : 200rpm
G : 150rpm
M : 100rpm
S : 50rpm

Shape of Shaft End
H: Hollow Type

External Diameter
B: 135mm
C: 175mm
D: 230mm
E: 290mm
F: 360mm
G: 380mm

Rated Troque
03: 3Nm Output
06: 6Nm Output
09: 9Nm Output
...
60: 60Nm Output
...
A6: 160Nm Output
C3: 330Nm Output

Encoder Type						
	135	175	230	290	360	Remark
No	20Bit					Single Turn Abs. Bisss Communication

Features of Direct-Drive Motor

Using the Own Technologies to Produce Motors, Drives and Encoders Domestically

Optimized for Low-speed, High-torque and High-precision Operation

- Providing Power connection for the connection of DC-Link Terminal
- Compact Size and Easy Wring (Compared with 3 phase AC Reactor)
- Providing Connection for DC Input (PI, N)

Reduced Cogging Torque and Optimized Torque Design

- Optimal ratio of the permanent magnet and coil / slot selected through electromagnetic analysis
- Using multiple permanent magnets to reduce torque ripple and to maximize torque
- Using a permanent magnet of high-energy rare earth elements (Nd-Fe-B)

Using the High-performance Rotary Optical Encoder That Adopts the Biss Protocol

- Resolution of 1,048,576 CPR (20bit Single turn)
- Using our own encoder technology to reduce the cost and shorten the delivery time

Compatible With Our L7 Series AC Servo Drive (3Phase AC 220V)

- Both standard I/O type (serial communication supported) and network type (EtherCAT) applicable

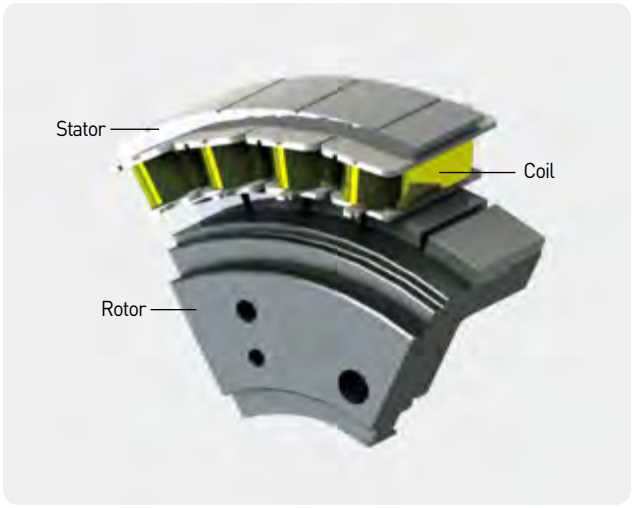
Direct Drive Structure

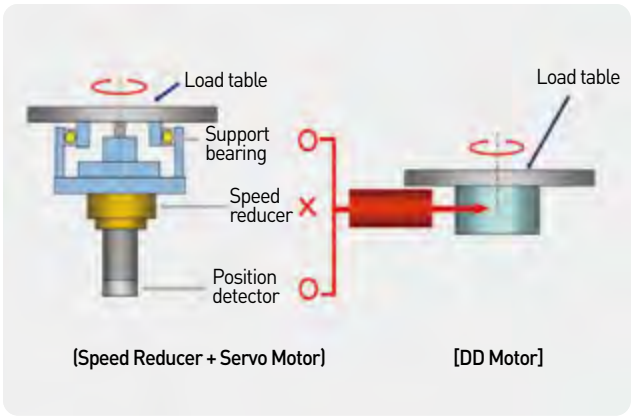
- No backlash impact
- High-precision operation and shortened installation time
- Smooth rotary motion
- Reduced noise

Hollow Type That is Efficient for Wiring and Piping

A Wide Range of Products

- Rated output: 63W-.25kW
- Rated torque: 3.0N.m-160N.m (The instantaneous maximum torque should be 3 times the rated torque)
- Rated speed: 150RPM-200RPM
- Frame diameter: 135mm,175mm,230mm,290mm, and 360mm (13 Models)





Features of Direct-Drive Motor

DD Motor Specifications

Ratings and Specifications

- Insulation class : Class B
- Protection class: IP 40
- Cooling type : Fully enclosed self-cooling
- Vibration class : V15
- Insulation resistance : 500 VDC, 10[MΩ]or higher
- Insulation internal voltage: 1800 VAC, 1 second
- Operating voltage: 200 VAC
- Operating temperature: 0 - 40[℃] / Storage temperature: -10~60[℃]
- Ambient humidity: 20 - 80% RH (no condensation)
- Installation location: Place with no toxic substances, such as corrosiveand combustible gasses, cutting oil, metal dust, grease or direct sunlight

Line-up Table

Rated Torque[Nm]			3	6	9	12	18	22	34	40	60	110	160	330
Maximum Torque[Nm]			9	18	27	36	54	66	102	120	180	330	480	1000
Rated Speed 200[rpm]	Maximum Speed 500[rpm]	Ø135	DB03D	DB06D	DB09D									
		Ø175		DC06D		DC12D								
		Ø230				DD12D								
	Maximum Speed 400[rpm]	Ø175					DC18D							
		Ø230						DD22D	DD34D					
	Maximum Speed 300[rpm]	Ø290							DE40D	DE60D				
Rated Speed 150[rpm]	Maximum Speed 250[rpm]	Ø360									DFA1G	DFA6G		
Rated Speed 50[rpm]	Maximum Speed 100[rpm]	Ø380												DGC3S

Drive Combination Table

MDM Serial Type

Rated Speed (RPM)	Maximum Speed (RPM)	External Diameter of Motor(Ø)	Motor	Drive	Standard Encoders	Encoders Cable (Serial)	Power Cable (Power)
200	500	135	DB03D	L7□A001□	* 20Bit Serial	APCS-E□□□ZS	APCS-PN□□YS
			DB06D	L7□A002□			
			DB09D	L7□A004□			
		175	DC06D	L7□A002□			
			DC12D	L7□A004□			
	400		DC18D	L7□A008□			
	500	230	DD12D	L7□A004□			
	400		DD22D	L7□A008□			
			DD34D	L7□A010□			
	300	290	DE40D	L7□A010□			
			DE60D	L7□A020□			
150	250	360	DFA1G	L7□A020□			APCS-PN□□ZS
			DFA6G	L7□A035□			
50	100	380	DGC3S	L7□A020□			

* : Single-turn Abs. Biss interface

Motor Shape

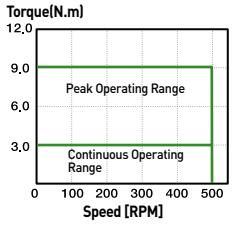
MDM-DB06DN0H-I	MDM-DC12DN0H-I	MDM-DD22DN0H-I	MDM-DE40DN0H-I	MDM-DFA6GN0H-I	MDM-DGC3SN0H-I
					

Specifications and Torque Characteristics

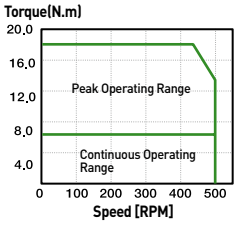
Motor Designation		MDM-DB□□D□□H-I			MDM-DC□□D□□H-I		
		03	06	09	06	12	18
Applicable Drive		L7□A001□	L7□A002□	L7□A004□	L7□A002□	L7□A004□	L7□A008□
Flange Size	mm	Ø135			Ø175		
Rated Output	W	63	126	188	126	251	377
Rated Torque	N·m	3	6	9	6	12	18
Max Torque	N·m	9	18	27	18	36	54
Rated Current	Arms	1.12	1.46	2.63	1.48	2.41	3.0
Max Current	Arms	3.36	4.38	7.89	4.44	7.23	9.0
Rated Speed	rpm	200			200		
Max Speed	rpm	500	500	500	500	500	400
Constant of Torque	N·m/Arms	2.76	4.25	3.57	4.18	5.13	6.12
Inertia	$kg·m^2X10^{-4}$	11.56	18.42	26.02	45.83	70.37	94.91
Allowable Load Inertia Ratio		30 times of motor inertia			15 times of motor inertia		
Power Rate	kW/S	15.68	42.35	70.43	13.18	52.71	118.59
Angular Acceleration	rad/s^2	191.2	141.6	127.7	455.03	323.9	280.3
Positioning Accuracy	arc-sec	±30					
Positioning Repeatability	arc-sec	±1.3					
Axial run-out	mm	0.015					
Radial run-out	mm	0.03					
Allowable Thrust Load	N	1500			3300		
Max. Instantaneous	N-m	40			70		
Encoder Type		20-bit single turn serial encoder (Biss/Absolute)					
Weight(Approx.)	kg	6.3	7.2	9.2	8.7	10.6	12.6
Working Environment	Ambient Temp	Ambient temperature: 0~40[ ] / storage : -20~60[ ]					
	Ambient Humidity	20~80[%] RH(Avoid dew-condensation)					
	Atmosphere	Avoid direct sunlight, No corrosive gas, Inflammable gas, Oil mist, or Dust					

Speed-Torque Characteristics

MDM-DB03D



MDM-DB06D



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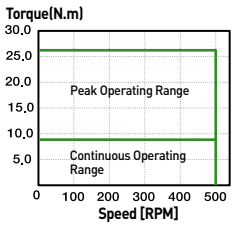

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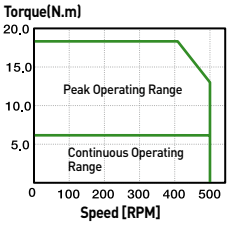
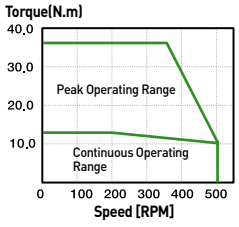
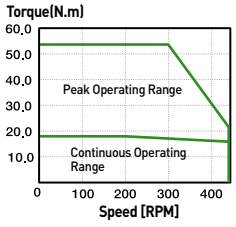


MDM-DC12D



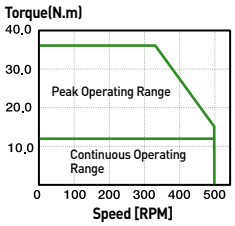
MDM-DC18D



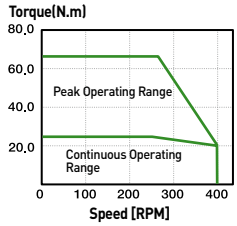
Motor Designation		MDM-DD□□D□□H-I			MDM-DE□□D□□H-I		MDM-DF□□G□□H-I		MDM-DG□□G□□H-I
		12	22	34	40	60	A1	A6	C3
Applicable Drive		L7□A004□	L7□A008□	L7□A010□	L7□A010□	L7□A020□	L7□A020□	L7□A035□	L7□A020□
Flange Size	mm	Ø230			Ø290		Ø360		Ø380
Rated Output	W	251	461	712	838	1,257	1,728	2,513	1,728
Rated Torque	N·m	12	22	34	40	60	110	160	330
Max Torque	N·m	36	66	102	120	180	330	480	1,000
Rated Current	Arms	2.58	3.33	5.72	5.3	8.33	9.48	14.6	12.0
Max Current	Arms	7.74	9.99	17.16	15.9	24.99	28.44	43.8	36.0
Rated Speed	rpm	200			200		150		50
Max Speed	rpm	500	400	400	300	300	250	250	100
Constant of Torque	N·m/Arms	4.8	6.81	6.13	7.77	7.42	11.95	11.29	28.59
Inertia	kg·m^{2}X10^{-4}	94.70	141.10	190.70	427.2	587.9	2507.0	3457.0	6449.0
Allowable Load Inertia Ratio		15 times of motor inertia			3 times of motor inertia				
Power Rate	kW/S	26.6	71.02	140.7	51.36	96.68	85.9	145.4	169.1
Angular Acceleration	rad/s^2	450.9	309.6	241.5	778.35	619.1	1281.13	1101.4	1952.9
Positioning Accuracy	arc-sec	±30							
Positioning Repeatability	arc-sec	±1.3							
Axial run-out	mm	0.015							
Radial run-out	mm	0.03							
Allowable Thrust Load	N	4,000			11,000		15,000		21,000
Max. Instantaneous	N-m	93			250		350		450
Encoder Type		20-bit single turn serial encoder (Biss/Absolute)							
Weight(Approx.)	kg	17.3	19.6	21.9	28.2	35	54	70.3	162
Working Environment	Ambient Temp	Ambient temperature: 0~40[ ] / storage : -20~60[ ]							
	Ambient Humidity	20~80[%] RH(Avoid dew-condensation)							
	Atmosphere	Avoid direct sunlight, No corrosive gas, Inflammable gas, Oil mist, or Dust							

Speed-Torque Characteristics

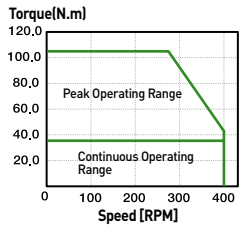
MDM-DD12D



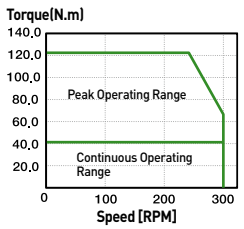
MDM-DD22D



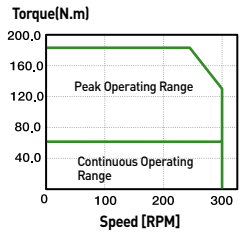
MDM-DD34D



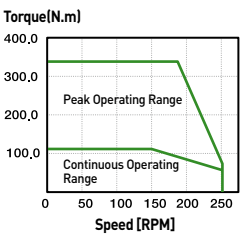
MDM-DE40D



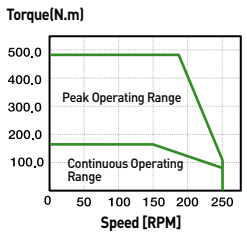
MDM-DE60D



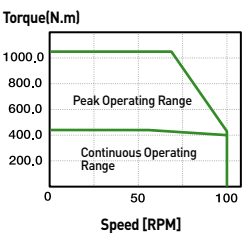
MDM-DFA1G



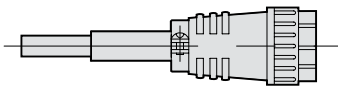
MDM-DFA6G

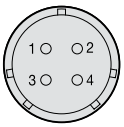


MDM-DGC3S



MDM-DB03D, MDM-DB06D, MDM-DB09D

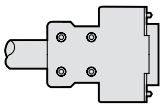


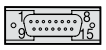


NJC-24-4-PM

Contents		Pin No.
LEAD WIRE	U	1
	V	2
	W	3
Ground		4

(Power Connector Pin Table)

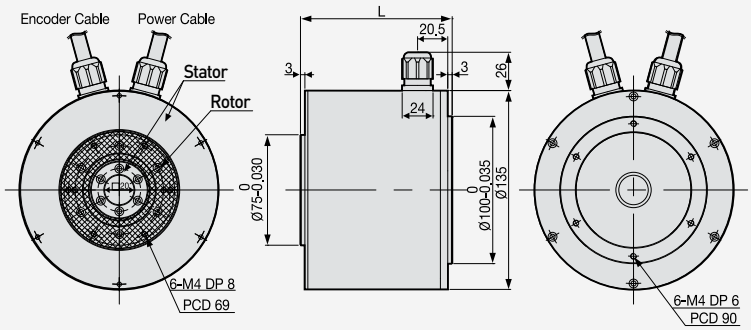




D- Sub Connector (15pin)

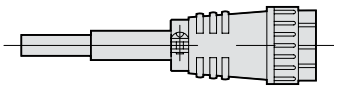
D.D SERVO ENCODER CABLE			
NO.	Encoder Signal	NO.	Encoder Signal
1	MA	9	+5V
2	SLO	10	-
3	-	11	-
4	0V	12	-
5	SHIELD	13	-
6	$\overline{MA}$	14	-
7	$\overline{SLO}$	15	-
8	-		

(Encoder Connector Pin Table)



Model	External Dimensions(mm)	Weight (kg)
	L	
MDM-DB03D	78	6.3
MDM-DB06D	100	7.2
MDM-DB09D	124	9.2

MDM-DC06D, MDM-DC12D, MDM-DC18D



NJC-24-4-PM

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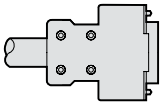
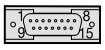
LEAD WIRE	U	1
	V	2
	W	3
Ground		4

(Power Connector Pin Table)





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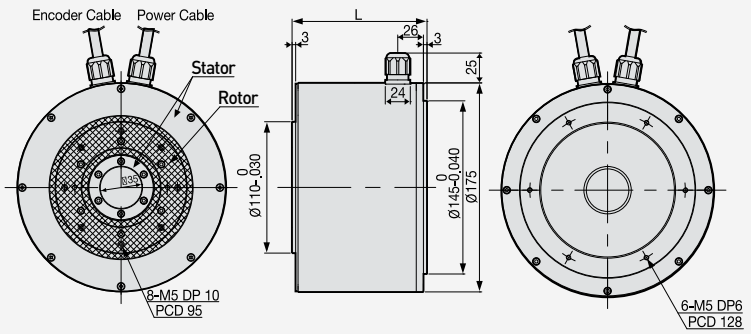
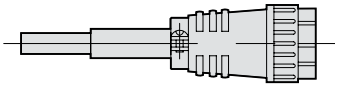
1	MA	9	+5V
2	SLO	10	-
3	-	11	-
4	0V	12	-
5	SHIELD	13	-
6	$\overline{MA}$	14	-
7	$\overline{SLO}$	15	-
8	-		

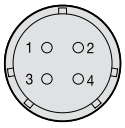
(Encoder Connector Pin Table)



Model	External Dimensions(mm)	Weight (kg)
	L	
MDM-DC06D	77	8.7
MDM-DC12D	95	10.6
MDM-DC18D	113	12.6

MDM-DD12D, MDM-DD22D, MDM-DD34D

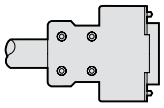


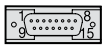


NJC-24-4-PM

Contents		Pin No.
LEAD WIRE	U	1
	V	2
	W	3
Ground		4

(Power Connector Pin Table)

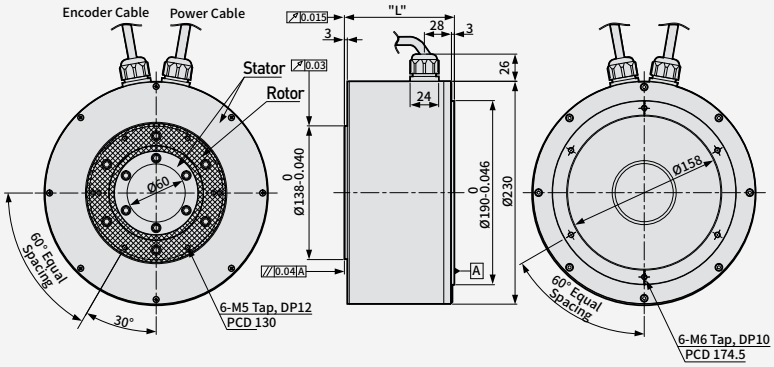




D- Sub Connector (15pin)

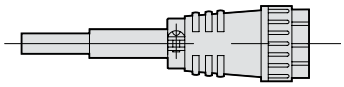
D.D SERVO ENCODER CABLE			
NO.	Encoder Signal	NO.	Encoder Signal
1	MA	9	+5V
2	SLO	10	-
3	-	11	-
4	0V	12	-
5	SHIELD	13	-
6	$\overline{MA}$	14	-
7	$\overline{SLO}$	15	-
8	-		

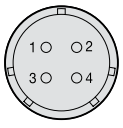
(Encoder Connector Pin Table)



Model	External Dimensions(mm)	Weight (kg)
	L	
MDM-DD12D	82.5	17.3
MDM-DD22D	100.5	19.6
MDM-DD34D	118.5	21.9

MDM-DE40D, MDM-DE60D

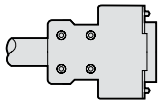


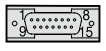


NJC-24-4-PM

Contents		Pin No.
LEAD WIRE	U	1
	V	2
	W	3
Ground		4

(Power Connector Pin Table)

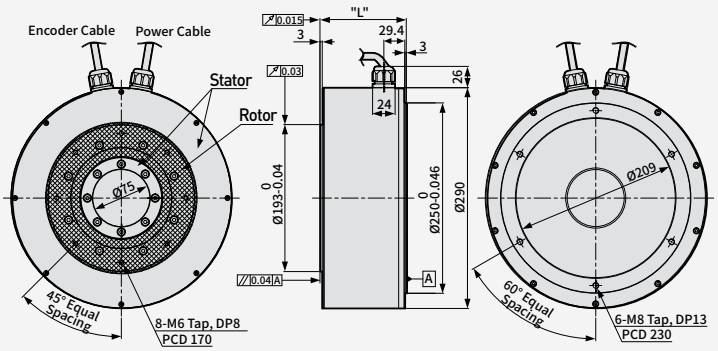




D- Sub Connector (15pin)

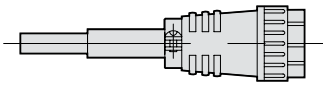
D.D SERVO ENCODER CABLE			
NO.	Encoder Signal	NO.	Encoder Signal
1	MA	9	+5V
2	SLO	10	-
3	-	11	-
4	0V	12	-
5	SHIELD	13	-
6	$\overline{MA}$	14	-
7	$\overline{SLO}$	15	-
8	-		

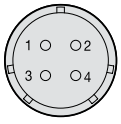
(Encoder Connector Pin Table)



Model	External Dimensions(mm)	Weight (kg)
	L	
MDM-DE40D	95.4	28.2
MDM-DE60D	113.4	35

MDM-DFA1G, MDM-DFA6G

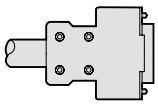


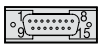


NJC-24-4-PM

Contents		Pin No.
LEAD WIRE	U	1
	V	2
	W	3
Ground		4

(Power Connector Pin Table)





D- Sub Connector (15pin)

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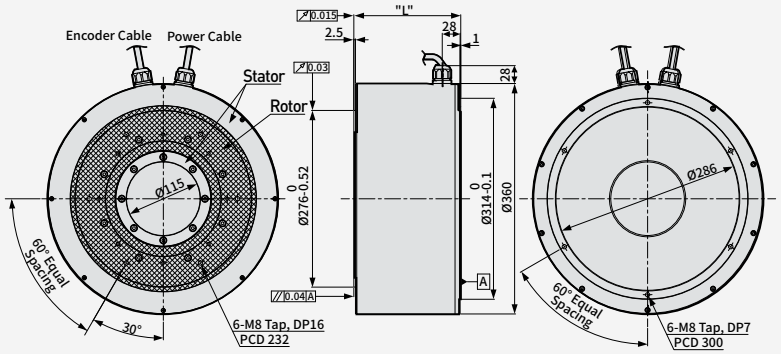
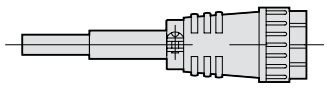
5	SHIELD	13	-
6	$\overline{MA}$	14	-
7	$\overline{SLO}$	15	-
8	-		

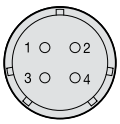
(Encoder Connector Pin Table)



Model	External Dimensions(mm)	Weight (kg)
	L	
MDM-DFA1G	131	54
MDM-DFA6G	167	70.3

MDM-DGC3SN0H

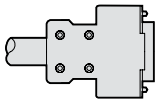


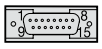


NJC-24-4-PM

Contents		Pin No.
LEAD WIRE	U	1
	V	2
	W	3
Ground		4

(Power Connector Pin Table)





D- Sub Connector (15pin)

D.D SERVO ENCODER CABLE			
NO.	Encoder Signal	NO.	Encoder Signal
1	MA	9	+5V
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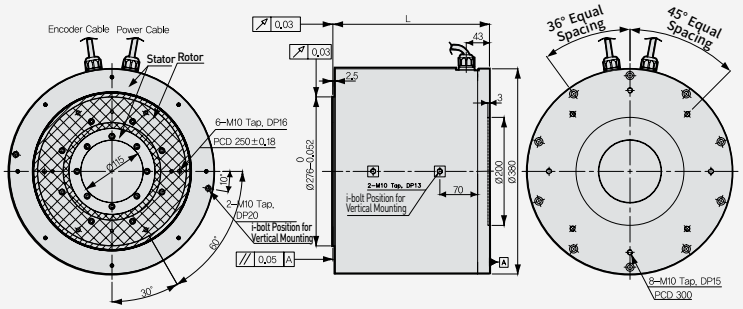
5	SHIELD	13	-
6	$\overline{MA}$	14	-
7	$\overline{SLO}$	15	-
8	-		

(Encoder Connector Pin Table)



Model	External Dimensions(mm)	Weight (kg)
	L	
MDM-DGC3SN0H	290	162

Troubleshooting

If an overcurrent alarm occurs

- Please check if the drive output and the encoder are wired properly.
- Please check for equipment collision or restraint.

High performance

- Please inspect the input voltage and load condition.
- Please check if the drive output and the encoder are wired properly.
- Please check for equipment collision or restraint.