



# MANUAL

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### DSM72 Geard ECG Series Drawing

<u>DSM72-24V +IG71</u>	
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The Smart EC motor is a high-performance BLDC motor with a hollow shaft and an electronic commutation circuit.

The gear train of the smart EC motor is a cycloid gear train and IG planetary gearhead

The use of existing DSM series products with an adapted design results in robust, space-saving drive solution with high power density.

Configured, combine and order EC motors(DSM), driver(ECIP), gearheads(ECG), brakes(BXW) and encoders(ECM) that match your individual needs.

Smart EC motors can be configured and ordered online. Fast , easy and online : [www.dnj.co.kr](http://www.dnj.co.kr) ([dnj@dnj.co.kr](mailto:dnj@dnj.co.kr))

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No. 2105B V10. 2021 DNJWITH

DSM721B, 24V, 25 Watt, IG71 Planetary Gearhead, Brushless



#REF!

- Planetary Gearhead : straight teeth
- Output shaft : stainless steel
- Bearing at output : ball bearing
- Rotation direction : CW/CCW (View from output shaft)
- Motor posture : Horizontal (output shaft)
- For transferring high torques up to 10N.m
- High reduction ratio in a small space
- Reduction ratios of 4:1 to 611:1
- Hall sensor (5~24Vdc, open-collector)

Nominal data [ Geared motor ]

DSM 721B -24V -25P + IG71 [ Reduction Ratio ]

Reduction Ratio	DSM 721B -24V -25P + IG71 [ Reduction Ratio ]															
	4	13	16	20	50	60	75	91	102	126	189	242	300	363	414	493
	543	611														
Gearhead Length L	mm	49.3	65.8	65.8	65.8	82.3	82.3	82.3	82.3	82.3	98.8	98.8	98.8	98.8	98.8	98.8
		98.8	98.8													
Rated Torque	N.m	0.26	0.73	0.90	1.12	2.40	2.88	3.60	4.37	12.26	12.26	12.26	12.26	12.26	12.26	12.26
		12.26	12.26													
Max. momentary tolerance torque	N.m	4.4	20.6	20.6	20.6	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
		36.8	36.8													
Efficiency	%	80	70	70	70	60	60	60	60	60	60	50	50	50	50	50
		50	50													
Rated Speed	rpm	715.4	217.8	177.0	141.6	56.6	47.2	37.8	31.1	27.5	22.2	14.8	11.6	9.3	7.7	6.8
		5.2	4.6													
No load speed	rpm	850.0	261.5	212.5	170.0	68.0	56.7	45.3	37.4	33.3	27.0	18.0	14.0	11.3	9.4	8.2
		6.3	5.6													
Weight	g	1530	1860	1860	1860	2190	2190	2190	2190	2190	2190	2530	2530	2530	2530	2530
		2530	2530													
Temperature ratings (Operation)	Dry bulb temp (-10~50°C), Relative humidity ( 0~85%)															
Temperature ratings (Storage)	Dry bulb temp (-10~60°C), Relative humidity (10~90%)															

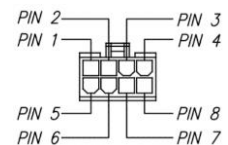
Motor specification

DSM721B-24V-25P

PIN Allocation

(Molex 5557-08R)

Motor specification	DSM721B-24V-25P	PIN Allocation	(Molex 5557-08R)
Rated Voltage	V	24	1 black GND Motor
Rated Speed	RPM	2950	2 blue Motor winding W Hall sensor
Rated Torque	N.m	0.08	3 green Motor winding V
Rated Current	A	1.4	4 yellow Motor winding U
Rated Power	W	25	5 red Vhall 5 .... 24Vdc
No load speed	RPM	3400	6 brown Hall sensor C
No load current	mA	400	7 gray Hall sensor B
Weight	g	440	8 white Hall sensor A



DSM721N, 24V, 35 Watt, IG71 Planetary Gearhead, Brushless



#REF!

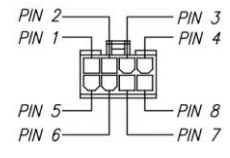
- Planetary Gearhead : straight teeth
- Output shaft : stainless steel
- Bearing at output : ball bearing
- Rotation direction : CW/CCW (View from output shaft)
- Motor posture : Horizontal (output shaft)
- For transferring high torques up to 10N.m
- High reduction ratio in a small space
- Reduction ratios of 4:1 to 611:1
- Hall sensor (5~24Vdc, open-collector)

Nominal data [ Geared motor ] DSM 721N -24V -35P + IG71 [ Reduction Ratio ]

		4	13	16	20	50	60	75	91	102	126	189	242	300	363	414	493
Reduction Ratio		543	611														
		49.3	65.8	65.8	65.8	82.3	82.3	82.3	82.3	82.3	82.3	98.8	98.8	98.8	98.8	98.8	98.8
Gearhead Length L	mm	98.8	98.8														
		0.48	1.37	1.68	2.10	4.50	5.40	6.75	8.19	12.26	12.26	12.26	12.26	12.26	12.26	12.26	12.26
Rated Torque	N.m	12.26	12.26														
		4.4	20.6	20.6	20.6	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
Max. momentary tolerance torque	N.m	36.8	36.8														
		80	70	70	70	60	60	60	60	60	60	50	50	50	50	50	50
Efficiency	%	50	50														
		533.5	162.5	132.0	105.6	42.2	35.2	28.2	23.2	20.5	16.6	11.1	8.6	7.0	5.8	5.0	4.2
Rated Speed	rpm	3.8	3.4														
		650.0	200.0	162.5	130.0	52.0	43.3	34.7	28.6	25.5	20.6	13.8	10.7	8.7	7.2	6.3	5.3
No load speed	rpm	4.8	4.3														
Weight	g																
Temperature ratings (Operation)	Dry bulb temp (-10~50°C), Relative humidity ( 0~85%)																
Temperature ratings (Storage)	Dry bulb temp (-10~60°C), Relative humidity (10~90%)																

Motor specification DSM721N-24V-35P PIN Allocation (Molex 5557-08R)

Motor specification	DSM721N-24V-35P	PIN Allocation	(Molex 5557-08R)
Rated Voltage	V	24	1 black GND Motor
Rated Speed	RPM	2200	2 blue Motor winding W Hall sensor
Rated Torque	N.m	0.15	3 green Motor winding V
Rated Current	A	2.2	4 yellow Motor winding U
Rated Power	W	35	5 red Vhall 5 .... 24Vdc
No load speed	RPM	2600	6 brown Hall sensor C
No load current	mA	400	7 gray Hall sensor B
Weight	g	440	8 white Hall sensor A



DSM721B, 24V, 40 Watt, IG71 Planetary Gearhead, Brushless



#REF!

- Planetary Gearhead : straight teeth
- Output shaft : stainless steel
- Bearing at output : ball bearing
- Rotation direction : CW/CCW (View from output shaft)
- Motor posture : Horizontal (output shaft)
- For transferring high torques up to 10N.m
- High reduction ratio in a small space
- Reduction ratios of 4:1 to 611:1
- Hall sensor (5~24Vdc, open-collector)

Nominal data [ Geared motor ]

DSM 721B -24V -40P + IG71 [ Reduction Ratio ]

		4	13	16	20	50	60	75	91	102	126	189	242	300	363	414	493	
		543	611															
Reduction Ratio		49.3	65.8	65.8	65.8	82.3	82.3	82.3	82.3	82.3	82.3	98.8	98.8	98.8	98.8	98.8	98.8	98.8
	mm	98.8	98.8															
Rated Torque	N.m	0.32	0.91	1.12	1.40	3.00	3.60	4.50	5.46	12.26	12.26	12.26	12.26	12.26	12.26	12.26	12.26	12.26
		12.26	12.26															
Max. momentary tolerance torque	N.m	4.4	20.6	20.6	20.6	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
		36.8	36.8															
Efficiency	%	80	70	70	70	60	60	60	60	60	60	50	50	50	50	50	50	50
		50	50															
Rated Speed	rpm	921.5	280.6	228.0	182.4	73.0	60.8	48.6	40.1	35.4	28.7	19.1	14.9	12.0	9.9	8.7	7.3	
		6.6	5.9															
No load speed	rpm	1100.0	338.5	275.0	220.0	88.0	73.3	58.7	48.4	43.1	34.9	23.3	18.2	14.7	12.1	10.6	8.9	
		8.1	7.2															
Weight	g																	
Temperature ratings (Operation)		Dry bulb temp (-10~50°C), Relative humidity ( 0~85%)																
Temperature ratings (Storage)		Dry bulb temp (-10~60°C), Relative humidity (10~90%)																

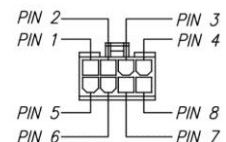
Motor specification

DSM721B-24V-40P

PIN Allocation

(Molex 5557-08R)

Rated Voltage	V	24	1 black	GND	Motor	UL1061 AWG 22
Rated Speed	RPM	3800	2 blue	Motor winding W	Hall sensor	UL1061 AWG 26
Rated Torque	N.m	0.10	3 green	Motor winding V		
Rated Current	A	2.2	4 yellow	Motor winding U		
Rated Power	W	40	5 red	Vhall 5 .... 24Vdc		
No load speed	RPM	4400	6 brown	Hall sensor C		
No load current	mA	700	7 gray	Hall sensor B		
Weight	g	440	8 white	Hall sensor A		



DSM721N, 24V, 50 Watt, IG71 Planetary Gearhead, Brushless

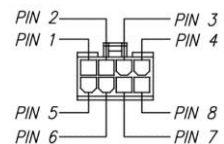


#REF!

- Planetary Gearhead : straight teeth
- Output shaft : stainless steel
- Bearing at output : ball bearing
- Rotation direction : CW/CCW (View from output shaft)
- Motor posture : Horizontal (output shaft)
- For transferring high torques up to 10N.m
- High reduction ratio in a small space
- Reduction ratios of 4:1 to 611:1
- Hall sensor (5~24Vdc, open-collector)

Nominal data [ Geared motor ]		DSM 721N -24V -50P + IG71 [ Reduction Ratio ]															
Reduction Ratio		4	13	16	20	50	60	75	91	102	126	189	242	300	363	414	493
		543	611														
Gearhead Length L	mm	49.3	65.8	65.8	65.8	82.3	82.3	82.3	82.3	82.3	82.3	98.8	98.8	98.8	98.8	98.8	98.8
		98.8	98.8														
Rated Torque	N.m	0.48	1.37	1.68	2.10	4.50	5.40	6.75	8.19	12.26	12.26	12.26	12.26	12.26	12.26	12.26	12.26
		12.26	12.26														
Max. momentary tolerance torque	N.m	4.4	20.6	20.6	20.6	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
		36.8	36.8														
Efficiency	%	80	70	70	70	60	60	60	60	60	60	50	50	50	50	50	50
		50	50														
Rated Speed	rpm	727.5	221.5	180.0	144.0	57.6	48.0	38.4	31.6	27.9	22.6	15.1	11.8	9.5	7.9	6.9	5.8
		5.2	4.7														
No load speed	rpm	850.0	261.5	212.5	170.0	68.0	56.7	45.3	37.4	33.3	27.0	18.0	14.0	11.3	9.4	8.2	6.9
		6.3	5.6														
Weighth	g																
Temperature ratings (Operation)	Dry bulb temp (-10~50°C), Relative humidity ( 0~85%)																
Temperature ratings (Storage)	Dry bulb temp (-10~60°C), Relative humidity (10~90%)																

Motor specification	DSM721N-24V-50P	PIN Allocation	(Molex 5557-08R)	
Rated Voltage	V	24	1 black GND Motor	UL1061 AWG 22
Rated Speed	RPM	3000	2 blue Motor winding W	Hall sensor UL1061 AWG 26
Rated Torque	N.m	0.15	3 green Motor winding V	
Rated Current	A	2.7	4 yellow Motor winding U	
Rated Power	W	50	5 red Vhall 5 .... 24Vdc	
No load speed	RPM	3400	6 brown Hall sensor C	
No load current	mA	800	7 gray Hall sensor B	
Weight	g	440	8 white Hall sensor A	



DSM722B, 24V, 70Watt, IG71 Planetary Gearhead, Brushless



#REF!

- Planetary Gearhead : straight teeth
- Output shaft : stainless steel
- Bearing at output : ball bearing
- Rotation direction : CW/CCW (View from output shaft)
- Motor posture : Horizontal (output shaft)
- For transferring high torques up to 10N.m
- High reduction ratio in a small space
- Reduction ratios of 4:1 to 611:1
- Hall sensor (5~24Vdc, open-collector)

Nominal data [ Geared motor ]

DSM 722B -24V -70P + IG71 [ Reduction Ratio ]

Reduction Ratio	DSM 722B -24V -70P + IG71 [ Reduction Ratio ]															
	4	13	16	20	50	60	75	91	102	126	189	242	300	363	414	493
Gearhead Length L	49.3	65.8	65.8	65.8	82.3	82.3	82.3	82.3	82.3	82.3	98.8	98.8	98.8	98.8	98.8	98.8
Rated Torque	0.77	2.18	2.69	3.36	7.20	8.64	10.80	13.10	12.26	12.26	12.26	12.26	12.26	12.26	12.26	12.26
Max. momentary tolerance torque	4.4	20.6	20.6	20.6	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
Efficiency	80	70	70	70	60	60	60	60	60	60	50	50	50	50	50	50
Rated Speed	679.0	206.8	168.0	134.4	53.8	44.8	35.8	29.5	26.1	21.1	14.1	11.0	8.9	7.3	6.4	5.4
No load speed	875.0	269.2	218.8	175.0	70.0	58.3	46.7	38.5	34.3	27.8	18.5	14.5	11.7	9.6	8.5	7.1
Weight																
Temperature ratings (Operation)	Dry bulb temp (-10~50°C), Relative humidity ( 0~85%)															
Temperature ratings (Storage)	Dry bulb temp (-10~60°C), Relative humidity (10~90%)															

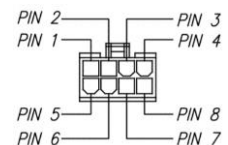
Motor specification

DSM722B-24V-70P

PIN Allocation

(Molex 5557-08R)

Rated Voltage	V	24	1 black	GND	Motor	UL1061 AWG 22
Rated Speed	RPM	2800	2 blue	Motor winding W	Hall sensor	UL1061 AWG 26
Rated Torque	N.m	0.24	3 green	Motor winding V		
Rated Current	A	4.0	4 yellow	Motor winding U		
Rated Power	W	70	5 red	Vhall 5 .... 24Vdc		
No load speed	RPM	3500	6 brown	Hall sensor C		
No load current	mA	800	7 gray	Hall sensor B		
Weight	g	630	8 white	Hall sensor A		



DSM722B, 24V, 80 Watt, IG71 Planetary Gearhead, Brushless



#REF!

- Planetary Gearhead : straight teeth
- Output shaft : stainless steel
- Bearing at output : ball bearing
- Rotation direction : CW/CCW (View from output shaft)
- Motor posture : Horizontal (output shaft)
- For transferring high torques up to 10N.m
- High reduction ratio in a small space
- Reduction ratios of 4:1 to 611:1
- Hall sensor (5~24Vdc, open-collector)

Nominal data [ Geared motor ]

DSM 722B -24V -80P + IG71 [ Reduction Ratio ]

Reduction Ratio	DSM 722B -24V -80P + IG71 [ Reduction Ratio ]															
	4	13	16	20	50	60	75	91	102	126	189	242	300	363	414	493
Gearhead Length L	49.3	65.8	65.8	65.8	82.3	82.3	82.3	82.3	82.3	82.3	98.8	98.8	98.8	98.8	98.8	98.8
Rated Torque	0.64	1.82	2.24	2.80	6.00	7.20	9.00	10.92	12.26	12.26	12.26	12.26	12.26	12.26	12.26	12.26
Max. momentary tolerance torque	4.4	20.6	20.6	20.6	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
Efficiency	80	70	70	70	60	60	60	60	60	60	50	50	50	50	50	50
Rated Speed	921.5	280.6	228.0	182.4	73.0	60.8	48.6	40.1	35.4	28.7	19.1	14.9	12.0	9.9	8.7	7.3
No load speed	1125.0	346.2	281.3	225.0	90.0	75.0	60.0	49.5	44.1	35.7	23.8	18.6	15.0	12.4	10.9	9.1
Weight	g															
Temperature ratings (Operation)	Dry bulb temp (-10~50°C), Relative humidity ( 0~85%)															
Temperature ratings (Storage)	Dry bulb temp (-10~60°C), Relative humidity (10~90%)															

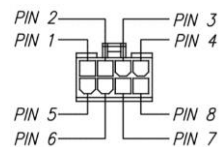
Motor specification

DSM722B-24V-80P

PIN Allocation

(Molex 5557-08R)

Rated Voltage	V	24	1 black	GND	Motor	UL1061 AWG 22
Rated Speed	RPM	3800	2 blue	Motor winding W	Hall sensor	UL1061 AWG 26
Rated Torque	N.m	0.20	3 green	Motor winding V		
Rated Current	A	4.5	4 yellow	Motor winding U		
Rated Power	W	80	5 red	Vhall 5 .... 24Vdc		
No load speed	RPM	4500	6 brown	Hall sensor C		
No load current	mA	700	7 gray	Hall sensor B		
Weight	g	630	8 white	Hall sensor A		



DSM722N, 24V, 110 Watt, IG71 Planetary Gearhead, Brushless



#REF!

- Planetary Gearhead : straight teeth
- Output shaft : stainless steel
- Bearing at output : ball bearing
- Rotation direction : CW/CCW (View from output shaft)
- Motor posture : Horizontal (output shaft)
- For transferring high torques up to 10N.m
- High reduction ratio in a small space
- Reduction ratios of 4:1 to 611:1
- Hall sensor (5~24Vdc, open-collector)

Nominal data [ Geared motor ]

DSM 722N -24V -110P + IG71 [ Reduction Ratio ]

		4	13	16	20	50	60	75	91	102	126	189	242	300	363	414	493
Reduction Ratio		543	611														
		49.3	65.8	65.8	65.8	82.3	82.3	82.3	82.3	82.3	82.3	98.8	98.8	98.8	98.8	98.8	98.8
Gearhead Length L	mm	98.8	98.8														
		1.15	3.28	4.03	5.04	10.80	12.96	16.20	19.66	12.26	12.26	12.26	12.26	12.26	12.26	12.26	12.26
Rated Torque	N.m	12.26	12.26														
		4.4	20.6	20.6	20.6	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
Max. momentary tolerance torque	N.m	36.8	36.8														
		80	70	70	70	60	60	60	60	60	60	50	50	50	50	50	50
Efficiency	%	50	50														
		727.5	221.5	180.0	144.0	57.6	48.0	38.4	31.6	27.9	22.6	15.1	11.8	9.5	7.9	6.9	5.8
Rated Speed	rpm	5.2	4.7														
		875.0	269.2	218.8	175.0	70.0	58.3	46.7	38.5	34.3	27.8	18.5	14.5	11.7	9.6	8.5	7.1
No load speed	rpm	6.4	5.7														
Weight	g																
Temperature ratings (Operation)		Dry bulb temp (-10~50°C), Relative humidity ( 0~85%)															
Temperature ratings (Storage)		Dry bulb temp (-10~60°C), Relative humidity (10~90%)															

Motor specification

DSM722N-24V-110P

PIN Allocation

(Molex 5557-08R)

Rated Voltage	V	24	1 black	GND	Motor	UL1061 AWG 22
Rated Speed	RPM	3000	2 blue	Motor winding W	Hall sensor	UL1061 AWG 26
Rated Torque	N.m	0.36	3 green	Motor winding V		
Rated Current	A	6.0	4 yellow	Motor winding U		
Rated Power	W	110	5 red	Vhall 5 .... 24Vdc		
No load speed	RPM	3500	6 brown	Hall sensor C		
No load current	mA	700	7 gray	Hall sensor B		
Weight	g	630	8 white	Hall sensor A		

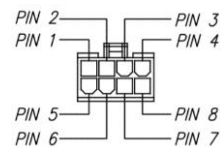




Table.1 Reduction ratio

Reduction ratio	1/4	1/13	1/16	1/20	1/50	1/60	1/75	1/91	1/102	1/126	1/189	1/242	1/300	1/363	1/414	1/493	1/543	1/161	
Length "L2"(mm)	48.8	65.3		81.8				98.3											

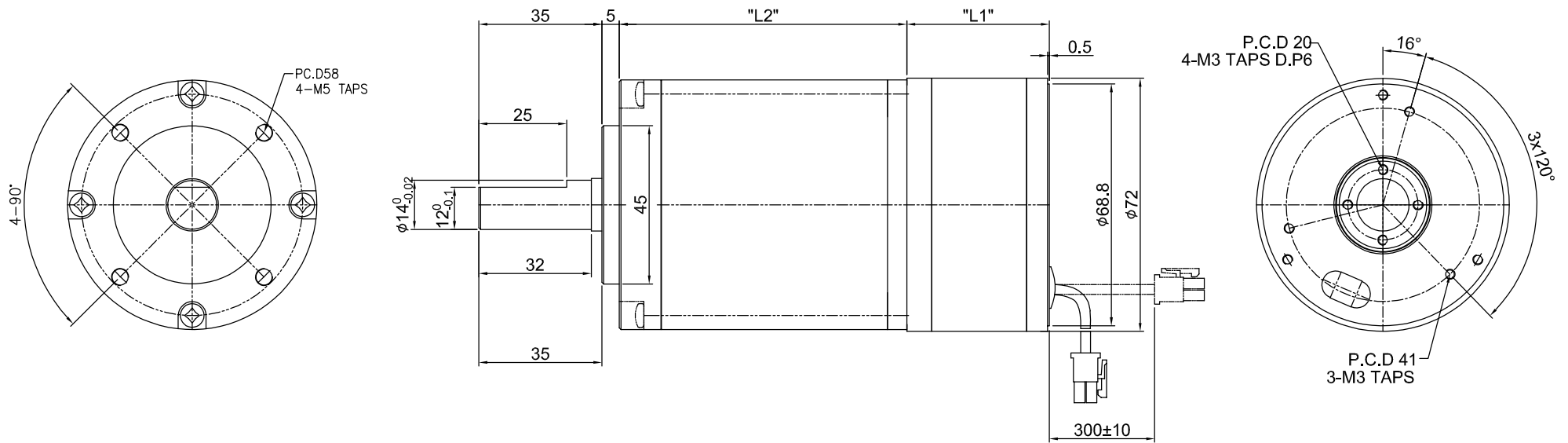


Table.2 Reduction ratio

Motor Type	Length "L1"(mm)
DSM721	40.5
DSM722	50.5

REV.	DATE	DESCRIPTION	DRWN
MATERIAL	-	PLATING	-
SCALE	N/S	PAPER	A4
DWG NO.	DSM72-24V + IG71		DIMENSION
			mm



SUBJECT

IG71 감속기