

1. Product Description

Model Number: Gear Motor, 12GN-0348

External appearance will be judged with the naked eye and will be free of scratches and abrasions

2. Motor Characteristics

Electrical Characteristics

[Measurement Conditions]

- Motor Configuration: Horizontal output shaft
- Temperature/Humidity: Measurement is, in principle, performed at -10°C~50°C and relative humidity of 30~90%. If in doubt, use the JIS standard temperature state (20°C +/- 2°C, 65% +/- 5%).
- Standard Drive Circuit: LB1836M (Sanyo)

Item	Content	Notes
Rated Voltage	5.0V DC	
Use Voltage	4.0V ~ 6.0V DC	(Across Motor Terminals)
Actuation Current	650 mA +/- 30% (at 5.0V)	
Insulation Resistance	Over 10mΩ with 100V DC applied between the case and the terminals	

	UNIT	NA 1 S	RA 1 S	NA 2 S	NA 3 S	NA 4 S	
NO LOAD SPEED	rpm	246	246	134	93	62	+/- 30%
NO LOAD CURRENT	mA	120	120	←	←	←	
200 g - cm LOAD SPEED	rpm	184	184	115	83	58	+/- 30%
200 g - cm LOAD CURRENT	mA	196	196	145	120	95	+/- 30%
STARTING TORQUE	gf - cm	(800)	(800)	(1400)	(2000)	(3300)	
LIMITER ACTION	gf - cm	-	230~600	-	-	-	-

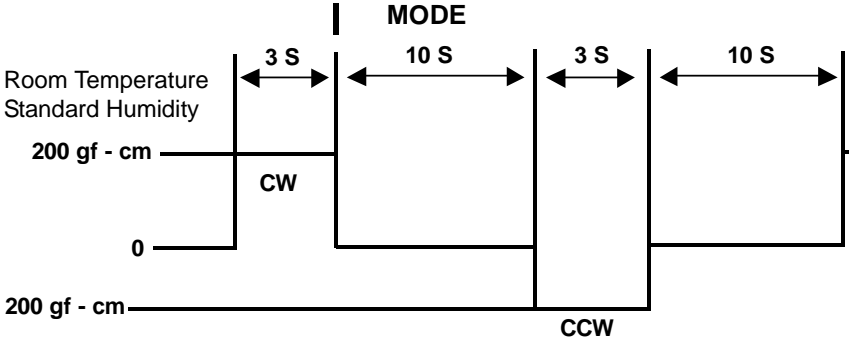
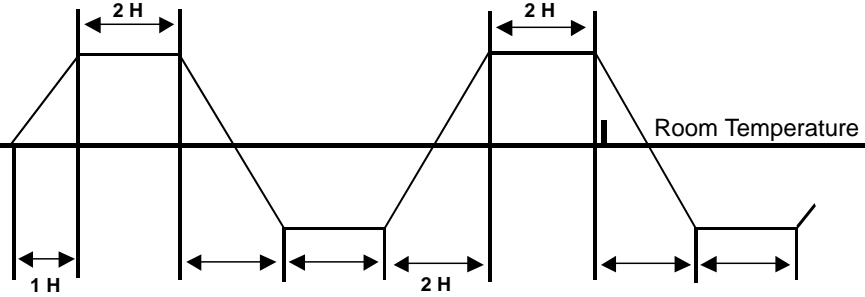
Mechanical Characteristics

Item	Content	Notes
Weight	8.7g +/- 1g	
Rated Load	200 gf-cm (1.96×10^{-2} N · m)	
Motor Configuration	Omnidirectional	
Usage Temperature/ Humidity Range	(0°C ~ +50°C) (20% ~ 90%)	
Storage Temperature/ Humidity Range	(-30°C ~ +70°C) (5% ~ 95%)	
Noise	Below 55 dB at 5.0V	Horizontally mounted with no load. Measured at 30cm from the shaft with a background noise level of below 26 dB-A.
<p>The diagram illustrates the noise measurement setup. A motor is placed on a rectangular sponge cushion that is 3 cm high. A horizontal line indicates a distance of 30 cm from the motor's shaft to a microphone. The microphone is connected to a noise meter labeled 'NOISE METER RION NA - 23'. A label 'MICROPHONE A SCALE' points to the microphone.</p>		
End Play	0.02 ~ 0.35mm in drive shaft (Shaft Direction)	
Lateral Play	Less than 0.04mm at the tip of the drive shaft	
Vibration	Less than 40m/s^2	V = 6.5V, (between the motor terminals)

Reliability

Measurement Conditions

- Motor Position: Gear Head Horizontal
- Power Supply: Regulated DC Power Supply
- Temperature/Humidity: (15°C ~ 30°C) (30% ~ 90%) RH

Item	Conditions/Test Environment	Determination Standard
Operation Lifetime Testing	<p> -10°C: 20,000 rotations Room Temperature: 30,000 rotations 50°C: 20,000 rotations Operation. Filter: Open Closed Assumes a 2 second rest. </p>  <p> After 30,000 operating cycles, should be within +/- 50% of the 200 g-cm rated current </p>	<p> Perform testing at the conditions at left with the actual device provided by Sanyo Electric. After testing, the determination standards table should be satisfied. </p>
Temperature Cycling Test	<p> 24 hours of the test below. Motors should meet the requirements of 4-3 after being held at room temperature for </p> 	<p> Should satisfy the determination standards table under the environment at left. </p>
Vibration Testing	<p> Acceleration of 3G on motor unit only, frequency of 5 ~ 500 Hz of sinusoidal vibration in vertical direction for 30 minutes each. Must satisfy section 4 and 5 of this specification. </p>	<p> Should satisfy the determination standards table. </p>



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Item	Conditions/Test Environment	Determination Standard
Drop Testing	6 drops, one on each face of mass production packaging from 50 cm. Meet section 4 and 5 after drop test.	Should satisfy the determination standards table.

Reliability Determination Standards Table

Reliability Item		1 Operation Lifetime Testing	2 Thermal Shock Test	3 Low Temperature Testing	4 High Temperature Testing	5 Humidity Resistance Testing	6 Temperature Characteristics Testing	7 Vibration Testing	8 Drop Testing	9 Solder Temperature Resistance
Number	Characteristic Item									
7	Pull-in Torque	○	○	○	○	○	○	○	○	○
1	Coil Resistance	○	NA	NA	NA	NA	NA	NA	NA	NA
3	Insulation Resistance	○	NA	NA	NA	NA	NA	NA	NA	NA
8	Maximum Response Frequency	○	○	○	○	○	○	○	○	○
9	Maximum Actuation Frequency	○	○	○	○	○	○	○	○	○

*Note: Reliability Determination Standard 1 is determined by 5 samplings where AC = 0 and RE = 1.

3. Packing Specification

Motor Tray: 100 pcs per tray

Outside Box: size of figure 1

Motors per package: 100 pcs x 10 trays = max 1000 pcs

In it one piece of cardboard will be placed in the tray for protection.

One empty tray will be taped on top for protection

- a) Total weight about 9 kg
- b) 100 pcs per tray
- c) Part number and number of parts to be noted on the side of the box

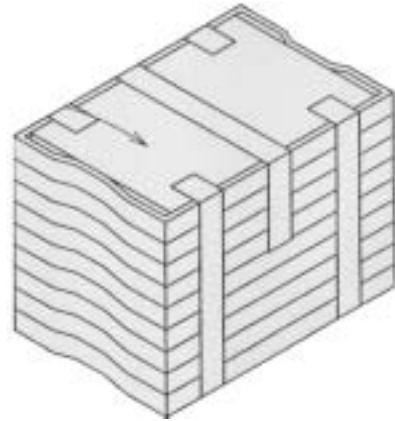
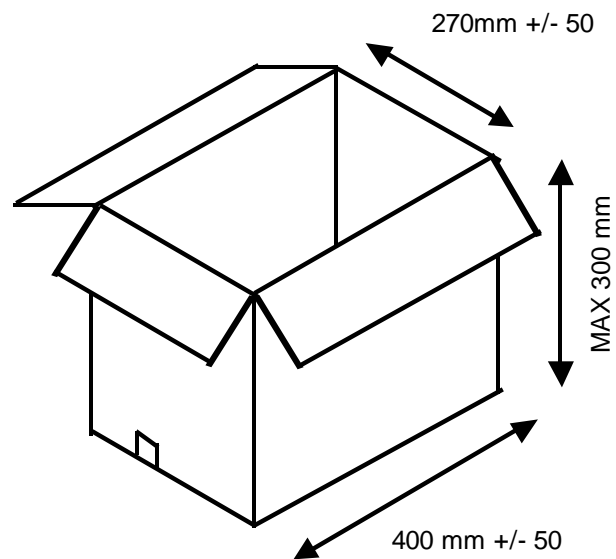


FIGURE 1



4. Other

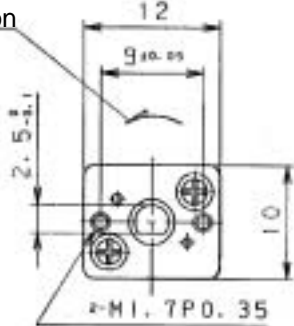
4-1 Please heed the attached motor handling instructions.

Locking the output shaft during operation may cause destruction of the gears.

There may be modifications to this specification to accommodate improvements in the manufacturing process or motor characteristics.

If there are any questions about a portion of this specification, they may be addressed with a meeting with a representative from Sanyo.

Rotation Direction



Screw depth of 2mm or less from mounting surface.

No.	History	Date	Name
△			

FOR REFERENCE

Note)

*1: The pull-out power after the gearbox plate is tightened with the motor in a mounted state is 15Kgf. minimum.

*2: Plate: Iron plate, Tuffride processed

Device Name: NA35

Not No.: SA95V

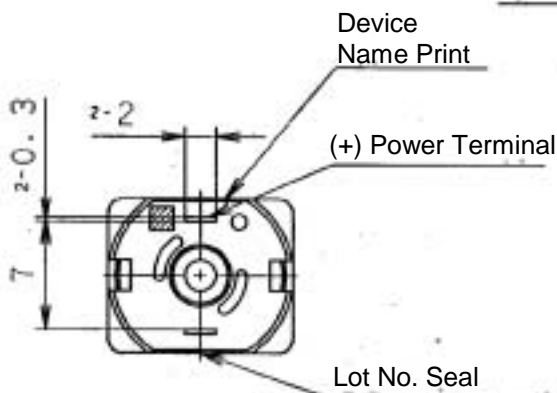
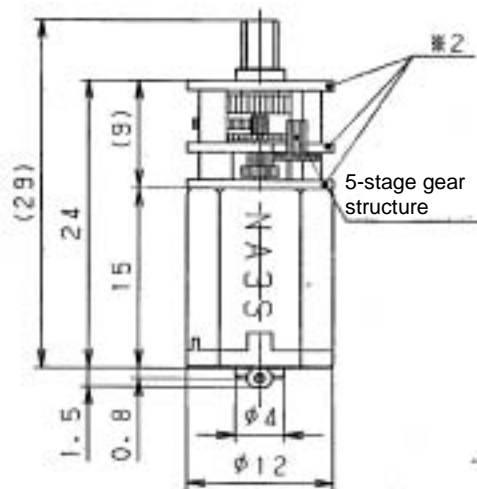
SA: Classification Code

9: Last number of western calendar

5: Month (10, 11, 12) = (X, Y, Z)

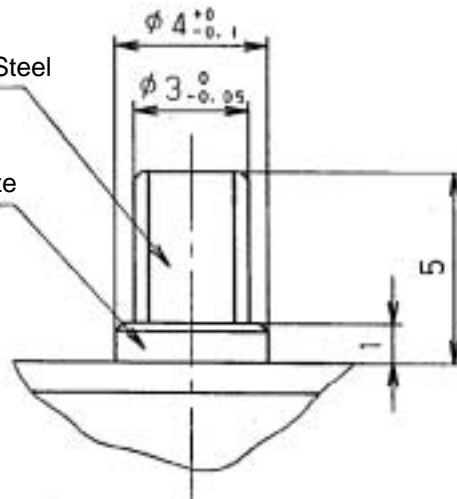
V: Day (1, 2, 3...9)

(10, 11, 12...31) = (Am B, ...V)



Free Cutting Steel

Phosphor Bronze



Detail of Output Shaft (5/1)

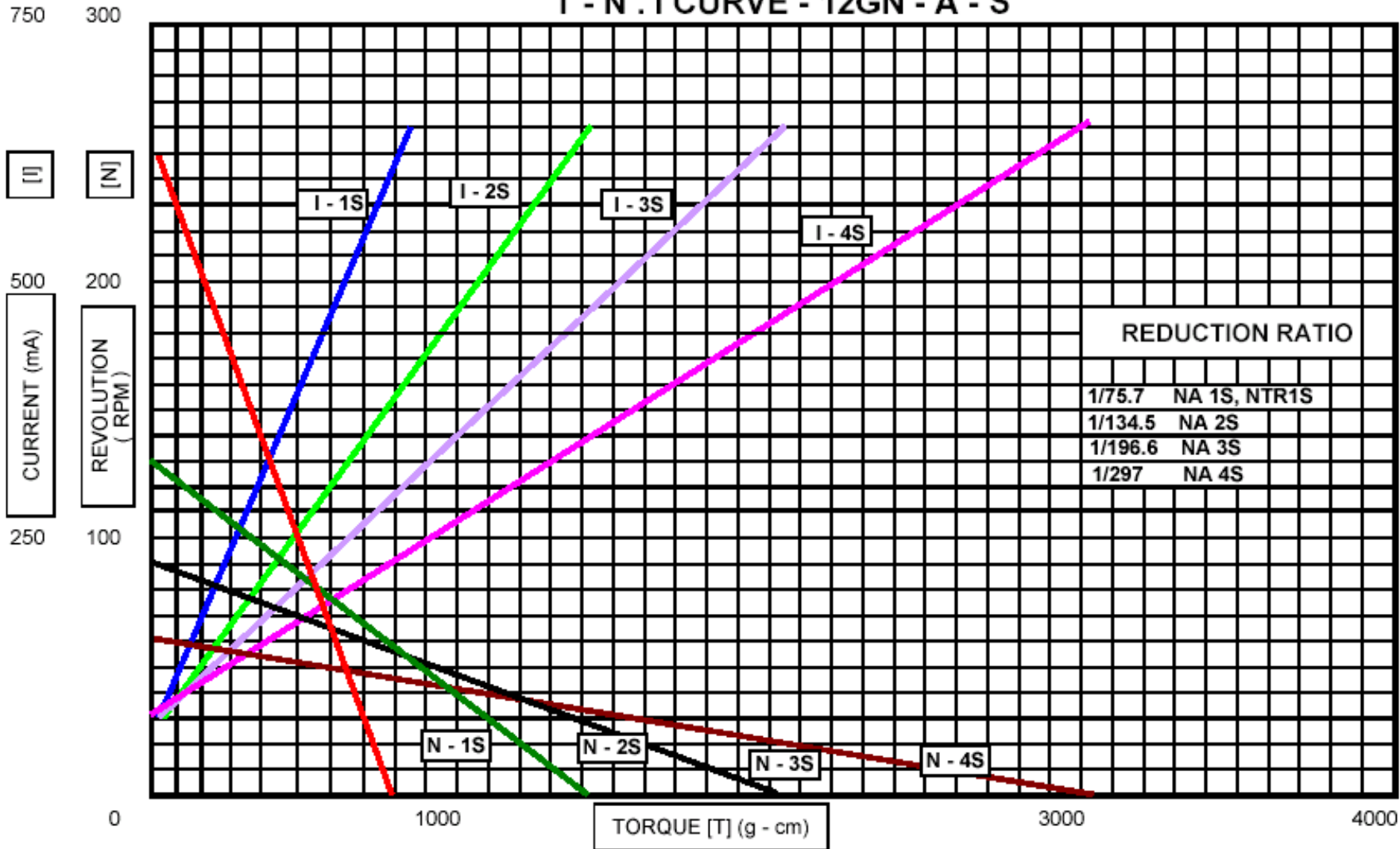
Gearing Ratio		1/196.6			
Device Name		12GN-A3S		User Code	
Dimetric Projection	Scale	General Tolerance	Parts List Number	External Drawing of Motor	
	2/1	±0.25			
4/25/199255/31/99					
Designed	Drafted	Reviewed	Approved	PartCode	B 0 1 0 3 5 0 0 0
Gijutsu	Gijutsu	Gijutsu	Gijutsu		
5/31/99	5/31/99	6/21/99	8/21/99		
Aoki	Sugimura	Aoki	Nakayama		



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Gearing Ratio		1/196.6							
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		2/1	±0.25						
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Gijutsu	Gijutsu	Gijutsu	Gijutsu						
5/31/99	5/31/99	6/21/99	8/21/99						
Aoki	Sugimura	Aoki	Nakayama						

CHARACTERISTIC - TORQUE SPEED CURRENT
 EXAMPLE CHARACTERISTICS
 T - N . I CURVE - 12GN - A - S



DATE :
 1999.06.07

TEMPERATURE
 Celsius

MODEL:
 12GN Series

TYPE:
 12GN - A - S

VOLTAGE:
 5V