

The Heart of Motion Control

SAEHAN ELECTRONICS CATALOG



HEAD OFFICE AND FACTORY

124 SINARO, BUBAL-EUP, ICHEON-SI, GYEONGGI-DO, S.KOREA (467-860)
TEL 82-31-636-8145 / FAX 82-31-636-4998
E-MAIL : saehan@shmotor.co.kr / sales@shmotor.co.kr

<http://www.shmotor.co.kr>

SAEHAN ELECTRONICS RESERVES THE RIGHT TO CHANGE ANY PRODUCTS
LISTED IN THIS CATALOG WITHOUT NOTICE.





CONTENTS

STEPPING MOTOR

HYBRID STEPPING MOTOR (1.8 STEP ANGLE)

60Q SERIES	6
56Q SERIES	8
56Q GEARED SERIES	10
56R SERIES	12
42Q SERIES	13
42Q GEARED SERIES	15
39Q SERIES	16

MOTOR OPTION PART	17
-------------------------	----

BLDC MOTOR

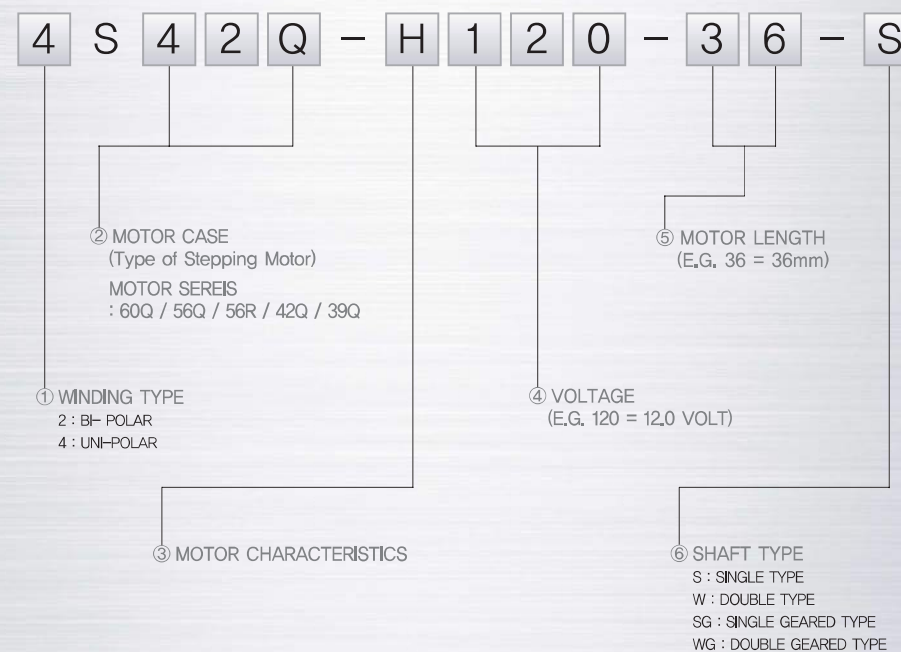
B60Q SERIES	18
-------------------	----

HIGH PRECISION MACHINING PART

CNC MACHINING PART	20
--------------------------	----

HYBRID STEPPING MOTOR

HYBRID STEPPING MOTOR MODEL NUMBERING SYSTEM



■ GENERAL SPECIFICATIONS

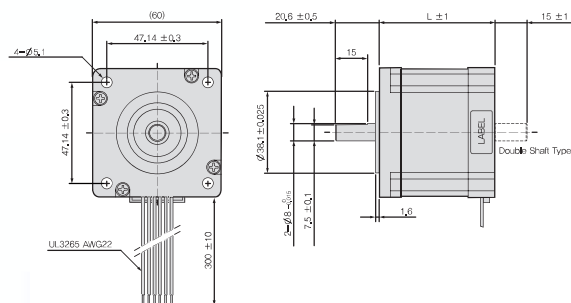
SERIES	60Q SERIES	56Q SERIES	56R SERIES	42Q SERIES	39Q SERIES
1. POSITIONAL ACCURACY	± 5%				
2. INSULATION CLASS	B CLASS				
3. OPERATING TEMPERATURE	-10°C ~ +50°C				
4. OPERATING RH	85% RH or BELOW (Noncondensing)				
5. OPERATING ENVIRONMENT	No Corrosive / Flammable Gas, No Oil Mist, No Dust				
6. INSULATION RESISTANCE	100MΩ MIN (DC500V MEGA)				
7. DIELECTRIC STRENGTH	AC 500V 1 Minute				
8. TEMPERATURE RISE	80°C MAX			70°C MAX	
9. RADIAL PLAY	0,03mm MAX (0,5kg Load)			0,03mm MAX (0,4kg Load)	
10. AXIAL PLAY	0,08mm MAX (0,7kg Load)			0,08mm MAX (0,5kg Load)	

60Q

HYBRID STEPPING MOTOR
S E R I E S

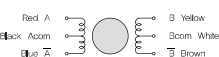


Dimension Specification

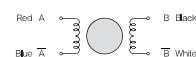


Wiring Diagram

UNI-POLAR



BI-POLAR



60Q UNI-POLAR SPECIFICATIONS

Model No. (Drive Sequence)	Step Angle (Deg.)	Rated Voltage (V/Phase)	Rated Current (A/Phase)	Winding Resistance (Ω/Phase)	Inductance (mH/Phase)	Holding Torque (kgf · cm)	Rotor Inertia (g · cm ²)	Motor Length (L=mm)
4S60Q-04254S	1.8	4.2	2.0	2.0	2.9	10.0	400	54
4S60Q-02754S	1.8	2.7	3.0	0.8	1.2	10.0	400	54
4S60Q-04865S	1.8	4.8	2.0	2.4	3.0	13.5	570	65
4S60Q-03065S	1.8	3.0	3.0	1.0	1.4	13.5	570	65
4S60Q-04285S	1.8	4.2	3.0	1.4	2.7	21.0	840	85

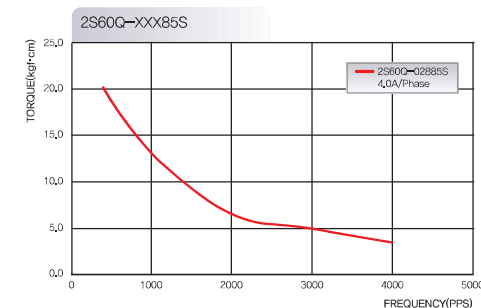
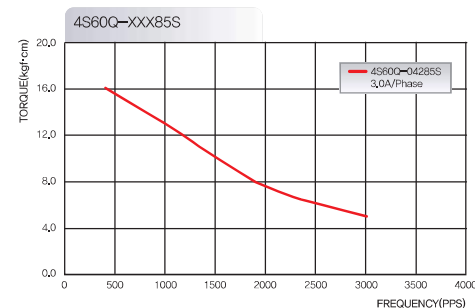
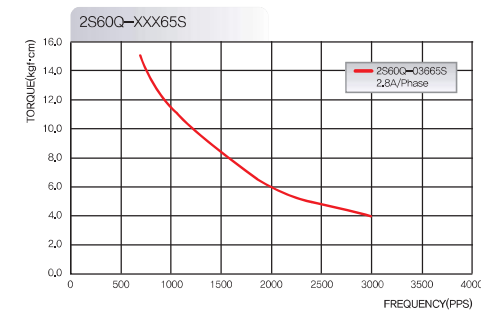
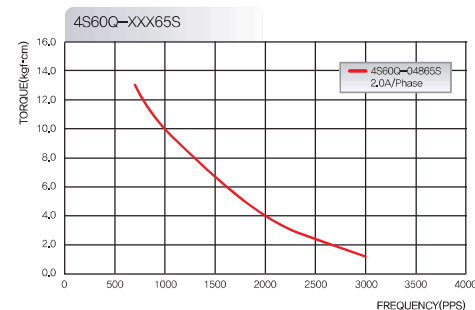
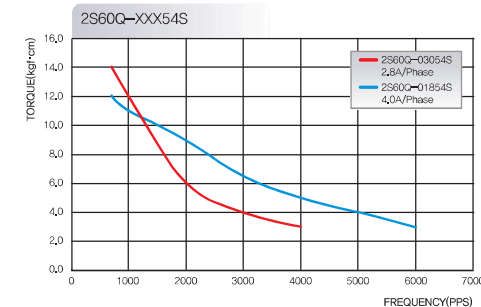
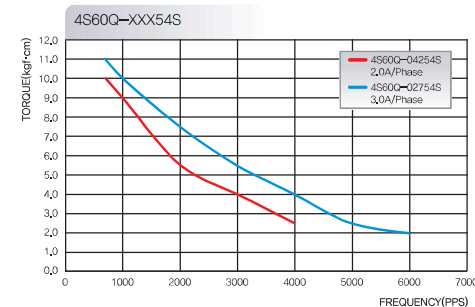
OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

60Q BI-POLAR SPECIFICATIONS

Model No. (Drive Sequence)	Step Angle (Deg.)	Rated Voltage (V/Phase)	Rated Current (A/Phase)	Winding Resistance (Ω/Phase)	Inductance (mH/Phase)	Holding Torque (kgf · cm)	Rotor Inertia (g · cm ²)	Motor Length (L=mm)
2S60Q-03054S	1.8	3.0	2.8	1.0	2.9	14.0	400	54
2S60Q-01854S	1.8	1.8	4.0	0.4	1.2	13.5	400	54
2S60Q-03665S	1.8	3.6	2.8	1.2	3.0	19.0	570	65
2S60Q-02065S	1.8	2.0	4.0	0.5	1.4	18.0	570	65
2S60Q-02885S	1.8	2.8	4.0	0.7	2.7	27.0	840	85

OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

- DRIVER CHOPPER
- SUPPLY VOLTAGE : DC 24.0V
- 2 PHASE EXCITING
- MOUNTING WITH RUBBER DAMPER

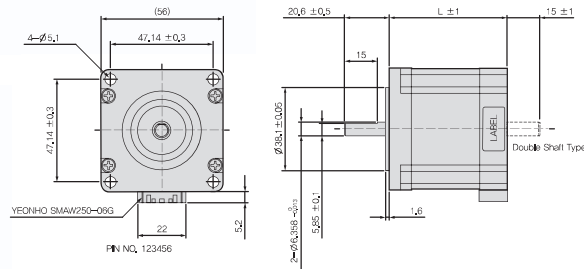


56Q

HYBRID STEPPING MOTOR
SERIES

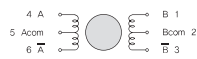


Dimension Specification

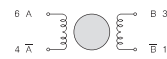


Wiring Diagram

■ UNI-POLAR



■ BI-POLAR



56Q UNI-POLAR SPECIFICATIONS

Model No. (Drive Sequence)	Step Angle (Deg.)	Rated Voltage (V/Phase)	Rated Current (A/Phase)	Winding Resistance (Ω/Phase)	Inductance (mH/Phase)	Holding Torque (kgf · cm)	Rotor Inertia (g · cm ²)	Motor Length (L=mm)
4S56Q-P12042S	1.8	12.0	0.4	30.0	32.0	4.0	90	42.5
4S56Q-P05042S	1.8	5.0	1.0	5.0	6.9	4.0	90	42.5
4S56Q-P02642S	1.8	2.6	2.0	1.3	1.9	4.0	90	42.5
4S56Q-P01842S	1.8	1.8	3.0	0.65	0.9	4.0	90	42.5
4S56Q-P12054S	1.8	12.0	0.6	20.0	38.0	8.0	230	54.5
4S56Q-P08254S	1.8	8.2	1.0	8.2	14.0	8.0	230	54.5
4S56Q-P04054S	1.8	4.0	2.0	2.0	4.2	8.0	230	54.5
4S56Q-P02554S	1.8	2.5	3.0	0.85	1.7	8.0	230	54.5
4S56Q-P08576S	1.8	8.5	1.0	8.5	18.0	13.5	370	76.5
4S56Q-P04576S	1.8	4.5	2.0	2.3	4.3	13.5	370	76.5
4S56Q-P03076S	1.8	3.0	3.0	1.0	1.7	13.5	370	76.5

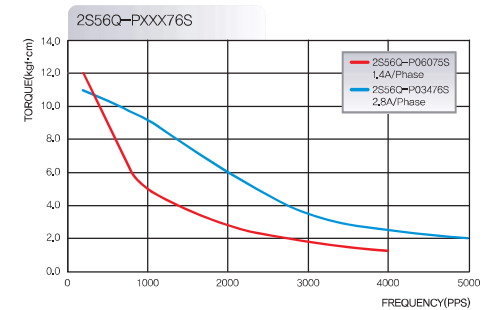
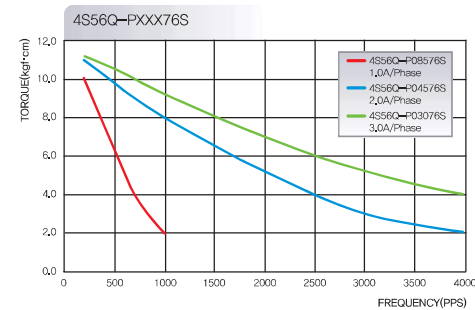
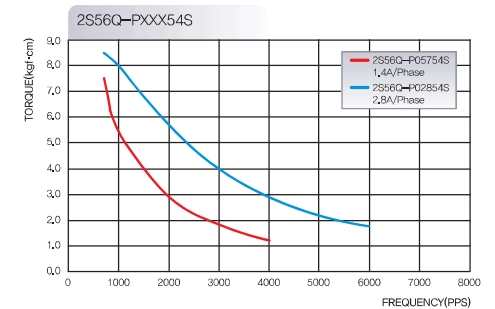
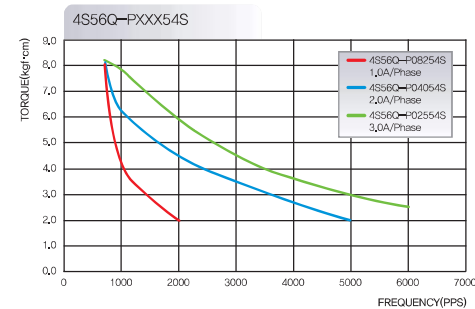
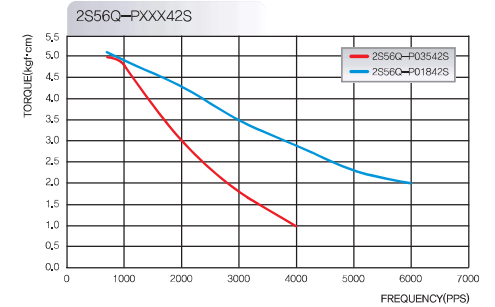
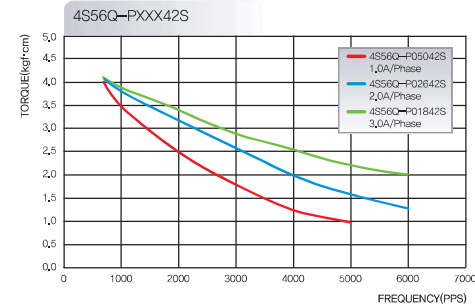
OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

56Q BI-POLAR SPECIFICATIONS

Model No. (Drive Sequence)	Step Angle (Deg.)	Rated Voltage (V/Phase)	Rated Current (A/Phase)	Winding Resistance (Ω/Phase)	Inductance (mH/Phase)	Holding Torque (kgf · cm)	Rotor Inertia (g · cm ²)	Motor Length (L=mm)
2S56Q-P09042S	1.8	9.0	0.6	15.0	32.0	5.6	90	42.5
2S56Q-P03542S	1.8	3.5	1.4	2.5	6.9	5.6	90	42.5
2S56Q-P01842S	1.8	1.8	2.8	0.65	1.9	5.6	90	42.5
2S56Q-P08054S	1.8	8.0	0.8	10.0	38.0	11.2	230	54.5
2S56Q-P05754S	1.8	5.7	1.4	4.1	14.0	11.2	230	54.5
2S56Q-P02854S	1.8	2.8	2.8	1.0	4.2	11.2	230	54.5
2S56Q-P06076S	1.8	6.0	1.4	4.3	18.0	18.9	370	76.5
2S56Q-P03476S	1.8	3.4	2.8	1.2	4.3	18.9	370	76.5

OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

- DRIVER CHOPPER
- SUPPLY VOLTAGE : DC 24.0V
- 2 PHASE EXCITING
- MOUNTING WITH RUBBER DAMPER

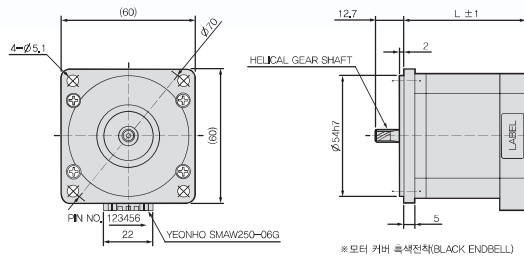


56Q

GEARED HYBRID STEPPING
MOTOR SERIES

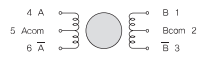


Dimension Specification

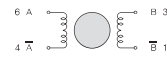


Wiring Diagram

UNI-POLAR



BI-POLAR



56Q UNI-POLAR SPECIFICATIONS

Model No. (Drive Sequence)	Step Angle (Deg.)	Rated Voltage (V/Phase)	Rated Current (A/Phase)	Winding Resistance (Ω/Phase)	Inductance (mH/Phase)	Holding Torque (kgf · cm)	Rotor Inertia (g · cm ²)	Motor Length (L=mm)
4S56Q-P12042SG	1.8	12.0	0.4	30.0	32.0	4.0	90	42.5
4S56Q-P05042SG	1.8	5.0	1.0	5.0	6.9	4.0	90	42.5
4S56Q-P02642SG	1.8	2.6	2.0	1.3	1.9	4.0	90	42.5
4S56Q-P01842SG	1.8	1.8	3.0	0.65	0.9	4.0	90	42.5
4S56Q-P12054SG	1.8	12.0	0.6	20.0	38.0	8.0	230	54.5
4S56Q-P08254SG	1.8	8.2	1.0	8.2	14.0	8.0	230	54.5
4S56Q-P04054SG	1.8	4.0	2.0	2.0	4.2	8.0	230	54.5
4S56Q-P02554SG	1.8	2.5	3.0	0.85	1.7	8.0	230	54.5
4S56Q-P08576SG	1.8	8.5	1.0	8.5	18.0	13.5	370	76.5
4S56Q-P04576SG	1.8	4.5	2.0	2.3	4.3	13.5	370	76.5
4S56Q-P03076SG	1.8	3.0	3.0	1.0	1.7	13.5	370	76.5

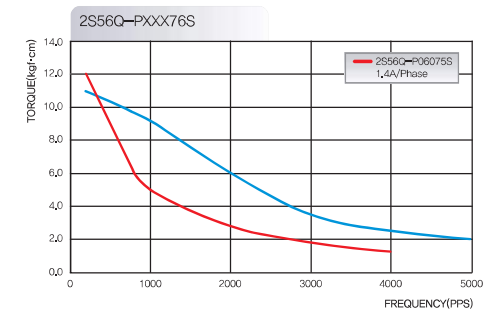
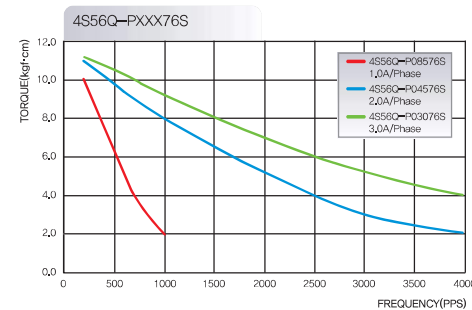
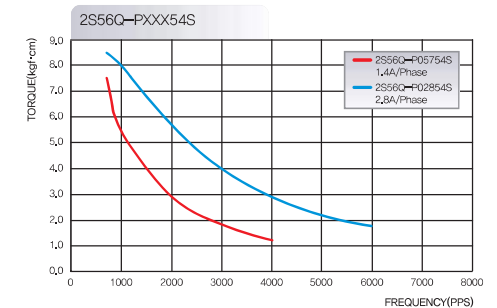
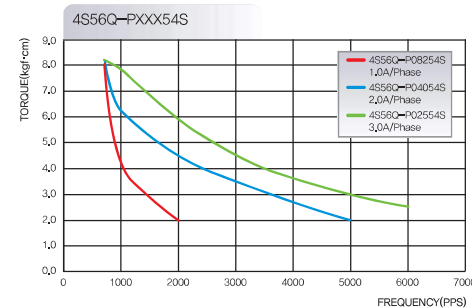
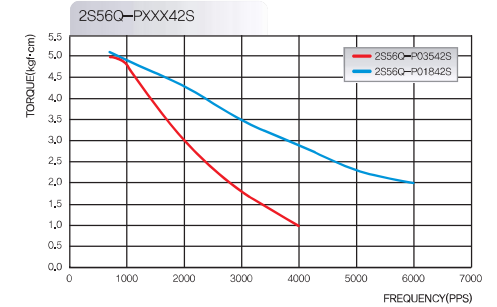
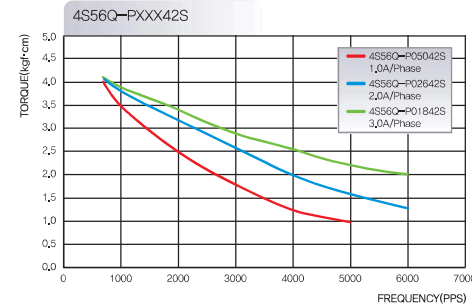
OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

56Q BI-POLAR SPECIFICATIONS

Model No. (Drive Sequence)	Step Angle (Deg.)	Rated Voltage (V/Phase)	Rated Current (A/Phase)	Winding Resistance (Ω/Phase)	Inductance (mH/Phase)	Holding Torque (kgf · cm)	Rotor Inertia (g · cm ²)	Motor Length (L=mm)
2S56Q-P09042SG	1.8	9.0	0.6	15.0	32.0	5.6	90	42.5
2S56Q-P03542SG	1.8	3.5	1.4	2.5	6.9	5.6	90	42.5
2S56Q-P01842SG	1.8	1.8	2.8	0.65	1.9	5.6	90	42.5
2S56Q-P08054SG	1.8	8.0	0.8	10.0	38.0	11.2	230	54.5
2S56Q-P05754SG	1.8	5.7	1.4	4.1	14.0	11.2	230	54.5
2S56Q-P02854SG	1.8	2.8	2.8	1.0	4.2	11.2	230	54.5
2S56Q-P06076SG	1.8	6.0	1.4	4.3	18.0	18.9	370	76.5
2S56Q-P03476SG	1.8	3.4	2.8	1.2	4.3	18.9	370	76.5

OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

- DRIVER CHOPPER
- SUPPLY VOLTAGE : DC 24.0V
- 2 PHASE EXCITING
- MOUNTING WITH RUBBER DAMPER

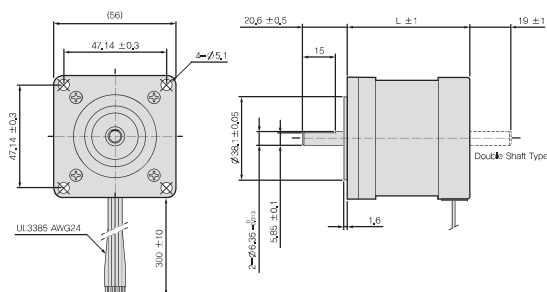


56R

HYBRID STEPPING MOTOR
S E R I E S

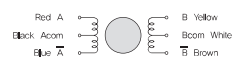


Dimension Specification



Wiring Diagram

UNI-POLAR

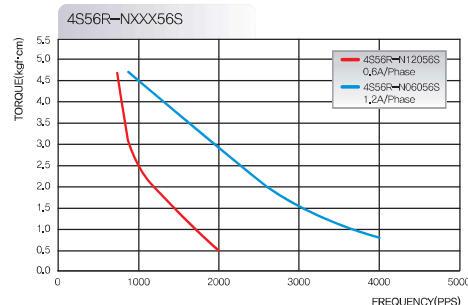
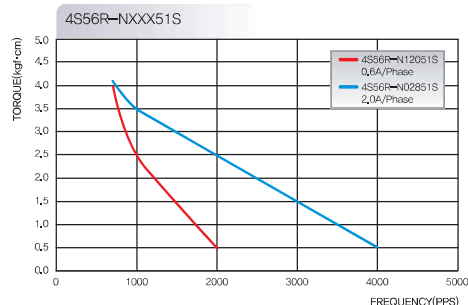


56R UNI-POLAR SPECIFICATIONS

Model No. (Drive Sequence)	Step Angle (Deg.)	Rated Voltage (V/Phase)	Rated Current (A/Phase)	Winding Resistance (Ω/Phase)	Inductance (mH/Phase)	Holding Torque (kgf · cm)	Rotor Inertia (g · cm ²)	Motor Length (L=mm)
4S56R-N12051S	1.8	12.0	0.6	20.0	30.0	5.0	120	51
4S56R-N02851S	1.8	2.8	2.0	1.4	2.0	5.0	120	51
4S56R-N12056S	1.8	12.0	0.6	20.0	38.0	6.0	155	56
4S56R-N06056S	1.8	6.0	1.2	5.0	9.8	6.0	155	56

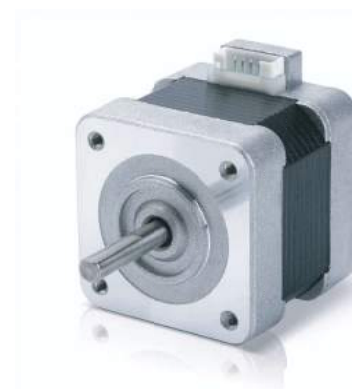
OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

- DRIVER CHOPPER
- SUPPLY VOLTAGE : DC 24.0V
- 2 PHASE EXCITING
- MOUNTING WITH RUBBER DAMPER

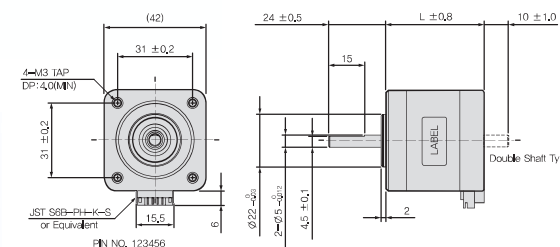


42Q

HYBRID STEPPING MOTOR
S E R I E S

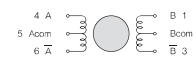


Dimension Specification

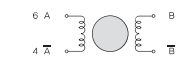


Wiring Diagram

UNI-POLAR



BI-POLAR



42Q UNI-POLAR SPECIFICATIONS

Model No. (Drive Sequence)	Step Angle (Deg.)	Rated Voltage (V/Phase)	Rated Current (A/Phase)	Winding Resistance (Ω/Phase)	Inductance (mH/Phase)	Holding Torque (kgf · cm)	Rotor Inertia (g · cm ²)	Motor Length (L=mm)
4S42Q-H09634S	1.8	9.6	0.4	24.0	15.0	1.8	38	34
4S42Q-H04334S	1.8	4.3	1.0	4.3	3.2	2.2	38	34
4S42Q-H03434S	1.8	3.4	1.2	2.8	1.9	2.2	38	34
4S42Q-H12040S	1.8	12.0	0.4	30.0	20.0	3.0	57	40
4S42Q-H07240S	1.8	7.2	0.6	12.0	11.5	3.3	57	40
4S42Q-H05940S	1.8	5.9	0.8	7.4	6.2	3.3	57	40
4S42Q-H04840S	1.8	4.8	1.0	4.8	4.2	3.3	57	40
4S42Q-H04140S	1.8	4.1	1.2	3.4	3.2	3.3	57	40
4S42Q-H04648S	1.8	4.6	1.2	3.8	3.0	4.0	81	48

OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

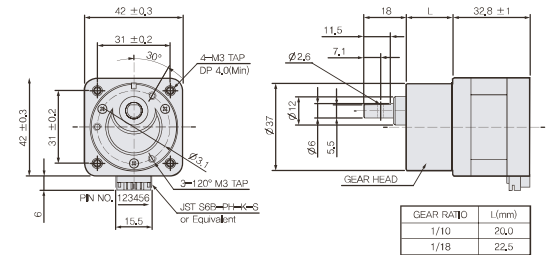
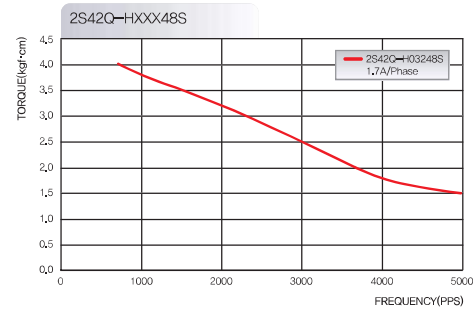
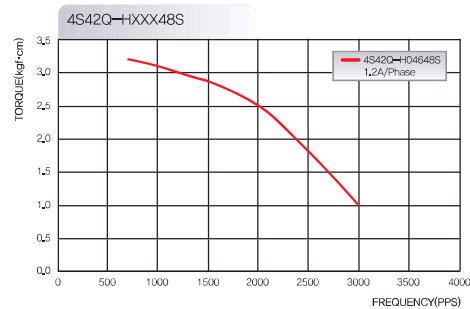
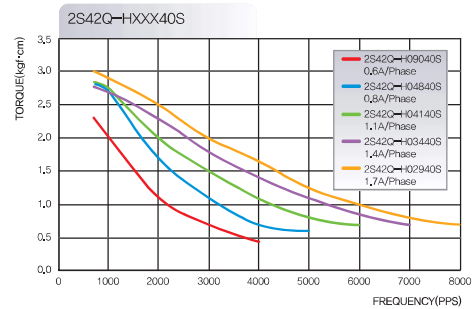
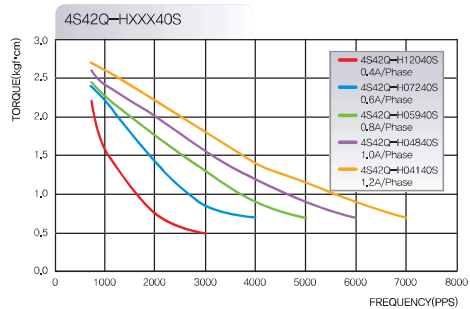
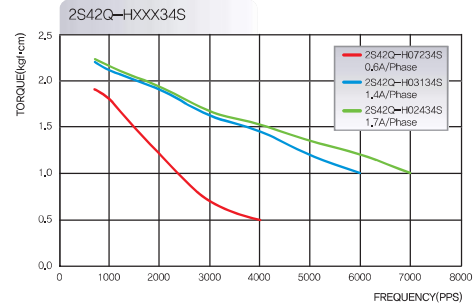
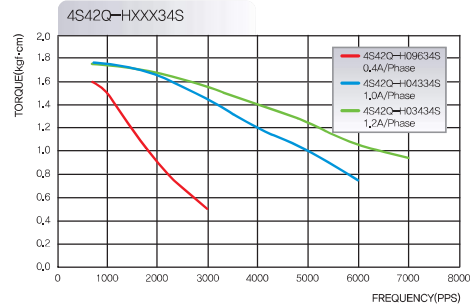
42Q BI-POLAR SPECIFICATIONS

Model No. (Drive Sequence)	Step Angle (Deg.)	Rated Voltage (V/Phase)	Rated Current (A/Phase)	Winding Resistance (Ω/Phase)	Inductance (mH/Phase)	Holding Torque (kgf · cm)	Rotor Inertia (g · cm ²)	Motor Length (L=mm)
2S42Q-H07234S	1.8	7.2	0.6	12.0	15.0	2.5	38	34
2S42Q-H03134S	1.8	3.1	1.4	2.2	3.2	3.0	38	34
2S42Q-H02434S	1.8	2.4	1.7	1.4	1.9	3.0	38	34
2S42Q-H09040S	1.8	9.0	0.6	15.0	20.0	4.0	57	40
2S42Q-H04840S	1.8	4.8	0.8	6.0	11.5	4.0	57	40
2S42Q-H04140S	1.8	4.1	1.1	3.7	6.2	4.0	57	40
2S42Q-H03440S	1.8	3.4	1.4	2.4	4.2	4.0	57	40
2S42Q-H02940S	1.8	2.9	1.7	1.7	3.2	4.0	57	40
2S42Q-H03248S	1.8	3.2	1.7	1.9	3.0	5.0	81	48

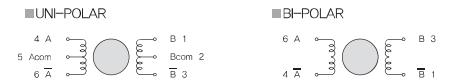
OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

GEARED HYBRID STEPPING
MOTOR SERIES

- DRIVER CHOPPER
- SUPPLY VOLTAGE : DC 24.0V
- 2 PHASE EXCITING
- MOUNTING WITH RUBBER DAMPER



Wiring Diagram



■ 42Q UNI-POLAR SPECIFICATIONS

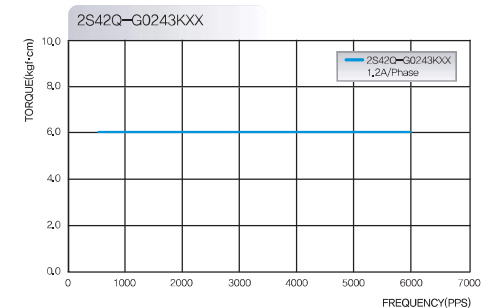
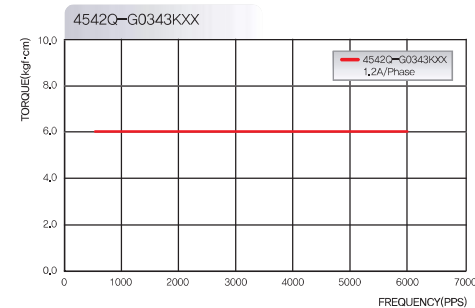
Model No. (Drive Sequence)	Gear Ratio	Step Angle (Deg.)	Rated Voltage (V/Phase)	Rated Current (A/Phase)	Winding Resistance (Ω/Phase)	Inductance (mH/Phase)	Holding Torque (kgf · cm)	Rotor Inertia (g · cm ²)	Motor Length (L _{mm})
4S42Q-G03434K10	1:10	0,18	3,4	1,2	2,8	1,9	6	38	54,0
4S42Q-G03434K18	1:18	0,10	3,4	1,2	2,8	1,9	6	38	56,5

OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

■ 42Q BI-POLAR SPECIFICATIONS

Model No. (Drive Sequence)	Gear Ratio	Step Angle (Deg.)	Rated Voltage (V/Phase)	Rated Current (A/Phase)	Winding Resistance (Ω/Phase)	Inductance (mH/Phase)	Holding Torque (kgf · cm)	Rotor Inertia (g · cm ²)	Motor Length (L=mm)
2S42Q-G0243K10	1:10	0,18	2,4	1,7	1,4	1,9	6	38	54,0
2S42Q-G0243K18	1:18	0,10	2,4	1,7	1,4	1,9	6	38	56,5

OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

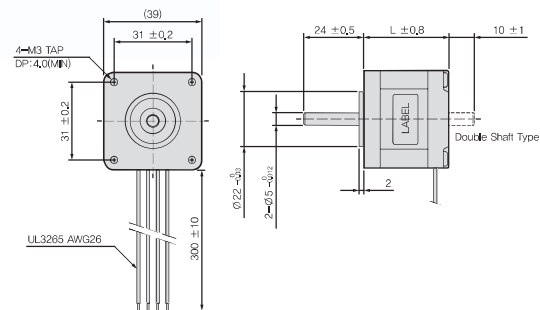


39Q

HYBRID STEPPING MOTOR
S E R I E S

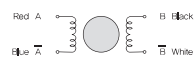


Dimension Specification



Wiring Diagram

BI-POLAR

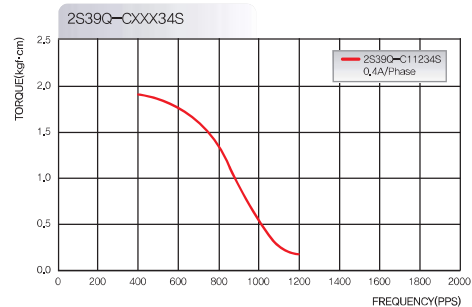
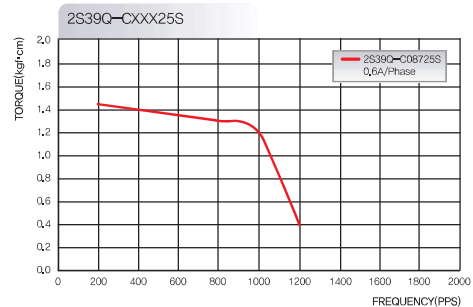


39Q BI-POLAR SPECIFICATIONS

Model No. (Drive Sequence)	Step Angle (Deg.)	Rated Voltage (V/Phase)	Rated Current (A/Phase)	Winding Resistance (Ω/Phase)	Inductance (mH/Phase)	Holding Torque (kgf · cm)	Rotor Inertia (g · cm ²)	Motor Length (L=mm)
2S39Q-C08725S	1.8	8.7	0.6	14.5	10.5	1.3	16	25
2S39Q-C11234S	1.8	11.2	0.4	28.0	33.0	1.8	20	34

OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

- DRIVER CHOPPER
- SUPPLY VOLTAGE : DC 24.0V
- 2 PHASE EXCITING
- MOUNTING WITH RUBBER DAMPER



OPTION

HYBRID STEPPING MOTOR
BLDC MOTOR

VARIOUS OPTION PARTS
SHAFT MODIFICATION
CNC MACHINING FOR CUSTOMER OPTION



BLDC MOTOR

B60Q

BLDC MOTOR
SERIES



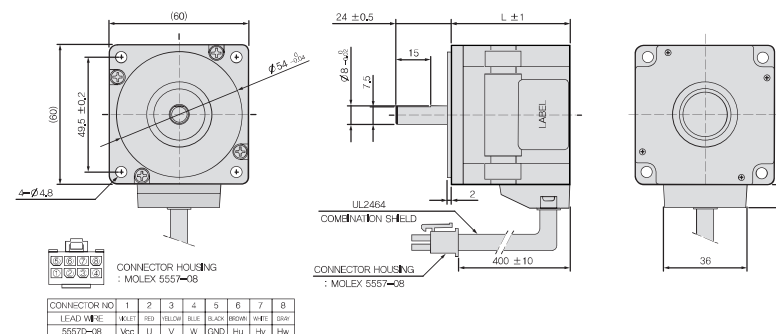
General Specification

Insulation Class B class
 Operating Temperature 0°C ~ +50°C
 Operating RH 85% RH or Below(Noncondensing)
 Operating Environment No Corrosive / Flammable Gas,
 No Oil Mist, No Dust
 Insulation Resistance 100MΩ MIN (DC500V MEGA)
 Dielectric Strength AC 500V 1 MINUTE

■ SPECIFICATIONS

Model No.	D-Cut Shaft Type	B60Q-H24051-D1	B60Q-H24061-D1	B60Q-H24071-D1
	Geared Shaft Type	B60Q-H24051-G1	B60Q-H24061-G1	B60Q-H24071-G1
INPUT POWER	VDC	24	24	24
RATED POWER	W	20	40	60
PHASE NUMBER		3	3	3
SENSOR		Hall	Hall	Hall
RATED SPEED	RPM	3000	3000	3000
RATED CONTROL RANGE	RPM	200~3000	200~3000	200~3000
RATED TORQUE	mN • m	62	125	187
	oz • in	8.74	17.6	26.5
	Kgf • cm	0.63	1.27	1.91
RATED CURRENT	A	1.4	2.8	4.2
BODY LENGHT	mm	51	61	71

OTHER SPECIFICATIONS AVAILABLE UPON REQUEST



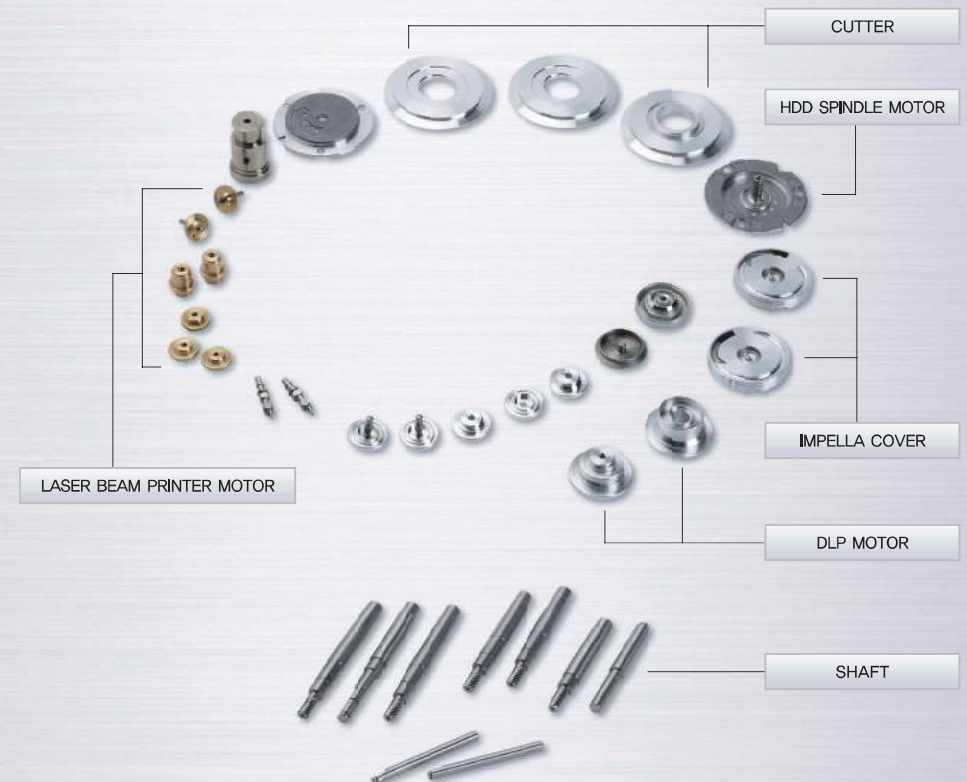
HIGH PRECISION MACHINING PART

CNC
MACHINING
PART

HIGHLY EXPERIENCED IN PRODUCING CNC MACHINED PARTS,
SPECIALIZED IN SMALL TO MEDIUM SIZED
PRODUCTION, PROTOTYPE, ENGINEERING,

MATERIAL : ALUMINIUM, COPPER, STAINLESS
ROHS COMPLIANT
TOLERANCE : 0,001mm

PRODUCT & APPLICATION



Company History

1978

Established Company

1985

Beginning Production of Hybrid Stepping Motor
and Precision Machining

1986

Development HDD Spindle Motor Machining Parts

1998

Certified 100PPM for Machining Precision Parts

2000

LBP Spindle Motor Parts Component Development

2010

Development and Production of BLDC Motor

