



**ASPINA**  
Engineered to Inspire

# Total support of your "Motion Requirements"

In compliance with requirements in various industries, applications, feature and functions, ASPINA offers optimal Motor Solution in terms of supplying system module inclusive controller, driver and mechanical design. In addition, ASPINA complies with the OEM and EMS requirement with consistent scheme of Development-Production taking an advantage of experienced total manufacturing technology.

## What we serve for



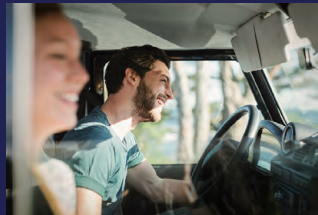
### Automation

Equipment contributing to improved productivity, labor saving, and human safety



### Life environment

Equipment for the living environment such as improved water and air and comfortable interiors



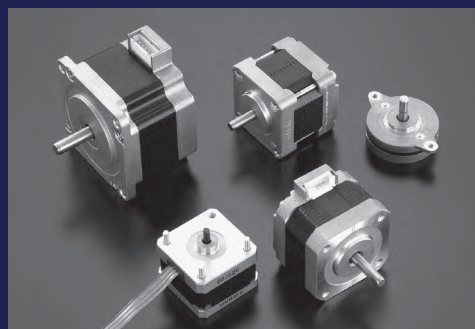
### Automotive

Automotive air-conditioning equipment



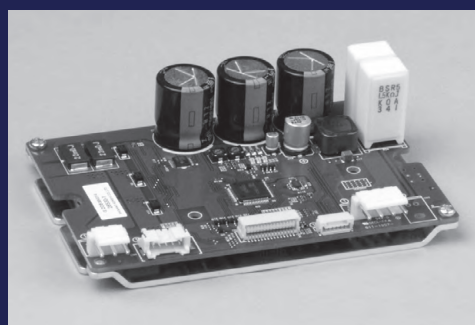
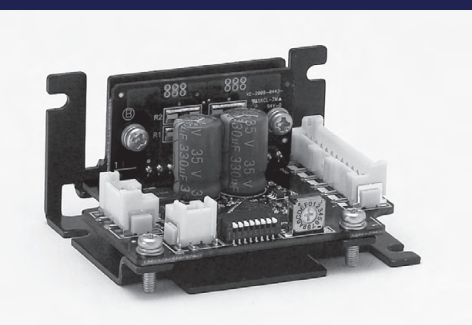
### Healthcare & social welfare

Respiratory equipment, assistive technology for people with disabilities



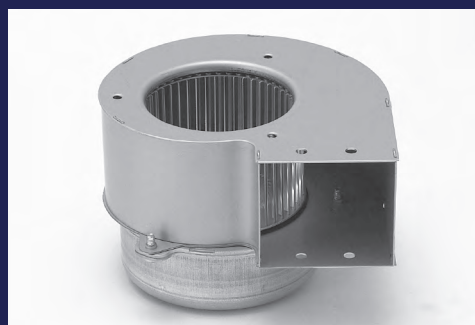
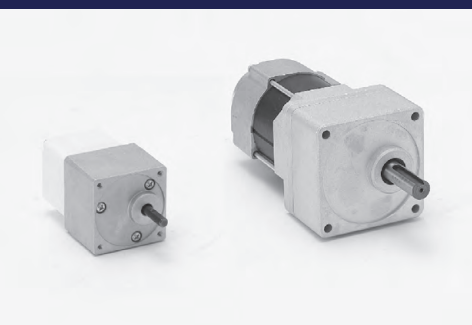
### Motor

Stepping Motor  
Brushless DC Motor  
In-vehicle Brushless DC Motor



### Driver & Controller

Motor control technology  
System control technology



### Mechanical module

Gear box / Gear Assembly  
Fan  
Brake / Clutch etc.



# ASPINA

Engineered to Inspire

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# 2 Phase Hybrid Stepping Motor - Lineup

## Standard Stepping Motor : SST Series

STEP ANGLE	SIZE [mm]	NEMA	WINDINGS	MODEL	LENGTH [mm]	PAGES	TORQUE [mN·m] *FREQUENCY at 1,000pps															
							0	50	100	200	300	400	600	800	1,000	1,500	2,000					
0.9°	φ36	16	Bipolar	SST36C0	12.35	p.6-7	[Torque bars]															
				SST36C1	19.7	p.6-7	[Torque bars]															
						[Torque bars]																
			□42	17	Unipolar	SST42C1	34.0	p.8-9	[Torque bars]													
						SST42C2	40.0	p.8-9	[Torque bars]													
						SST42C3	47.5	p.8-9	[Torque bars]													
	Bipolar	SST42C1	34.0		p.10-11	[Torque bars]																
		SST42C2	40.0		p.10-11	[Torque bars]																
		SST42C3	47.5		p.10-11	[Torque bars]																
	□56	23	Unipolar	SST56C1	39.5	p.12-13	[Torque bars]															
				SST56C3	54.5	p.12-13	[Torque bars]															
				SST56C5	76.0	p.12-13	[Torque bars]															
1.8°	□28	11	Unipolar	SST28D1	32.0	p.14-15	[Torque bars]															
				SST28D2	39.7	p.14-15	[Torque bars]															
				SST28D3	51.6	p.14-15	[Torque bars]															
			Bipolar	SST28D1	32.0	p.16-17	[Torque bars]															
				SST28D2	39.7	p.16-17	[Torque bars]															
				SST28D3	51.6	p.16-17	[Torque bars]															
		□35	14	Bipolar	SST35D4	50.5	p.18-19	[Torque bars]														
					[Torque bars]																	
					[Torque bars]																	
					[Torque bars]																	
					[Torque bars]																	
					[Torque bars]																	
	[Torque bars]																					
	[Torque bars]																					
	[Torque bars]																					
	[Torque bars]																					
	[Torque bars]																					
	[Torque bars]																					
	□42	17	Unipolar	STA-42D0	27.5	p.20-21	[Torque bars]															
				STA-42D1	30.0	p.20-21	[Torque bars]															
				STA-42D2	34.0	p.20-21	[Torque bars]															
				STA-42D3	40.0	p.20-21	[Torque bars]															
				STA-42D4	49.5	p.22-23	[Torque bars]															
				STA-42D5	58.0	p.22-23	[Torque bars]															
				Bipolar	STA-42D0	27.5	p.24-25	[Torque bars]														
					STA-42D1	30.0	p.24-25	[Torque bars]														
					STA-42D2	34.0	p.24-25	[Torque bars]														
					STA-42D3	40.0	p.24-25	[Torque bars]														
					STA-42D4	49.5	p.26-27	[Torque bars]														
					STA-42D5	58.0	p.26-27	[Torque bars]														
			Unipolar	SST43D1	34.0	p.28-29	[Torque bars]															
				SST43D2	40.0	p.28-29	[Torque bars]															
				Bipolar	SST43D1	34.0	p.30-31	[Torque bars]														
					SST43D2	40.0	p.30-31	[Torque bars]														
				Unipolar	SST45D0	32.0	p.32-33	[Torque bars]														
					SST45D1	35.0	p.32-33	[Torque bars]														
			SST45D2		42.5	p.32-33	[Torque bars]															
			□56	23	Unipolar	STA-56D1	38.5	p.34-35	[Torque bars]													
						STA-56D3	48.0	p.34-35	[Torque bars]													
						STA-56D5	73.5	p.34-35	[Torque bars]													
						Bipolar	STA-56D1	38.5	p.36-37	[Torque bars]												
							STA-56D3	48.0	p.36-37	[Torque bars]												
							STA-56D5	73.5	p.36-37	[Torque bars]												
					Unipolar	SST59D1	42.0	p.38-39	[Torque bars]													
						SST59D2	48.5	p.38-39	[Torque bars]													
						SST59D3	54.5	p.38-39	[Torque bars]													
						SST59D5	77.5	p.38-39	[Torque bars]													
						Bipolar	SST59D1	42.0	p.40-41	[Torque bars]												
							SST59D2	48.5	p.40-41	[Torque bars]												
				SST59D3	54.5		p.40-41	[Torque bars]														
				SST59D5	77.5		p.40-41	[Torque bars]														
				□60	24		Unipolar	SST60D1	46.3	p.42-43	[Torque bars]											
								SST60D3	55.8	p.42-43	[Torque bars]											
						SST60D4		67.8	p.42-43	[Torque bars]												
SST60D5						87.8		p.42-43	[Torque bars]													
[Torque bars]																						
[Torque bars]																						

STEP ANGLE	SIZE [mm]	NEMA	WINDINGS	MODEL	LENGTH [mm]	PAGES	HOLDING TORQUE [mN·m]										
							1,500	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000
1.8°	□86	34	Unipolar	SST86D0	62.5	p.44-45	[Torque bars]										
				SST86D1	68.1	p.44-45	[Torque bars]										
				SST86D3	101.5	p.44-45	[Torque bars]										
				SST86D5	132.0	p.44-45	[Torque bars]										
			Bipolar	SST86D0	62.5	p.46-47	[Torque bars]										
				SST86D1	68.1	p.46-47	[Torque bars]										
				SST86D3	101.5	p.46-47	[Torque bars]										
				SST86D5	132.0	p.46-47	[Torque bars]										

# Brushless DC Motor - Lineup

## Standard Brushless DC Motor : SDR Series

SERIES	SIZE [mm]	MODEL	LENGTH [mm]	RATED SPEED	PAGE	TORQUE [mN·m]														
						0	50	100	200	300	400	600	800							
Inner rotor	φ36	SDR-3434-001	66.1	10,500	p.48-49															
Inner rotor	φ36	SDR-3434-002	66.1	10,500	p.48-49															
Inner rotor	φ36	SDR-3434-004	66.1	10,500	p.48-49															
Inner rotor	□42	SDR-42310-001	45.5	3,000	p.50-51															
Inner rotor	□42	SDR-42310-002	45.5	3,000	p.50-51															
Inner rotor	□60	SDR-6038-001	55.2	3,100	p.52-53															
Inner rotor	□60	SDR-6038-002	55.2	3,100	p.52-53															

SERIES	SIZE [mm]	MODEL	LENGTH [mm]	RATED SPEED	PAGE	TORQUE [mN·m]																
						0	5	10	15	20	25	30	35	40	50	60						
Outer rotor	φ14	SDR-14312-001	15.4	4,500	p.54-55																	
Outer rotor	φ20	SDR-20312-001	12.8	8,700	p.54-55																	
Outer rotor	φ24	SDR-24312-001	13.5	930	p.56-57																	
Outer rotor	φ24	SDR-24312-002	13.5	1,900	p.56-57																	
Outer rotor	φ24	SDR-24312-003	13.5	3,700	p.56-57																	
Outer rotor	φ29	SDR-29312-001	14.5	2,200	p.58-59																	
Outer rotor	φ29	SDR-29312-002	14.5	3,500	p.58-59																	
Outer rotor	φ29	SDR-29312-003	14.5	5,350	p.58-59																	
Outer rotor	φ38	SDR-38312-001	25.0	670	p.60-61																	
Outer rotor	φ38	SDR-38312-002	25.0	1,150	p.60-61																	
Outer rotor	φ38	SDR-38312-003	25.0	1,980	p.60-61																	
Outer rotor	φ43	SDR-4316-001	14.0	1,760	p.62-63																	
Outer rotor	φ43	SDR-4316-002	14.0	3,400	p.62-63																	
Outer rotor	φ43	SDR-4316-101	23.6	5,470	p.62-63																	

SERIES	SIZE [mm]	MODEL	LENGTH [mm]	RATED SPEED	PAGE	TORQUE [mN·m]															
						0	50	100	150	200	250	300	350	400	450	500					
Outer rotor	φ62	SDR-55AS	28.1	6,090~9,250	p.64-65																
Outer rotor	φ62	SDR-55AM	31.1	7,200~8,130	p.64-65																
Outer rotor	φ62	SDR-55AL	36.1	8,500~10,120	p.64-65																

## Outer Rotor Brushless DC

SERIES	SIZE [mm]	MODEL	LENGTH [mm]	RATED SPEED	PAGE	TORQUE [mN·m]																	
						0	10	20	30	40	50	60	70	80	90	100	200	300					
Outer rotor	φ35	DR-35314	46.0	3,200	p.66																		
Outer rotor	φ55	DR-55310	32.74	3,000	p.67																		
Outer rotor	φ63	DR-6236	43.0	1,800	p.67																		
Outer rotor	φ75	DR-7538	34.05	3,100	p.68-69																		
Outer rotor	φ76	DR-7638	43.0	1,800	p.68-69																		
Outer rotor	φ82	DR-82316	27.0	2,000	p.68-69																		
Outer rotor	φ87	DR-8738	60.0	1,800	p.68-69																		
Outer rotor	φ82	DR-8238	60.0	1,400	p.68-69																		

## Inner Rotor Brushless DC

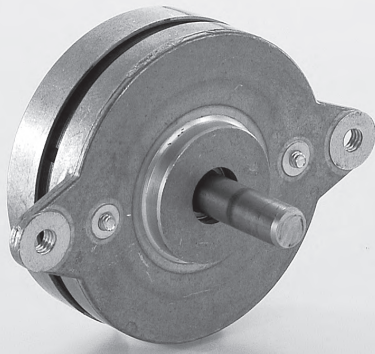
SERIES	SIZE [mm]	MODEL	LENGTH [mm]	RATED SPEED	PAGE	TORQUE [mN·m]																
						0	50	100	200	300	400	600	800	1,000	1,500							
Inner rotor	φ68	DR-6638	36.6	4,950	p.70-71																	
Inner rotor	φ68		36.6	1,500	p.70-71																	
Inner rotor	φ79	DR-738	35.8	6,000	p.70-71																	
Inner rotor	φ79	DR-7738	39.1	6,000	p.70-71																	
Inner rotor	φ88.2	DR-8538 (Low)	39.2	6,300	p.72-73																	
Inner rotor	φ88.2	DR-8538-6	35.8	6,500	p.72-73																	
Inner rotor	φ88.2	DR-8538-8	39.2	6,500	p.72-73																	
Inner rotor	φ88.2	DR-8538-12	45.8	5,330	p.72-73																	
Inner rotor	φ88.2	DRA-8538	55.0	1,500	p.74-75																	
Inner rotor	φ93	DR-8838	39.0	1,800	p.74-75																	
Inner rotor	φ97.4	DR-9538	57.6	850	p.74-75																	
Inner rotor	φ97.4	DR-9538 (Thin)	51.6	2,000	p.74-75																	
Inner rotor	□54	LA052-040	69.6	3,000	p.76-77																	
Inner rotor	□54	LA052-080	69.6	3,000	p.76-77																	
Inner rotor	□54	LA052-110	89.6	3,000	p.76-77																	

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# 2 Phase Hybrid Stepping Motor

## 36C SERIES

φ 36mm

0.9°

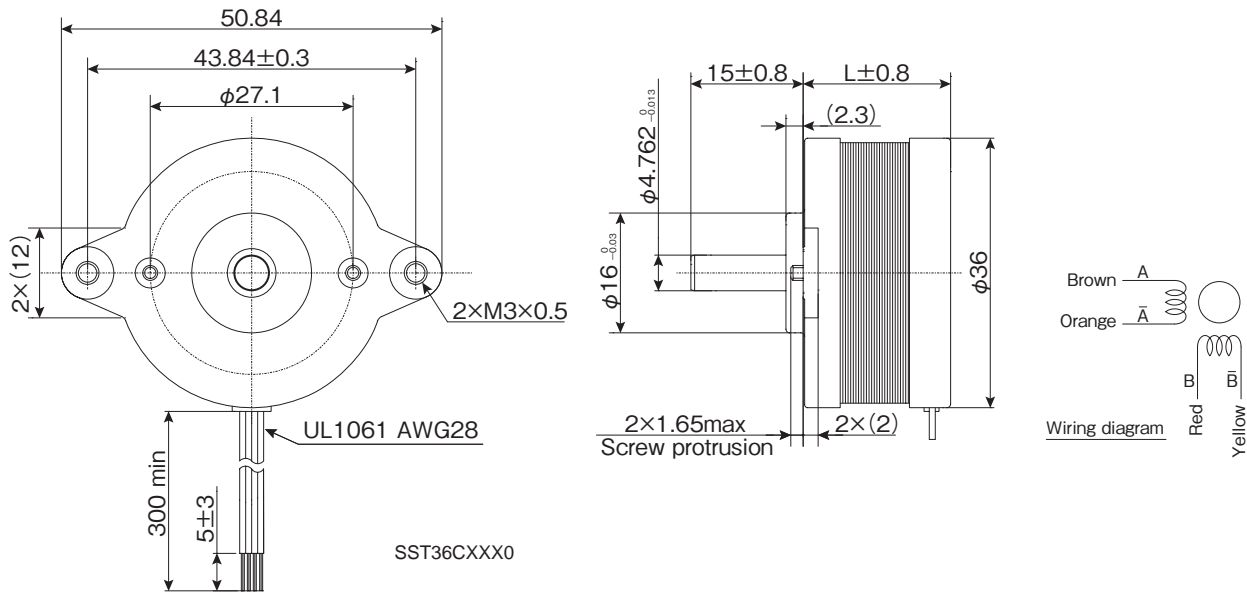
Bipolar

RoHS

### CHARACTERISTICS

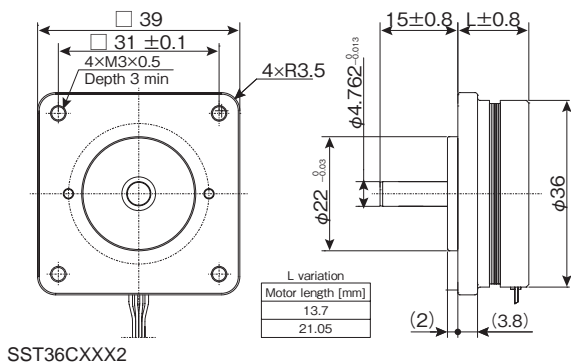
MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.								
SST36C0030	0.9	5.0	0.3	16.80	8.50	41.2	7.3	50	12.35
SST36C0050	0.9	3.2	0.5	6.40	3.16	41.2	7.3	50	12.35
SST36C0060	0.9	2.6	0.6	4.30	2.23	41.2	7.3	50	12.35
SST36C0080	0.9	2.0	0.8	2.53	1.24	41.2	7.3	50	12.35
SST36C1030	0.9	8.2	0.3	27.20	20.70	100	19.6	90	19.7
SST36C1050	0.9	5.2	0.45	11.50	9.00	100	19.6	90	19.7
SST36C1060	0.9	4.1	0.6	6.90	5.35	100	19.6	90	19.7
SST36C1080	0.9	3.3	0.8	4.10	3.16	100	19.6	90	19.7

### DIMENSIONS [EXAMPLE]

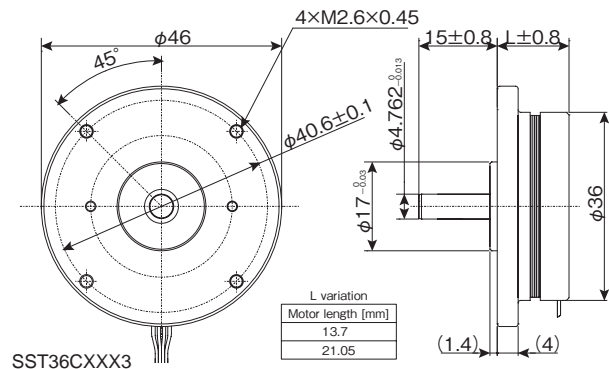


### MOUNTING OPTION

#### Square Type



#### Round Type

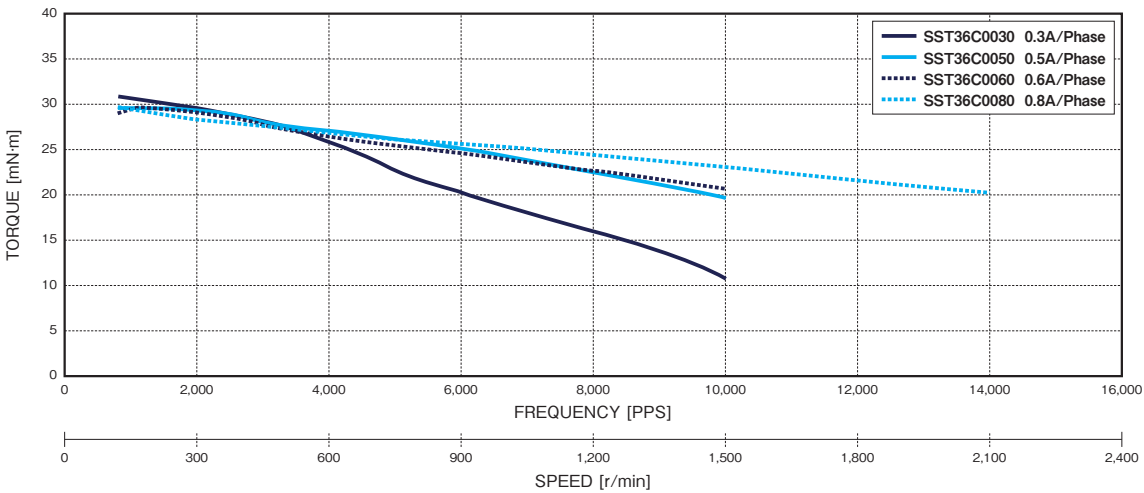


## TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps										
					0	50	100	200	300	400	600	800	1,000	1,500	2,000
0.9°	φ36mm	NEMA16	Bipolar	36C0	0	50	100	200	300	400	600	800	1,000	1,500	2,000
				36C1	0	50	100	200	300	400	600	800	1,000	1,500	2,000

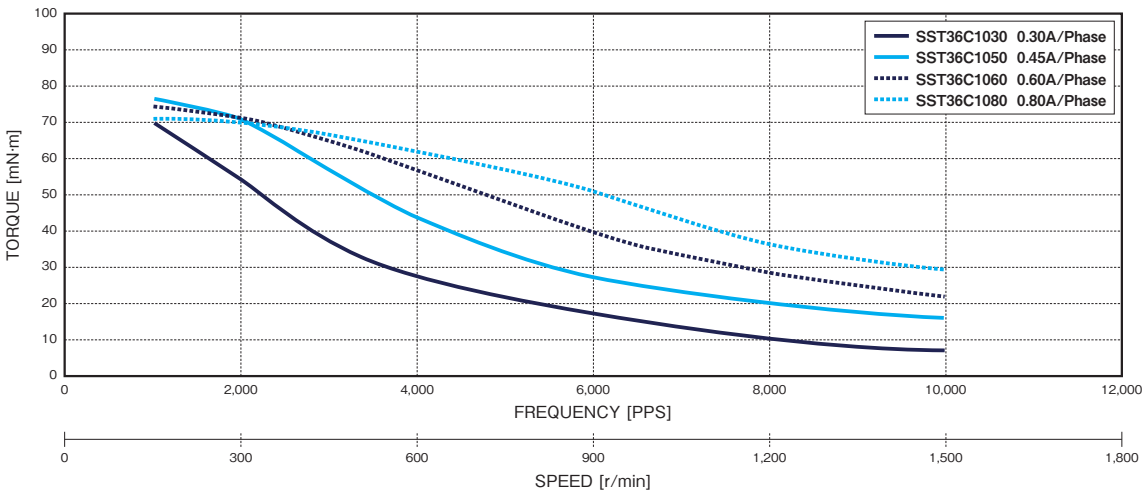
## PULL OUT TORQUE CURVE

SST36C0XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

SST36C1XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



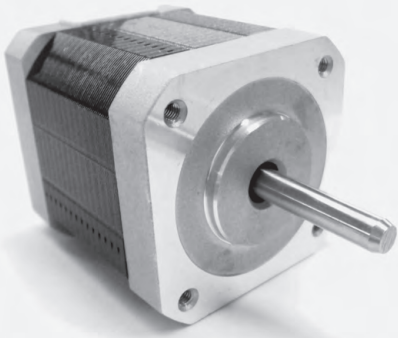
Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# 2 Phase Hybrid Stepping Motor

## 42C SERIES

□42mm

0.9°

Unipolar

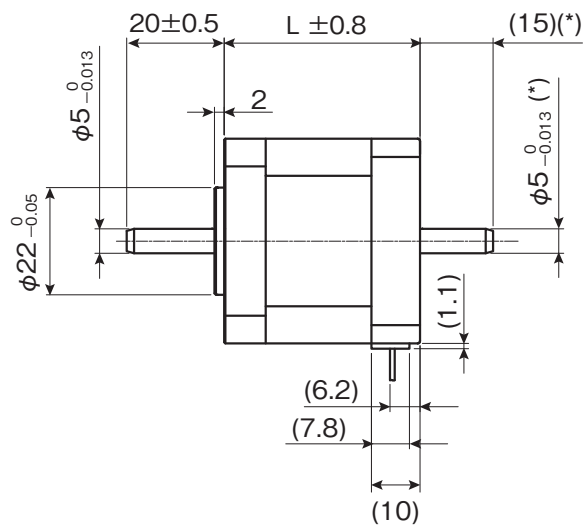
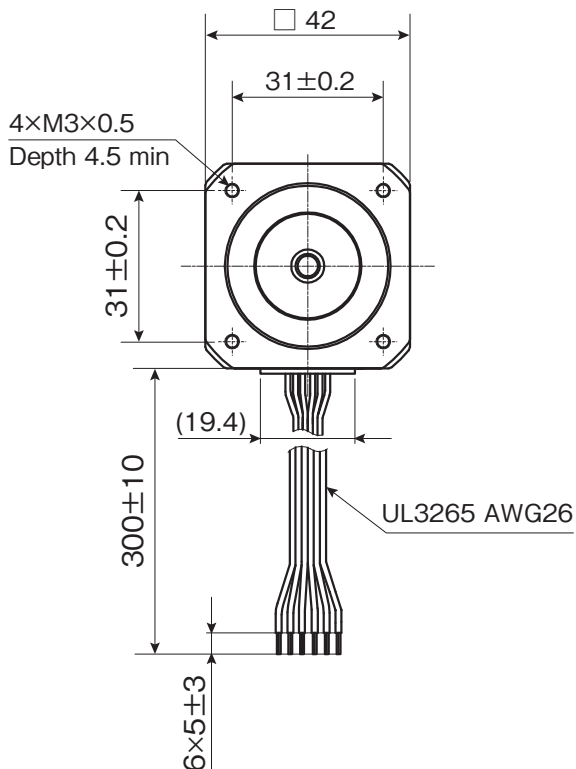
RoHS

### CHARACTERISTICS

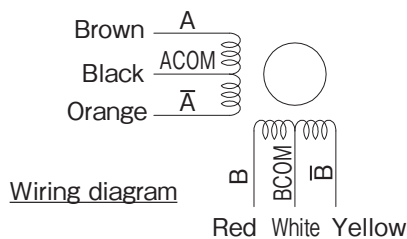
MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	kg	mm
SST42C103X	0.9	11.2	0.3	37.4	34.8	177	33	0.23	34
SST42C106X	0.9	6.3	0.6	10.5	8.6	184	33	0.23	34
SST42C110X	0.9	4.4	1.0	4.4	3.9	196	33	0.23	34
SST42C204X	0.9	12.0	0.4	30.0	34.5	312	56	0.29	40
SST42C208X	0.9	6.2	0.8	7.7	9.2	324	56	0.29	40
SST42C212X	0.9	4.1	1.2	3.4	4.5	324	56	0.29	40
SST42C304X	0.9	12.6	0.4	31.5	32.0	334	72	0.36	47.5
SST42C308X	0.9	6.4	0.8	8.0	9.7	358	72	0.36	47.5
SST42C312X	0.9	4.1	1.2	3.4	4.0	346	72	0.36	47.5

↑ Last Digit (for Unipolar) 0:Single Shaft 1:Double Shaft

### DIMENSIONS [EXAMPLE]



\* Dimensions apply to double shaft models.



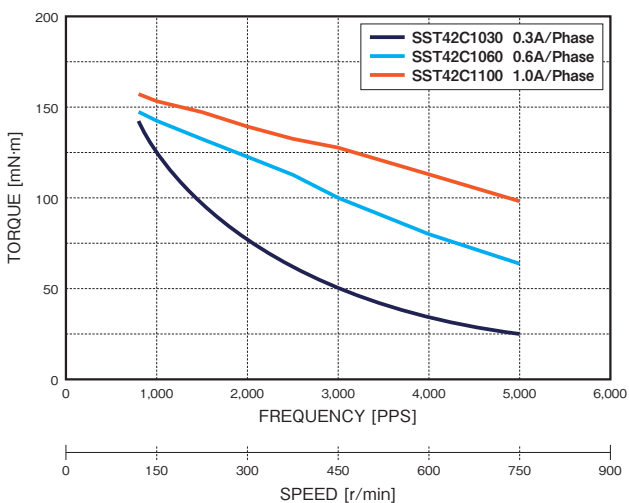


### TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps												
					0	50	100	200	300	400	600	800	1,000	1,500	2,000		
0.9°	42mm	NEMA17	Unipolar	42C1	[Torque values indicated by yellow bars in the original image]												
				42C2	[Torque values indicated by yellow bars in the original image]												
				42C3	[Torque values indicated by yellow bars in the original image]												

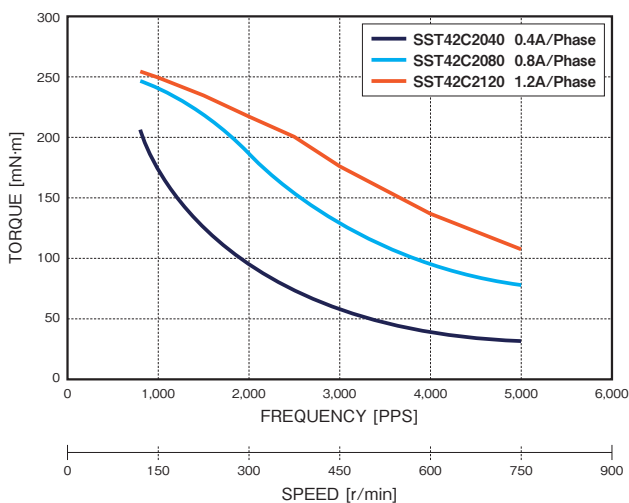
### PULL OUT TORQUE CURVE

SST42C1XXX



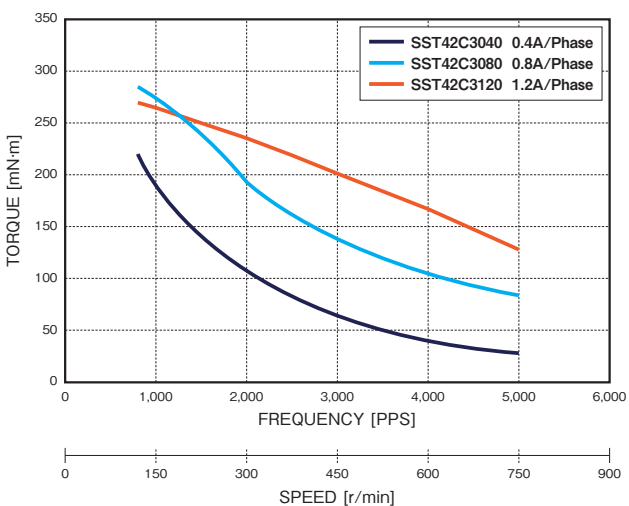
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

SST42C2XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

SST42C3XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

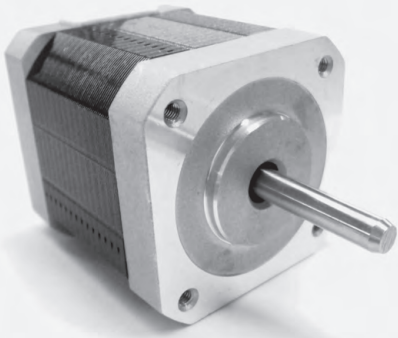


Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.

Stepping Motor  
 BLDC Motor  
 Motor Driver  
 Other Motor



# 2 Phase Hybrid Stepping Motor

## 42C SERIES

□42mm

0.9°

Bipolar

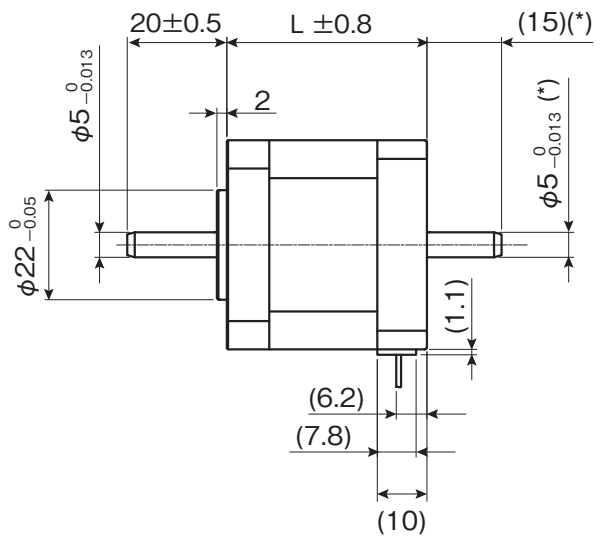
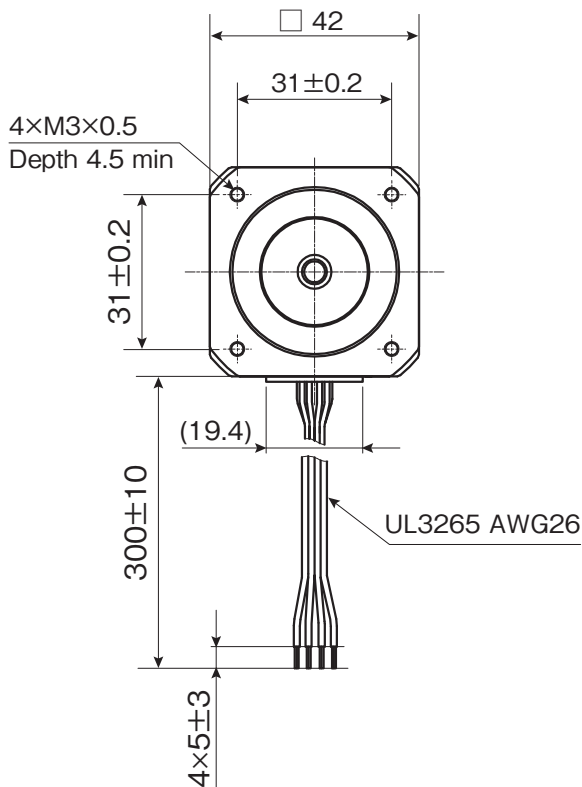
RoHS

### CHARACTERISTICS

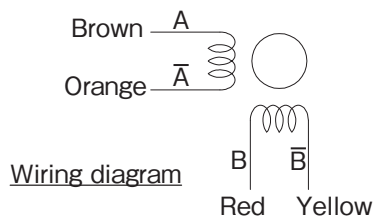
MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	kg	mm
SST42C103X	0.9	5.6	0.3	18.7	34.8	177	33	0.23	34
SST42C106X	0.9	3.2	0.6	5.4	8.6	184	33	0.23	34
SST42C110X	0.9	1.2	1.0	2.2	3.9	196	33	0.23	34
SST42C204X	0.9	6.0	0.4	15.0	34.5	312	56	0.29	40
SST42C208X	0.9	3.0	0.8	3.8	9.2	324	56	0.29	40
SST42C212X	0.9	2.0	1.2	1.7	4.5	324	56	0.29	40
SST42C304X	0.9	6.3	0.4	15.7	32.0	334	72	0.36	47.5
SST42C308X	0.9	3.2	0.8	4.0	9.7	358	72	0.36	47.5
SST42C312X	0.9	2.0	1.2	1.7	4.0	346	72	0.36	47.5

↑ Last Digit (for Bipolar) 5:Single Shaft 6:Double Shaft

### DIMENSIONS [EXAMPLE]



\* Dimensions apply to double shaft models.

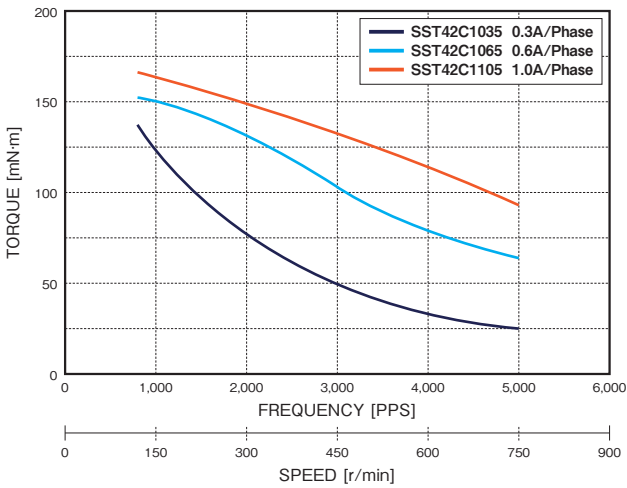


# TORQUE RANGE

STEP ANGLE	SIZE	WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps																				
				0	50	100	200	300	400	600	800	1,000	1,500	2,000										
0.9°	□42mm	NEMA17	Bipolar	42C1																				
				42C2																				
				42C3																				

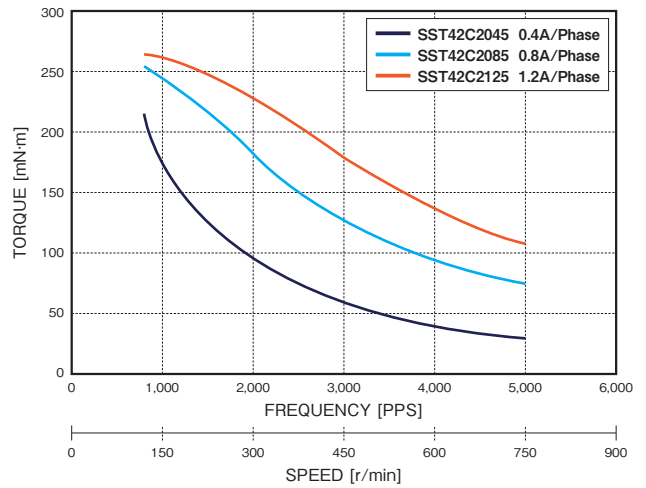
# PULL OUT TORQUE CURVE

SST42C1XXX



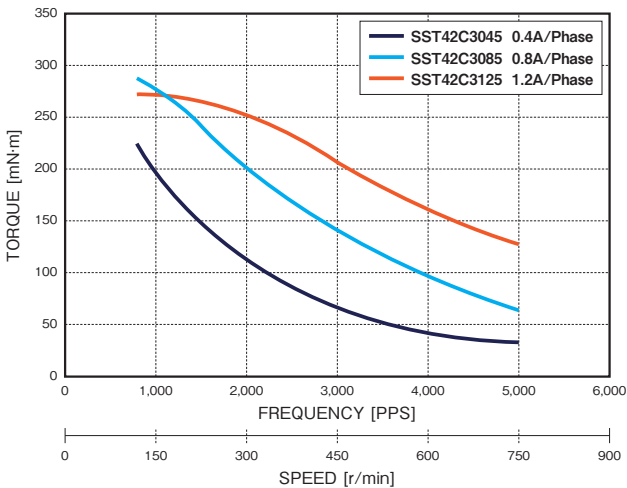
DRIVER : Chopper     SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase     MOUNTING : With rubber damper

SST42C2XXX



DRIVER : Chopper     SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase     MOUNTING : With rubber damper

SST42C3XXX



DRIVER : Chopper     SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase     MOUNTING : With rubber damper



Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor

# 2 Phase Hybrid Stepping Motor

## 56C SERIES

□ 56mm

0.9°

Unipolar

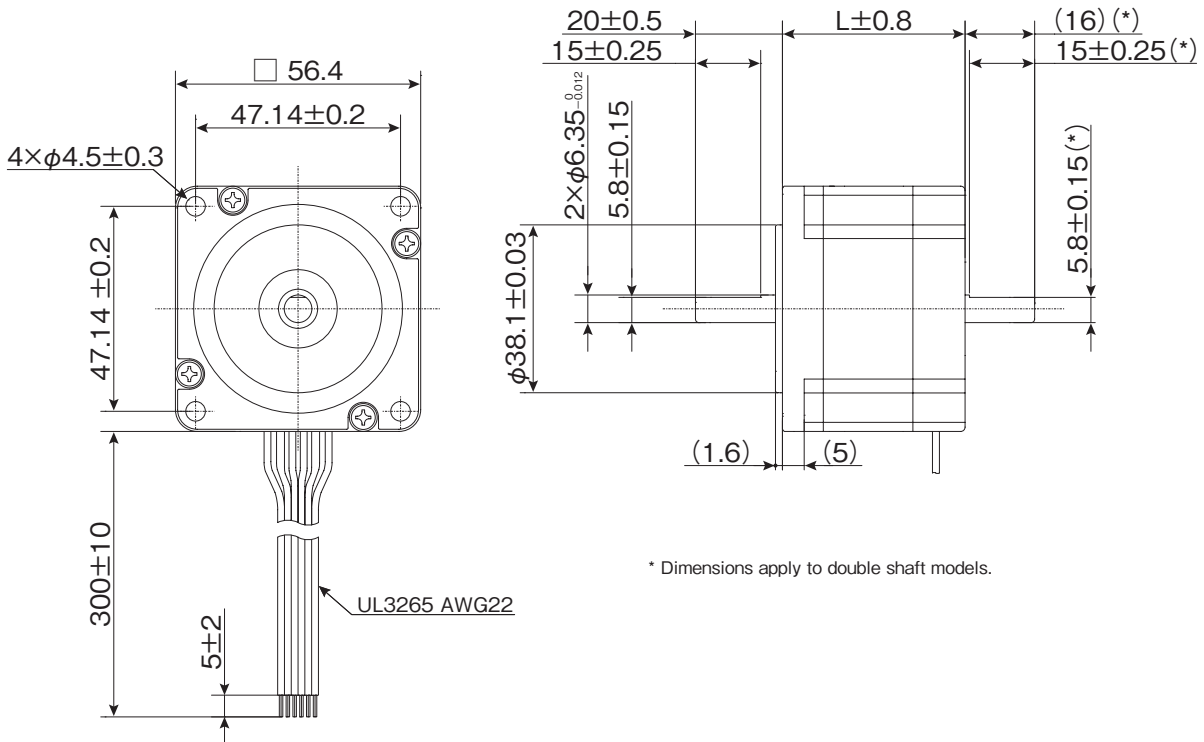
RoHS

### CHARACTERISTICS

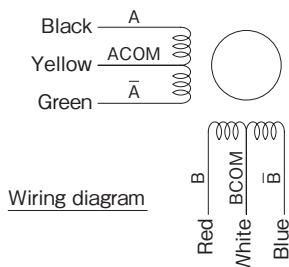
MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	kg	mm
SST56C110X	0.9	5.3	1.0	5.3	7.0	425	120	0.45	39.5
SST56C120X	0.9	2.6	2.0	1.3	1.8	460	120	0.45	39.5
SST56C130X	0.9	1.53	3.0	0.51	0.7	460	120	0.45	39.5
SST56C310X	0.9	5.8	1.0	5.8	13.0	1,029	306	0.71	54.5
SST56C320X	0.9	3.2	2.0	1.6	3.5	1,029	306	0.71	54.5
SST56C330X	0.9	2.25	3.0	0.75	1.8	1,029	306	0.71	54.5
SST56C510X	0.9	8.5	1.0	8.5	18.0	1,569	470	1.10	76
SST56C520X	0.9	4.8	2.0	2.4	5.0	1,569	470	1.10	76
SST56C530X	0.9	3.3	3.0	1.1	2.5	1,569	470	1.10	76

↖ Last Digit (for Unipolar) 0:Single Shaft 1:Double Shaft

### DIMENSIONS [EXAMPLE]



\* Dimensions apply to double shaft models.

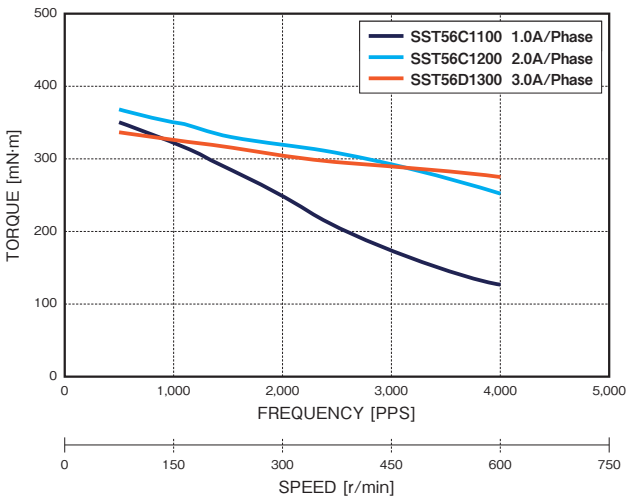


### TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps													
					0	50	100	200	300	400	600	800	1,000	1,500	2,000			
0.9°	56mm	NEMA23	Unipolar	56C1														
				56C3														
				56C5														

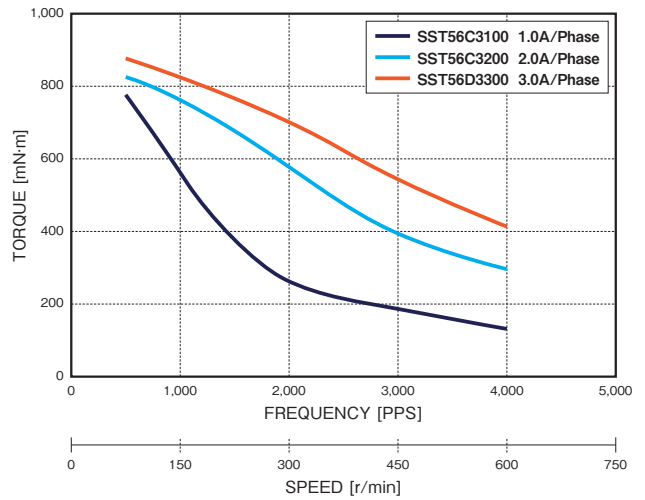
### PULL OUT TORQUE CURVE

SST56C1XXX



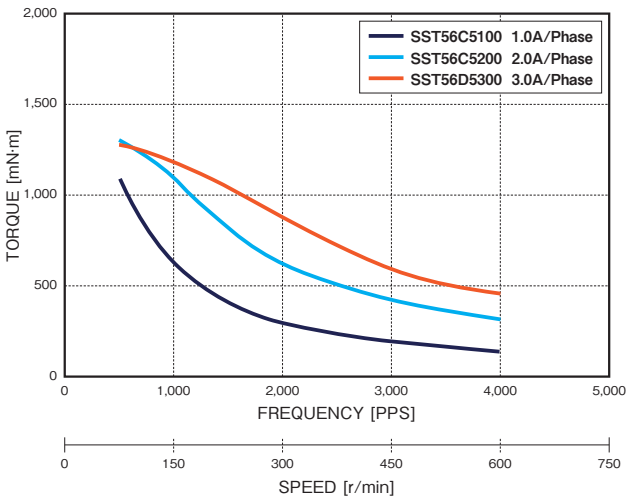
DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase MOUNTING : With rubber damper

SST56C3XXX



DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase MOUNTING : With rubber damper

SST56C5XXX



DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase MOUNTING : With rubber damper

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.

**Stepping Motor**  
**BLDC Motor**  
**Motor Driver**  
**Other Motor**



# 2 Phase Hybrid Stepping Motor

## 28D SERIES

□ 28mm

1.8°

Unipolar

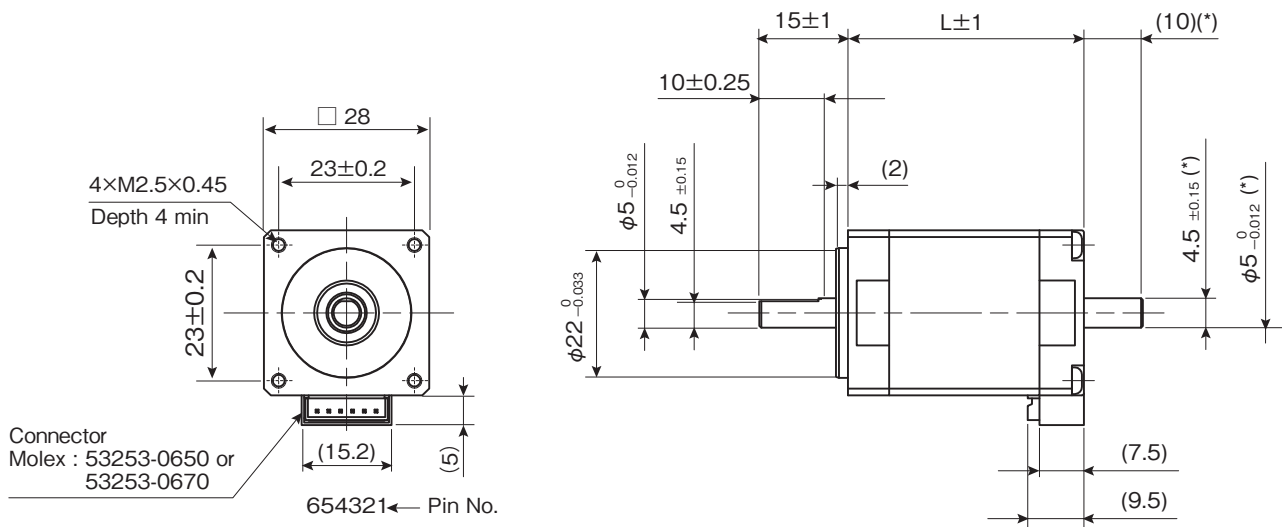
RoHS

### CHARACTERISTICS

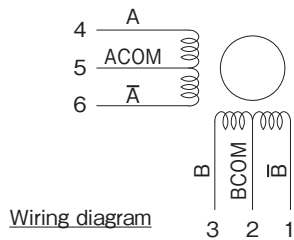
MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	kg	mm
SST28D110X	1.8	2.76	0.95	2.90	1.25	68.6	8	0.110	32
SST28D210X	1.8	3.23	0.95	3.40	1.20	94.1	12	0.145	39.7
SST28D310X	1.8	4.28	0.95	4.50	1.70	135	17	0.195	51.6

↑ Last Digit (for Unipolar) 0:Single Shaft 1:Double Shaft

### DIMENSIONS [EXAMPLE]



\* Dimensions apply to double shaft models.

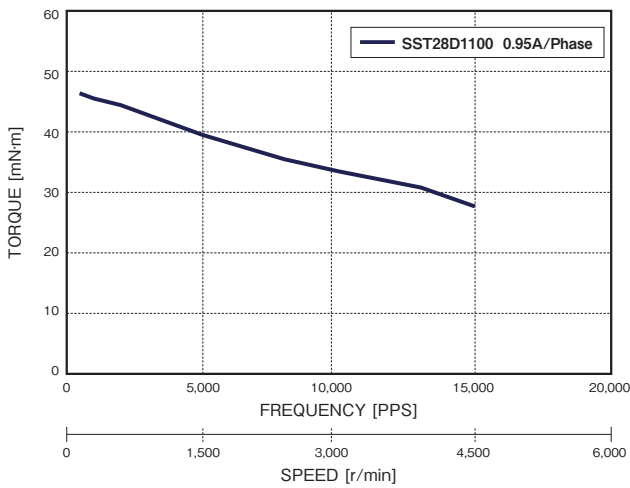


## TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps										
					0	50	100	200	300	400	600	800	1,000	1,500	2,000
1.8°	28mm	NEMA11	Unipolar	28D1	0	50	100	200	300	400	600	800	1,000	1,500	2,000
				28D2	0	50	100	200	300	400	600	800	1,000	1,500	2,000
				28D3	0	50	100	200	300	400	600	800	1,000	1,500	2,000

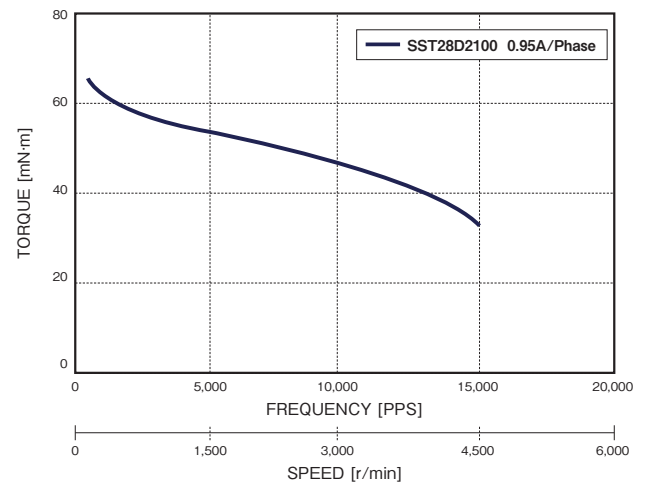
## PULL OUT TORQUE CURVE

SST28D1XXX



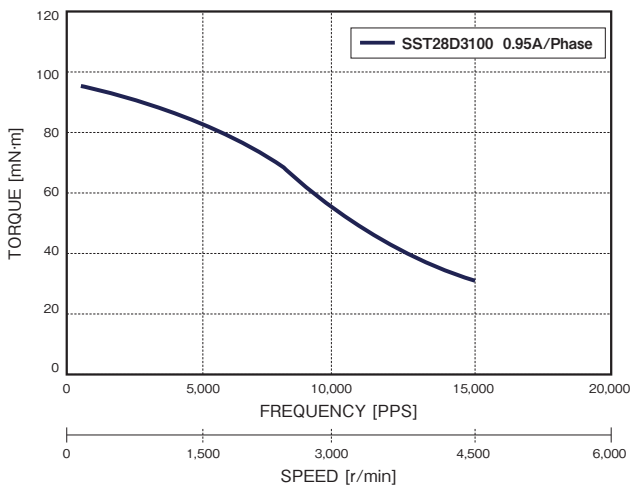
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

SST28D2XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

SST28D3XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase



Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# 2 Phase Hybrid Stepping Motor

## 28D SERIES

□ 28mm

1.8°

Bipolar

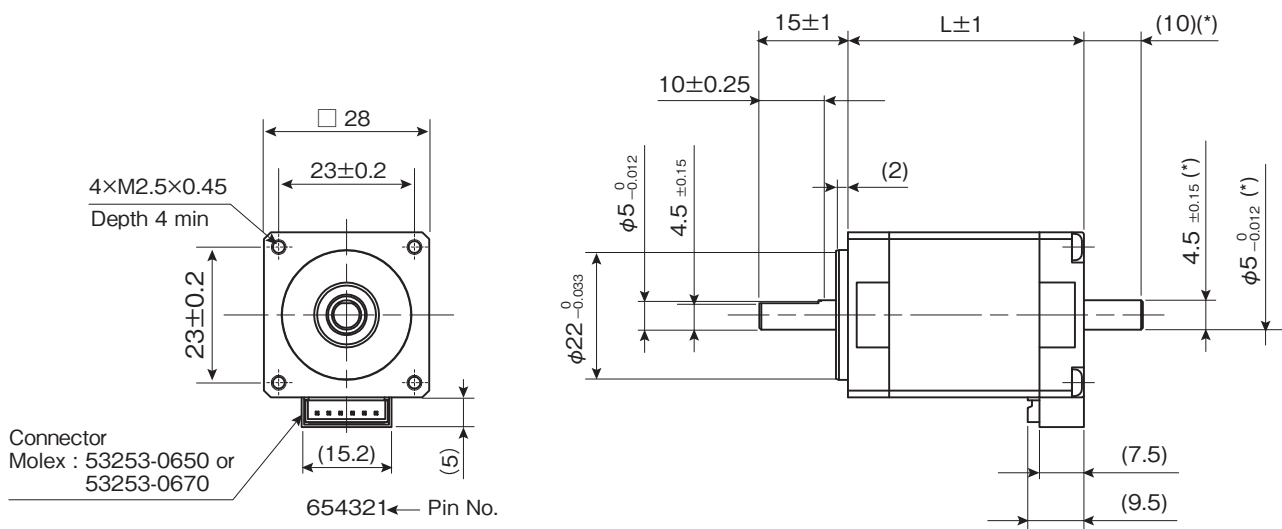
RoHS

### CHARACTERISTICS

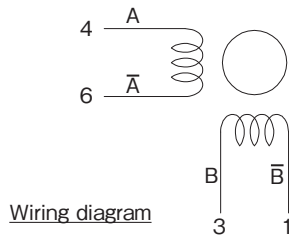
MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	kg	mm
SST28D110X	1.8	1.89	1.3	1.45	1.25	92.2	8	0.110	32
SST28D210X	1.8	2.21	1.3	1.70	1.20	123	12	0.145	39.7
SST28D310X	1.8	2.93	1.3	2.25	1.70	183	17	0.195	51.6

↑ Last Digit (for Bipolar) 5:Single Shaft 6:Double Shaft

### DIMENSIONS [EXAMPLE]



\* Dimensions apply to double shaft models.



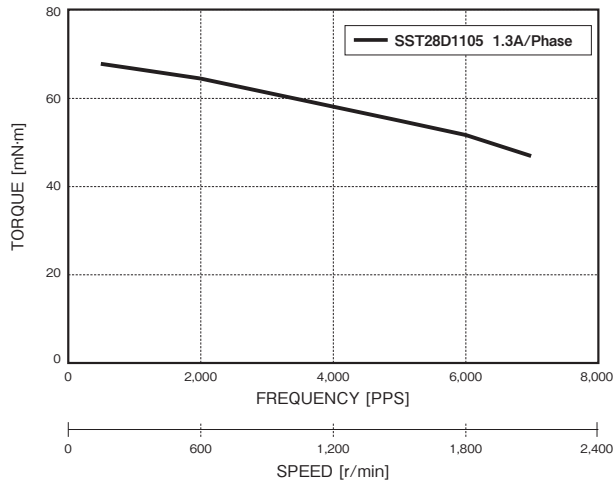


## TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps												
					0	50	100	200	300	400	600	800	1,000	1,500	2,000		
1.8°	28mm	NEMA11	Bipolar	28D1	0	50	100	200	300	400	600	800	1,000	1,500	2,000		
				28D2	0	50	100	200	300	400	600	800	1,000	1,500	2,000		
				28D3	0	50	100	200	300	400	600	800	1,000	1,500	2,000		

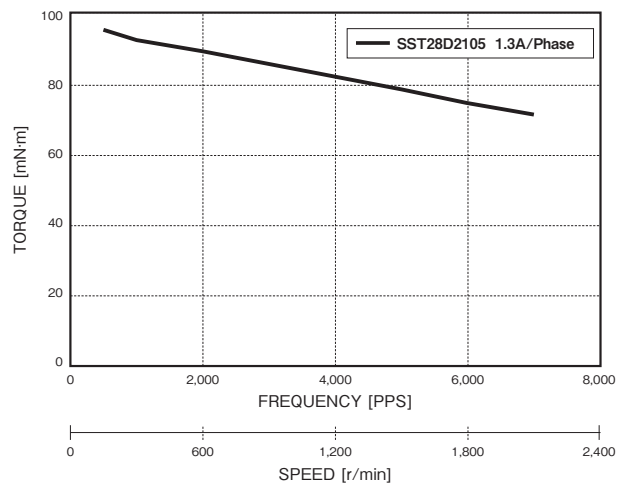
## PULL OUT TORQUE CURVE

SST28D1XXX



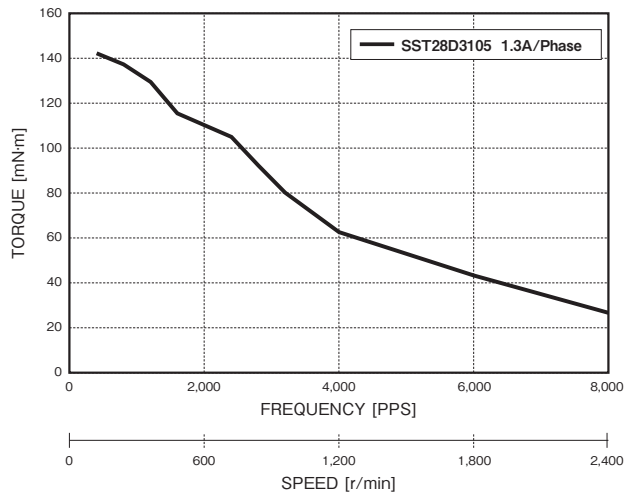
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

SST28D2XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

SST28D3XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.



# 2 Phase Hybrid Stepping Motor

## 35D SERIES

□35mm

1.8°

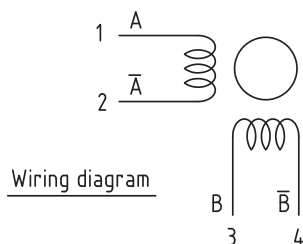
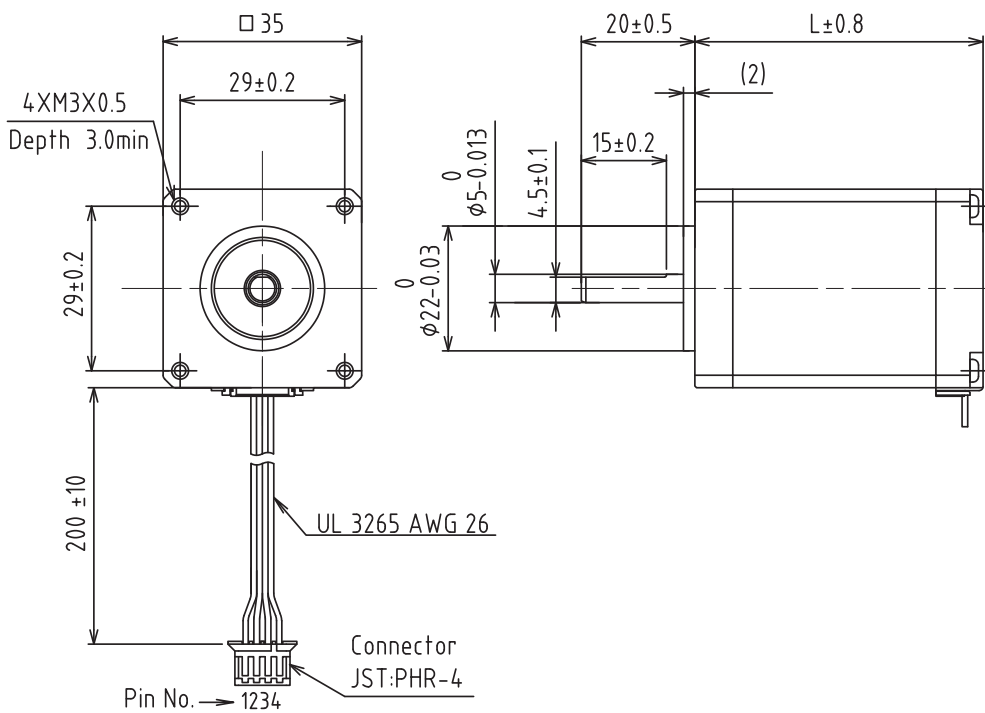
Bipolar

RoHS

### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	g	mm
SST35D4165	1.8	3.60	1.6	2.25	3.90	515	41	280	50.5
SST35D4185	1.8	3.15	1.8	1.75	2.40	465	41	280	50.5
SST35D4205	1.8	3.00	2.0	1.50	1.70	450	41	280	50.5
SST35D4225	1.8	2.75	2.2	1.25	1.15	415	41	280	50.5

### DIMENSIONS [EXAMPLE]



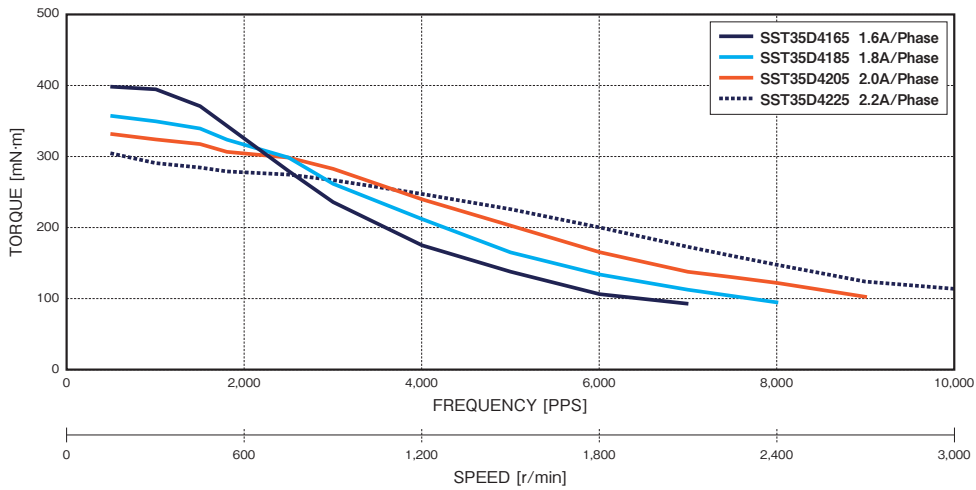


**TORQUE RANGE**

STEP ANGLE	SIZE	WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps																		
				0	50	100	200	300	400	600	800	1,000	1,500	2,000								
1.8°	35mm	NEMA14	Bipolar	35D4																		

**PULL OUT TORQUE CURVE**

SST35D4XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase

Stepping Motor

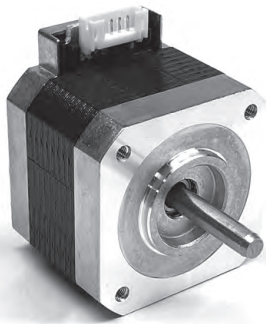
BLDC Motor

Motor Driver

Other Motor

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.

**!** Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.



# 2 Phase Hybrid Stepping Motor

## 42D SERIES

□42mm

1.8°

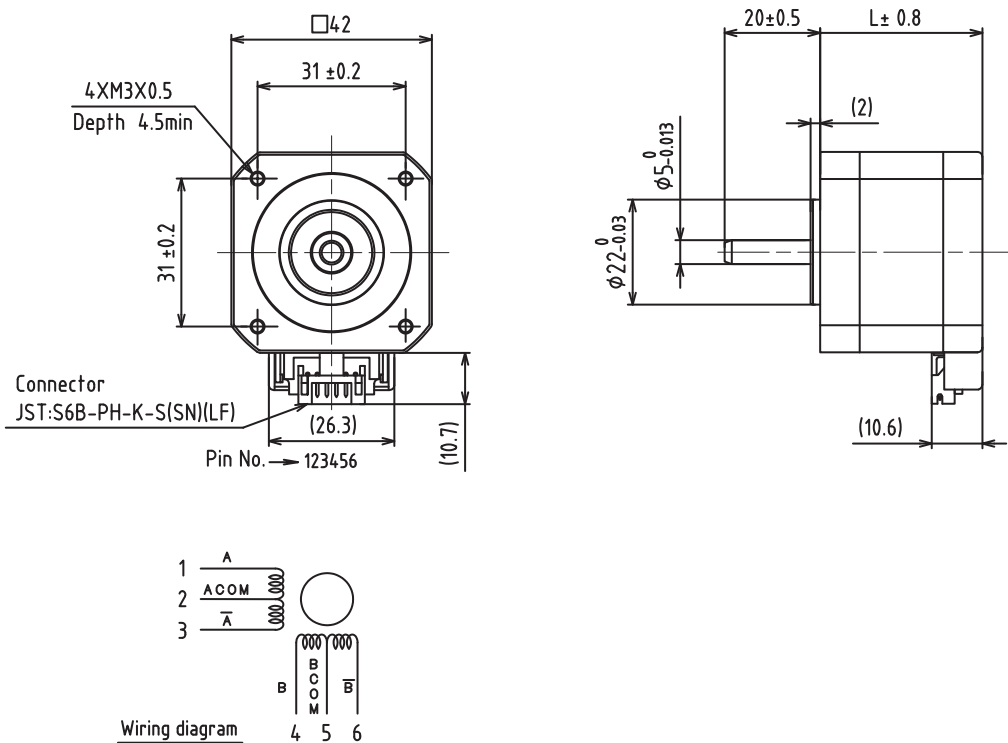
Unipolar

RoHS

### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	g	mm
STA-42D0000	1.8	6.55	0.5	13.10	10.5	154	21	170	27.5
STA-42D0001	1.8	4.74	0.6	7.70	6.8	149	21	170	27.5
STA-42D0002	1.8	3.60	0.8	4.50	4.1	150	21	170	27.5
STA-42D0003	1.8	3.20	1.0	3.20	3.0	159	21	170	27.5
STA-42D1000	1.8	5.04	0.6	8.40	7.7	195	29	190	30
STA-42D1001	1.8	4.00	0.8	5.00	4.6	200	29	190	30
STA-42D1002	1.8	3.60	1.0	3.60	3.3	210	29	190	30
STA-42D1003	1.8	2.76	1.2	2.30	2.2	200	29	190	30
STA-42D2000	1.8	3.92	0.8	4.90	5.0	270	44	230	34
STA-42D2001	1.8	3.60	1.0	3.60	3.7	290	44	230	34
STA-42D2002	1.8	3.24	1.2	2.70	2.8	300	44	230	34
STA-42D2003	1.8	2.66	1.4	1.90	1.9	290	44	230	34
STA-42D3000	1.8	4.40	1.0	4.40	5.4	420	65	290	40
STA-42D3001	1.8	3.96	1.2	3.30	4.1	440	65	290	40
STA-42D3002	1.8	3.29	1.4	2.35	2.9	420	65	290	40
STA-42D3003	1.8	2.64	1.6	1.65	1.8	380	65	290	40

### DIMENSIONS [EXAMPLE]

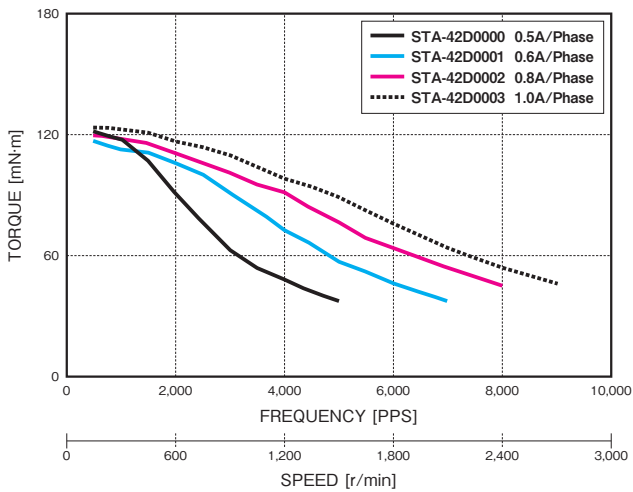


## TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps																		
					0	50	100	200	300	400	600	800	1,000	1,500	2,000								
1.8°	42mm	NEMA17	Unipolar	42D0																			
				42D1																			
				42D2																			
				42D3																			

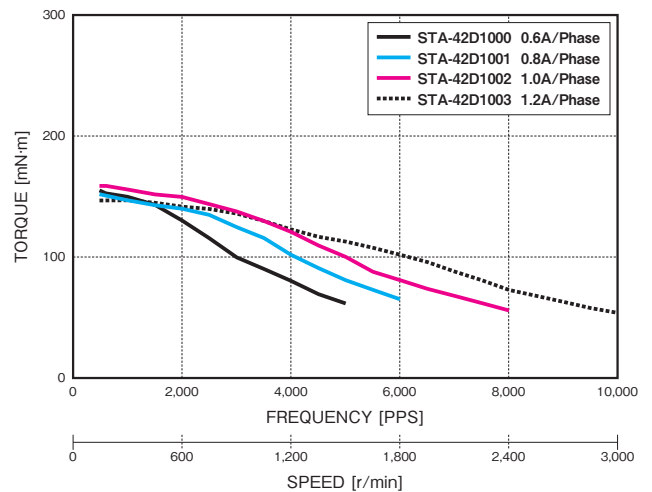
## PULL OUT TORQUE CURVE

STA-42D000X



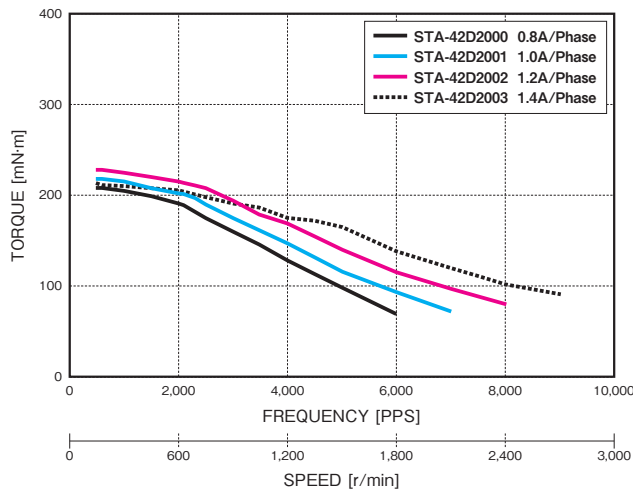
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

STA-42D100X



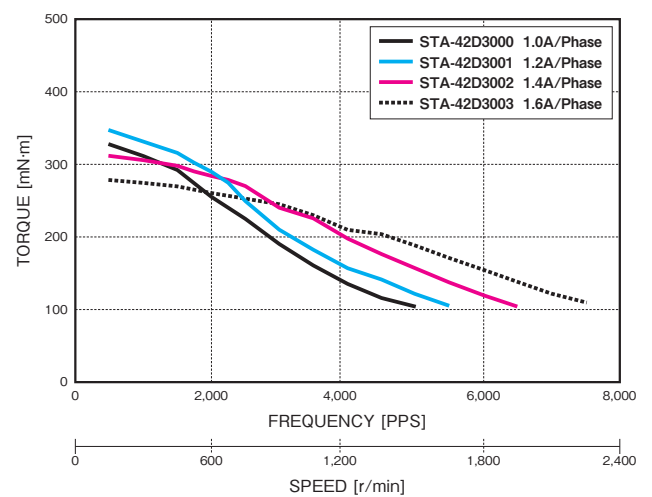
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

STA-42D200X



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

STA-42D300X



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper



Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



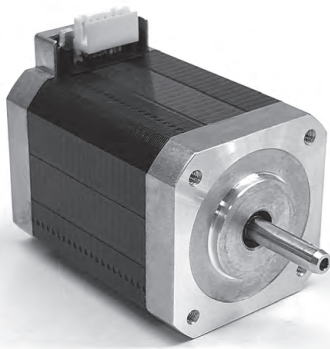
Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# 2 Phase Hybrid Stepping Motor

## 42D SERIES

□42mm

1.8°

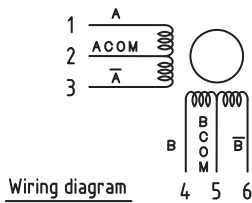
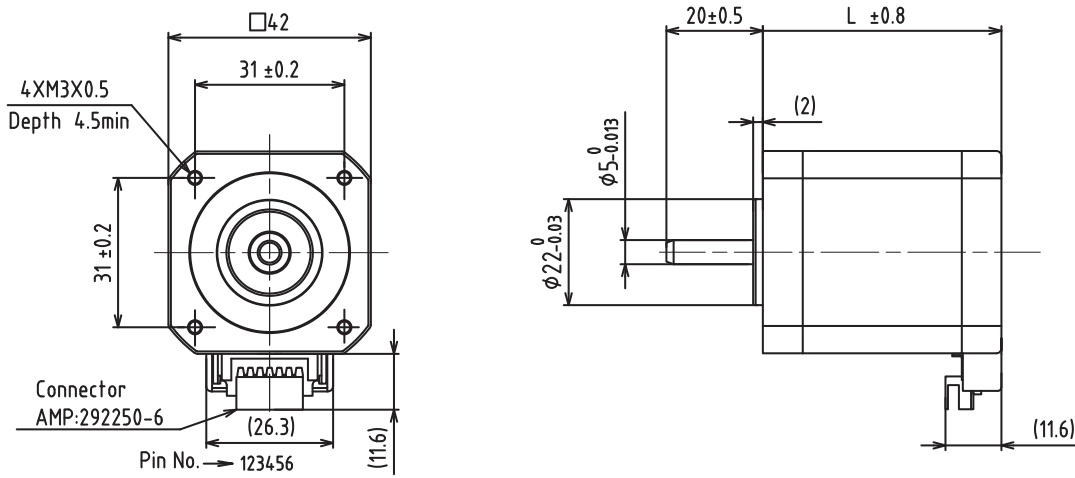
Unipolar

RoHS

### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	g	mm
STA-42D4000	1.8	5.04	1.2	4.20	5.5	630	87	390	49.5
STA-42D4001	1.8	4.34	1.4	3.10	3.8	610	87	390	49.5
STA-42D4002	1.8	3.57	1.7	2.10	2.4	585	87	390	49.5
STA-42D4003	1.8	3.50	2.0	1.75	1.8	585	87	390	49.5
STA-42D5003	1.8	6.00	1.2	5.00	6.5	773	111	490	58
STA-42D5004	1.8	4.64	1.6	2.90	3.7	783	111	490	58
STA-42D5005	1.8	4.50	1.8	2.50	2.8	757	111	490	58
STA-42D5006	1.8	3.99	2.1	1.90	1.7	697	111	490	58

### DIMENSIONS [EXAMPLE]

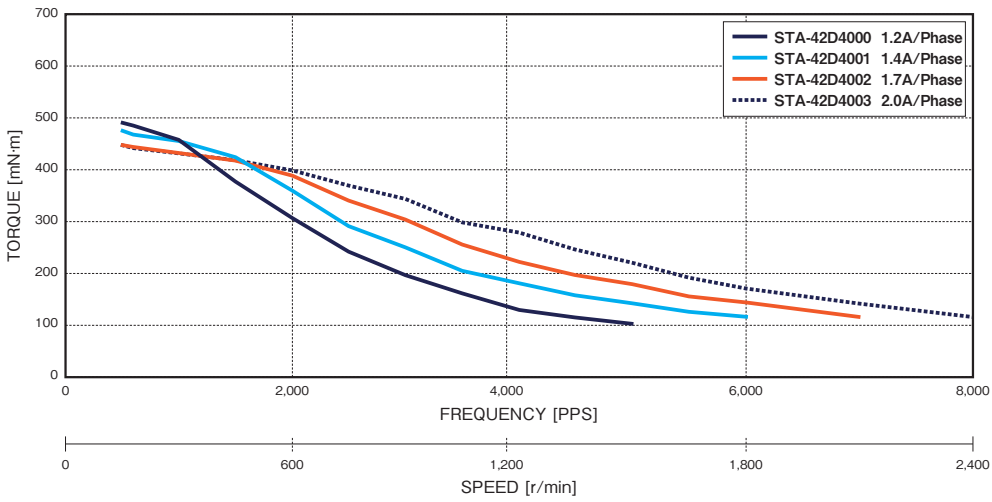


## TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps																			
					0	50	100	200	300	400	600	800	1,000	1,500	2,000									
1.8°	□42mm	NEMA17	Unipolar	42D4																				
				42D5																				

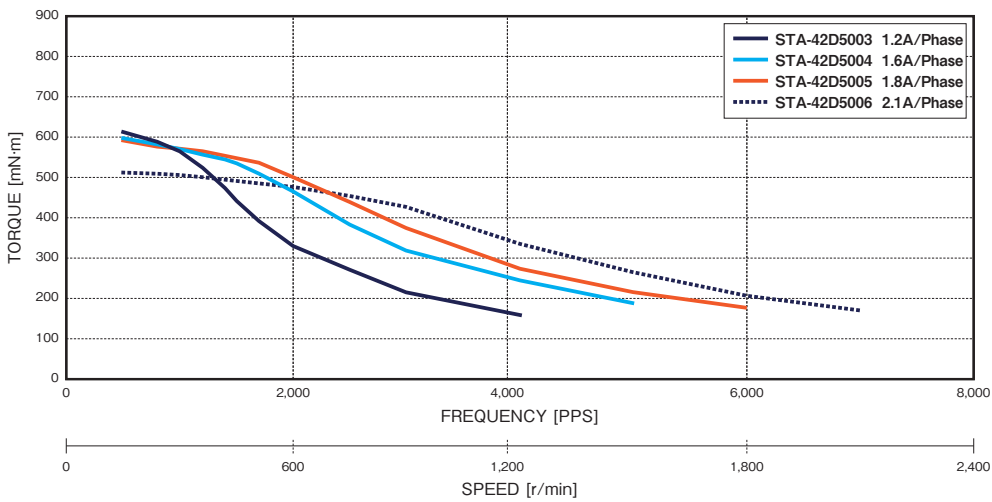
## PULL OUT TORQUE CURVE

STA-42D4XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

STA-42D5XXX

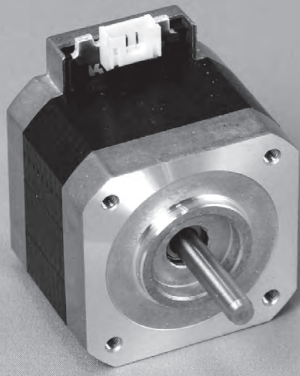


DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.



# 2 Phase Hybrid Stepping Motor

## 42D SERIES

□42mm

1.8°

Bipolar



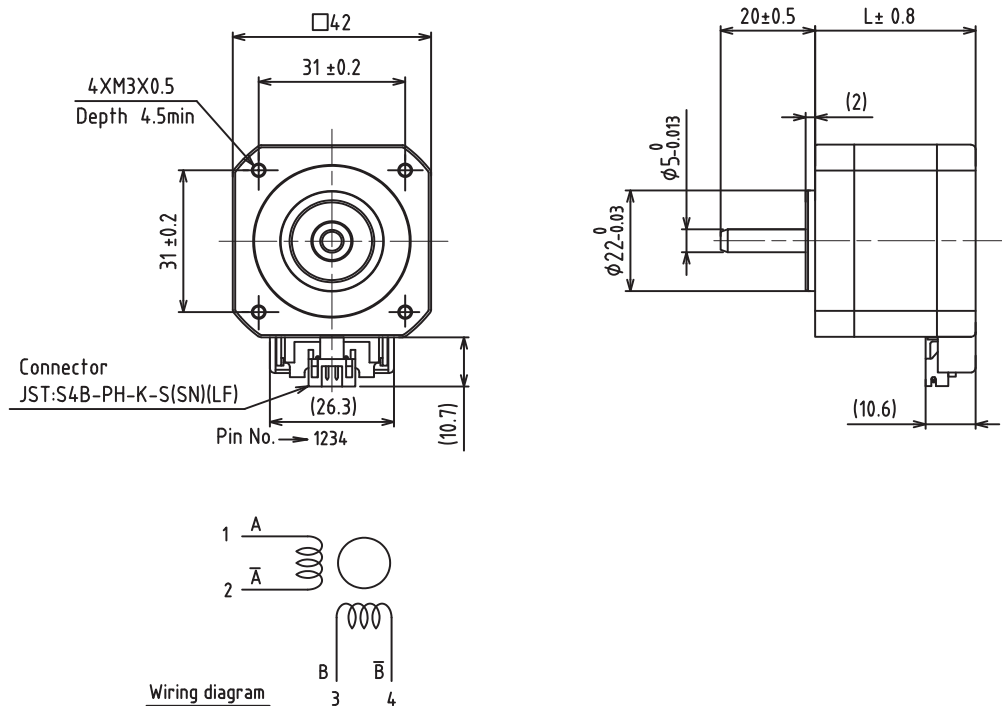
STA-42D series can achieve larger torque than existing motors in same dimension.

### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.								
STA-42D0004	1.8	4.27	0.7	6.10	10.5	200	21	170	27.5
STA-42D0005	1.8	3.42	0.9	3.80	6.8	205	21	170	27.5
STA-42D0006	1.8	2.53	1.1	2.30	4.1	195	21	170	27.5
STA-42D0007	1.8	2.21	1.3	1.70	3.0	195	21	170	27.5
STA-42D1004	1.8	3.83	0.9	4.25	7.7	270	29	190	30
STA-42D1005	1.8	2.75	1.1	2.50	4.6	255	29	190	30
STA-42D1006	1.8	2.66	1.4	1.90	3.3	270	29	190	30
STA-42D1007	1.8	1.96	1.7	1.15	2.2	265	29	190	30
STA-42D2004	1.8	2.88	1.2	2.40	5.0	390	44	230	34
STA-42D2005	1.8	2.45	1.4	1.75	3.7	385	44	230	34
STA-42D2006	1.8	2.30	1.7	1.35	2.8	400	44	230	34
STA-42D2007	1.8	2.09	1.9	1.10	1.9	380	44	230	34
STA-42D3004	1.8	3.43	1.4	2.45	5.4	540	65	290	40
STA-42D3005	1.8	3.04	1.6	1.90	4.1	565	65	290	40
STA-42D3006	1.8	2.57	1.9	1.35	2.9	525	65	290	40
STA-42D3007	1.8	2.20	2.2	1.00	1.8	490	65	290	40

↑ Last Digit 4-7 : for Bipolar

### DIMENSIONS [EXAMPLE]



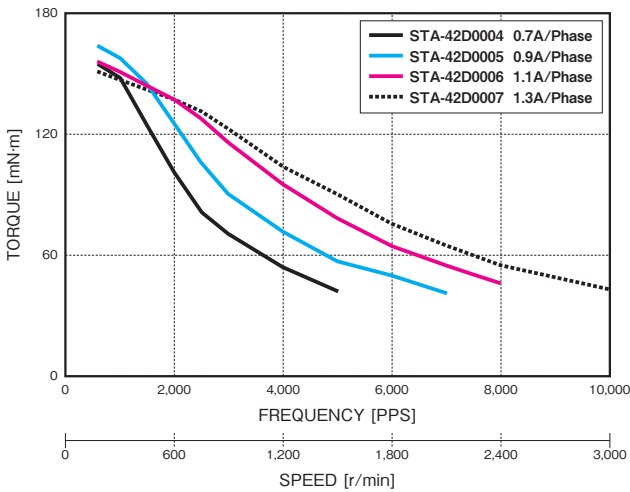


## TORQUE RANGE

STEP ANGLE	SIZE	WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps																						
				0	50	100	200	400	600	800	1,000	1,500	2,000													
1.8°	42mm	NEMA17	Bipolar	42D0																						
				42D1																						
				42D2																						
				42D3																						

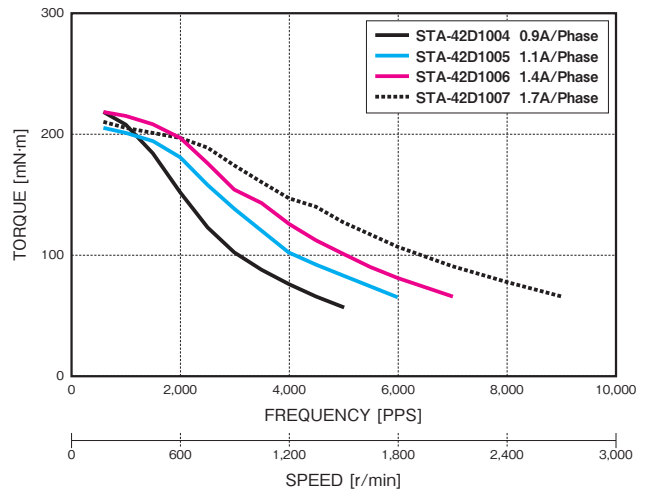
## PULL OUT TORQUE CURVE

STA-42D0XXX



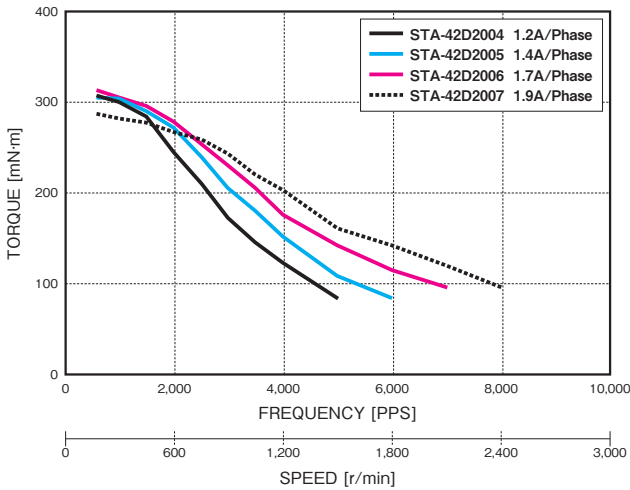
DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase MOUNTING : With rubber damper

STA-42D1XXX



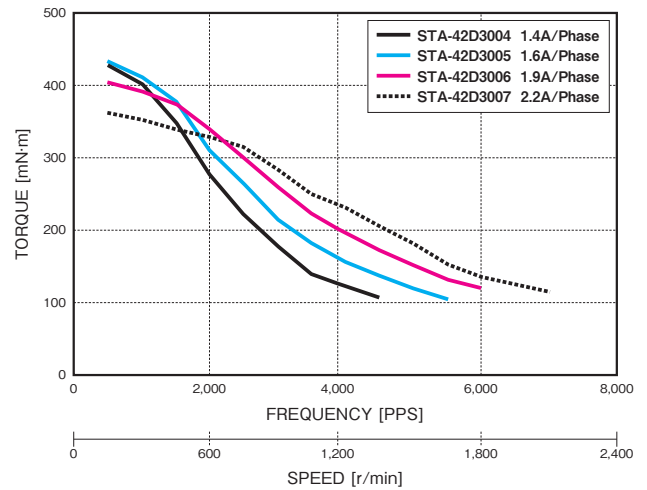
DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase MOUNTING : With rubber damper

STA-42D2XXX



DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase MOUNTING : With rubber damper

STA-42D3XXX

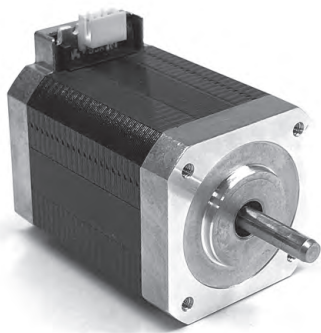


DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase MOUNTING : With rubber damper

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.



# 2 Phase Hybrid Stepping Motor

## 42D SERIES

□42 mm

1.8°

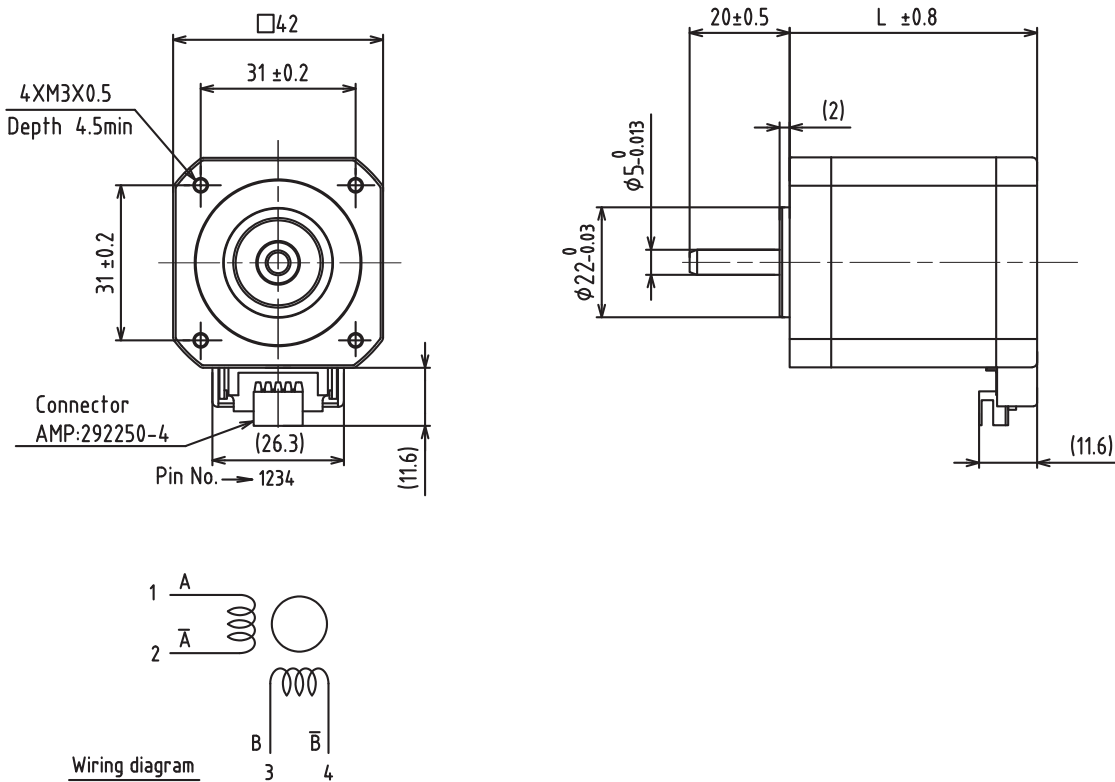
Bipolar

RoHS

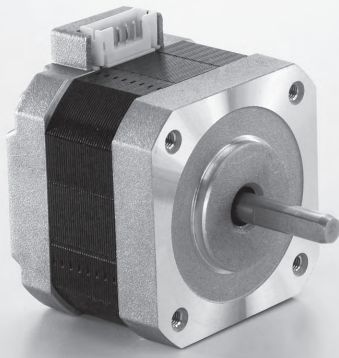
### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	g	mm
STA-42D4004	1.8	3.40	1.7	2.00	5.5	823	87	390	49.5
STA-42D4005	1.8	3.14	1.9	1.65	3.8	778	87	390	49.5
STA-42D4006	1.8	2.73	2.1	1.30	2.4	700	87	390	49.5
STA-42D4007	1.8	2.65	2.3	1.15	1.8	658	87	390	49.5
STA-42D5007	1.8	4.25	1.7	2.50	6.5	1,025	111	490	58
STA-42D5008	1.8	3.19	2.2	1.45	3.7	1,015	111	490	58
STA-42D5009	1.8	3.13	2.5	1.25	2.8	1,000	111	490	58
STA-42D5010	1.8	2.66	2.8	0.95	1.7	880	111	490	58

### DIMENSIONS [EXAMPLE]







# 2 Phase Hybrid Stepping Motor

## 43D SERIES

□ 42mm

1.8°

Unipolar

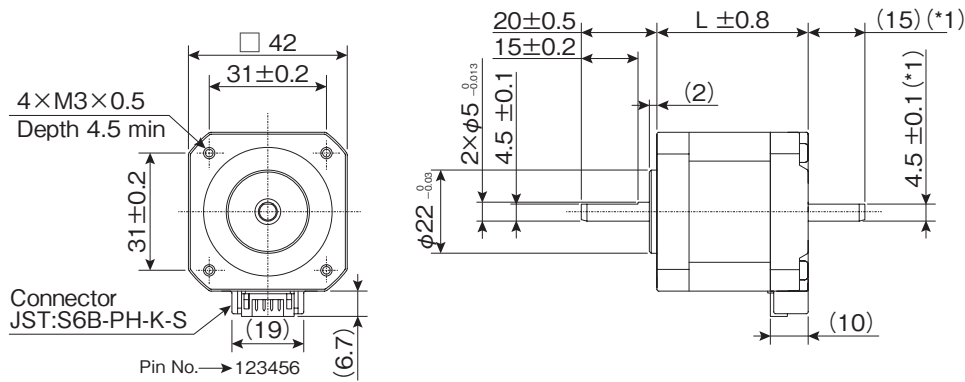
RoHS

### CHARACTERISTICS

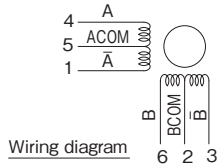
MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	g	mm
SST43D104X	1.8	9.6	0.4	24.0	16.0	215	33	230	34
SST43D106X	1.8	6.9	0.6	11.5	8.1	226	33	230	34
SST43D108X	1.8	5.1	0.8	6.4	4.9	233	33	230	34
SST43D110X	1.8	4.2	1.0	4.2	3.3	238	33	230	34
SST43D112X	1.8	3.2	1.2	2.7	2.3	237	33	230	34
SST43D115X	1.8	2.7	1.5	1.8	1.5	235	33	230	34
SST43D204X	1.8	12.0	0.4	30.0	24.0	314	56	290	40
SST43D206X	1.8	7.2	0.6	12.0	11.8	322	56	290	40
SST43D208X	1.8	5.5	0.8	6.9	7.1	321	56	290	40
SST43D210X	1.8	4.8	1.0	4.8	4.8	338	56	290	40
SST43D212X	1.8	4.0	1.2	3.3	3.6	341	56	290	40
SST43D214X	1.8	3.2	1.4	2.3	2.5	329	56	290	40
SST43D216X	1.8	3.0	1.6	1.9	1.8	313	56	290	40

↖ Last Digit (for Unipolar) 0:Single Shaft 1:Double Shaft

### DIMENSIONS [EXAMPLE]



\*1 Dimensions apply to double shaft models.

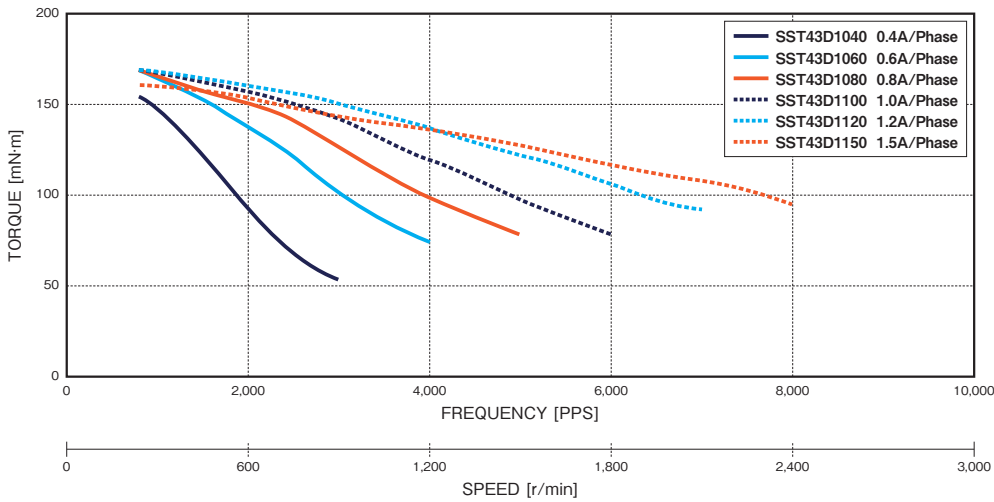


## TORQUE RANGE

STEP ANGLE	SIZE	WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps																		
				0	50	100	200	300	400	600	800	1,000	1,500	2,000								
1.8°	□42mm	NEMA17	Unipolar	43D1																		
				43D2																		

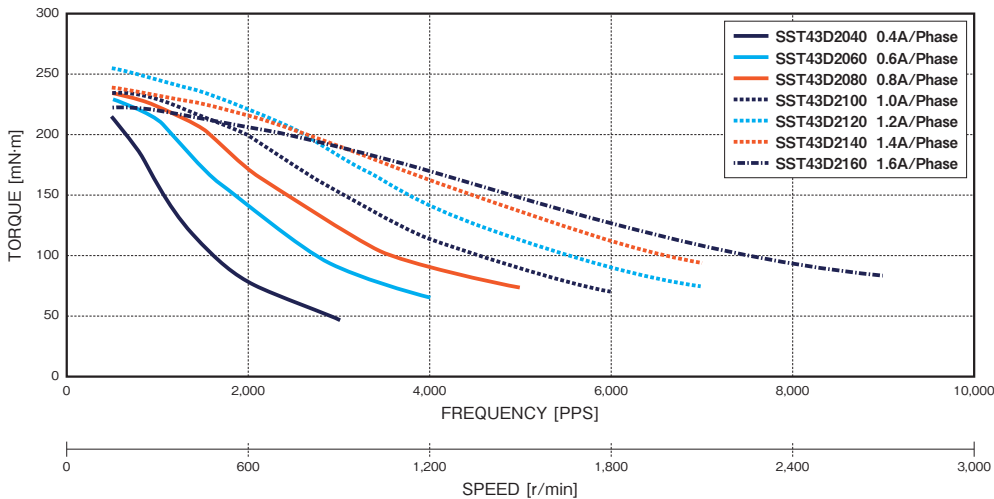
## PULL OUT TORQUE CURVE

SST43D1XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

SST43D2XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



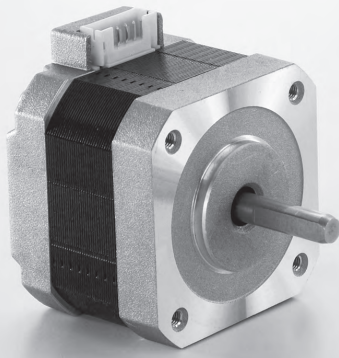
Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# 2 Phase Hybrid Stepping Motor

## 43D SERIES

□ 42mm

1.8°

Bipolar

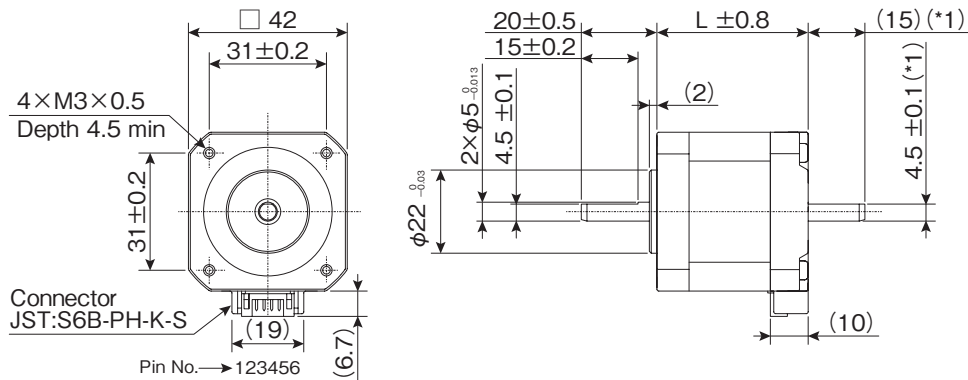
RoHS

### CHARACTERISTICS

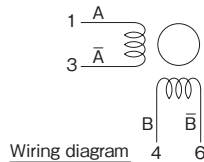
MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	g	mm
SST43D104X	1.8	6.8	0.57	12.00	16.0	294	33	230	34
SST43D106X	1.8	4.9	0.85	5.75	8.1	304	33	230	34
SST43D108X	1.8	3.6	1.13	3.20	4.9	312	33	230	34
SST43D110X	1.8	3.0	1.41	2.10	3.3	319	33	230	34
SST43D112X	1.8	2.3	1.70	1.35	2.3	322	33	230	34
SST43D115X	1.8	1.9	2.12	0.90	1.5	309	33	230	34
SST43D204X	1.8	8.6	0.57	15.00	24.0	420	56	290	40
SST43D206X	1.8	5.1	0.85	6.00	11.8	432	56	290	40
SST43D208X	1.8	3.9	1.13	3.45	7.1	422	56	290	40
SST43D210X	1.8	3.4	1.41	2.40	4.8	441	56	290	40
SST43D212X	1.8	2.8	1.70	1.65	3.6	456	56	290	40
SST43D214X	1.8	2.3	1.98	1.15	2.5	441	56	290	40
SST43D216X	1.8	2.1	2.26	0.95	1.8	424	56	290	40

↖ Last Digit (for Bipolar) 5:Single Shaft 6:Double Shaft

### DIMENSIONS [EXAMPLE]



\*1 Dimensions apply to double shaft models.

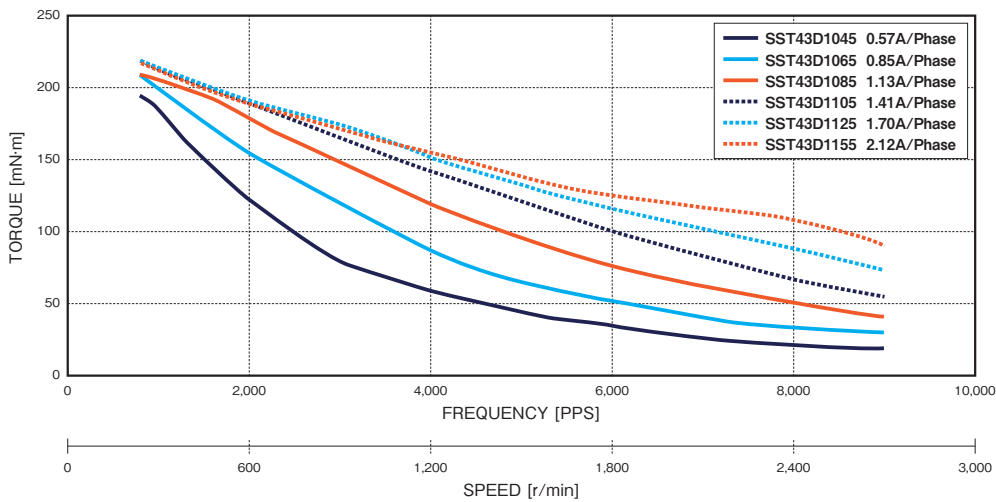


## TORQUE RANGE

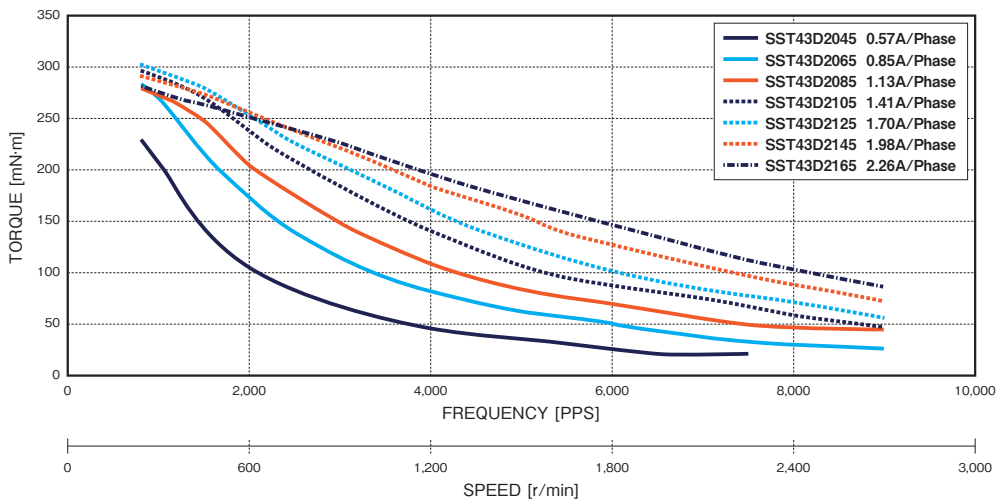
STEP ANGLE	SIZE	WINDINGS	MODEL	TORQUE [mN·m] * FREQUENCY at 1,000pps										
				0	50	100	200	300	400	600	800	1,000	1,500	2,000
1.8°	42mm	NEMA17	Bipolar	43D1										
				43D2										

## PULL OUT TORQUE CURVE

SST43D1XXX



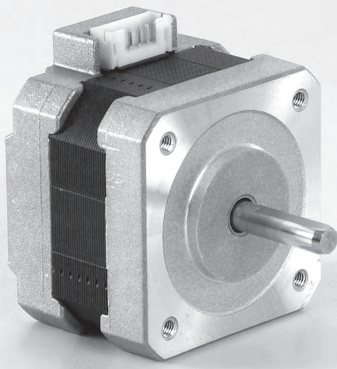
SST43D2XXX



Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.



# 2 Phase Hybrid Stepping Motor

## 45D SERIES

□42mm

High Holding Torque Model

1.8°

Unipolar

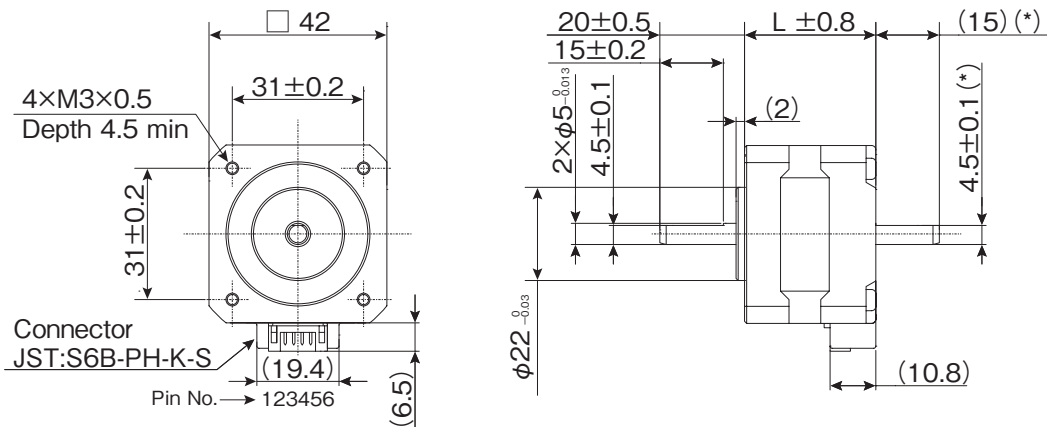
RoHS

### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	g	mm
SST45D003X	1.8	13.2	0.3	44	23.6	221	45	200	32
SST45D005X	1.8	7.3	0.5	14.5	8.6	221	45	200	32
SST45D007X	1.8	4.8	0.7	6.8	4.6	221	45	200	32
SST45D010X	1.8	3.3	1.0	3.3	2.3	226	45	200	32
SST45D012X	1.8	2.9	1.2	2.4	1.8	237	45	200	32
SST45D015X	1.8	2.1	1.5	1.4	1.0	226	45	200	32
SST45D103X	1.8	14.7	0.3	49	28	265	56	230	35
SST45D105X	1.8	8.3	0.5	16.6	10.5	265	56	230	35
SST45D107X	1.8	5.5	0.7	7.8	5.5	268	56	230	35
SST45D110X	1.8	3.6	1.0	3.6	2.7	265	56	230	35
SST45D112X	1.8	3.3	1.2	2.8	2.1	284	56	230	35
SST45D115X	1.8	2.4	1.5	1.6	1.2	265	56	230	35
SST45D203X	1.8	18.9	0.3	63	41.5	361	82	310	42.5
SST45D205X	1.8	10.8	0.5	21.5	15.5	361	82	310	42.5
SST45D207X	1.8	7.1	0.7	10.2	8.0	361	82	310	42.5
SST45D210X	1.8	4.6	1.0	4.6	4.0	378	82	310	42.5
SST45D212X	1.8	4.2	1.2	3.5	3.2	392	82	310	42.5
SST45D215X	1.8	3	1.5	2.0	1.8	382	82	310	42.5

↖ Last Digit (for Unipolar) 0:Single Shaft 1:Double Shaft

### DIMENSIONS [EXAMPLE]



\* Dimensions apply to double shaft models.

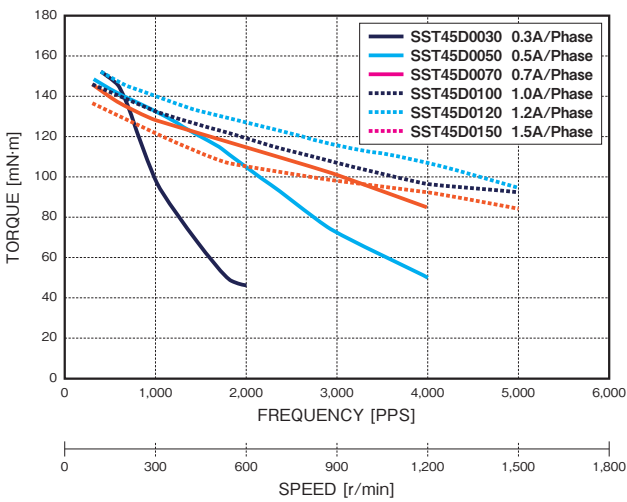


## TORQUE RANGE

STEP ANGLE	SIZE	WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps																		
				0	50	100	200	300	400	600	800	1,000	1,500	2,000								
1.8°	42mm	NEMA17	Unipolar	45D0																		
				45D1																		
				45D2																		

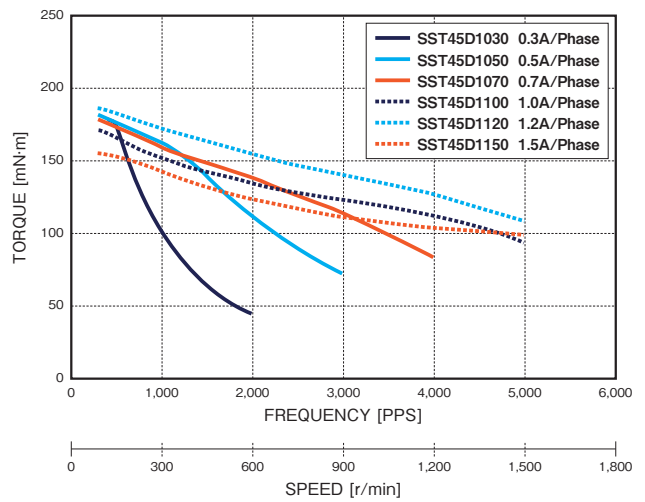
## PULL OUT TORQUE CURVE

SST45D0XXX



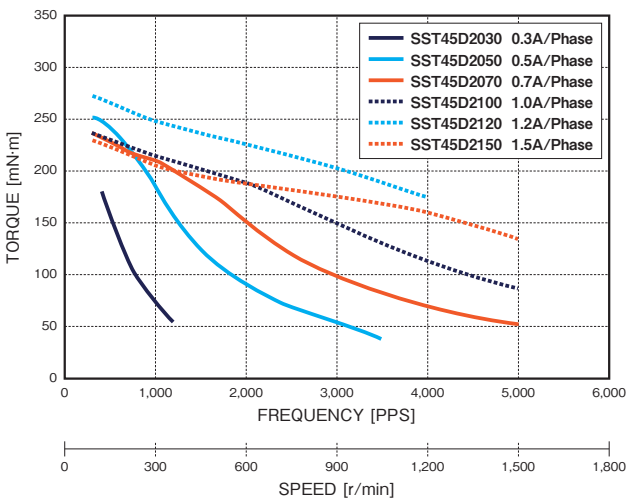
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

SST45D1XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

SST45D2XXX

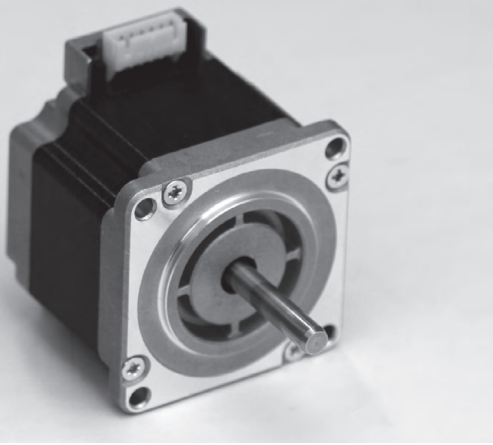


DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.



# 2 Phase Hybrid Stepping Motor

## 56D SERIES

□ 56mm

1.8°

Unipolar

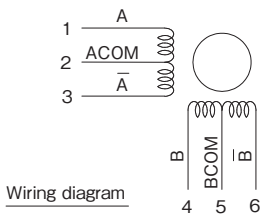
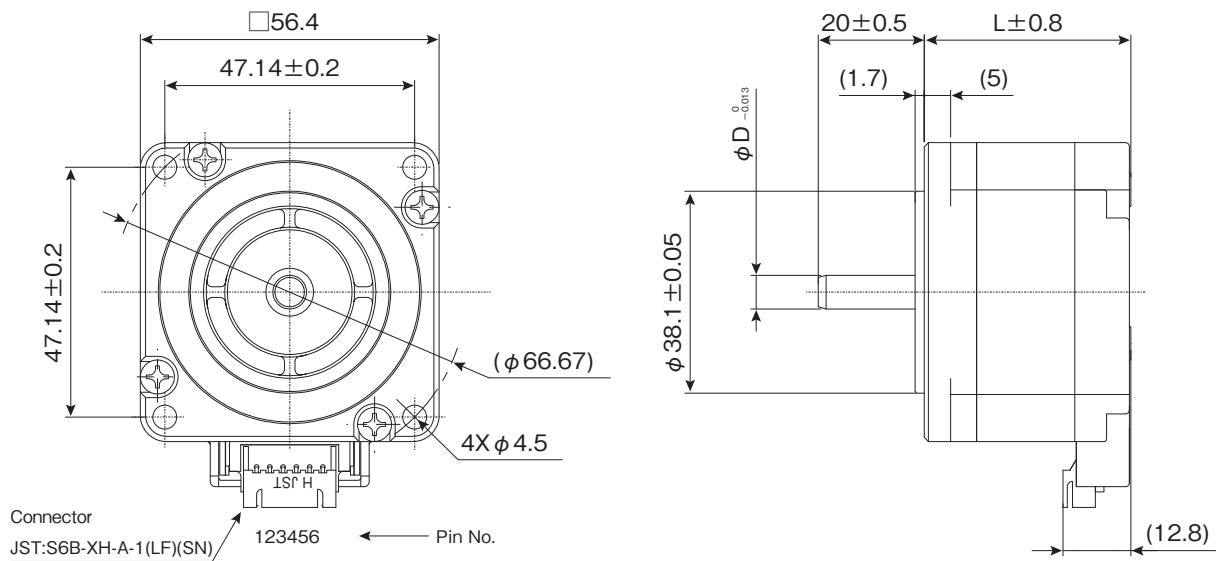
RoHS

### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mN·m	g·cm <sup>2</sup>	kg	mm
STA-56D1001	1.8	1.5	3.0	0.50	580	125	0.42	38.5
STA-56D1003	1.8	2.0	2.0	0.98	570	125	0.42	38.5
STA-56D1005	1.8	4.2	1.0	4.20	560	125	0.42	38.5
STA-56D3001	1.8	2.0	3.0	0.66	1,010	225	0.57	48.0
STA-56D3003	1.8	2.5	2.0	1.26	1,030	225	0.57	48.0
STA-56D3005	1.8	5.5	1.0	5.50	1,010	225	0.57	48.0
STA-56D5001	1.8	3.3	3.0	1.10	1,960	460	0.99	73.5
STA-56D5003	1.8	4.0	2.0	2.00	1,940	460	0.99	73.5
STA-56D5005	1.8	8.9	1.0	8.90	1,910	460	0.99	73.5

↑ Last Digit 1-5 : for Unipolar

### DIMENSIONS [EXAMPLE]



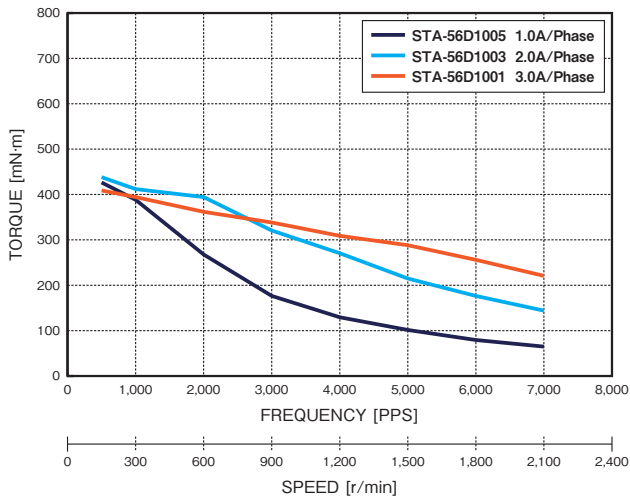
SHAFT Dia. (φ D)	
MODEL	φ D [mm]
STA-56D1XXX	φ 6.35
STA-56D3XXX	φ 6.35
STA-56D5XXX	φ 8

## TORQUE RANGE

STEP ANGLE	SIZE	WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps								
				0	50	100	200	300	400	600	800	1,000
1.8°	56mm	NEMA23	Unipolar	56D1	[Torque range shaded from 300 to 400 PPS]							
				56D3	[Torque range shaded from 400 to 600 PPS]							
				56D5	[Torque range shaded from 600 to 1,000 PPS]							

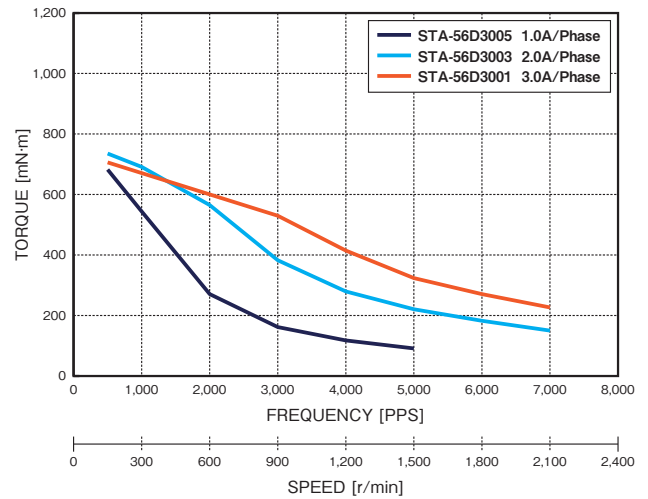
## PULL OUT TORQUE CURVE

STA-56D1XXX



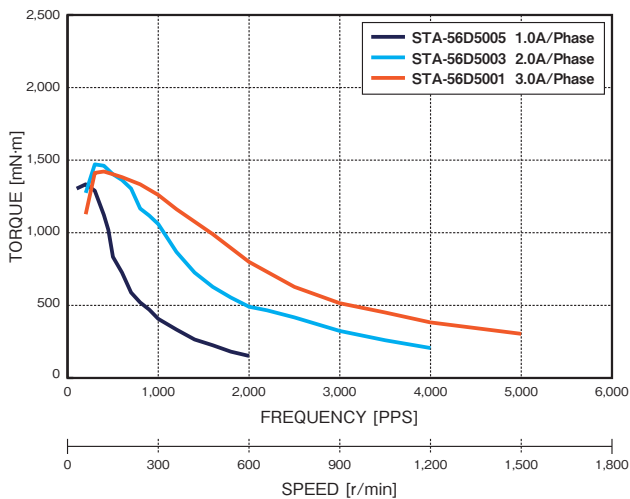
DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase MOUNTING : With rubber damper

STA-56D3XXX



DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase MOUNTING : With rubber damper

STA-56D5XXX



DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase MOUNTING : With rubber damper

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent. Product specifications are subject to change without notice.



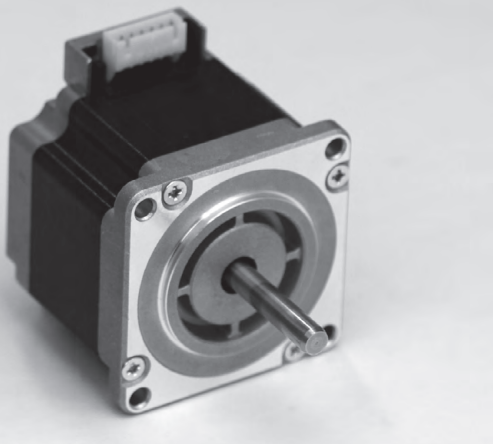
Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# 2 Phase Hybrid Stepping Motor

## 56D SERIES

□56mm

1.8°

Bipolar

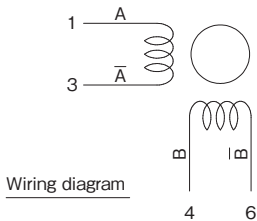
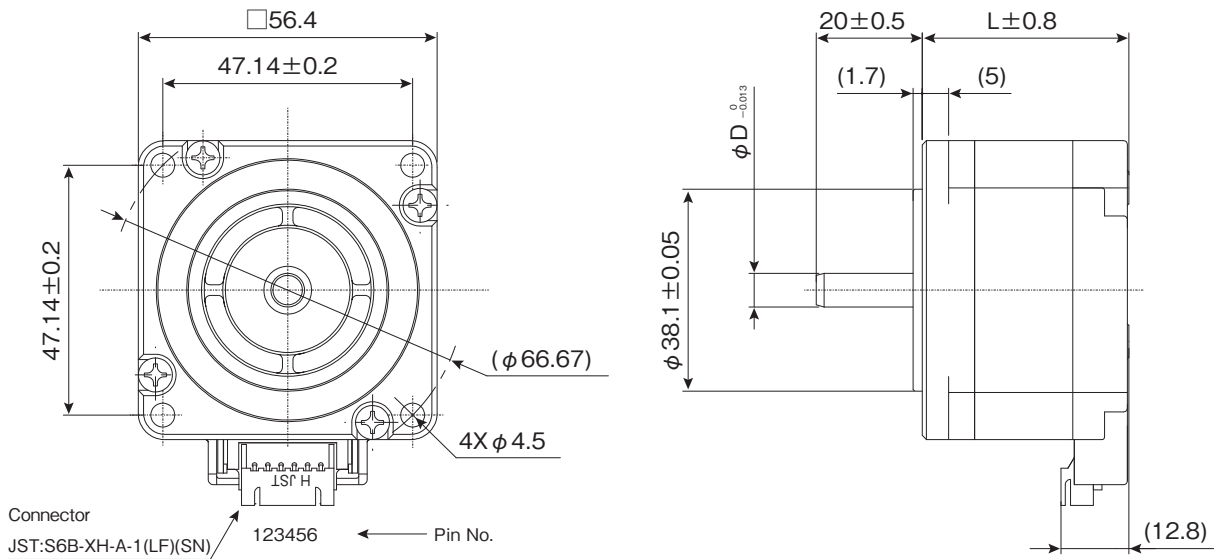
RoHS

### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mN·m	g·cm <sup>2</sup>	kg	mm
STA-56D1006	1.8	1.1	4.2	0.25	770	125	0.42	38.5
STA-56D1008	1.8	1.4	2.8	0.49	780	125	0.42	38.5
STA-56D1010	1.8	2.9	1.4	2.10	770	125	0.42	38.5
STA-56D3006	1.8	1.4	4.2	0.33	1,280	225	0.57	48.0
STA-56D3008	1.8	1.8	2.8	0.63	1,300	225	0.57	48.0
STA-56D3010	1.8	3.9	1.4	2.75	1,280	225	0.57	48.0
STA-56D5006	1.8	2.3	4.2	0.55	2,520	460	0.99	73.5
STA-56D5008	1.8	2.8	2.8	1.00	2,560	460	0.99	73.5
STA-56D5010	1.8	6.2	1.4	4.45	2,520	460	0.99	73.5

↑ Last Digit 6-10 : for Bipolar

### DIMENSIONS [EXAMPLE]



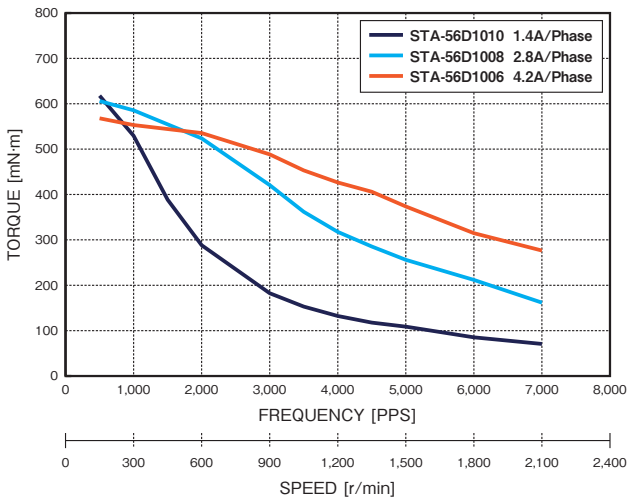
SHAFT Dia. (φ D)	
MODEL	φ D [mm]
STA-56D1XXX	φ 6.35
STA-56D3XXX	φ 6.35
STA-56D5XXX	φ 8

## TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps									
					0	50	100	200	300	400	600	800	1,000	1,500
1.8°	56mm	NEMA23	Bipolar	56D1										
				56D3										
				56D5										

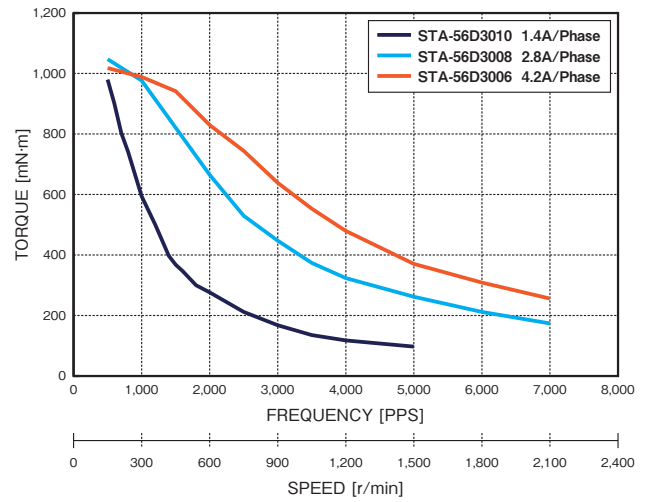
## PULL OUT TORQUE CURVE

STA-56D1XXX



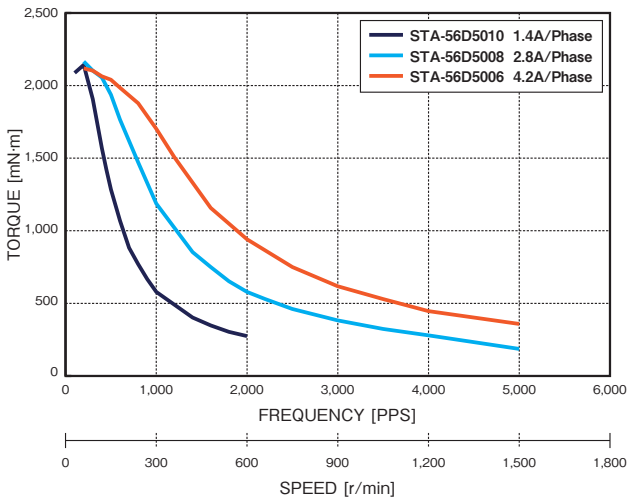
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

STA-56D3XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

STA-56D5XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper



Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent. Product specifications are subject to change without notice.



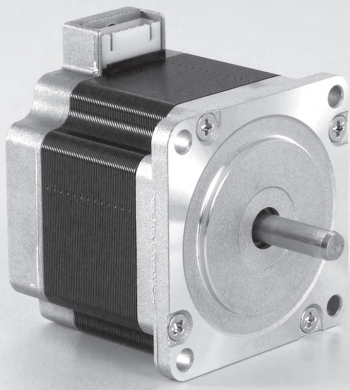
Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# 2 Phase Hybrid Stepping Motor

## 59D SERIES

□ 56mm

1.8°

Unipolar

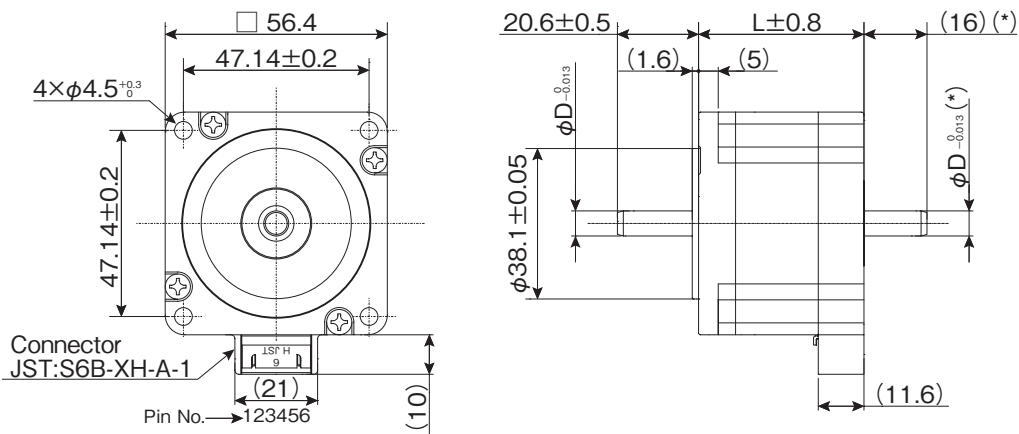


### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	kg	mm
SST59D110X	1.8	4.7	1.0	4.70	7.5	667	145	0.51	42
SST59D115X	1.8	3.2	1.5	2.10	3.4	667	145	0.51	42
SST59D120X	1.8	2.6	2.0	1.30	2.0	680	145	0.51	42
SST59D125X	1.8	2.1	2.5	0.85	1.3	692	145	0.51	42
SST59D130X	1.8	1.9	3.0	0.62	0.9	667	145	0.51	42
SST59D210X	1.8	5.5	1.0	5.50	9.2	925	210	0.62	48.5
SST59D215X	1.8	3.6	1.5	2.40	4.1	925	210	0.62	48.5
SST59D220X	1.8	2.8	2.0	1.40	2.4	936	210	0.62	48.5
SST59D225X	1.8	2.4	2.5	0.95	1.6	947	210	0.62	48.5
SST59D230X	1.8	2.0	3.0	0.67	1.1	925	210	0.62	48.5
SST59D310X	1.8	6.3	1.0	6.30	11.1	1,088	245	0.71	54.5
SST59D315X	1.8	4.2	1.5	2.80	5.1	1,088	245	0.71	54.5
SST59D320X	1.8	3.4	2.0	1.70	3.0	1,106	245	0.71	54.5
SST59D325X	1.8	2.8	2.5	1.10	2.0	1,126	245	0.71	54.5
SST59D330X	1.8	2.5	3.0	0.82	1.3	1,088	245	0.71	54.5
SST59D510X	1.8	9.6	1.0	9.60	19	1,847	470	1.11	77.5
SST59D515X	1.8	6.3	1.5	4.20	8.4	1,847	470	1.11	77.5
SST59D520X	1.8	5.0	2.0	2.50	4.9	1,876	470	1.11	77.5
SST59D525X	1.8	4.3	2.5	1.70	3.3	1,906	470	1.11	77.5
SST59D530X	1.8	3.6	3.0	1.20	2.2	1,847	470	1.11	77.5

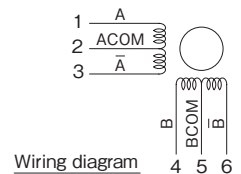
↑ Last Digit (for Unipolar) 0:Single Shaft 1:Double Shaft

### DIMENSIONS [EXAMPLE]



\* Dimensions apply to double shaft models.

SHAFT Dia. (φD)	
MODEL	φD [mm]
SST59D1XXX	φ6.35
SST59D2XXX	φ6.35
SST59D3XXX	φ6.35
SST59D5XXX	φ8

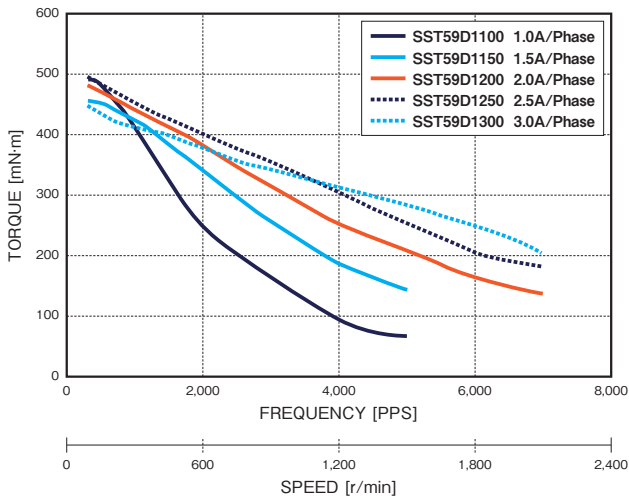


## TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps																		
					0	50	100	200	300	400	600	800	1,000	1,500	2,000								
1.8°	56mm	NEMA23	Unipolar	59D1																			
				59D2																			
				59D3																			
				59D5																			

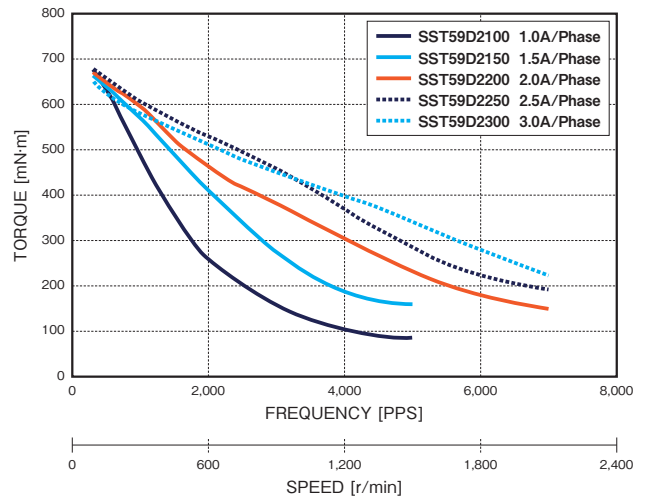
## PULL OUT TORQUE CURVE

SST59D1XXX



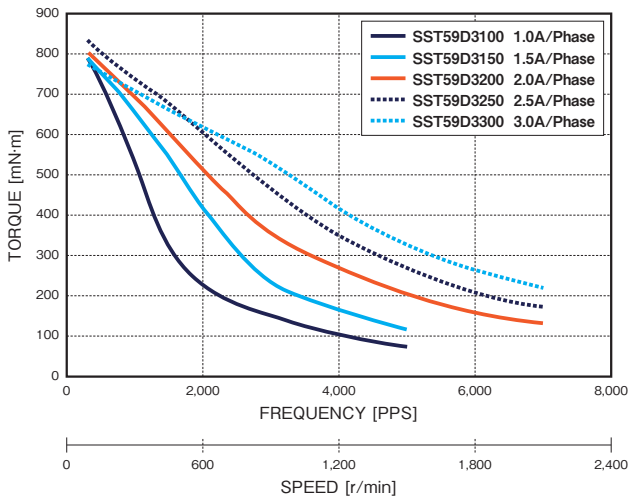
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

SST59D2XXX



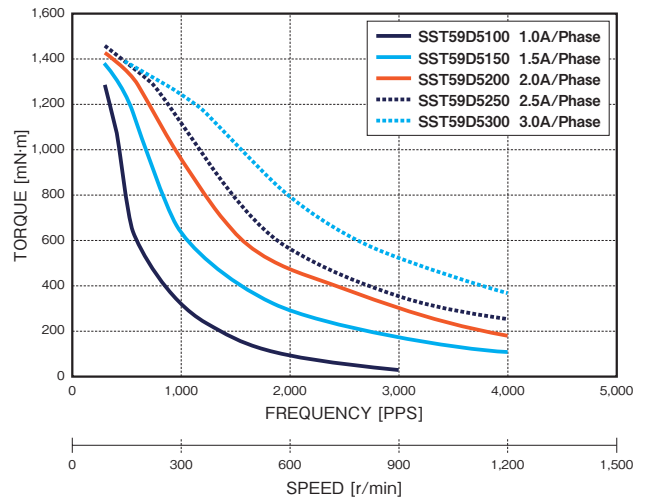
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

SST59D3XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

SST59D5XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.

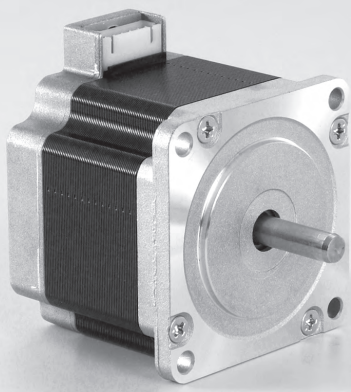
**!** Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# 2 Phase Hybrid Stepping Motor

## 59D SERIES

□ 56mm

1.8°

Bipolar

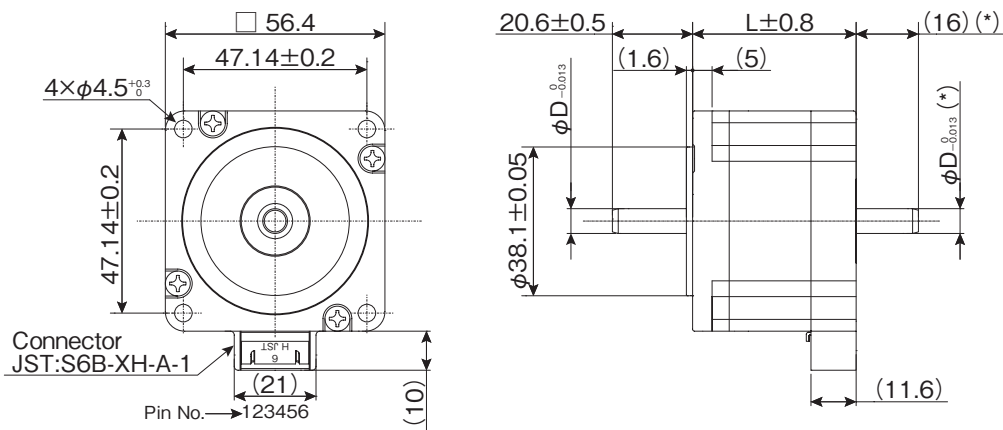
RoHS

### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	kg	mm
SST59D110X	1.8	3.3	1.4	2.35	7.5	870	145	0.51	42
SST59D115X	1.8	2.2	2.1	1.05	3.4	870	145	0.51	42
SST59D120X	1.8	1.8	2.8	0.65	2.0	880	145	0.51	42
SST59D125X	1.8	1.5	3.5	0.43	1.3	890	145	0.51	42
SST59D130X	1.8	1.3	4.2	0.31	0.9	870	145	0.51	42
SST59D210X	1.8	3.9	1.4	2.75	9.2	1,200	210	0.62	48.5
SST59D215X	1.8	2.5	2.1	1.20	4.1	1,200	210	0.62	48.5
SST59D220X	1.8	2.0	2.8	0.70	2.4	1,220	210	0.62	48.5
SST59D225X	1.8	1.7	3.5	0.48	1.6	1,240	210	0.62	48.5
SST59D230X	1.8	1.4	4.2	0.34	1.1	1,200	210	0.62	48.5
SST59D310X	1.8	4.4	1.4	3.15	11.1	1,410	245	0.71	54.5
SST59D315X	1.8	2.9	2.1	1.40	5.1	1,410	245	0.71	54.5
SST59D320X	1.8	2.4	2.8	0.85	3.0	1,440	245	0.71	54.5
SST59D325X	1.8	1.9	3.5	0.55	2.0	1,460	245	0.71	54.5
SST59D330X	1.8	1.7	4.2	0.41	1.3	1,410	245	0.71	54.5
SST59D510X	1.8	6.7	1.4	4.80	19	2,400	470	1.11	77.5
SST59D515X	1.8	4.4	2.1	2.10	8.4	2,400	470	1.11	77.5
SST59D520X	1.8	3.5	2.8	1.25	4.9	2,440	470	1.11	77.5
SST59D525X	1.8	3.0	3.5	0.85	3.3	2,580	470	1.11	77.5
SST59D530X	1.8	2.5	4.2	0.60	2.2	2,400	470	1.11	77.5

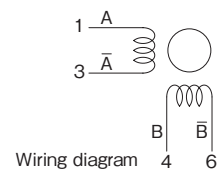
↑ Last Digit (for Bipolar) 5:Single Shaft 6:Double Shaft

### DIMENSIONS [EXAMPLE]



\* Dimensions apply to double shaft models.

SHAFT Dia. (φD)	
MODEL	φD [mm]
SST59D1XXX	φ6.35
SST59D2XXX	φ6.35
SST59D3XXX	φ6.35
SST59D5XXX	φ8



Wiring diagram

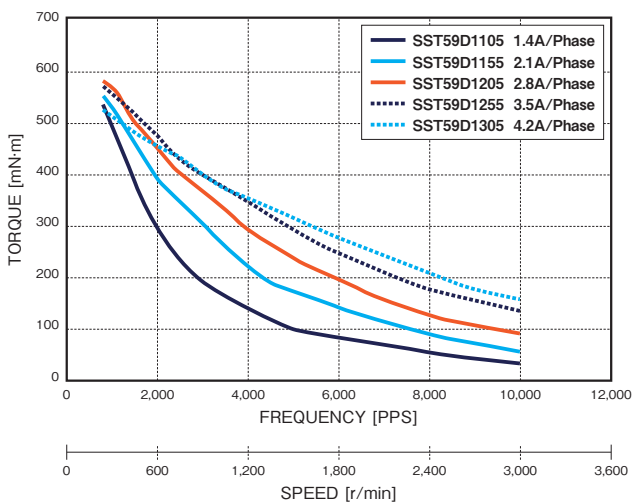


## TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps											
					0	50	100	200	300	400	600	800	1,000	1,500	2,000	
1.8°	56mm	NEMA23	Bipolar	59D1	[Torque range bars for 59D1]											
				59D2	[Torque range bars for 59D2]											
				59D3	[Torque range bars for 59D3]											
				59D5	[Torque range bars for 59D5]											

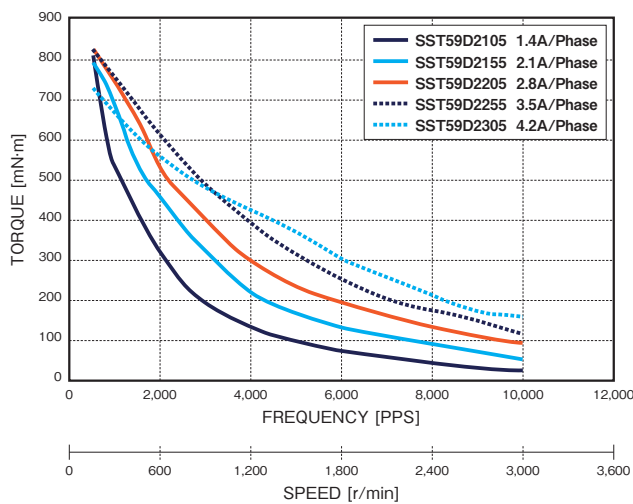
## PULL OUT TORQUE CURVE

SST59D1XXX



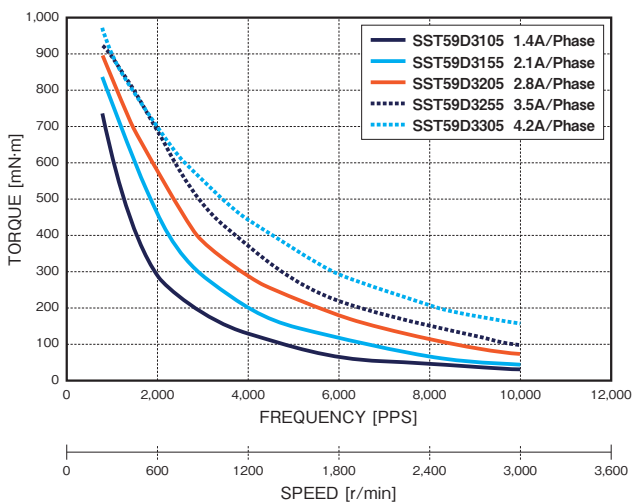
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

SST59D2XXX



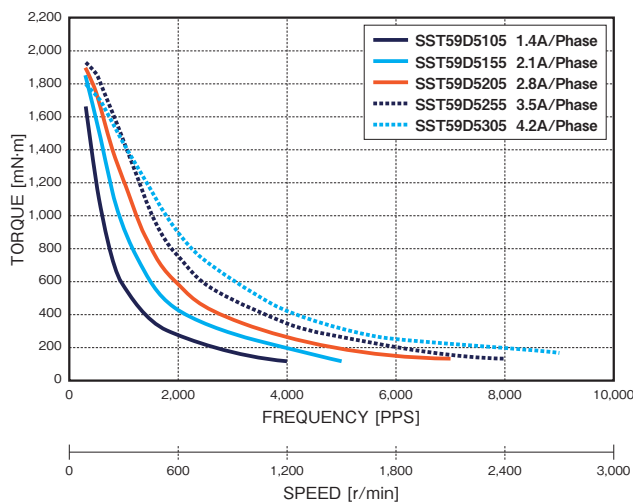
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

SST59D3XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

SST59D5XXX



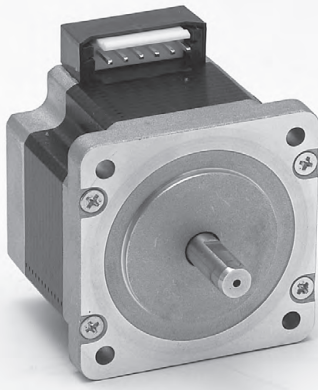
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase      MOUNTING : With rubber damper

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.

Stepping Motor  
BLDC Motor  
Motor Driver  
Other Motor



# 2 Phase Hybrid Stepping Motor

## 60D SERIES

□ 60mm

1.8°

Unipolar

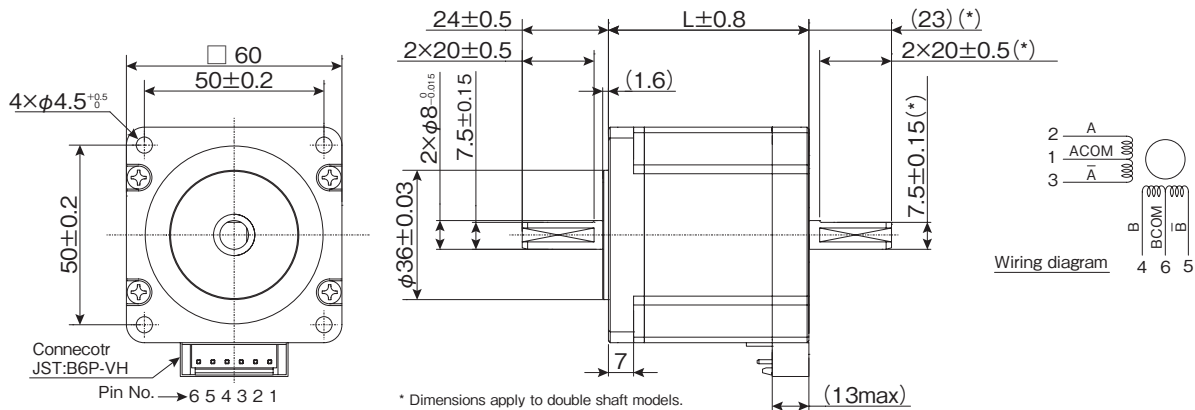


### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.								
SST60D110X	1.8	5.9	1.0	5.92	9.2	850	280	0.62	46.3
SST60D120X	1.8	3.0	2.0	1.50	2.5	880	280	0.62	46.3
SST60D130X	1.8	2.3	3.0	0.77	1.1	920	280	0.62	46.3
SST60D310X	1.8	7.3	1.0	7.33	14.5	1,320	440	0.88	55.8
SST60D320X	1.8	3.8	2.0	1.90	3.9	1,340	440	0.88	55.8
SST60D330X	1.8	2.8	3.0	0.94	1.8	1,350	440	0.88	55.8
SST60D410X	1.8	9.2	1.0	9.20	17.4	1,790	590	1.02	67.8
SST60D420X	1.8	4.8	2.0	2.40	4.9	1,850	590	1.02	67.8
SST60D430X	1.8	3.6	3.0	1.19	2.2	1,910	590	1.02	67.8
SST60D510X	1.8	12.6	1.0	12.6	29.0	2,560	920	1.40	87.8
SST60D520X	1.8	6.4	2.0	3.20	8.0	2,690	920	1.40	87.8
SST60D530X	1.8	4.7	3.0	1.55	3.7	2,800	920	1.40	87.8

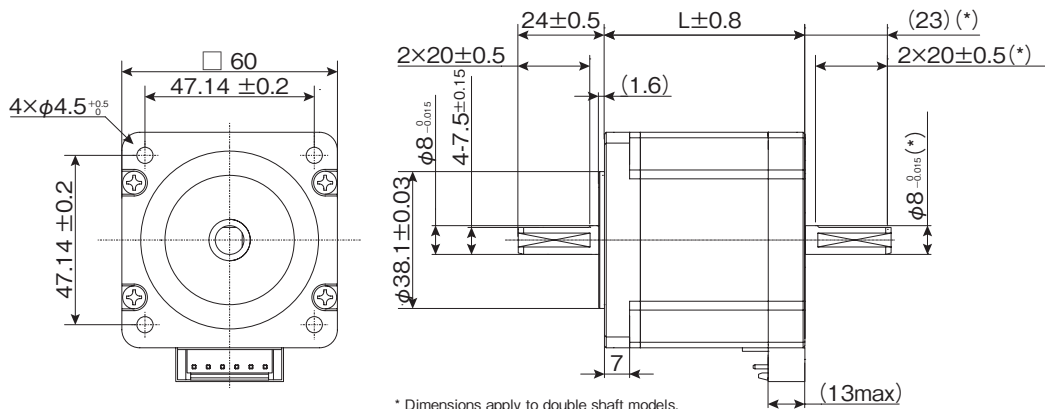
↑ Last Digit (for Unipolar) 0:Single Shaft 1:Double Shaft

### DIMENSIONS [EXAMPLE]



\* Dimensions apply to double shaft models.

### MOUNTING OPTION



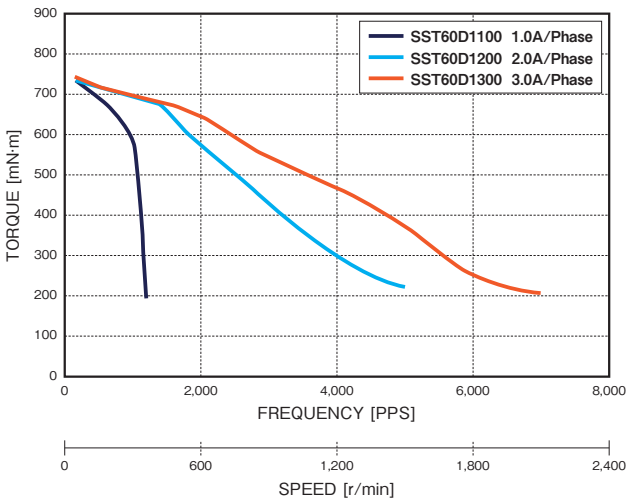
\* Dimensions apply to double shaft models.

# TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	TORQUE [mN·m] *FREQUENCY at 1,000pps																			
					0	50	100	200	300	400	600	800	1,000	1,500	2,000									
1.8°	□60mm	NEMA24	Unipolar	60D1																				
				60D3																				
				60D4																				
				60D5																				

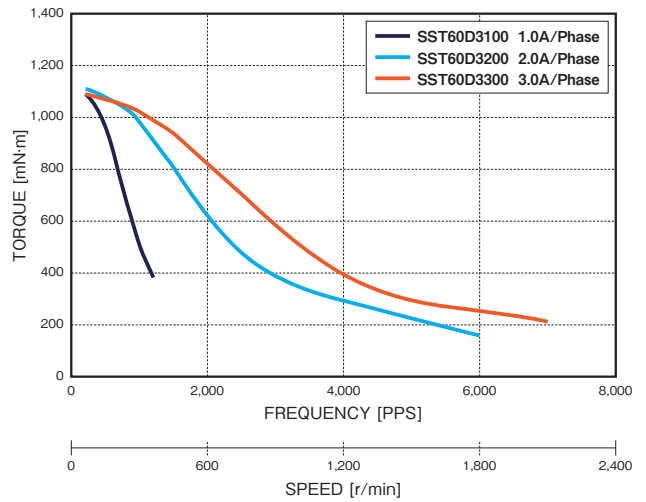
# PULL OUT TORQUE CURVE

SST60D1XXX



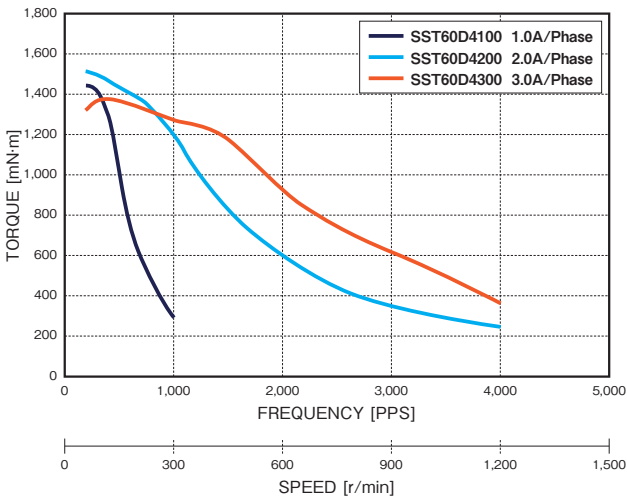
DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase MOUNTING : With rubber damper

SST60D3XXX



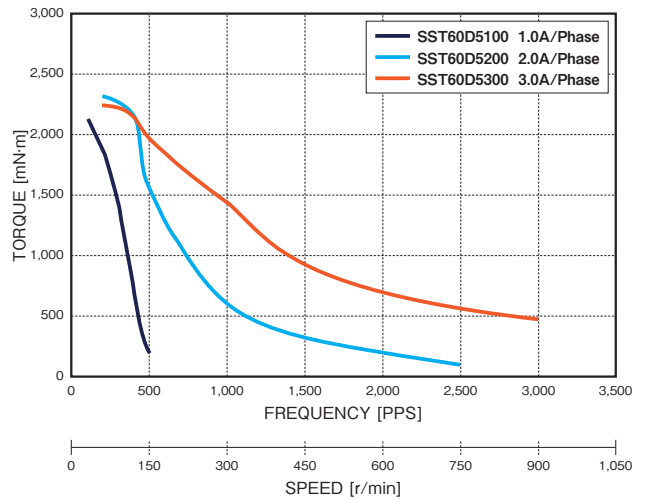
DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase MOUNTING : With rubber damper

SST60D4XXX



DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase MOUNTING : With rubber damper

SST60D5XXX



DRIVER : Chopper SUPPLY VOLTAGE : DC24V  
 EXCITING MODE = 2 Phase MOUNTING : With rubber damper

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.

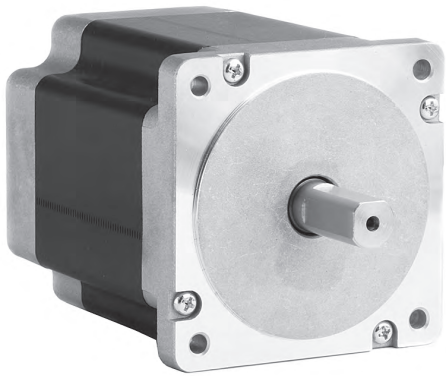
**!** Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# 2 Phase Hybrid Stepping Motor

## 86D SERIES

□ 86mm

1.8°

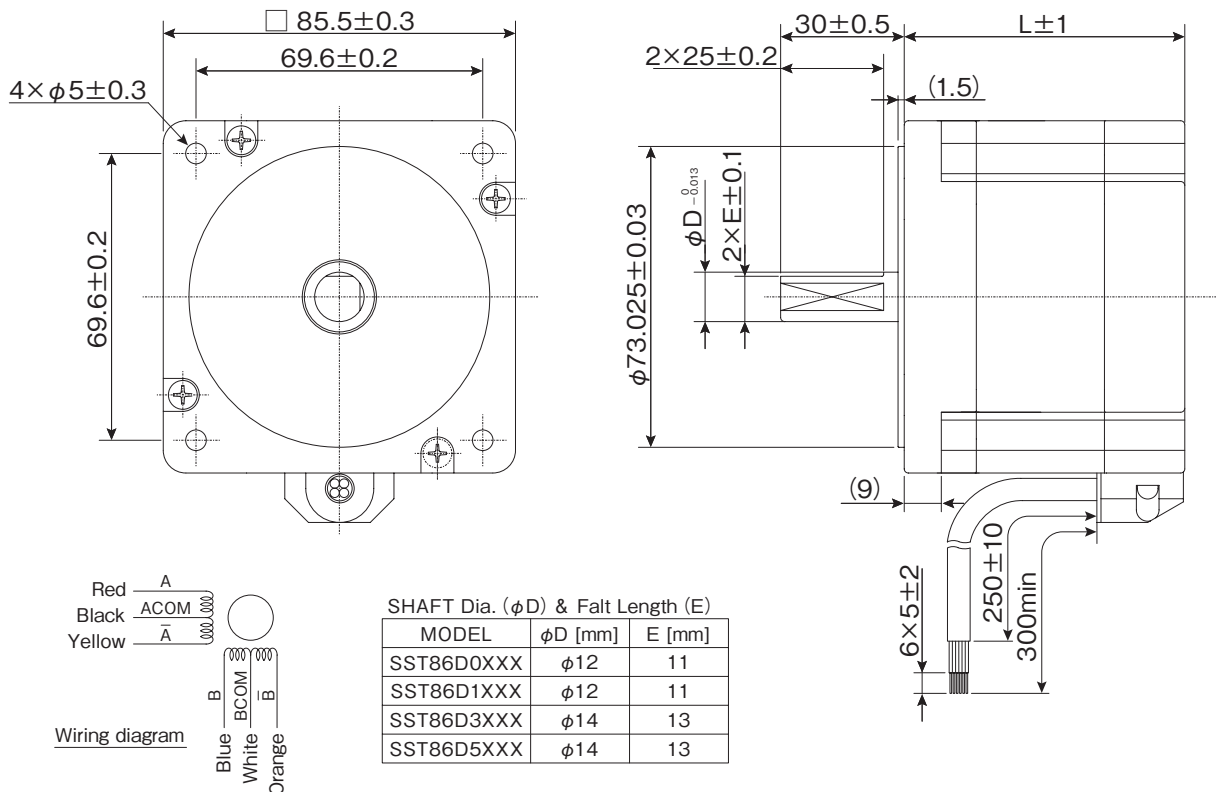
Unipolar

RoHS

### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	kg	mm
SST86D0200	1.8	4.20	2.0	2.10	5.50	1,940	1,170	1.71	62.5
SST86D0300	1.8	3.00	3.0	1.00	2.50	1,940	1,170	1.71	62.5
SST86D0450	1.8	1.98	4.5	0.44	1.10	1,940	1,170	1.71	62.5
SST86D1200	1.8	4.80	2.0	2.40	7.50	2,860	1,630	2.00	68.1
SST86D1300	1.8	3.30	3.0	1.10	3.40	2,860	1,630	2.00	68.1
SST86D1450	1.8	2.21	4.5	0.49	1.50	2,860	1,630	2.00	68.1
SST86D3200	1.8	7.60	2.0	3.80	15.5	6,180	3,200	2.90	101.5
SST86D3300	1.8	5.25	3.0	1.75	7.00	6,180	3,200	2.90	101.5
SST86D3450	1.8	3.33	4.5	0.74	3.30	6,180	3,200	2.90	101.5
SST86D5200	1.8	10.4	2.0	5.20	23.0	9,280	4,800	4.00	132
SST86D5300	1.8	6.90	3.0	2.30	10.5	9,280	4,800	4.00	132
SST86D5450	1.8	4.05	4.5	0.90	4.10	8,360	4,800	4.00	132

### DIMENSIONS [EXAMPLE]

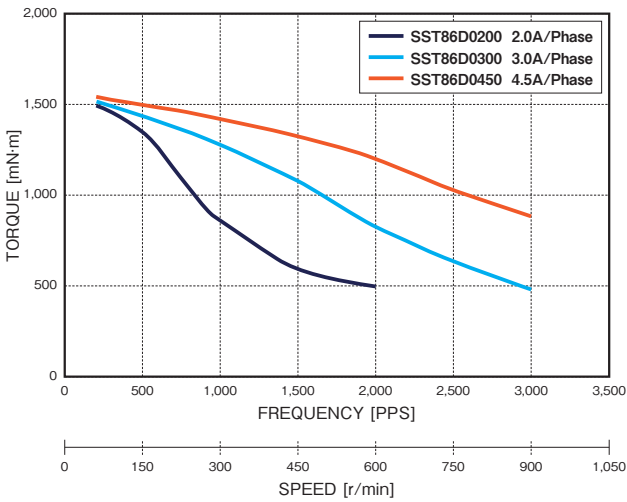


## TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	HOLDING TORQUE [mN·m]										
					1,500	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	
1.8°	86mm	NEMA34	Unipolar	86D0	1,500	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	
				86D1	1,500	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	
				86D3	1,500	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	
				86D5	1,500	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	

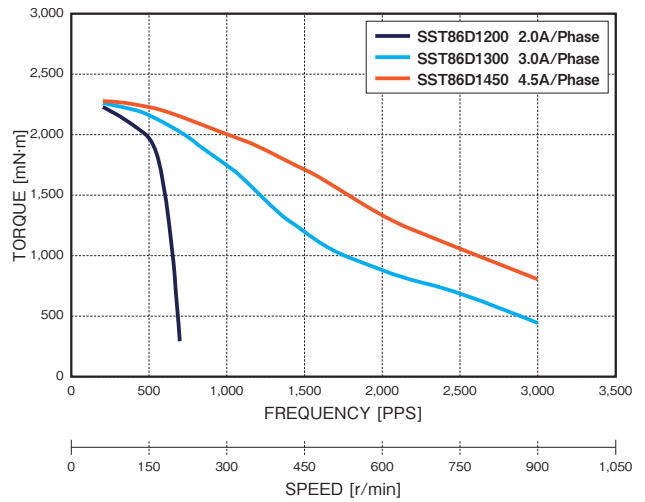
## PULL OUT TORQUE CURVE

SST86D0XXX



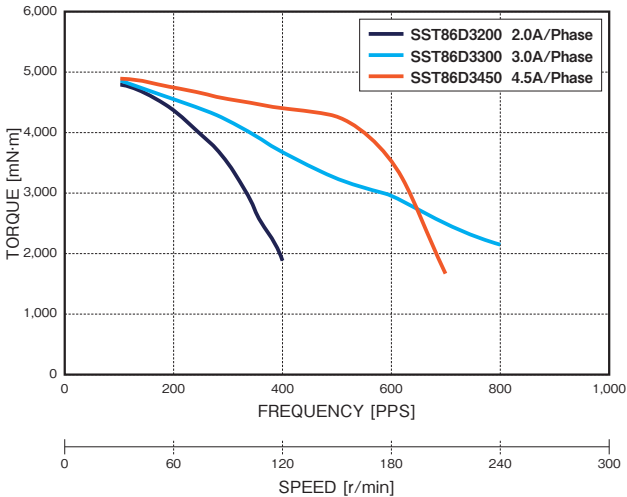
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

SST86D1XXX



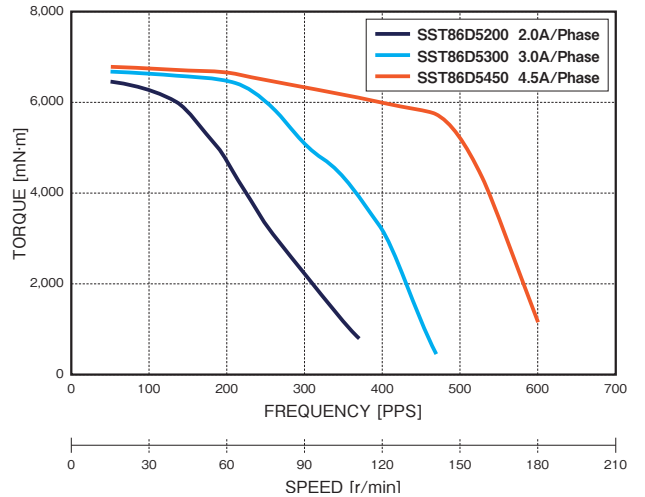
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

SST86D3XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

SST86D5XXX

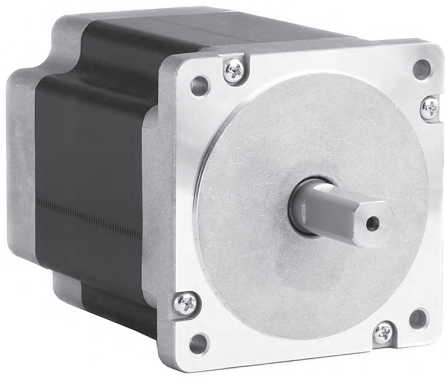


DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.



# 2 Phase Hybrid Stepping Motor

## 86D SERIES

□ 86mm

1.8°

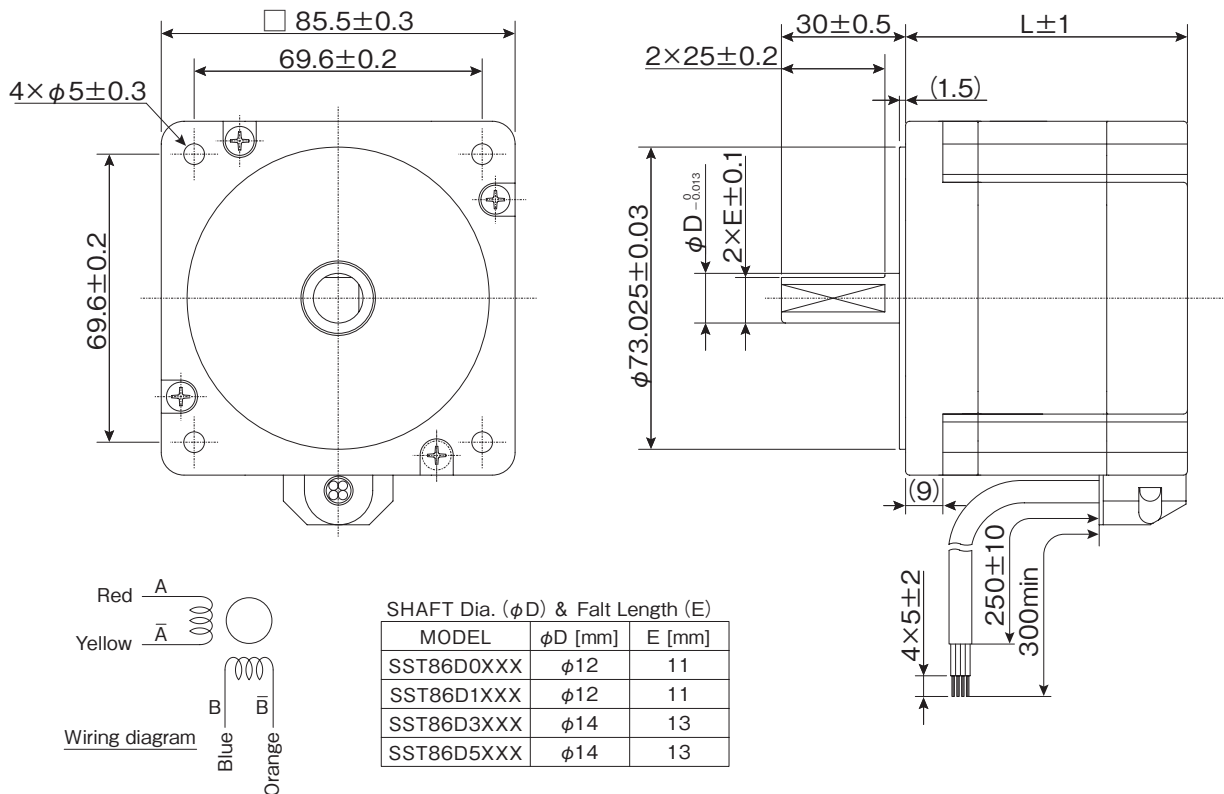
Bipolar

RoHS

### CHARACTERISTICS

MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	INDUCTANCE	HOLDING TORQUE	ROTOR INERTIA	MASS	LENGTH
	Deg.	V	A/φ	Ω/φ	mH/φ	mN·m	g·cm <sup>2</sup>	kg	mm
SST86D0205	1.8	3.8	2.0	1.90	9.50	2,660	1,170	1.71	62.5
SST86D0405	1.8	2.2	4.0	0.55	2.50	2,660	1,170	1.71	62.5
SST86D0605	1.8	1.5	6.0	0.24	1.10	2,660	1,170	1.71	62.5
SST86D1205	1.8	4.2	2.0	2.10	13.0	3,880	1,630	2.00	68.1
SST86D1405	1.8	2.4	4.0	0.60	3.40	3,880	1,630	2.00	68.1
SST86D1605	1.8	1.6	6.0	0.27	1.50	3,880	1,630	2.00	68.1
SST86D3205	1.8	7.0	2.0	3.50	28.0	7,290	3,200	2.90	101.5
SST86D3405	1.8	3.6	4.0	0.90	7.10	7,290	3,200	2.90	101.5
SST86D3605	1.8	2.4	6.0	0.40	3.30	7,290	3,200	2.90	101.5
SST86D5205	1.8	9.0	2.0	4.50	41.0	10,600	4,800	4.00	132
SST86D5405	1.8	4.8	4.0	1.20	10.5	10,600	4,800	4.00	132
SST86D5605	1.8	2.9	6.0	0.48	4.10	10,600	4,800	4.00	132

### DIMENSIONS [EXAMPLE]

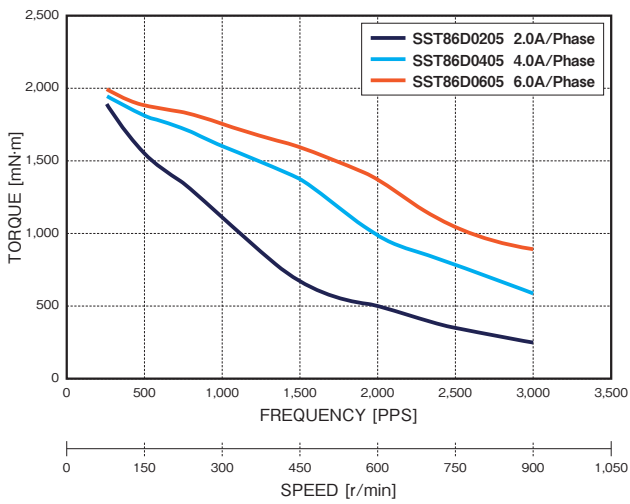


## TORQUE RANGE

STEP ANGLE	SIZE		WINDINGS	MODEL	HOLDING TORQUE [mN·m]																		
					1,500	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000									
1.8°	86mm	NEMA34	Bipolar	86D0																			
				86D1																			
				86D3																			
				86D5																			

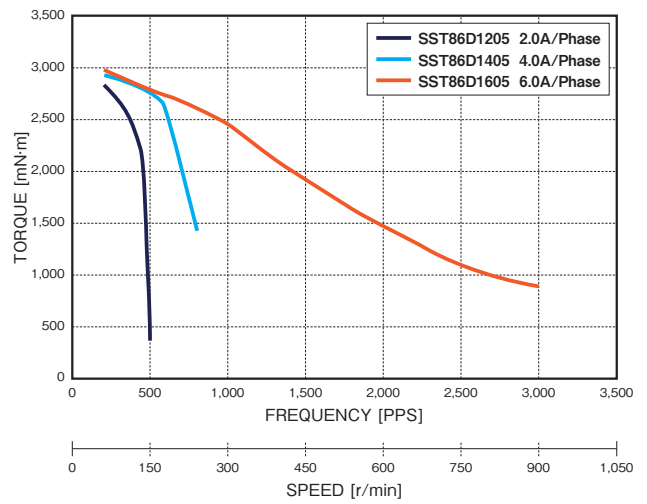
## PULL OUT TORQUE CURVE

SST86D0XXX



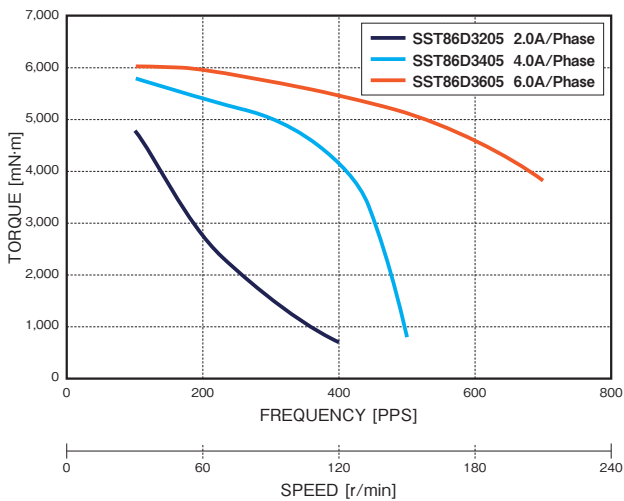
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

SST86D1XXX



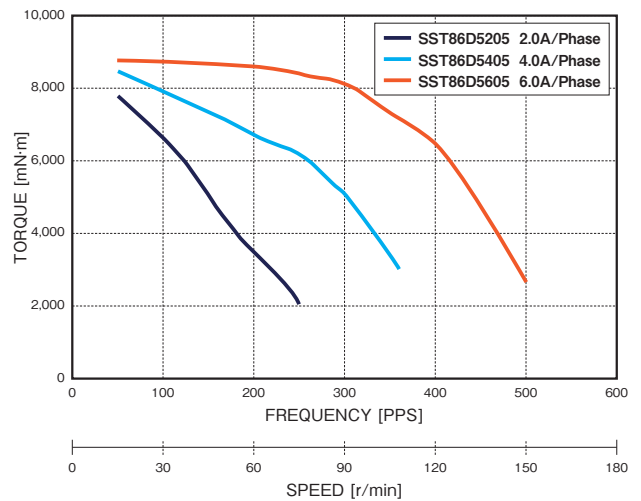
DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

SST86D3XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

SST86D5XXX



DRIVER : Chopper      SUPPLY VOLTAGE : DC24V  
EXCITING MODE = 2 Phase

**i** Available shaft, lead wires, winding, encoder and other customization. Feel free to contact sales office or sales agent.



Operate the motor keeping the motor surface temperature at 100 Deg. C or lower.



# Standard Brushless DC Series

## SDR-3434 SERIES φ 36mm 30W

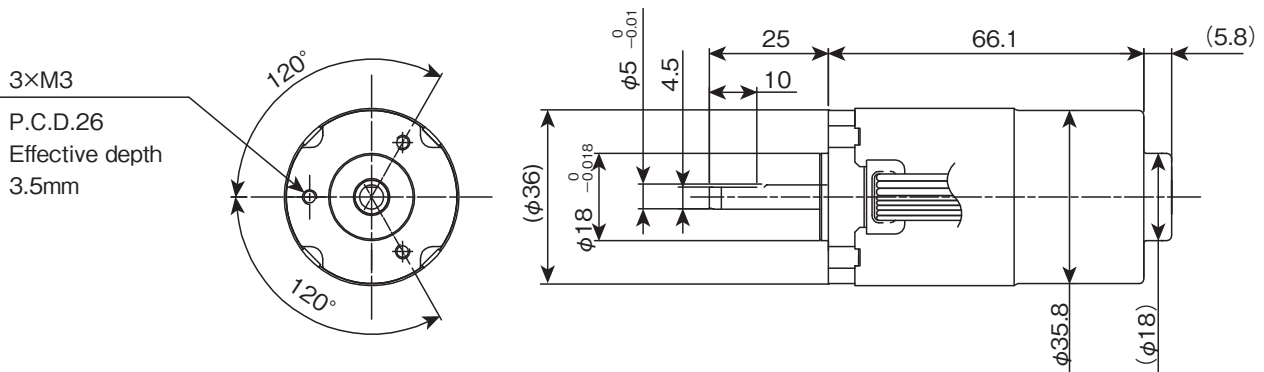


### CHARACTERISTICS

Model	SDR-3434-001	SDR-3434-002	SDR-3434-004
Rated voltage	DC 24 V	DC 48 V	DC 310 V
Rated current	2.0 A	0.95 A	0.17 A
Rated torque	30 mN·m		
Rated speed	10,500 r/min		
Rated output	30 W		
Instantaneous peak torque	90 mN·m		
Permissible thrust load	9.8 N		
Permissible radial load	9.8 N		
Rotor inertia	7.0 g·cm <sup>2</sup>		
Hall IC voltage	5 V		
Signal output	OPEN COLLECTOR		
Sink current	10 mA		
Mass	250 g		
Operating ambient temperature	0 °C~50 °C		
Operating ambient humidity	20 %~80 %		

Condition : continuous duty with 150x150x16 aluminium heat sink.

### DIMENSIONS [EXAMPLE]



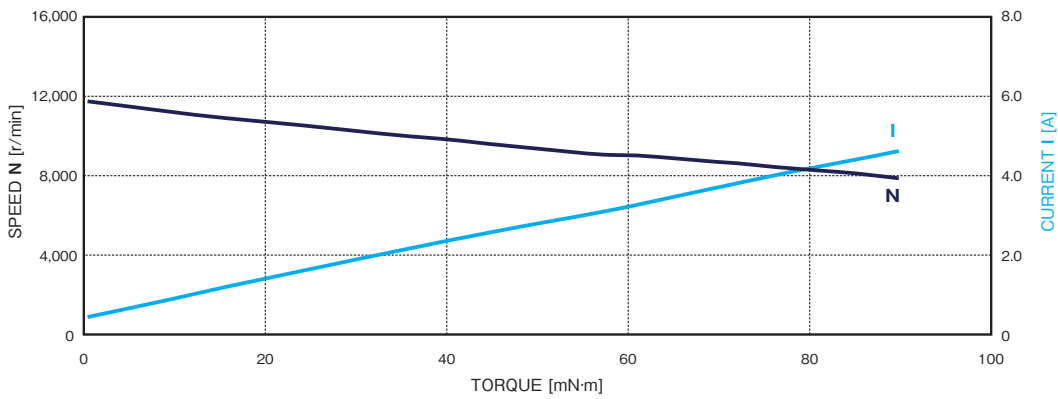


## TORQUE RANGE

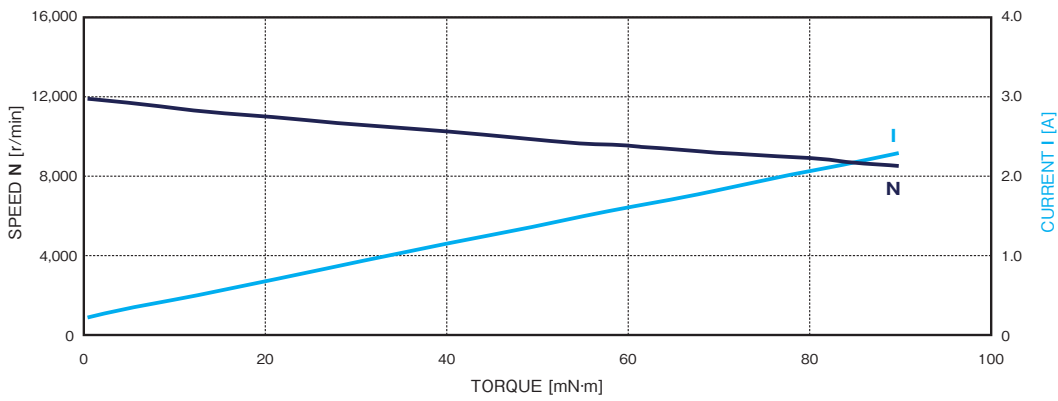
SERIES	MAJOR DIAMETER	MODEL	RATED SPEED	TORQUE [mN·m]																			
				0	50	100	200	300	400	600	800												
Inner rotor	ϕ36mm	SDR-3434-001	10,500	0																			
		SDR-3434-002	10,500	0																			
		SDR-3434-004	10,500	0																			

## Speed and Torque Characteristics

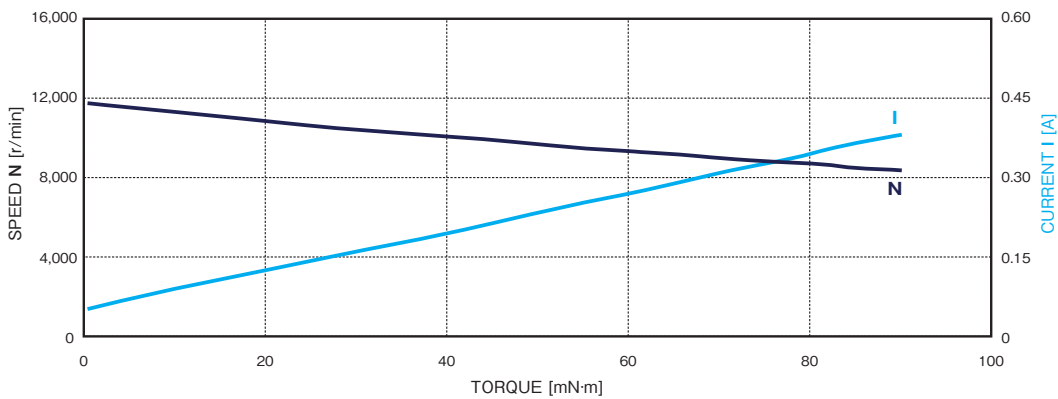
SDR-3434-001 DC24V



SDR-3434-002 DC48V



SDR-3434-004 DC310V



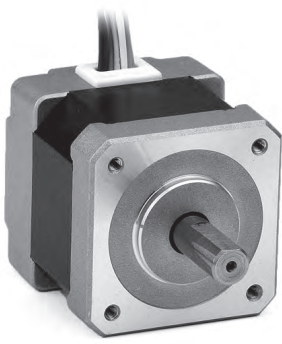
**i** Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# Standard Brushless DC Series

## SDR-42310 SERIES

□ 42mm 30W

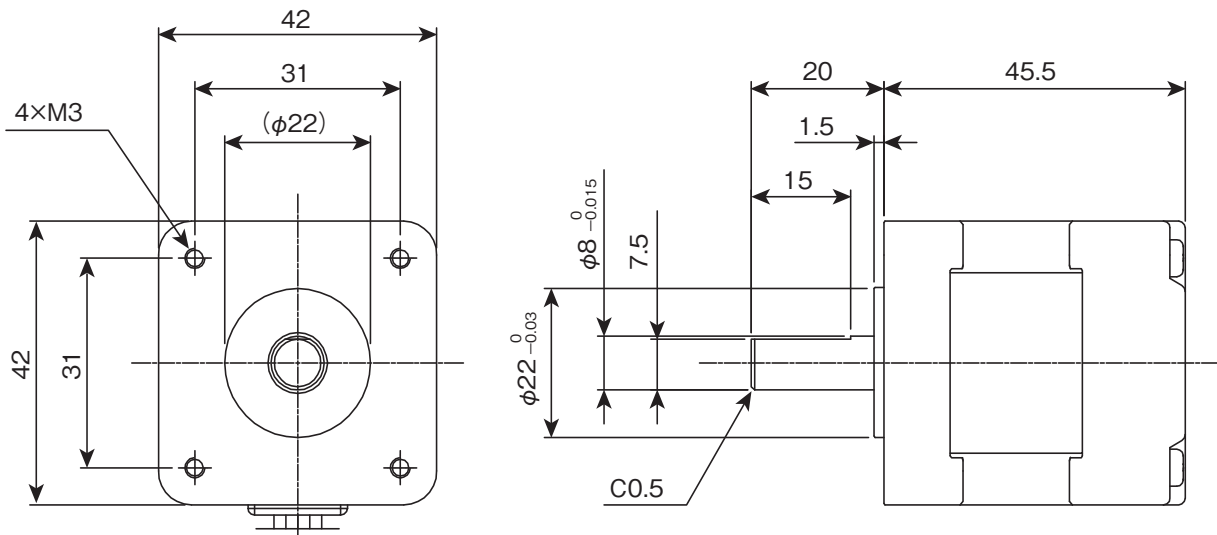


### CHARACTERISTICS

Model	SDR-42310-001	SDR-42310-002
Rated voltage	DC 24 V	DC 48 V
Rated current	2.0 A	1.0 A
Rated torque	98 mN·m	
Rated speed	3,000 r/min	
Rated output	30 W	
Instantaneous peak torque	294 mN·m	
Permissible thrust load	1.5 N	
Permissible radial load	50 N	
Rotor inertia	31.7 g·cm <sup>2</sup>	
Hall IC voltage	5 V	
Signal output	OPEN COLLECTOR	
Sink current	10 mA	
Mass	310 g	
Operating ambient temperature	0 °C~50 °C	
Operating ambient humidity	20 %~80 %	

Condition : continuous duty with 200x200x16 aluminium heat sink.

### DIMENSIONS [EXAMPLE]

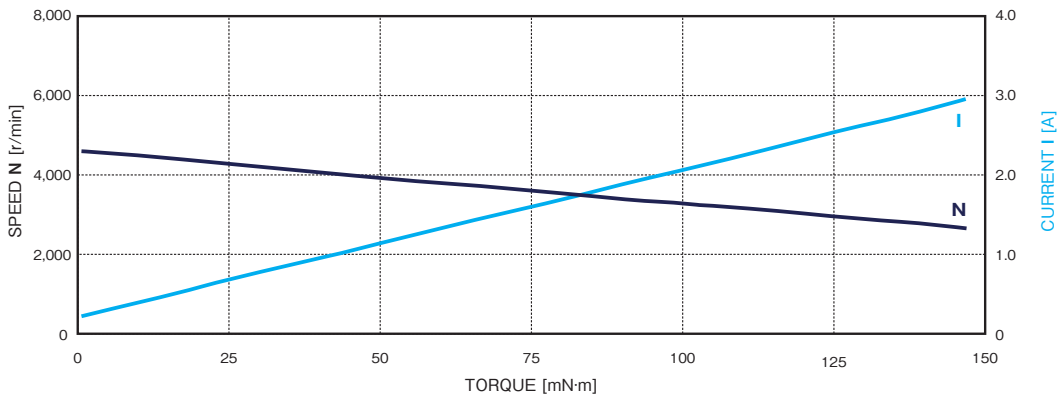


## TORQUE RANGE

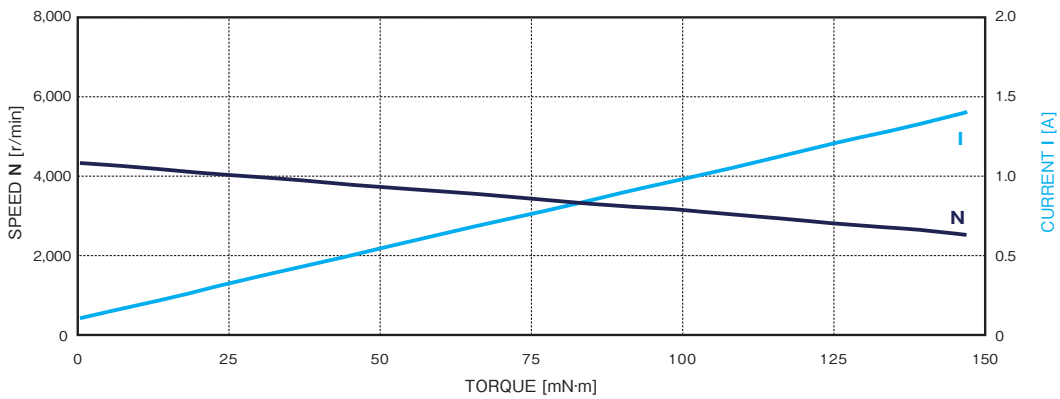
SERIES	MAJOR DIAMETER	MODEL	RATED SPEED	TORQUE [mN·m]																
				0	50	100	200	300	400	600	800									
Inner rotor	□42mm	SDR-42310-001	3,000	[Torque range bars]																
		SDR-42310-002	3,000	[Torque range bars]																

## Speed and Torque Characteristics

SDR-42310-001 DC24V



SDR-42310-002 DC48V



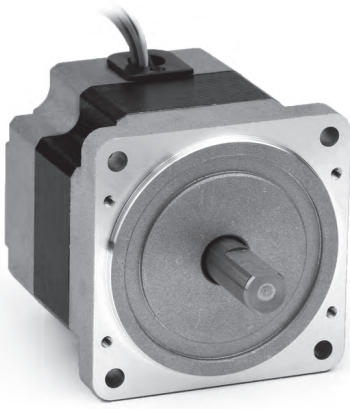
**i** Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# Standard Brushless DC Series

## SDR-6038 SERIES

□ 60mm 60W

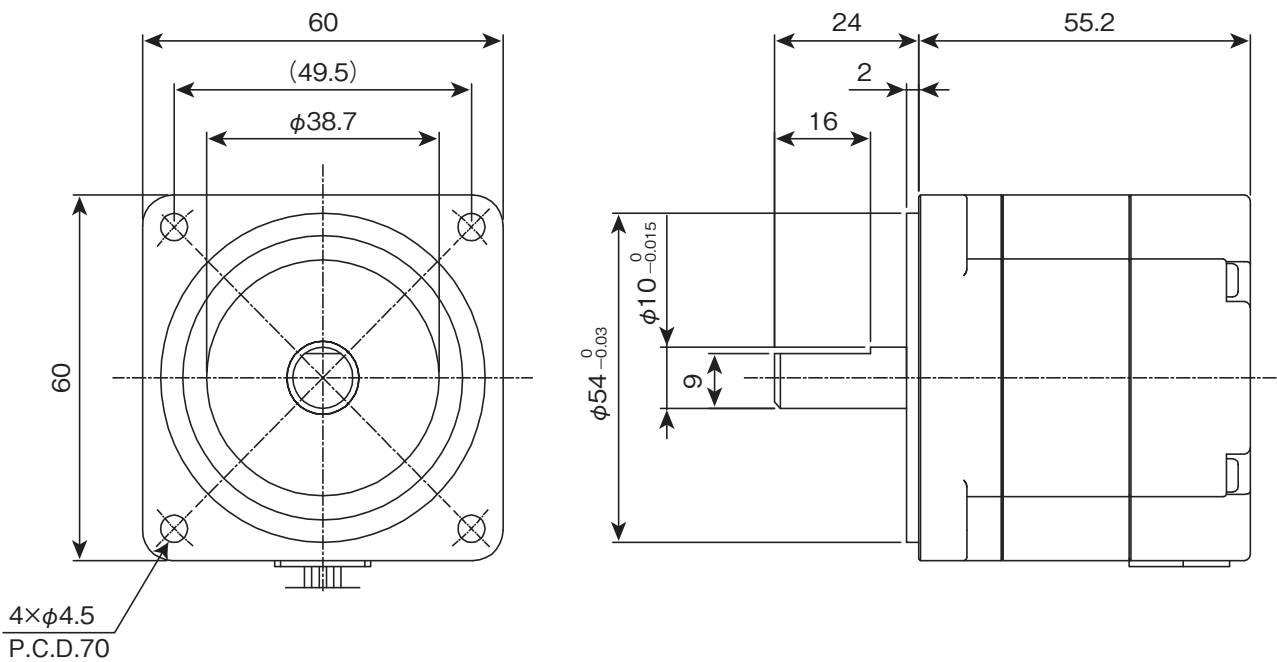


### CHARACTERISTICS

Model	SDR-6038-001	SDR-6038-002
Rated voltage	DC 24 V	DC 48 V
Rated current	4.1 A	1.9 A
Rated torque	196 mN·m	
Rated speed	3,100 r/min	
Rated output	60 W	
Instantaneous peak torque	588 mN·m	
Permissible thrust load	3.2 N	
Permissible radial load	70 N	
Rotor inertia	120.4 g·cm <sup>2</sup>	
Hall IC voltage	5 V	
Signal output	OPEN COLLECTOR	
Sink current	10 mA	
Mass	665 g	
Operating ambient temperature	0 °C~50 °C	
Operating ambient humidity	20 %~80 %	

Condition : continuous duty with 200x200x16 aluminium heat sink.

### DIMENSIONS [EXAMPLE]

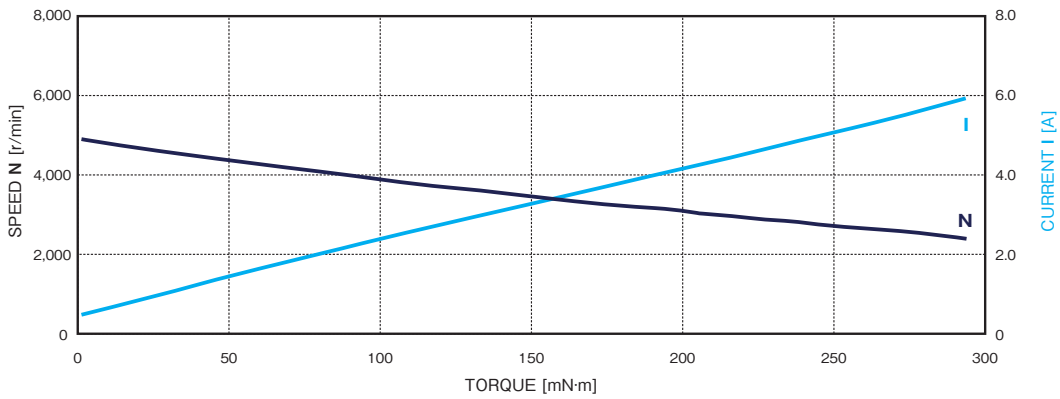


## TORQUE RANGE

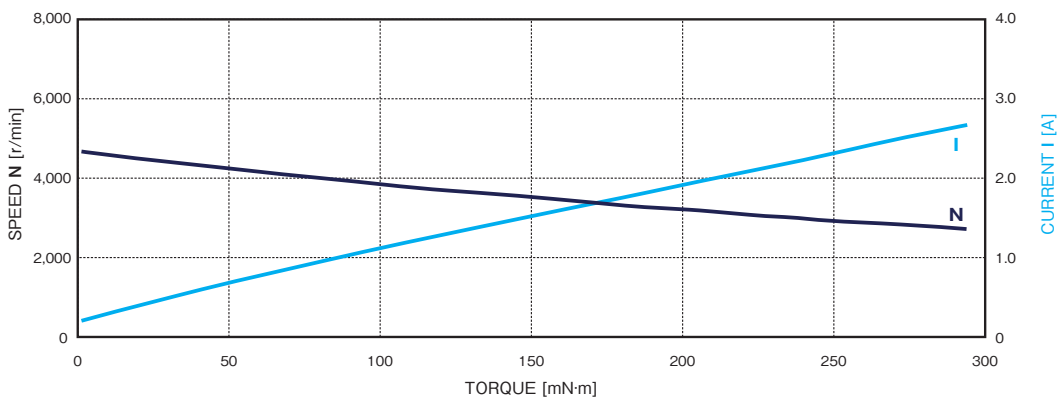
SERIES	MAJOR DIAMETER	MODEL	RATED SPEED	TORQUE [mN·m]															
				0	50	100	200	300	400	600	800								
Inner rotor	□60mm	SDR-6038-001	3,100																
		SDR-6038-002	3,100																

## Speed and Torque Characteristics

SDR-6038-001 DC24V



SDR-6038-002 DC48V



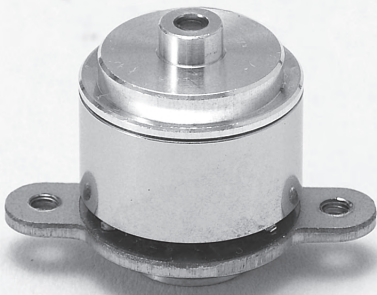
**i** Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# Standard Brushless DC Series

## SDR-14312 SERIES

φ 14mm 0.2W

## SDR-20312 SERIES

φ 20mm 1.8W

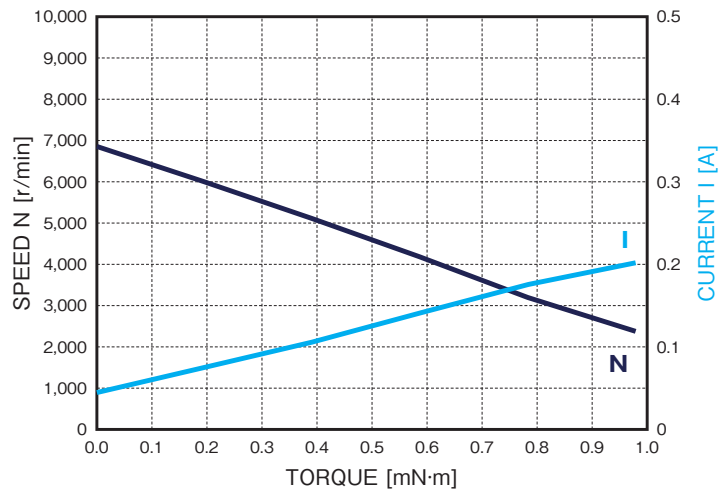


### SDR-14312 SERIES

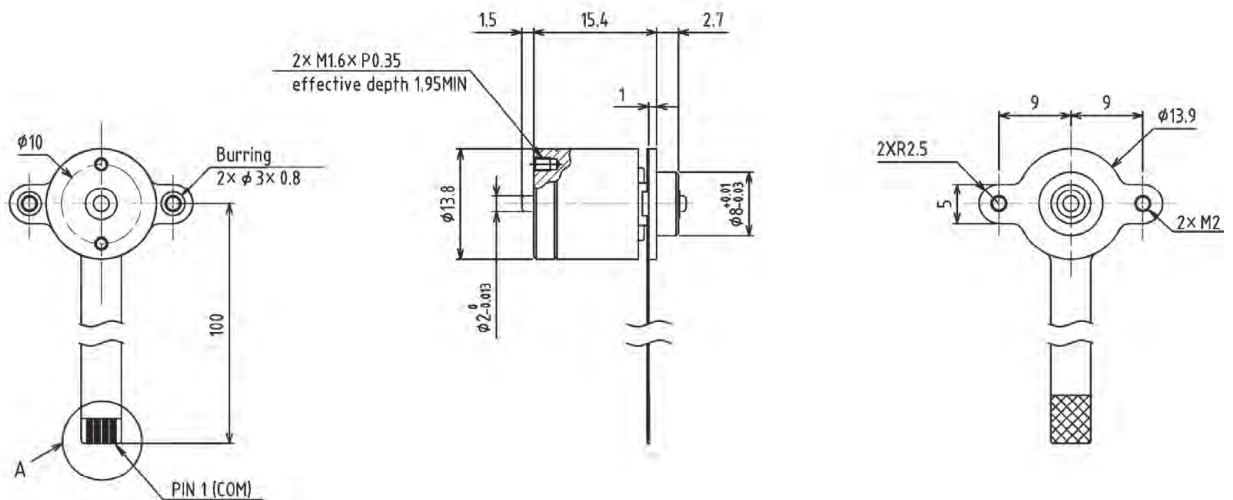
#### CHARACTERISTICS

Model	SDR-14312-001
Rated voltage	DC 5 V
Rated current	0.11 A
Rated torque	0.5 mN·m
Rated speed	4,500 r/min
Rated output	0.2 W
Permissible thrust load	0.1 N
Permissible radial load	0.1 N
Rotor inertia	2.7 g·cm <sup>2</sup>
Hall IC voltage	None
Signal output	None
Sink current	None
Mass	14 g
Operating ambient temperature	0 °C~50 °C
Operating ambient humidity	20 % ~80 %

#### Speed and Torque Characteristics



#### DIMENSIONS [EXAMPLE]



## TORQUE RANGE

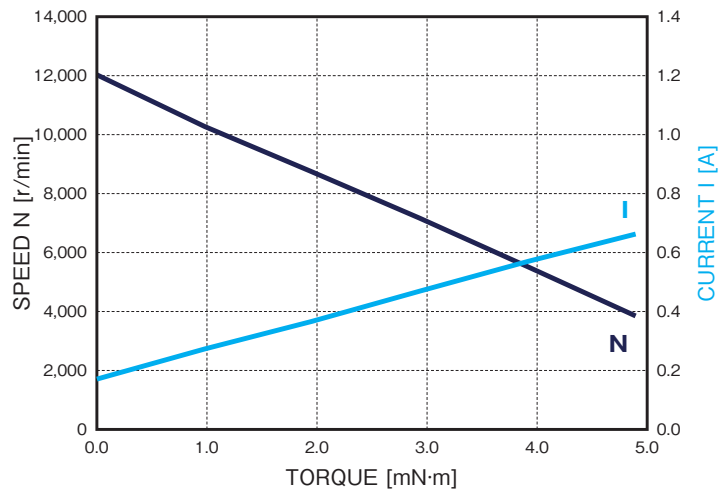
SERIES	MAJOR DIAMETER	MODEL	RATED SPEED	TORQUE [mN·m]												
				0	5	10	15	20	25	30	35	40	50	60		
Outer rotor	φ14	SDR-14312-001	4,500	0	5	10	15	20	25	30	35	40	50	60		
Outer rotor	φ20	SDR-20312-001	8,700	0	5	10	15	20	25	30	35	40	50	60		

## SDR-20312 SERIES

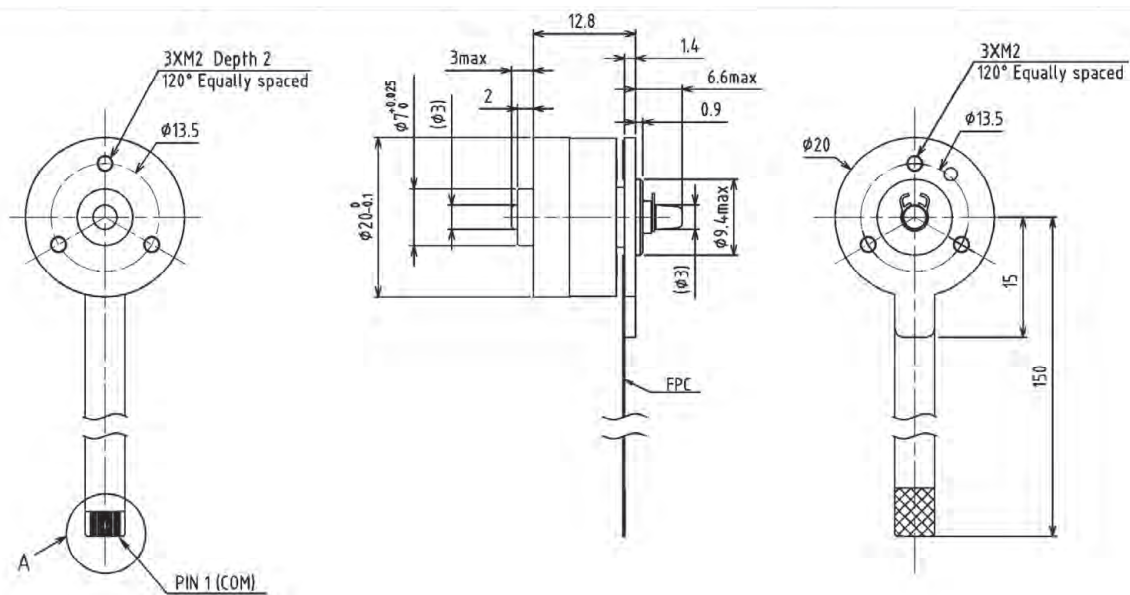
### CHARACTERISTICS

Model	SDR-20312-001
Rated voltage	DC 12 V
Rated current	0.37 A
Rated torque	1.96 mN·m
Rated speed	8,700 r/min
Rated output	1.8 W
Permissible thrust load	0.5 N
Permissible radial load	0.5 N
Rotor inertia	9.2 g·cm <sup>2</sup>
Hall IC voltage	None
Signal output	None
Sink current	None
Mass	20 g
Operating ambient temperature	0 °C ~ 50 °C
Operating ambient humidity	20 % ~ 80 %

### Speed and Torque Characteristics



### DIMENSIONS [EXAMPLE]



Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# Standard Brushless DC Series

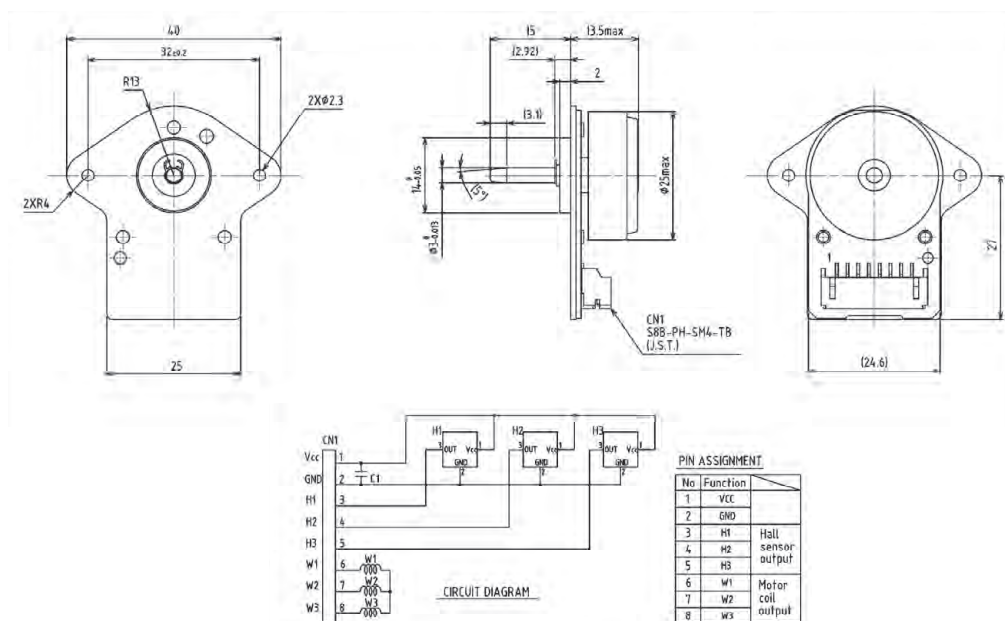
## SDR-24312 SERIES $\phi$ 24mm 0.5W~2.0W



### CHARACTERISTICS

Model	SDR-24312-001	SDR-24312-002	SDR-24312-003
Rated voltage	DC 12 V		
Rated current	0.17 A	0.23 A	0.38 A
Rated torque	4.9 mN·m	4.9 mN·m	4.9 mN·m
Rated speed	930 r/min	1,900 r/min	3,700 r/min
Rated output	0.5 W	1.0 W	1.9 W
Permissible thrust load	1 N		
Permissible radial load	1 N		
Rotor inertia	8.2 g·cm <sup>2</sup>		
Hall IC voltage	5 V		
Signal output	OPEN COLLECTOR		
Sink current	10 mA		
Mass	30 g		
Operating ambient temperature	0 °C~50 °C		
Operating ambient humidity	20 %~80 %		

### DIMENSIONS [EXAMPLE]

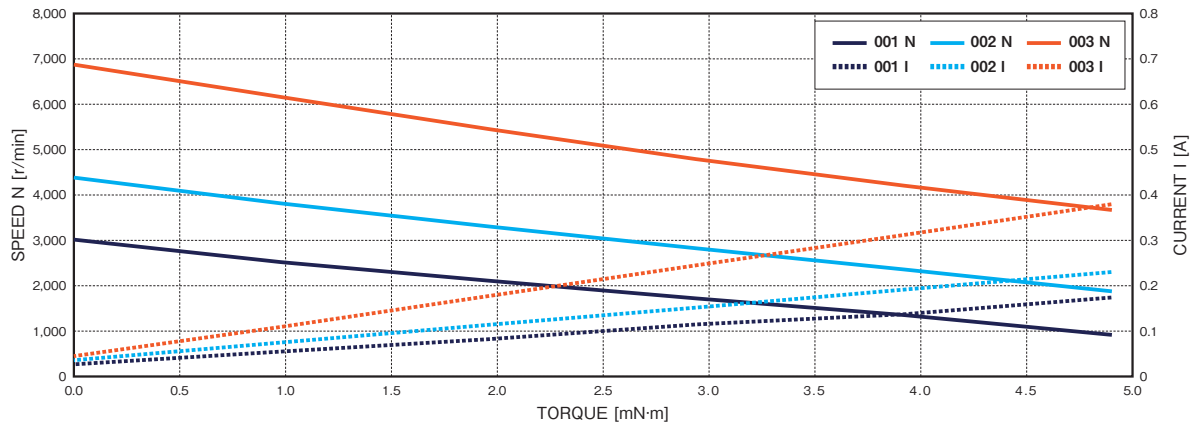




## TORQUE RANGE

SERIES	MAJOR DIAMETER	MODEL	RATED SPEED	TORQUE [mN·m]											
				0	5	10	15	20	25	30	35	40	50	60	
Outer rotor	φ24	SDR-24312-001	930	0	5	10	15	20	25	30	35	40	50	60	
Outer rotor	φ24	SDR-24312-002	1,900	0	5	10	15	20	25	30	35	40	50	60	
Outer rotor	φ24	SDR-24312-003	3,700	0	5	10	15	20	25	30	35	40	50	60	

## Speed and Torque Characteristics



Stepping Motor

BLDC Motor

Motor Driver

Other Motor



Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.



# Standard Brushless DC Series

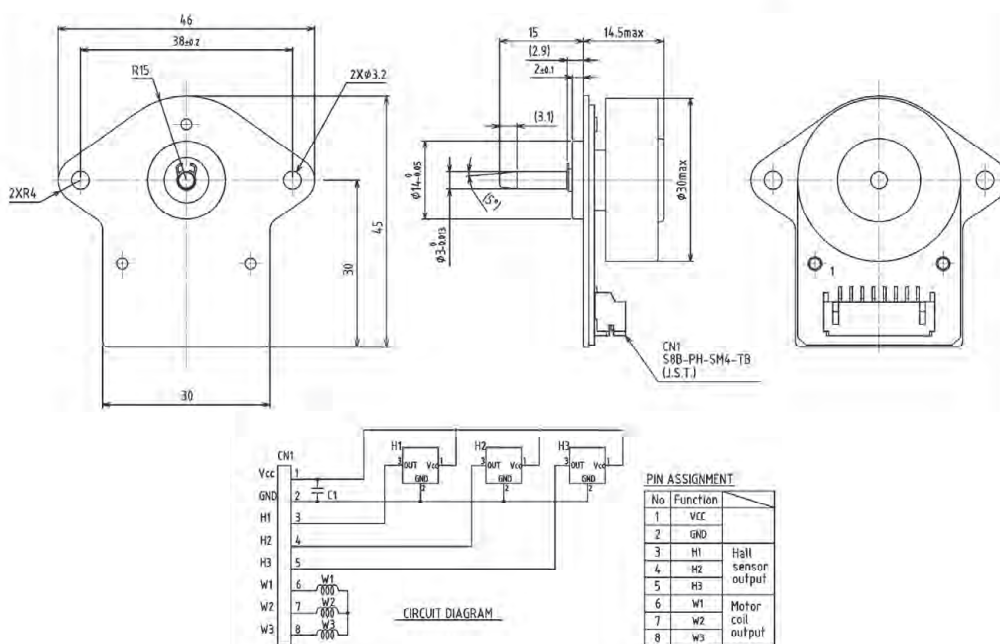
## SDR-29312 SERIES $\phi$ 29mm 2.0W~5.5W



### CHARACTERISTICS

Model	SDR-29312-001	SDR-29312-002	SDR-29312-003
Rated voltage	DC 24 V		
Rated current	0.21 A	0.28 A	0.37 A
Rated torque	9.8 mN·m	9.8 mN·m	9.8 mN·m
Rated speed	2,200 r/min	3,500 r/min	5,350 r/min
Rated output	2.1 W	3.4 W	5.2 W
Permissible thrust load	1 N		
Permissible radial load	1 N		
Rotor inertia	21.8 g·cm <sup>2</sup>		
Hall IC voltage	5 V		
Signal output	OPEN COLLECTOR		
Sink current	10 mA		
Mass	50 g		
Operating ambient temperature	0 °C~50 °C		
Operating ambient humidity	20 %~80 %		

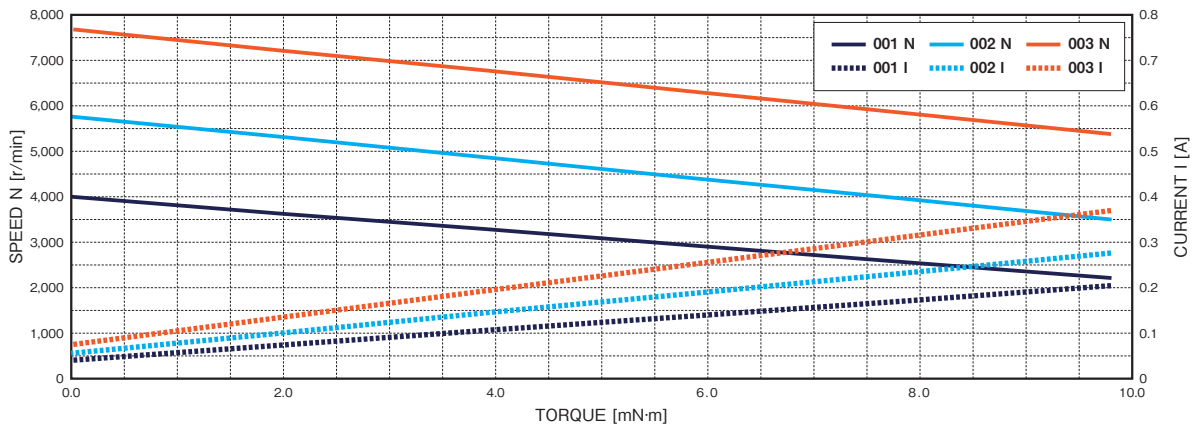
### DIMENSIONS [EXAMPLE]



## TORQUE RANGE

SERIES	MAJOR DIAMETER	MODEL	RATED SPEED	TORQUE [mN·m]																
				0	5	10	15	20	25	30	35	40	50	60						
Outer rotor	φ29	SDR-29312-001	2,200																	
Outer rotor	φ29	SDR-29312-002	3,500																	
Outer rotor	φ29	SDR-29312-003	5,350																	

## Speed and Torque Characteristics



**i** Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# Standard Brushless DC Series

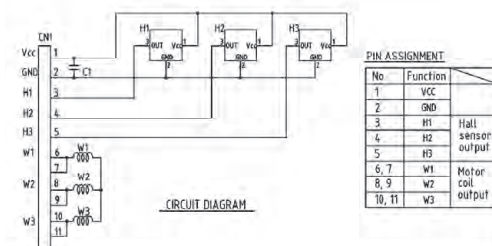
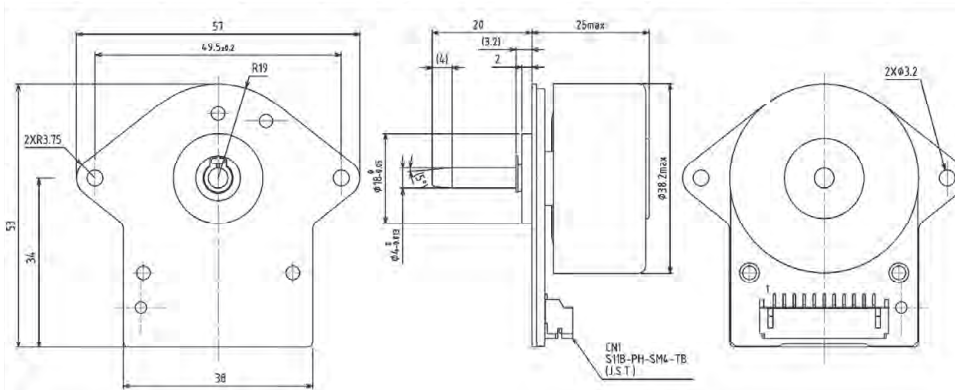
## SDR-38312 SERIES φ 38mm 2.5W~8.0W



### CHARACTERISTICS

Model	SDR-38312-001	SDR-38312-002	SDR-38312-003
Rated voltage	DC 24 V		
Rated current	0.24 A	0.34 A	0.50 A
Rated torque	39.2 mN·m	39.2 mN·m	39.2 mN·m
Rated speed	670 r/min	1,150 r/min	1,980 r/min
Rated output	2.7 W	4.7 W	8.1 W
Permissible thrust load	3.8 N		
Permissible radial load	5.5 N		
Rotor inertia	127.8 g·cm <sup>2</sup>		
Hall IC voltage	5 V		
Signal output	OPEN COLLECTOR		
Sink current	10 mA		
Mass	120 g		
Operating ambient temperature	0 °C~50 °C		
Operating ambient humidity	20 %~80 %		

### DIMENSIONS [EXAMPLE]

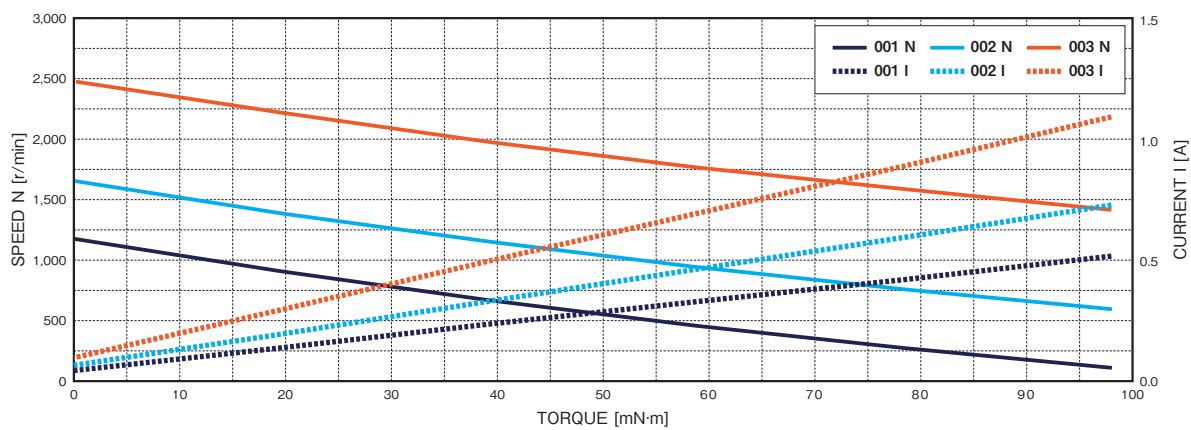


No.	Function
1	VCC
2	GND
3	H1
4	H2
5	H3
6, 7	W1
8, 9	W2
10, 11	W3

## TORQUE RANGE

SERIES	MAJOR DIAMETER	MODEL	RATED SPEED	TORQUE [mN·m]															
				0	5	10	15	20	25	30	35	40	50	60					
Outer rotor	φ38	SDR-38312-001	670																
Outer rotor	φ38	SDR-38312-002	1,150																
Outer rotor	φ38	SDR-38312-003	1,980																

## Speed and Torque Characteristics



Stepping Motor

BLDC Motor

Motor Driver

Other Motor



Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.



# Standard Brushless DC Series

## SDR-4316-0 SERIES

φ 43mm 4.0W~9.0W

## SDR-4316-1 SERIES

φ 43mm 33W

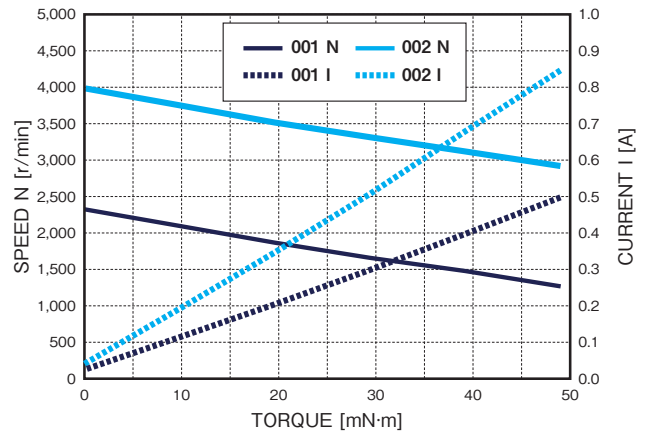


### SDR-4316-0 SERIES

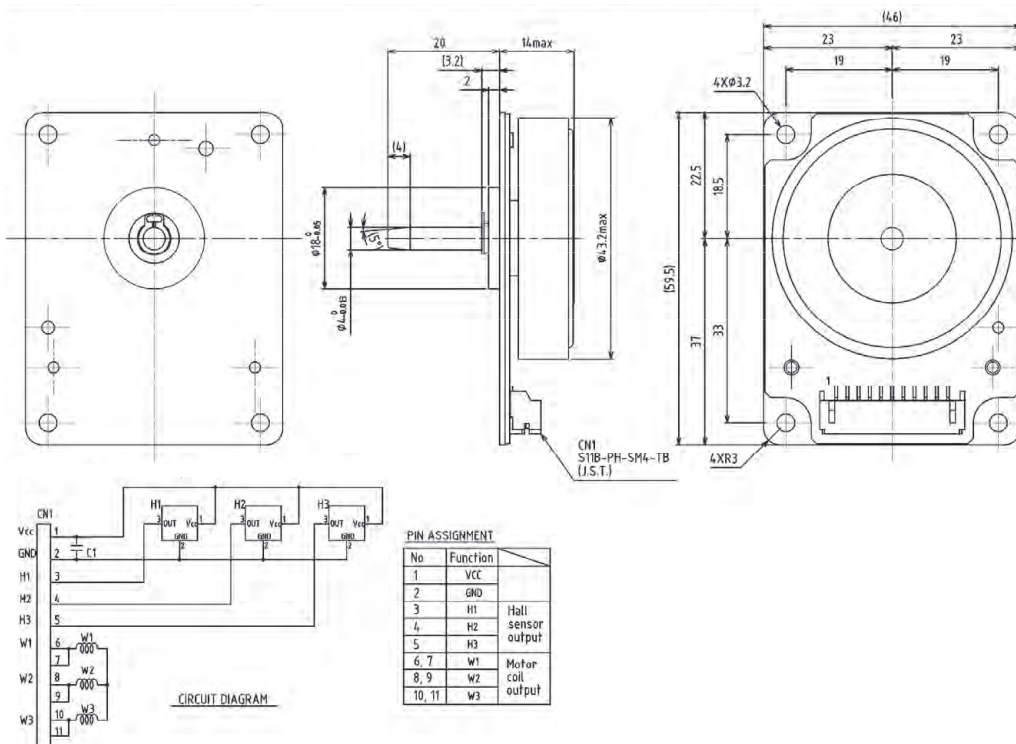
#### CHARACTERISTICS

Model	SDR-4316-001	SDR-4316-002
Rated voltage	DC 24 V	
Rated current	0.25 A	0.43 A
Rated torque	24.5 mN·m	24.5 mN·m
Rated speed	1,760 r/min	3,400 r/min
Rated output	4.5 W	8.7 W
Permissible thrust load	3.8 N	
Permissible radial load	2.4 N	
Rotor inertia	88.7 g·cm <sup>2</sup>	
Hall IC voltage	5 V	
Signal output	OPEN COLLECTOR	
Sink current	10 mA	
Mass	90 g	
Operating ambient temperature	0 °C~50 °C	
Operating ambient humidity	20 % ~80 %	

#### Speed and Torque Characteristics



#### DIMENSIONS [EXAMPLE]



## TORQUE RANGE

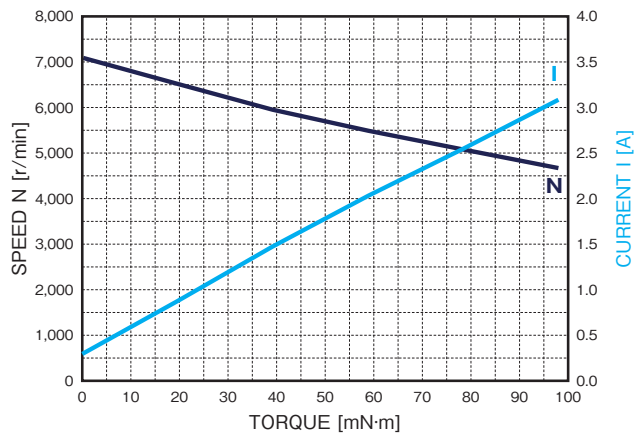
SERIES	MAJOR DIAMETER	MODEL	RATED SPEED	TORQUE [mN·m]																			
				0	5	10	15	20	25	30	35	40	50	60									
Outer rotor	φ43	SDR-4316-001	1,760																				
Outer rotor	φ43	SDR-4316-002	3,400																				
Outer rotor	φ43	SDR-4316-101	5,470																				

## SDR-4316-1 SERIES

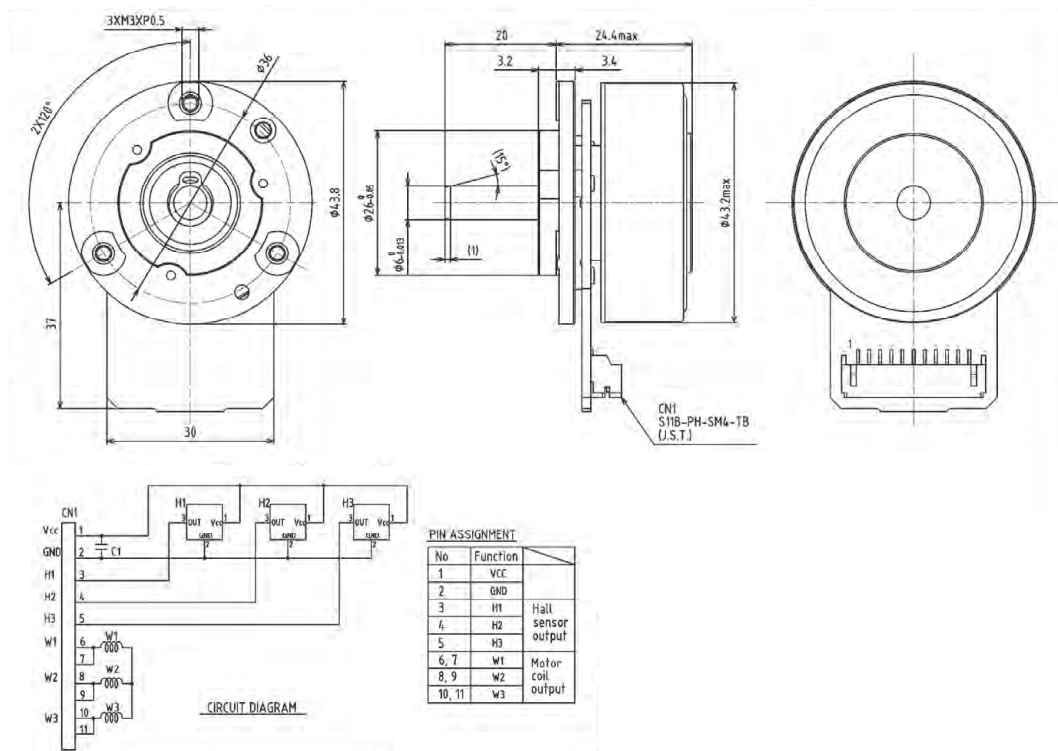
### CHARACTERISTICS

Model	SDR-4316-101
Rated voltage	DC 24 V
Rated current	2.0 A
Rated torque	58 mN·m
Rated speed	5,470 r/min
Rated output	33 W
Permissible thrust load	3.8 N
Permissible radial load	5.5 N
Rotor inertia	154 g·cm <sup>2</sup>
Hall IC voltage	5 V
Signal output	OPEN COLLECTOR
Sink current	10 mA
Mass	130 g
Operating ambient temperature	0 °C~50°C
Operating ambient humidity	20 % ~80 %

### Speed and Torque Characteristics



### DIMENSIONS [EXAMPLE]



Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.



# Standard Brushless DC Series

## SDR-55A SERIES

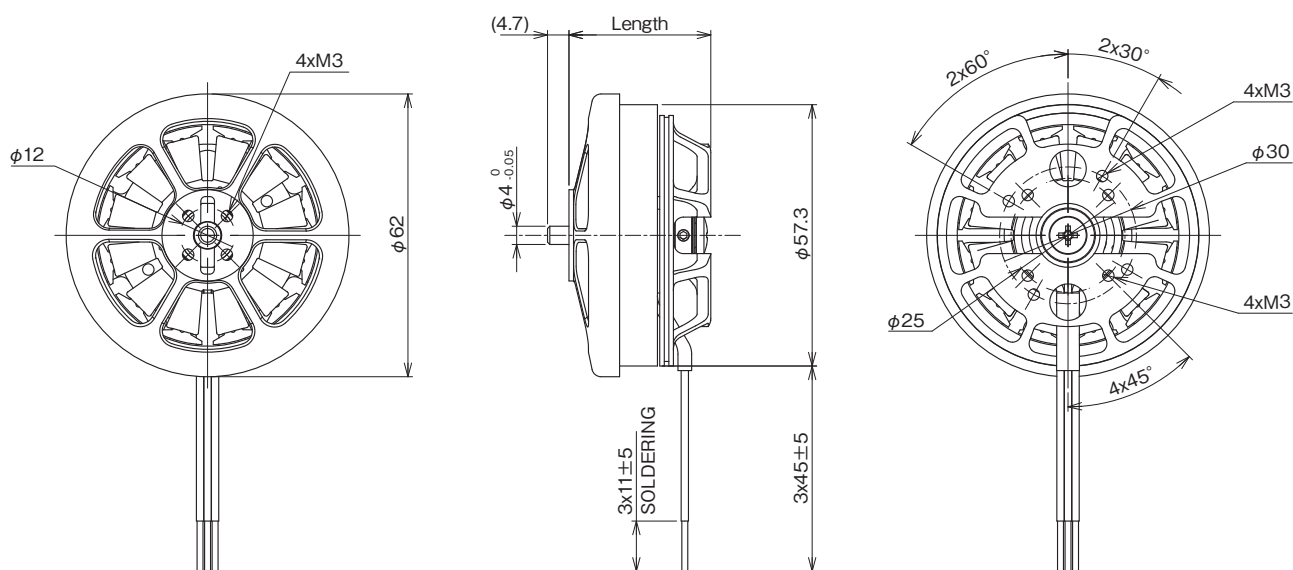
φ 62mm



### CHARACTERISTICS

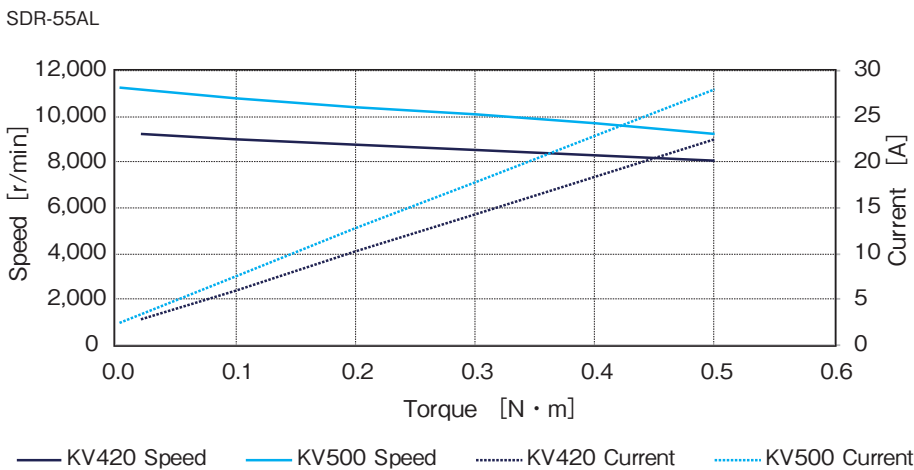
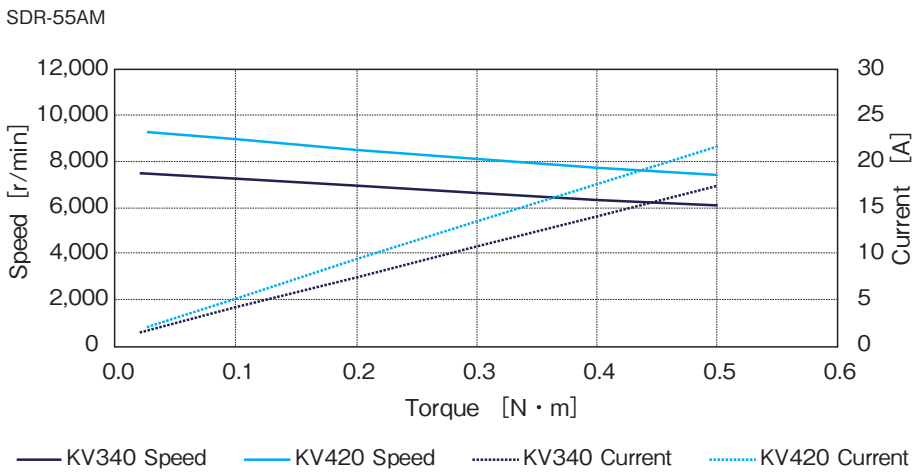
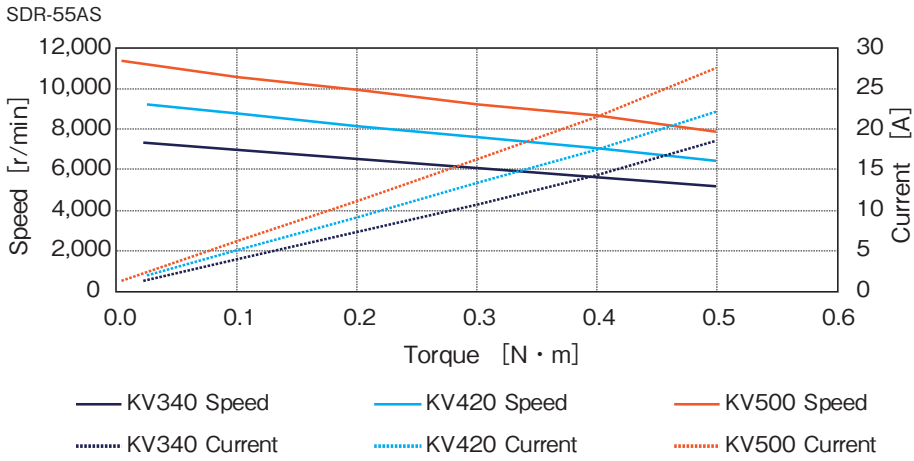
Model	SDR-55AS340	SDR-55AS420	SDR-55AS500	SDR-55AM340	SDR-55AM420	SDR-55AL420	SDR-55AL500
Motor length	28.1		31.1		36.1		
KV value	340	420	500	340	420	420	500
Rated voltage	DC 22.2 V (Lipo 6cell)						
Rated current	10.8A	13.3A	16.0A	11.0A	13.3A	14.0A	17.3A
Rated torque	0.3 N · m						
Rated speed	6,090 r/min	7,580 r/min	9,250 r/min	7,200 r/min	8,130 r/min	8,500 r/min	10,120 r/min
Rated output	191 W	238 W	291 W	226 W	255 W	267 W	318 W
Maximun torque	0.5 N · m						
Mass	135 g		178 g		250 g		

### DIMENSIONS [EXAMPLE]

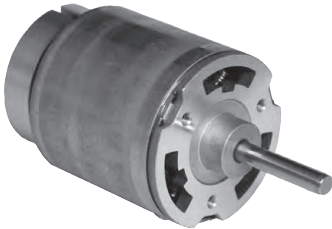




## Speed and Torque Characteristics



**i** Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.



# Outer Rotor Brushless DC Series

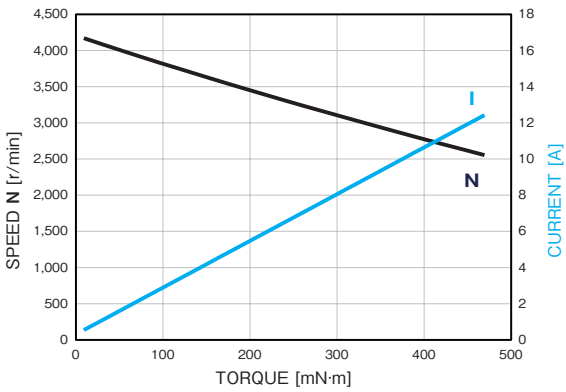
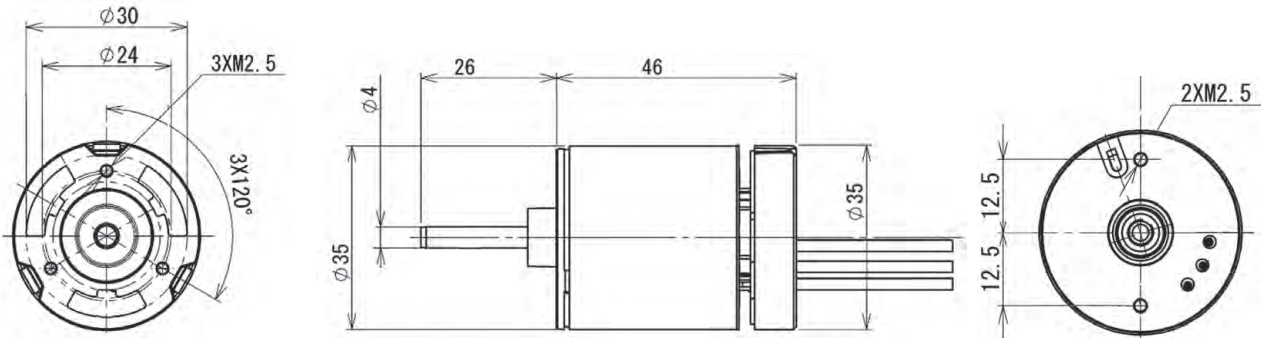


## TORQUE RANGE

SERIES	MAJOR DIAMETER	MODEL	LENGTH [mm]	RATED SPEED	TORQUE [mN·m]																					
					0	10	20	30	40	50	60	70	80	90	100	200	300									
Outer rotor	φ35mm	DR-35314	46.0	3,200																						

### DR-35314

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 17.2V	300 mN·m	3,200 r/min	8 A



**i** Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.



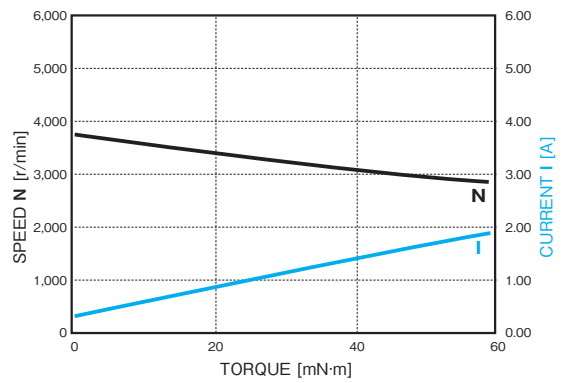
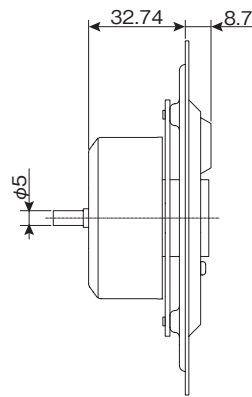
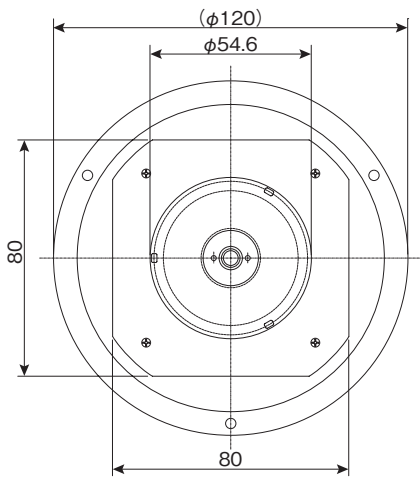
**RoHS**

**TORQUE RANGE**

SERIES	MAJOR DIAMETER	MODEL	LENGTH [mm]	RATED SPEED	TORQUE [mN·m]										
					0	10	20	30	40	50	60	70	80	90	100
Outer rotor	φ55mm	DR-55310	32.74	3,000	[Torque range bar from 0 to 60 mN·m]										
Outer rotor	φ63mm	DR-6236	43.0	1,800	[Torque range bar from 0 to 250 mN·m]										

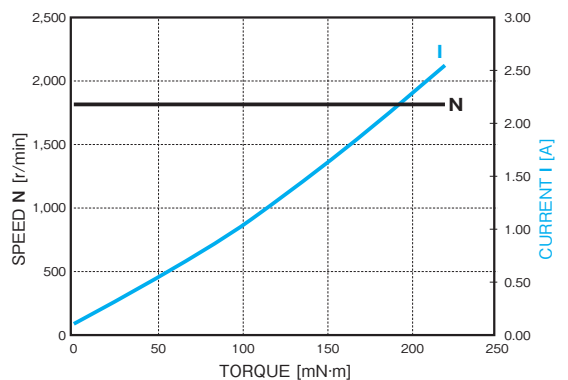
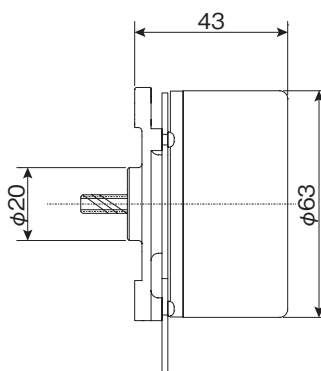
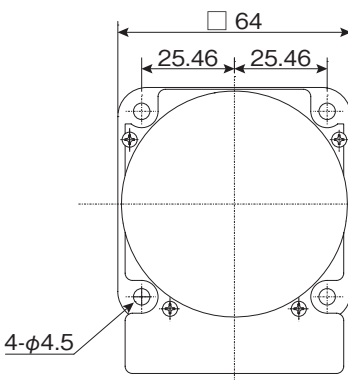
**DR-55310**

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 14 V	40 mN·m	3,000 r/min	1.4 A



**DR-6236**

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 24 V	160 mN·m	1,800 r/min	2.1 A



**i** Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

Stepping Motor

BLDC Motor

Motor Driver

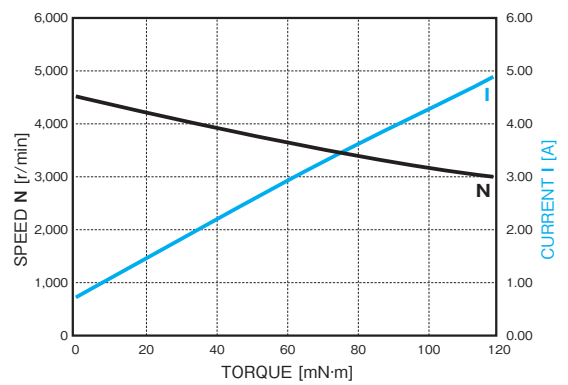
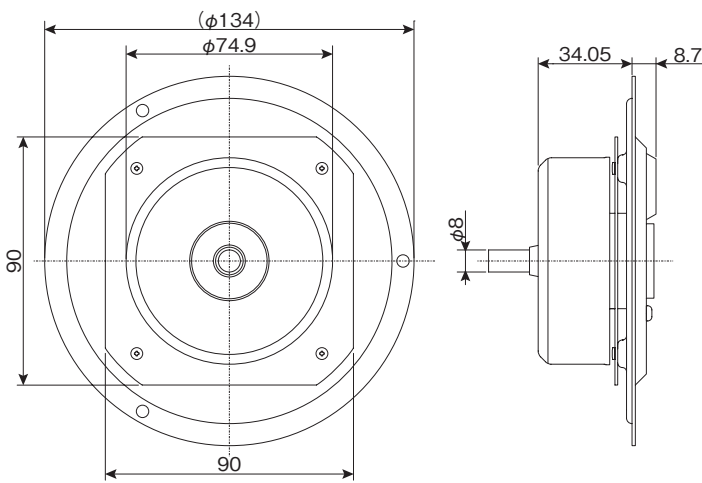
Other Motor

# Outer Rotor Brushless DC Series



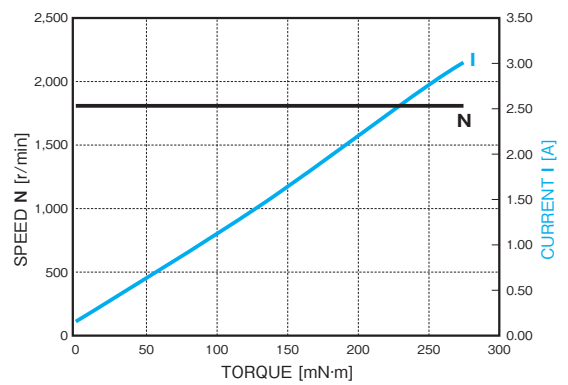
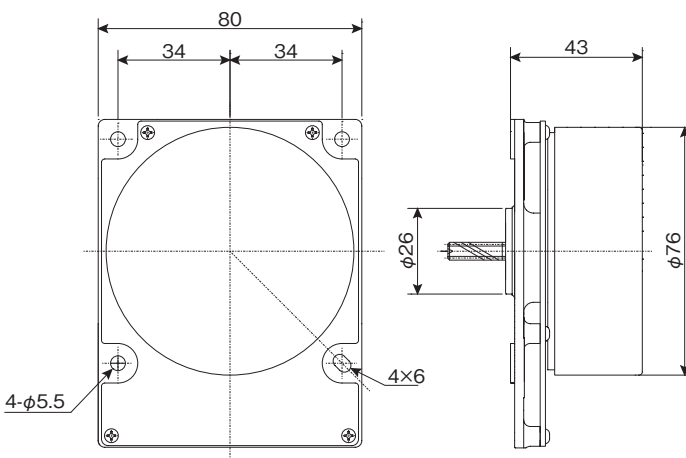
## DR-7538

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 12 V	100 mN·m	3,100 r/min	4.3 A



## DR-7638

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 24 V	250 mN·m	1,800 r/min	3.4 A

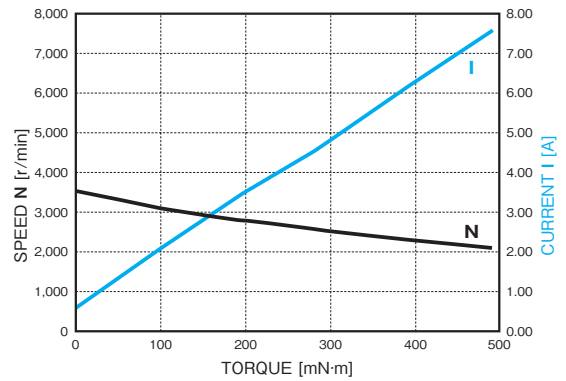
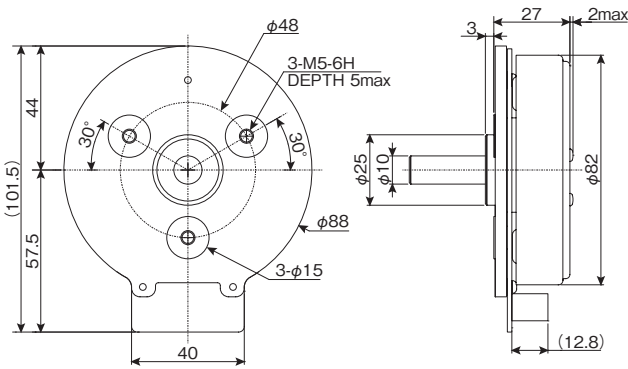


## TORQUE RANGE

SERIES	MAJOR DIAMETER	MODEL	LENGTH [mm]	RATED SPEED	TORQUE [mN·m]										
					0	10	20	30	40	50	60	70	80	90	100
Outer rotor	φ75mm	DR-7538	34.05	3,100	[Torque range bar from 0 to 10]										
Outer rotor	φ76mm	DR-7638	43.0	1,800	[Torque range bar from 10 to 20]										
Outer rotor	φ82mm	DR-82316	27.0	2,000	[Torque range bar from 10 to 20]										
Outer rotor	φ87mm	DR-8738	60.0	1,800	[Torque range bar from 20 to 40]										
Outer rotor	φ82mm	DR-8238	60.0	1,400	[Torque range bar from 40 to 50]										

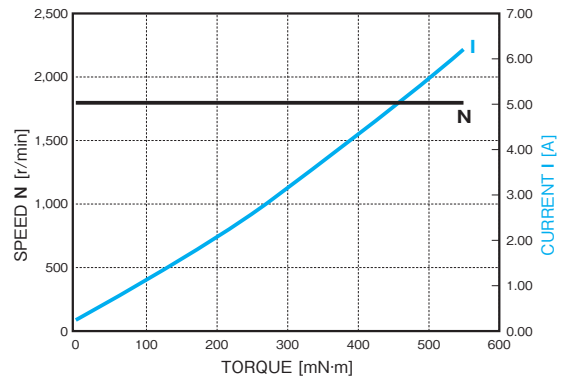
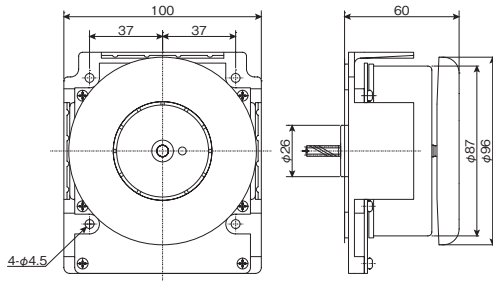
### DR-82316

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 24 V	230 mN·m	2,000 r/min	3.9 A



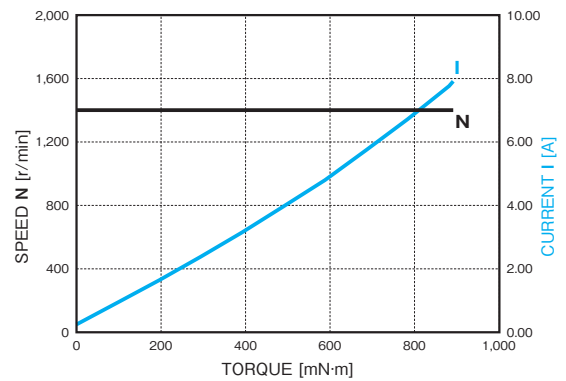
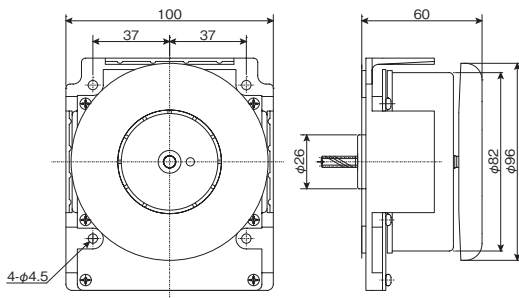
### DR-8738

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 24 V	440 mN·m	1,800 r/min	5.8 A



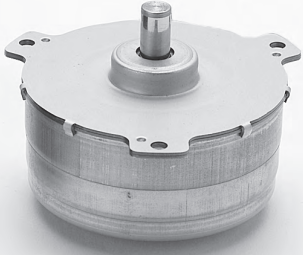
### DR-8238

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 24 V	640 mN·m	1,400 r/min	6.5 A max



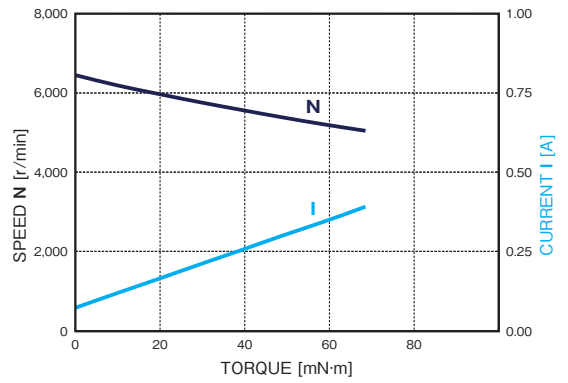
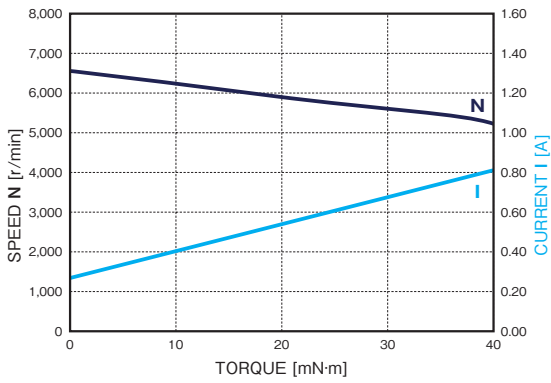
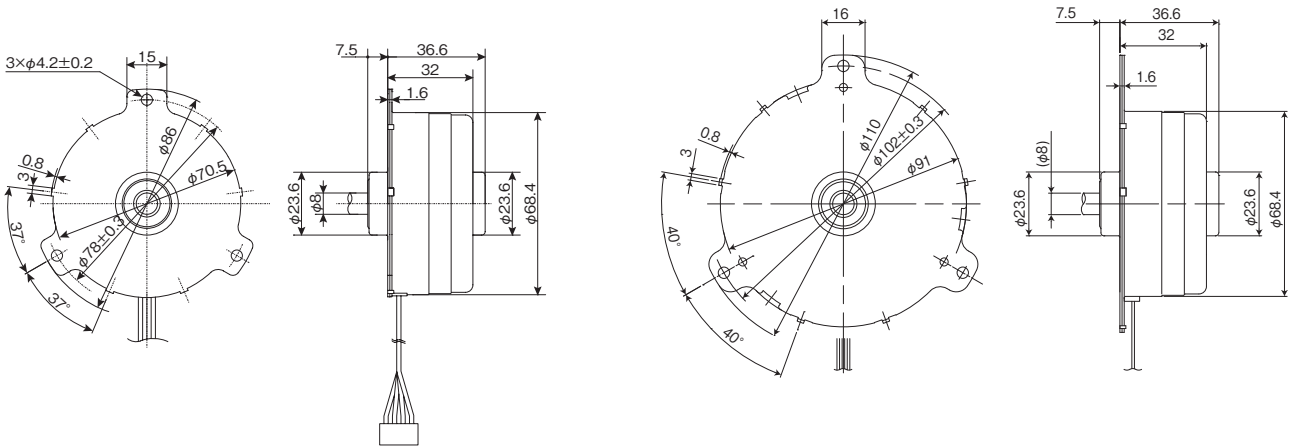
Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

# Inner Rotor Brushless DC Series



**DR-6638**  
(Low Voltage / High Voltage)

RATED VOLTAGE	MAX TORQUE	RATED SPEED	MAX CURRENT
DC 24~48 V	45 mN·m	4,950 r/min	1.2 A
	80 mN·m	1,500 r/min	1.0 A
DC140V	58.8 mN·m	4,500 r/min	1.0 A

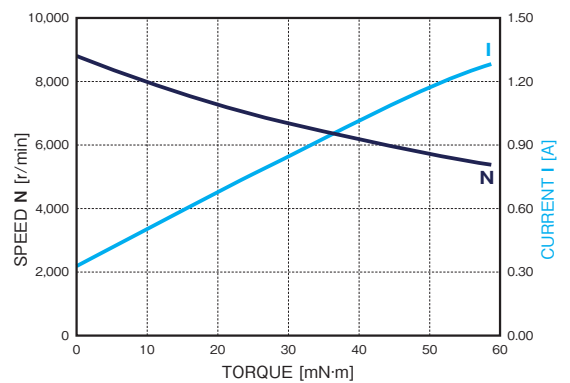
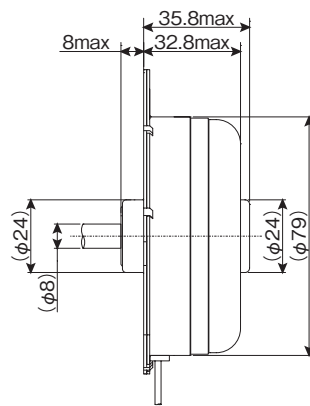
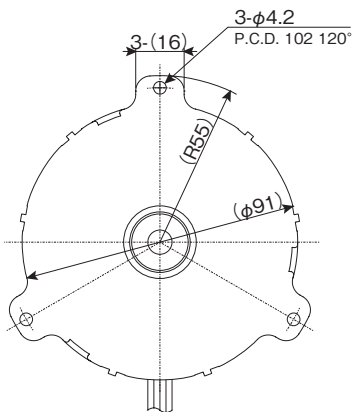


## TORQUE RANGE

SERIES	MAJOR DIAMETER	MODEL	RATED SPEED	TORQUE [mN·m]																
				0	50	100	200	300	400	600	800	1,000	1,500							
Inner rotor	φ68mm	DR-6638	4,950																	
Inner rotor	φ68mm		1,500																	
Inner rotor	φ68mm		4,500																	
Inner rotor	φ79mm	DR-738	6,000																	
Inner rotor	φ79mm	DR-7738	6,000																	

### DR-738

RATED VOLTAGE	MAX TORQUE	RATED SPEED	RATED CURRENT
DC 24 (48) V	45 mN·m	6,000 r/min	1.2 A



Stepping Motor

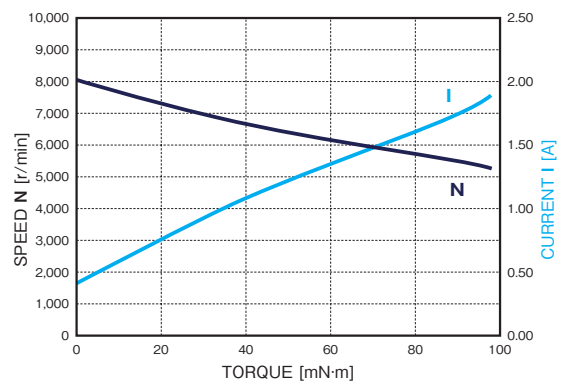
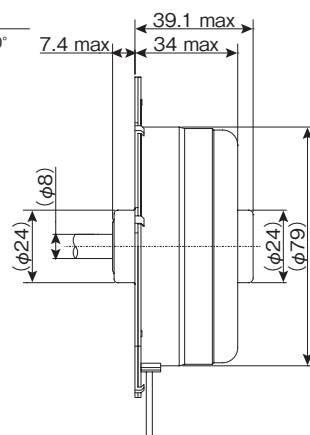
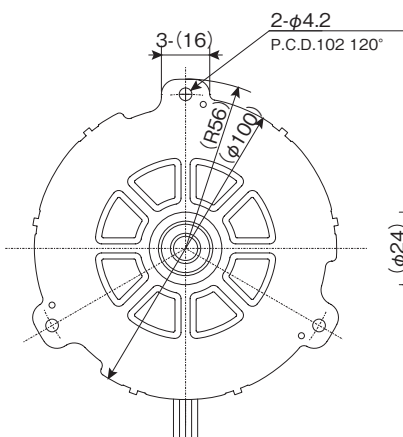
BLDC Motor

Motor Driver

Other Motor

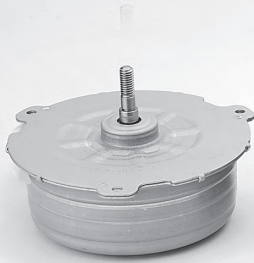
### DR-7738

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 24~48 V	65 mN·m	6,000 r/min	1.4 A



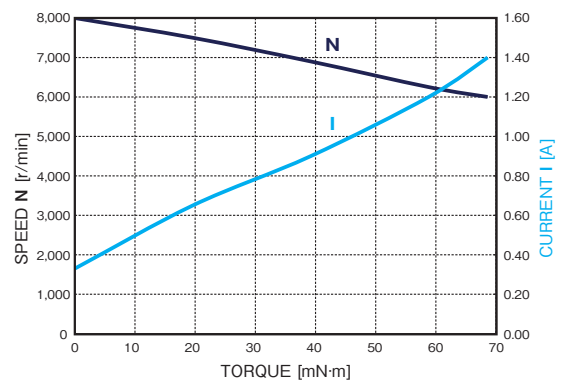
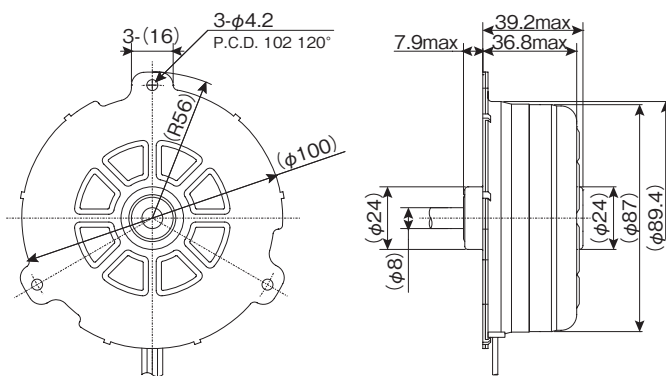
Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

# Inner Rotor Brushless DC Series



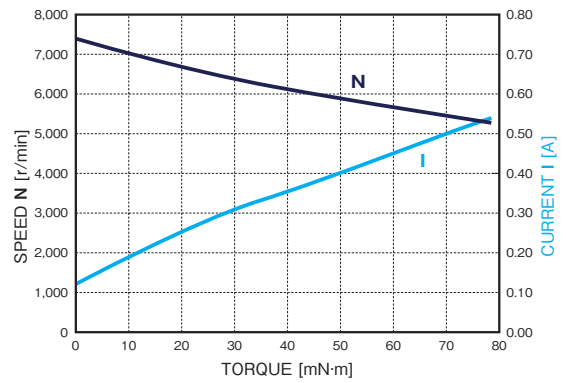
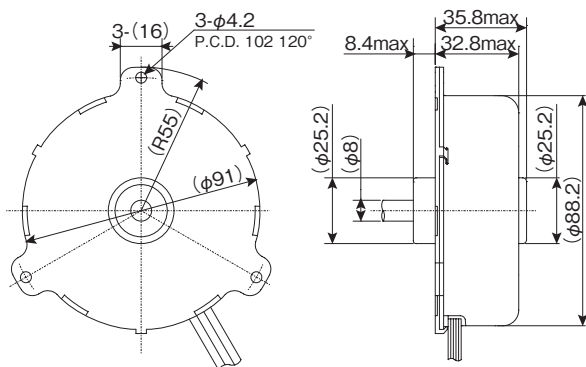
## DR-8538 (Low Voltage)

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 24~48 V	83.1 mN·m	6,300 r/min	1.6 A



## DR-8538-6type

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 140(280) V	75 mN·m	6,500 r/min	0.6(0.3) A



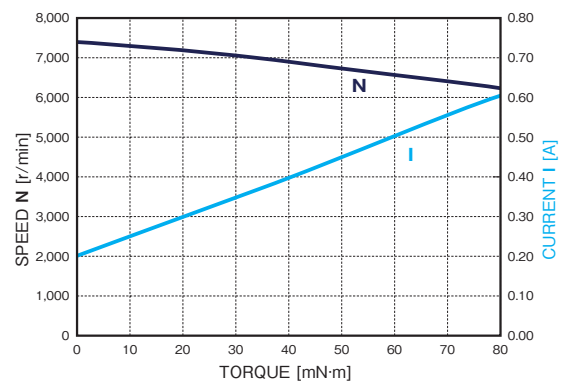
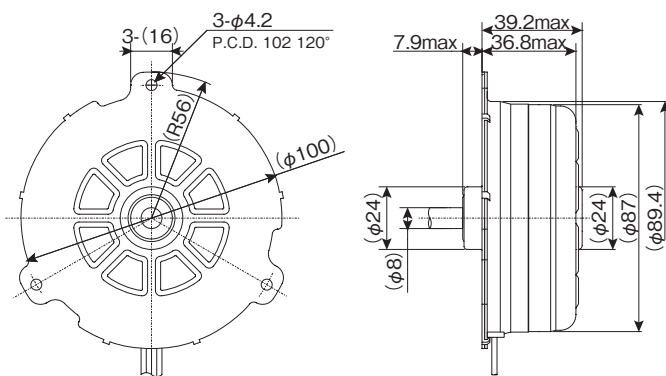


## TORQUE RANGE

SERIES	MAJOR DIAMETER	MODEL	RATED SPEED	TORQUE [mN·m]														
				0	50	100	200	300	400	600	800	1,000	1,500					
Inner rotor	φ88.2mm	DR-8538 (Low)	6,300															
Inner rotor	φ88.2mm	DR-8538-6	6,500															
Inner rotor	φ88.2mm	DR-8538-8	6,500															
Inner rotor	φ88.2mm	DR-8538-12	5,330															

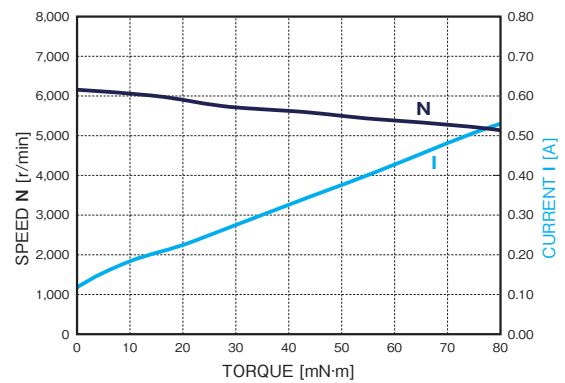
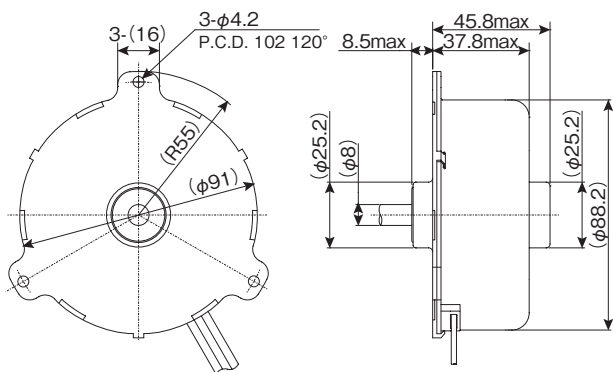
### ■ DR-8538-8type

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 140(280) V	90 mN·m	6,500 r/min	0.6(0.3) A



### ■ DR-8538-12type

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
DC 140(280) V	115 mN·m	5,330 r/min	0.7(0.4) A



Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

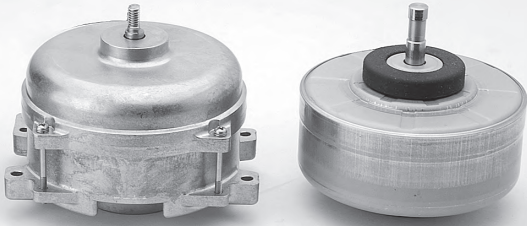
Stepping Motor

BLDC Motor

Motor Driver

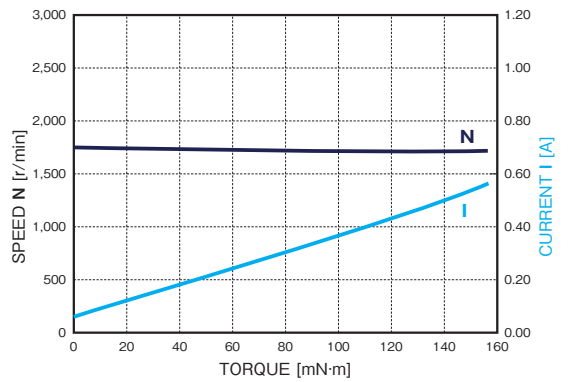
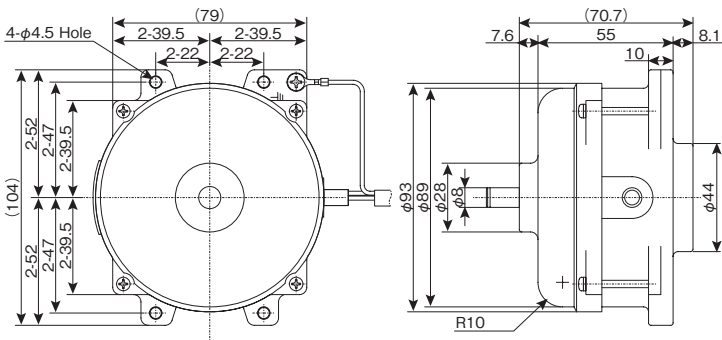
Other Motor

# Inner Rotor Brushless DC Series



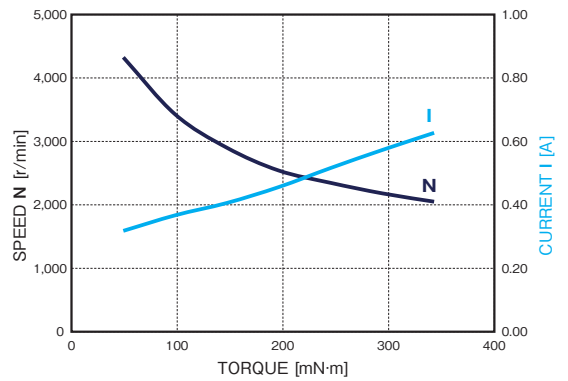
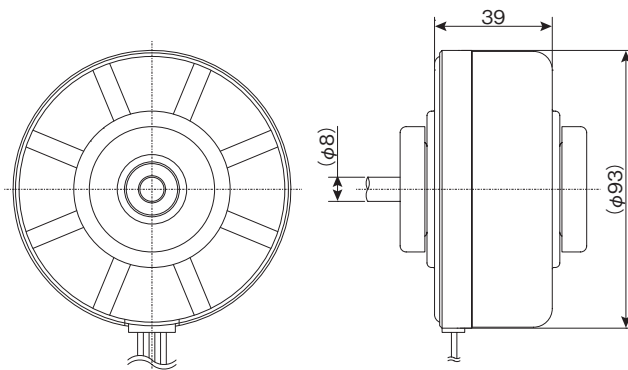
## ■ DRA-8538

RATED VOLTAGE	RATED TORQUE	RATED SPEED	RATED CURRENT
AC 100~230 V	75 mN·m	1,500 r/min	0.3 A



## ■ DR-8838

RATED VOLTAGE	MAX TORQUE	RATED SPEED	RATED CURRENT
DC 140~280 V	340 mN·m	1,800 r/min	1.6 A

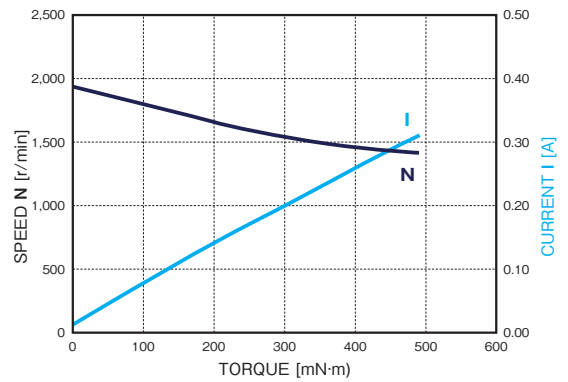
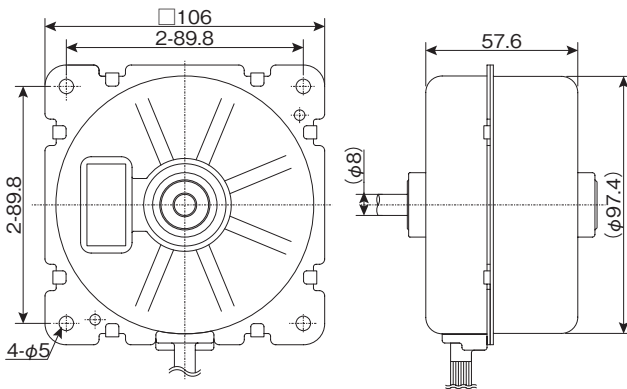


## TORQUE RANGE

SERIES	MAJOR DIAMETER	MODEL	RATED SPEED	TORQUE [mN·m]										
				0	50	100	200	300	400	600	800	1,000	1,500	
Inner rotor	φ93mm	DRA-8538	1,500	[Torque range bars]										
Inner rotor	φ93mm	DR-8838	1,800	[Torque range bars]										
Inner rotor	φ97.4mm	DR-9538	850	[Torque range bars]										
Inner rotor	φ97.4mm	DR-9538 (Thin)	2,000	[Torque range bars]										

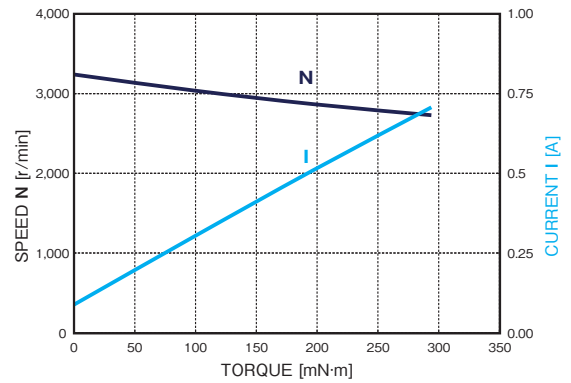
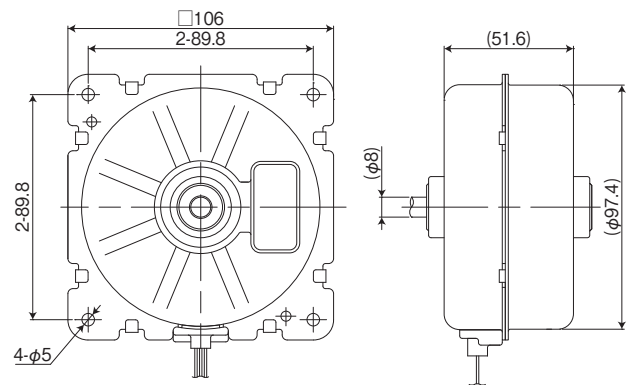
### DR-9538

RATED VOLTAGE	MAX TORQUE	RATED SPEED	RATED CURRENT
DC 280 V	400 mN·m	850 r/min	0.2 A



### DR-9538 (Thin-model)

RATED VOLTAGE	MAX TORQUE	RATED SPEED	RATED CURRENT
DC 140~280V	297 mN·m	2,000 r/min	0.7 A



Stepping Motor

BLDC Motor

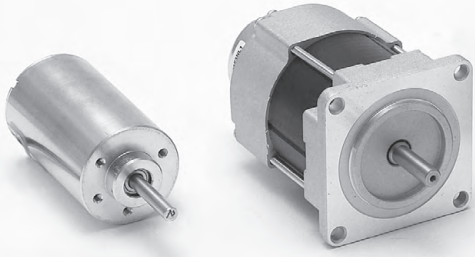
Motor Driver

Other Motor



Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

# Inner Rotor Brushless DC Series

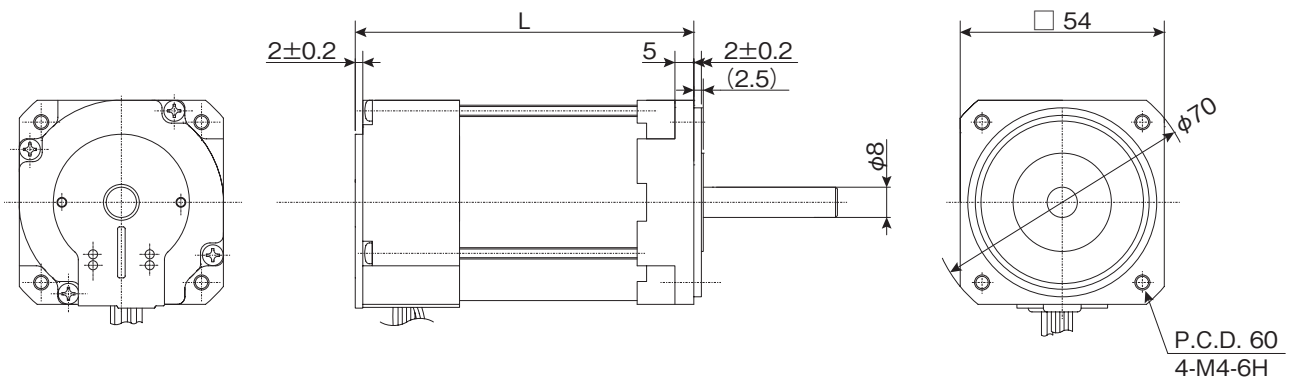


## CHARACTERISTICS

MOTOR TYPE	VOLTAGE	MAX OUTPUT	TORQUE	SPEED	CURRENT
LA052-040	DC 24 V	40 W	127 mN·m	2,900 r/min	2.35 A
	DC 75 V	40 W	127 mN·m	3,000 r/min	0.75 A
LA052-080	DC 24 V	80 W	255 mN·m	3,000 r/min	4.6 A
	DC 75 V	80 W	255 mN·m	3,000 r/min	1.45 A
LA052-110	DC 75 V	110 W	353 mN·m	3,000 r/min	2.1 A

## DIMENSIONS [EXAMPLE]

### LA052



Length: L

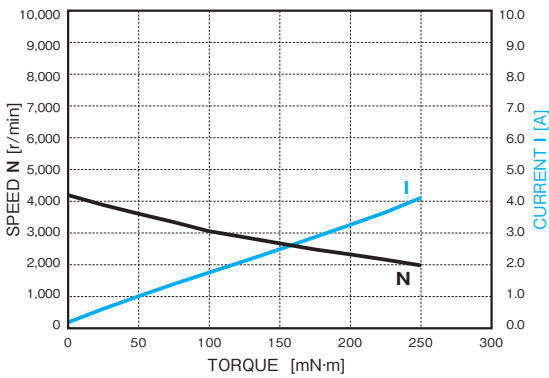
MOTOR TYPE	STANDARD MODEL
LA052-040	69.6mm
LA052-080	69.6mm
LA052-110	89.6mm

## TORQUE RANGE

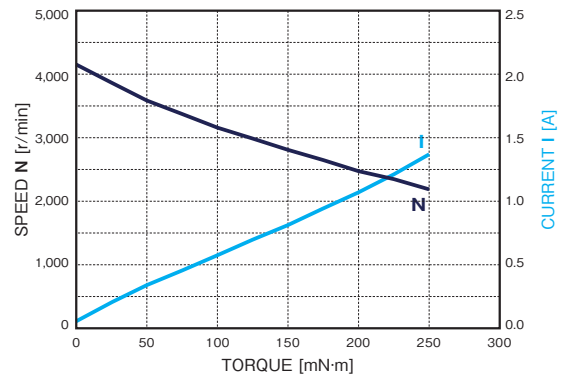
SERIES	MAJOR SIZE	MODEL	RATED SPEED	TORQUE [mN·m]						
				0	50	100	200	300	400	600
Inner rotor	□54mm	LA052-040	3,000	[Torque range bar from 0 to 100]						
		LA052-080	3,000	[Torque range bar from 100 to 200]						
		LA052-110	3,000	[Torque range bar from 200 to 300]						

## TORQUE-CURRENT-SPEED CURVE

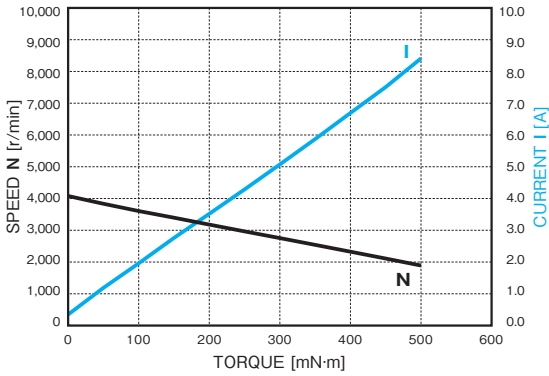
LA052-040 (40W, 24V)



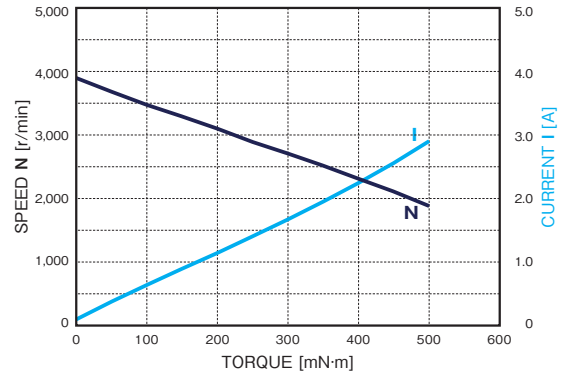
LA-052-040 (40W, 75V)



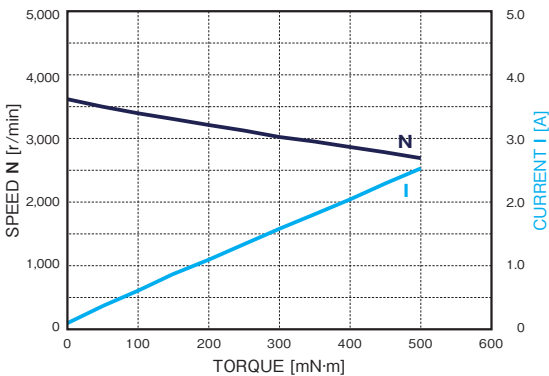
LA052-080 (80W, 24V)



LA-052-080 (80W, 75V)



LA-052-110 (110W, 75V)



**i** Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor

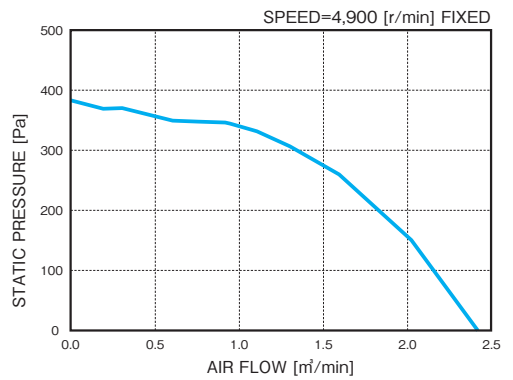
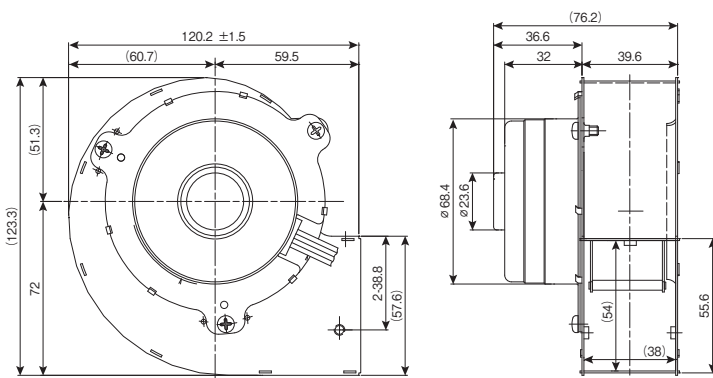
# Brushless DC Blower Series



## [INNER ROTOR]

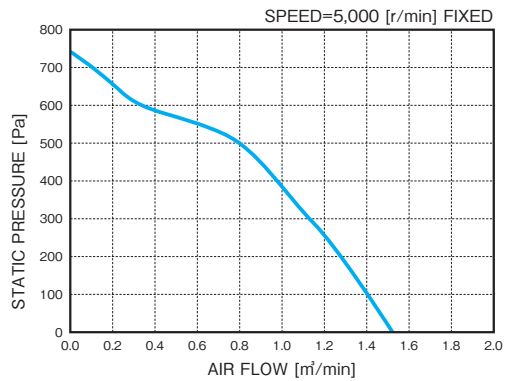
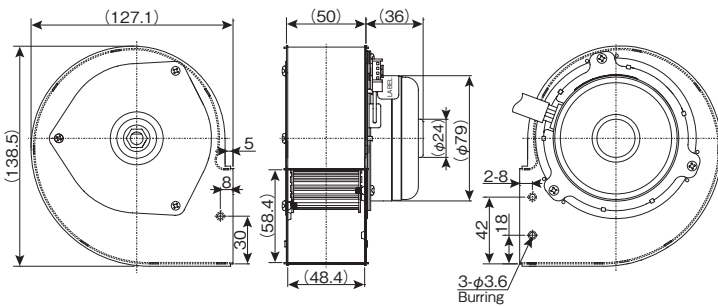
### ■ DRF-6638

RATED VOLTAGE	MAX AIR FLOW	MAX PRESSURE	MAX CURRENT	FAN
DC 24~48 V	2.4 m <sup>3</sup> /min	380 Pa	1.1 A	Turbo Fan



### ■ DRF-738

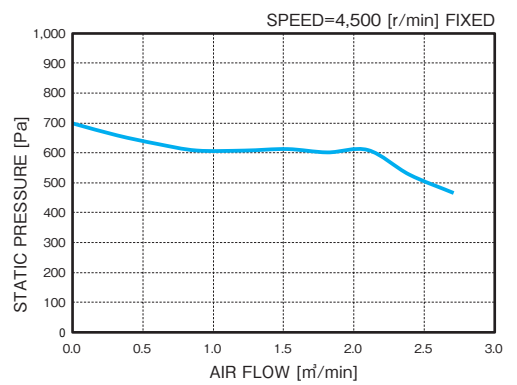
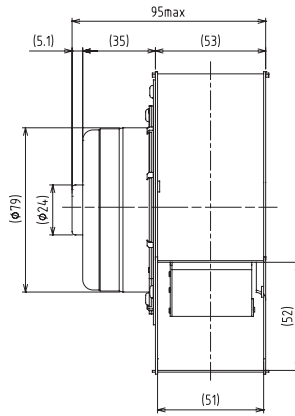
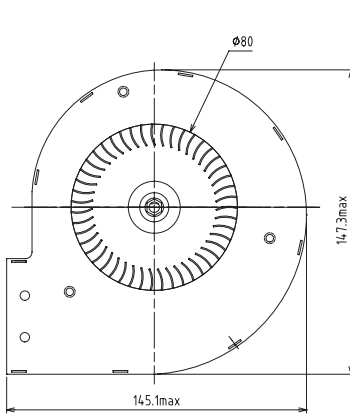
RATED VOLTAGE	MAX AIR FLOW	MAX PRESSURE	MAX CURRENT	FAN
DC 30 V	1.5 m <sup>3</sup> /min	750 Pa	1.4 A	Sirocco Fan





■ DRF-7738

RATED VOLTAGE	MAX AIR FLOW	MAX PRESSURE	MAX CURRENT	FAN
DC 45 V	2.8 m <sup>3</sup> /min	700 Pa	1.8 A	Sirocco Fan



- Stepping Motor
- BLDC Motor
- Motor Driver
- Other Motor

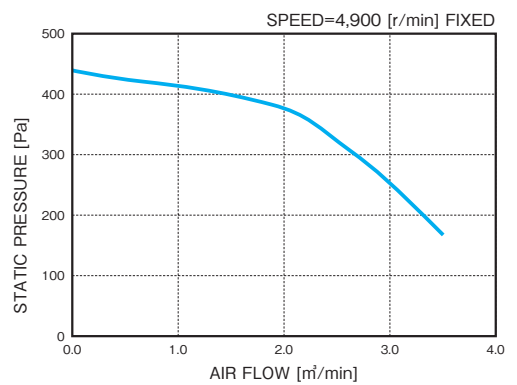
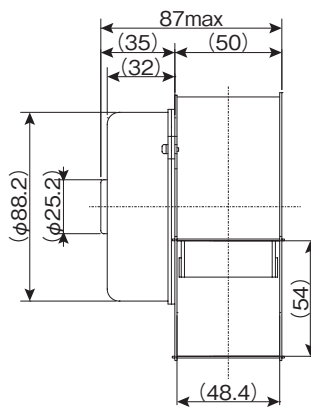
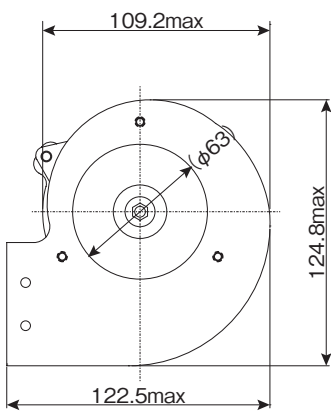
**i** Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

# Brushless DC Blower Series



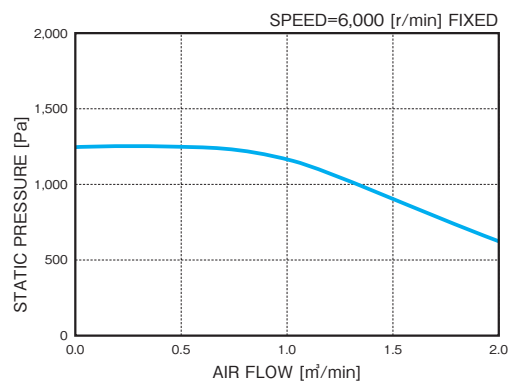
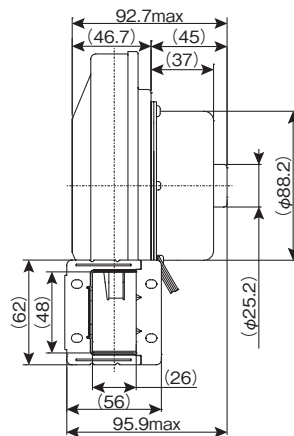
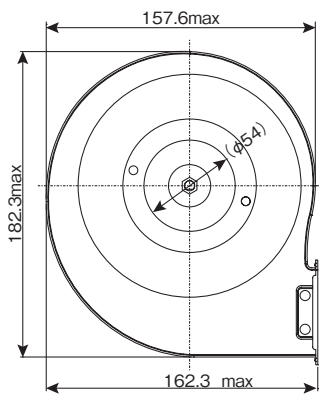
## DRF-8538 A type

RATED VOLTAGE	MAX AIR FLOW	MAX PRESSURE	MAX CURRENT	FAN
DC 120 V	3.5 m <sup>3</sup> /min	440 Pa	1.3 A	Sirocco Fan



## DRF-8538 B type

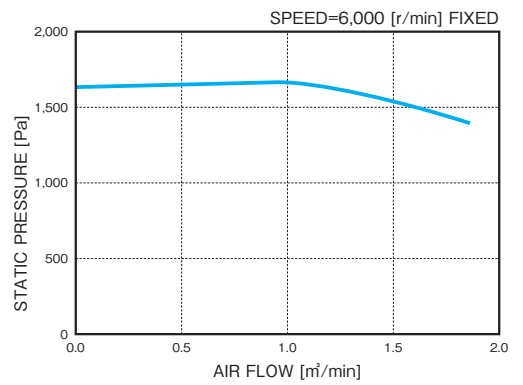
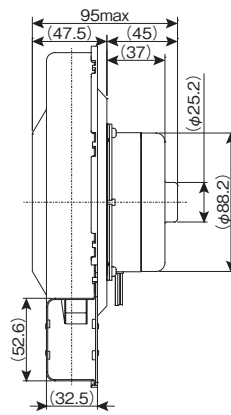
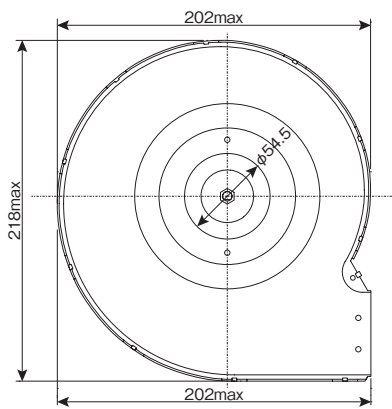
RATED VOLTAGE	MAX AIR FLOW	MAX PRESSURE	MAX CURRENT	FAN
DC 120 V	2.0 m <sup>3</sup> /min	1,300 Pa	1.2 A	Turbo Fan





■ DRF-8538 C type

RATED VOLTAGE	MAX AIR FLOW	MAX PRESSURE	MAX CURRENT	FAN
DC 120 V	1.7 m <sup>3</sup> /min	1,650 Pa	1.8 A	Turbo Fan



Stepping Motor

BLDC Motor

Motor Driver

Other Motor



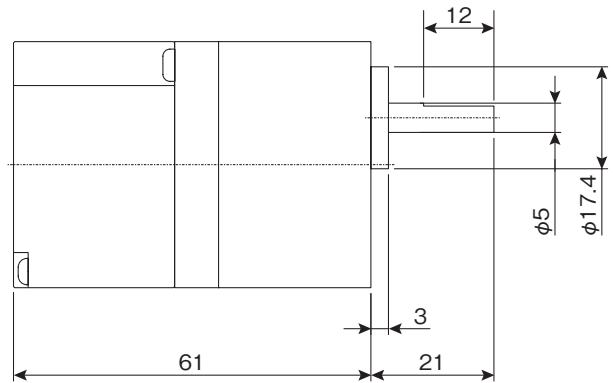
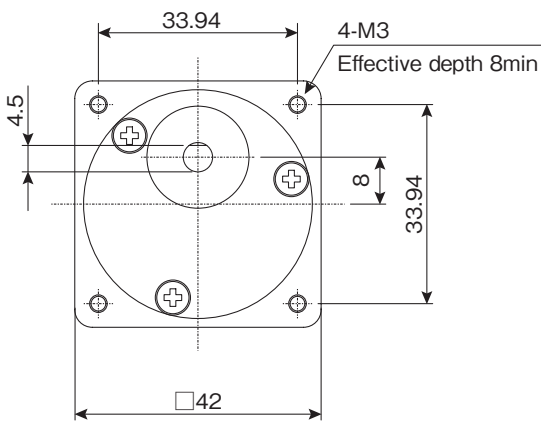
Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

# Brushless DC Geared Motor



## BRUSHLESS DC WITH 42mm GEAR BOX

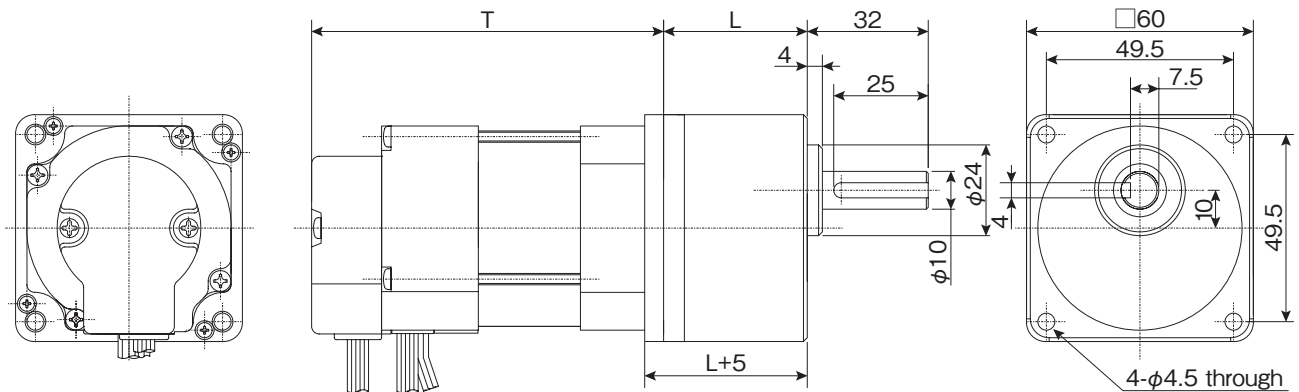
MODEL	SIZE	VOLTAGE	GEAR RATIO	SPEED	PERMISSIBLE TORQUE	PERMISSIBLE OVERHANG LOAD	PERMISSIBLE THRUST LOAD
DRG-38312	42	DC 24 V	1/12	240 rpm	0.45 N·m	(15mm from mounting surface) 49 N	14.7 N
	42	DC 24 V	1/50	21 rpm	1 N·m	(15mm from mounting surface) 49 N	14.7 N



## BRUSHLESS DC WITH 60mm GEAR BOX

MODEL	SIZE	VOLTAGE	GEAR RATIO	SPEED	PERMISSIBLE TORQUE	PERMISSIBLE OVERHANG LOAD	PERMISSIBLE THRUST LOAD
LA052-040E-xxx	60	DC 24 V	1/20	150 rpm	2.2 N·m	(22mm from mounting surface) 150 N	39.2 N
	60	DC 24 V	1/50	60 rpm	4.6 N·m	(22mm from mounting surface) 200 N	39.2 N
	60	DC 24 V	1/100	30 rpm	4.1 N·m	(22mm from mounting surface) 200 N	39.2 N
	60	DC 24 V	1/200	15 rpm	4.1 N·m	(22mm from mounting surface) 200 N	39.2 N

T= 93.1 ~ 113.1mm  
L= 1/5, 1/10, 1/15, 1/20 ⇒ 34mm  
1/30, 1/50, 1/100 ⇒ 38mm  
1/200 ⇒ 43mm



Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

Stepping Motor

BLDC Motor

Motor Driver

Other Motor

# 2 Phase Hybrid Stepping Motor Driver

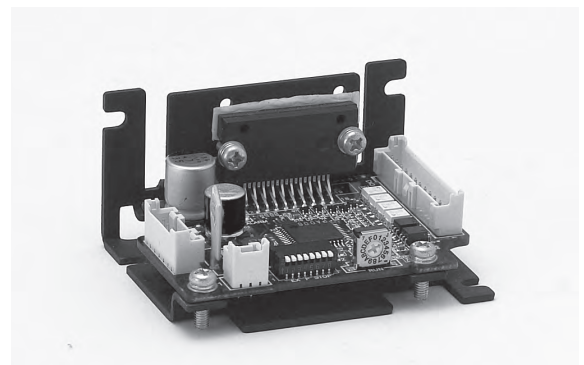
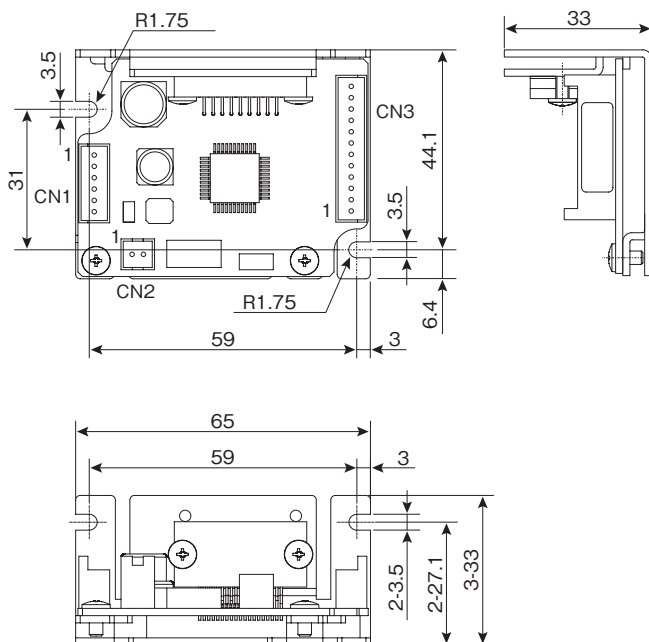


## CHARACTERISTICS

MODEL NAME		UNIPOLAR
		SDU22C701
<b>Specification items</b>		
Power	Input voltage	DC 24 V
	Current consumption	3 A
Driving method		Unipolar chopper drive
Function switch	Pulse input mode	1 pulse input mode / 2 pulse input mode
	Running current	0 - 2.73A (16 steps)
	Holding current	0 - 2.09A (10 steps)
	Step division	Full, Half, 1/4, 1/8, 1/16
Input		<ul style="list-style-type: none"> <li>• CW/CCW signal (Pulse and direction signal)</li> <li>• Current Enable / Disable</li> <li>• Step division Enable / Disable</li> <li>• Auto power down Enable / Disable * Photocoupler insulation</li> </ul>
Output		Excitation timing signal
Indicator	LED	Power X1 StatusX1
Protective functions		Excessive current protection & Excessive temperature protection
Operating condition	Ambient temperature	0-45 deg. C
	Ambient humidity	85% or less (No condensing and no freezing)

## DIMENSIONS

### ■ SDU22C701

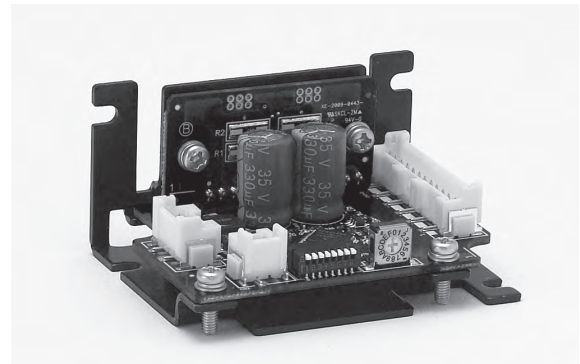
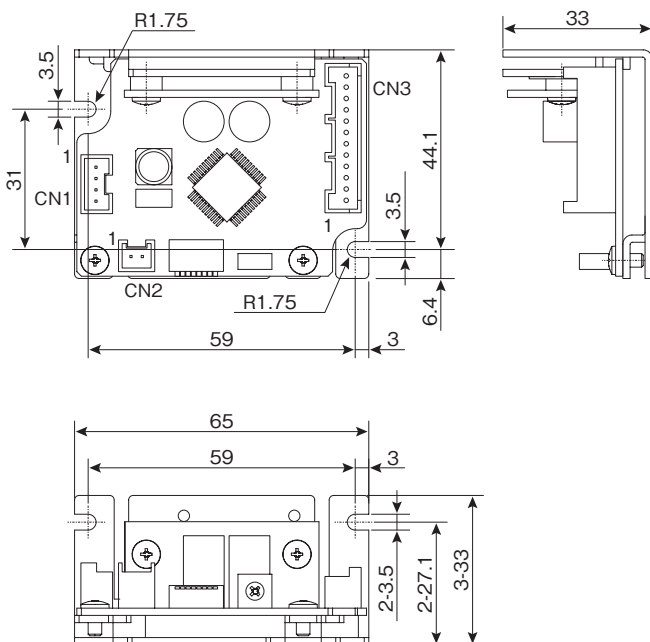


## CHARACTERISTICS

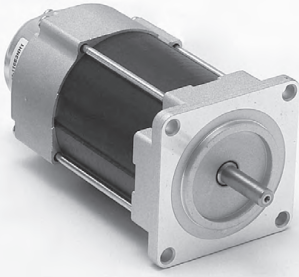
MODEL NAME		BIPOLAR
		SDB21C702
<b>Specification items</b>		
Power	Input voltage	DC 24 V
	Current consumption	1.5 A
Driving method		Bipolar chopper drive
Function switch	Pulse input mode	1 pulse input mode / 2 pulse input mode
	Running current	0 - 1.5A (16 steps)
	Holding current	0 - 1.5A (16 steps)
	Step division	Full, Half, 1/4, 1/8, 1/16
Input		<ul style="list-style-type: none"> <li>• CW/CCW signal (Pulse and direction signal)</li> <li>• Current Enable / Disable</li> <li>• Step division Enable / Disable</li> <li>• Auto power down Enable / Disable * Photocoupler insulation</li> </ul>
Output		Excitation timing signal
Indicator	LED	Power X1 StatusX1
Protective functions		Excessive current protection & Excessive temperature protection
Operating condition	Ambient temperature	0-45 deg. C
	Ambient humidity	85% or less (No condensing and no freezing)

## DIMENSIONS

### ■ SDB21C702



# Servo Motor & Driver



## ■ Servo Motor: LA052 (Encoder model)

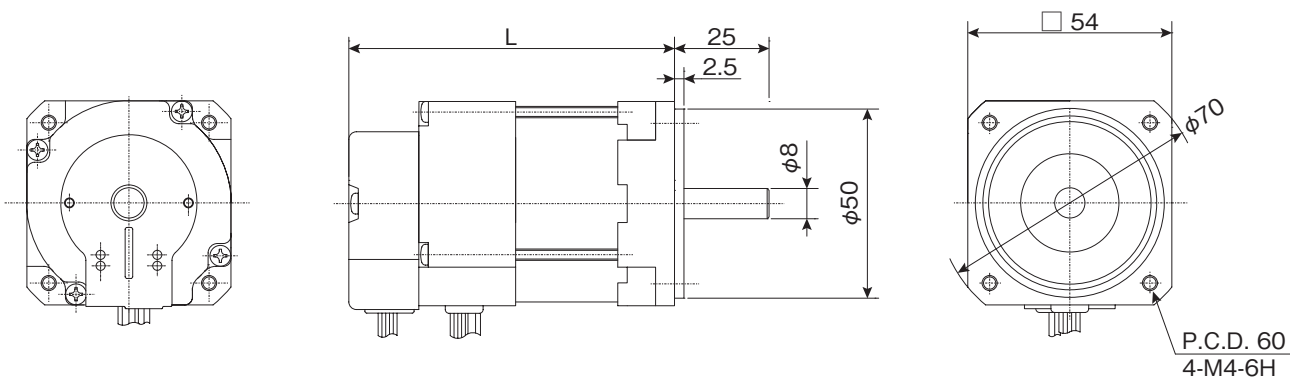
### CHARACTERISTICS

MODEL NAME	RATED OUTPUT		RATED SPEED r/min	RATED TORQUE N·m	RATED CURRENT A	TORQUE CONSTANT N·m/A	BACK EMF CONSTANT V·s/rad	PHASE RESISTANCE $\Omega$	PHASE INDUCTANCE mH	INSTANTANEOUS PEAK TORQUE N·m	MAX. SPEED r/min	ROTOR INERTIA g·cm <sup>2</sup>	POWER RATE kW/s	MECHANICAL TIME CONSTANT ms	ELECTRICAL TIME CONSTANT ms	MASS kg
	W	V-DC														
LA052-040E	40	24	3,000	0.127	2.5	0.05	$5.0 \times 10^{-2}$	1.18	4.4	0.382	5,000	110	1.48	5.2	3.7	0.6
		75		0.127	0.9	0.148	$14.8 \times 10^{-2}$	11.0	42	0.382	5,000	110	1.48	5.5	3.8	0.6
LA052-080E	80	24	3,000	0.255	4.6	0.059	$5.9 \times 10^{-2}$	0.60	1.4	0.765	5,000	117	5.56	2.0	2.3	0.6
		75		0.255	1.8	0.191	$19.1 \times 10^{-2}$	6.2	14	0.765	5,000	117	5.56	2.0	2.3	0.6
LA052-110E	110	75	3,000	0.353	2.1	0.196	$19.6 \times 10^{-2}$	3.71	9.1	1.059	5,000	185	6.74	1.8	2.5	0.8

TYPE	OUTPUT CIRCUIT	RESOLUTION	NUMBER OF CHANNELS	POWER SUPPLY	CONSUMPTION CURRENT	OUTPUT VOLTAGE	PHASE OFFSET	FREQUENCY RESPONSE	OPERATING TEMP. RANGE
		P/R							
HALL SENSOR	OPEN COLLECTOR	—	C1, C2, C3	5±5%	40 max.	14.4 min. (I sink=15mA max.)	—	—	0°C~60°C (TEMPERATURE INSIDE OF ENCODER)
ENCODER	TTL COMPATIBLE	200, 400	A, B	5±10%	50 max.	V <sub>OH</sub> =2.4 min. V <sub>OL</sub> =0.4 max. (I sink=3.2mA)	a, b, c, d = 90°±45°	20 min.	

\*The values above are measured with aluminum mounting plate of 200x200x6mm

### DIMENSIONS



Length: L

MOTOR TYPE	ENCODER MODEL
LA052-040E	86.1mm
LA052-080E	86.1mm
LA052-110E	106.1mm



Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

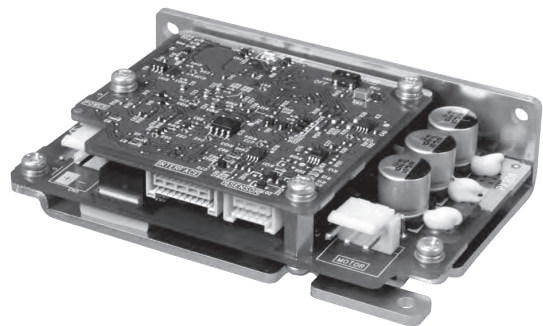
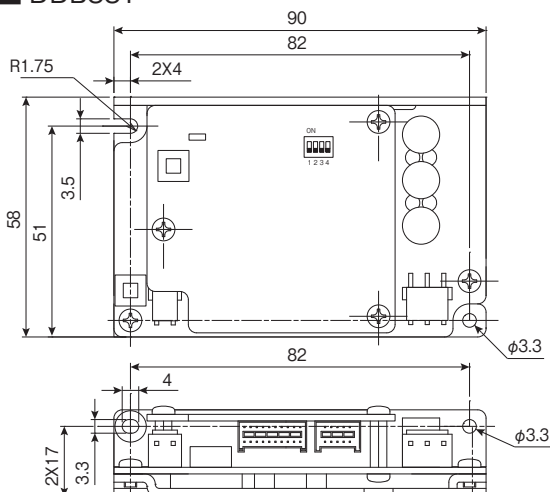
## CHARACTERISTICS

MODEL NAME		DDB33T Series		
<b>Specification items</b>				
Control Mode		Torque Control	Speed Control	Position Control
Rating	Input Voltage	DC 24 V		
	Input Current	3.3 A		
Control Signal		<ul style="list-style-type: none"> <li>Analog Input (0-100%)</li> <li>Command RS-485</li> </ul>	<ul style="list-style-type: none"> <li>Analog Input (0-100%)</li> <li>Command RS-485</li> </ul>	<ul style="list-style-type: none"> <li>Reference pulse input</li> <li>2 pulse input mode</li> <li>1 pulse input mode</li> <li>90 deg phase difference mode</li> <li>Command RS-485</li> </ul>
Parameter		<ul style="list-style-type: none"> <li>Electrical gear</li> <li>Gain</li> </ul>	<ul style="list-style-type: none"> <li>Error setting</li> <li>Basic settings for position control</li> </ul>	<ul style="list-style-type: none"> <li>Speed, Position and others</li> </ul>
Input	Multi purpose 2 Channels	Signals are selectable <ul style="list-style-type: none"> <li>Pulse (CW/PLS)/(CCW/DIR)</li> <li>Start / Stop</li> <li>Position clear</li> <li>Others</li> </ul>		
	Digital 2 Channels	<ul style="list-style-type: none"> <li>Alarm reset</li> <li>Servo On/ Off</li> </ul>		
	Analog 1 channel DC 0-5 V	Signals are selectable <ul style="list-style-type: none"> <li>Others</li> <li>Speed level</li> <li>Current level</li> </ul>		
Output	Multi purpose 2 Channels	Signals are selectable <ul style="list-style-type: none"> <li>Servo On/ Off</li> <li>Status</li> <li>Others</li> <li>Errors</li> <li>Ready/busy</li> </ul>		
	Analog 1 channel DC 0-5 V	Signals are selectable <ul style="list-style-type: none"> <li>Motor Torque</li> <li>Motor Speed</li> <li>Others</li> </ul>		
Protective Function		<ul style="list-style-type: none"> <li>Over voltage</li> <li>Under voltage</li> <li>Sensor signal error</li> <li>Over current</li> <li>Over heat</li> <li>Initial drive error</li> <li>Speed error</li> <li>Servo deviation</li> </ul>		
Operating Condition	Ambient Temperature	0 - 50 deg. C		
	Ambient humidity	85% or less (No condensing and no freezing)		

Characteristics are reference only. Feel free to contact sale office or sales agent for detailed information.

## DIMENSIONS

### DDB33T



# Brushless DC Motor Driver



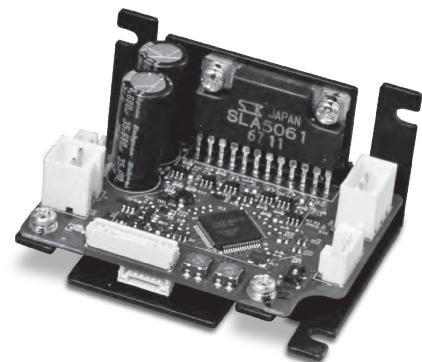
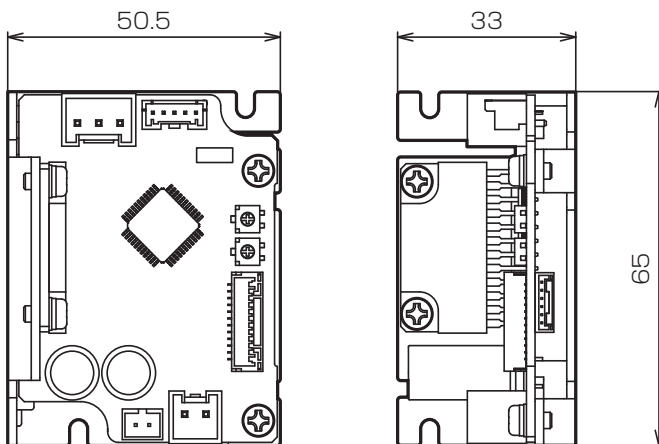
## CHARACTERISTICS

MODEL NAME		DDB32T Series			
Control Mode		Simple Torque Control		Speed Control	
Rating	Input Voltage	DC 24 V			
	Input Current	2.2 A			
Input	Digital 5 Channels	• Servo On/ Off	• Alarm reset	• Brake	• CW    • CCW
	Analog 1 channel DC 0-5 V	Signals are selectable			
Output	Digital 3 Channels	• Current level	• Speed level	• Others	
Indicator	LED	• Errors	• Speed	• Motor Direction	
Protective Function		• Power/Alarm : Orange	• Over voltage	• Over current	• Speed error
		• Under voltage	• Over heat		
		Blinking cycle indicates type of the protective function.			
Regenerative Resister		External			
Operating Condition	Ambient Temperature	0 - 50deg. C			
	Ambient humidity	85% or less_No condensing and no freezing			

Characteristics are reference only. Feel free to contact sale office or sales agent for detailed information.

## DIMENSIONS

### ■ DDB32T





Stepping Motor

BLDC Motor

Motor Driver

Other Motor



# Micropump

## FEATURES

Self-suction

Long-life

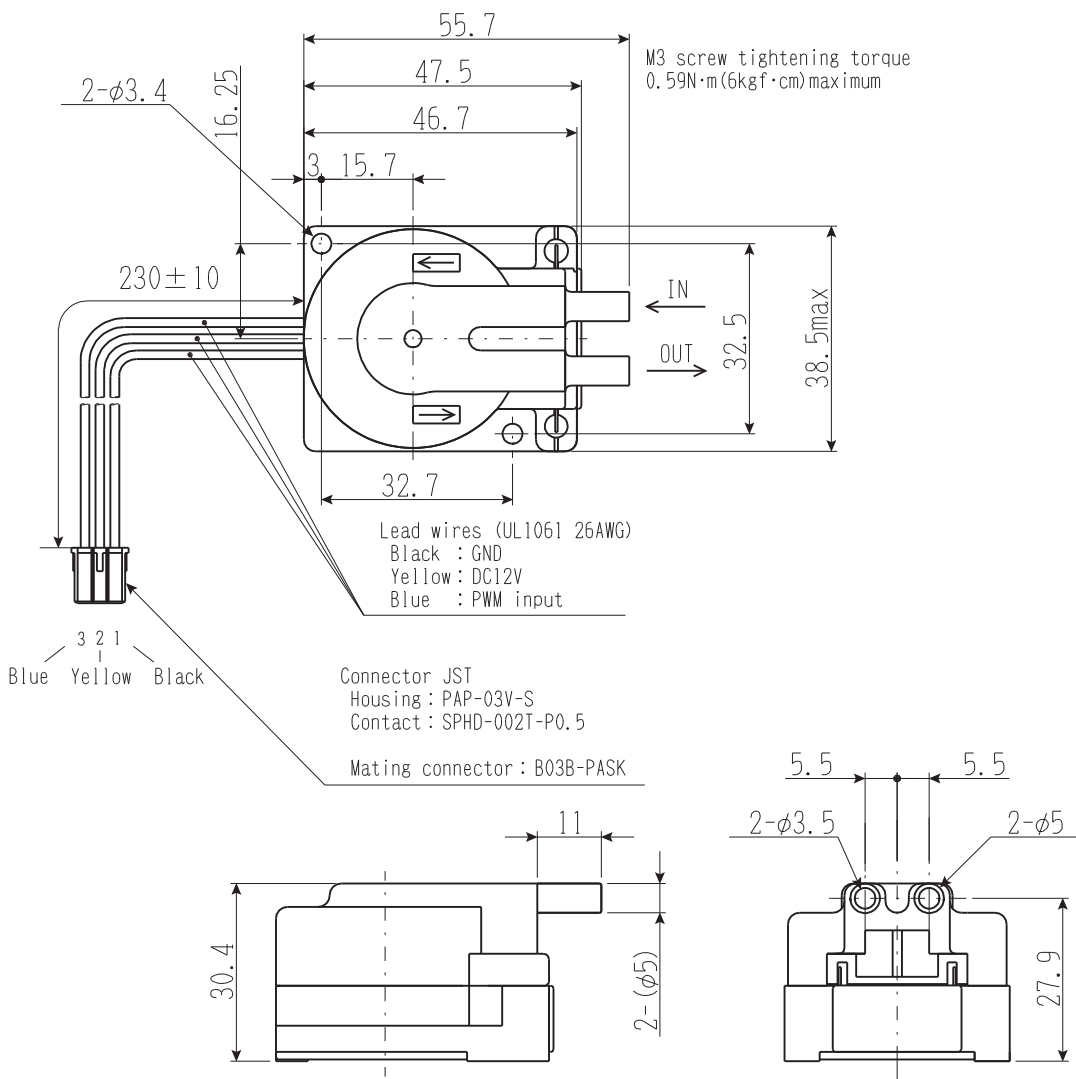
Silent design



## CHARACTERISTICS

MODEL	LIQUID TYPE	VOLTAGE	CURRENT	OPERATING TEMP.	LIQUID TEMP.	MAX FLOW	MAX PRESSURE	MASS
		V	A	Degree	Degree	ml / min	kPa	g
PPLT-01040-002	Water (Tap Water)	DC 12V	0.5	0 to 55	0 to 50	400	11	90
PPLP-03060-001	Antifreeze Solution (Propylene-Glycol)	DC 12V	0.45	0 to 55	0 to 65	530	27	90

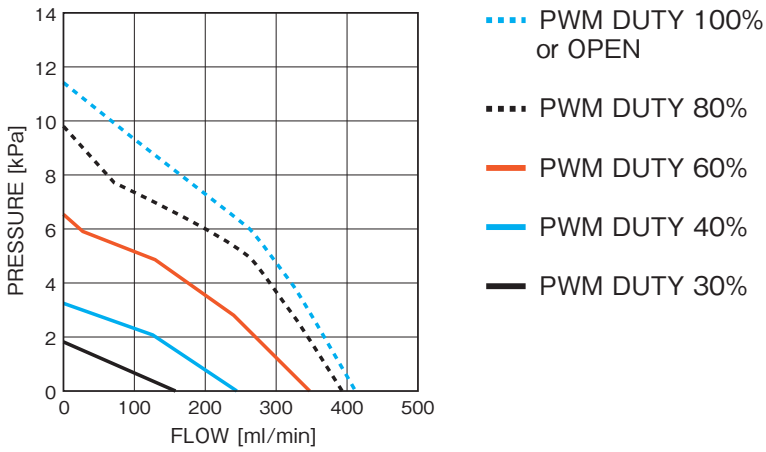
## DIMENSIONS [EXAMPLE]



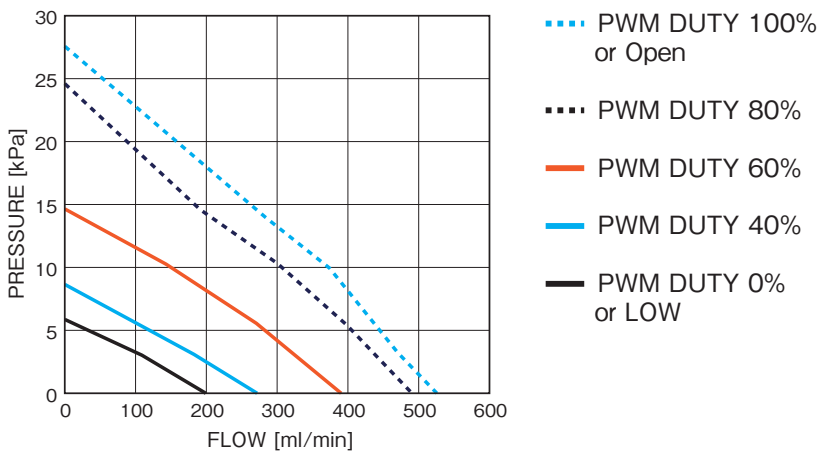


**Performance curve (Reference at DC12V input)**

PPLT-01040-002



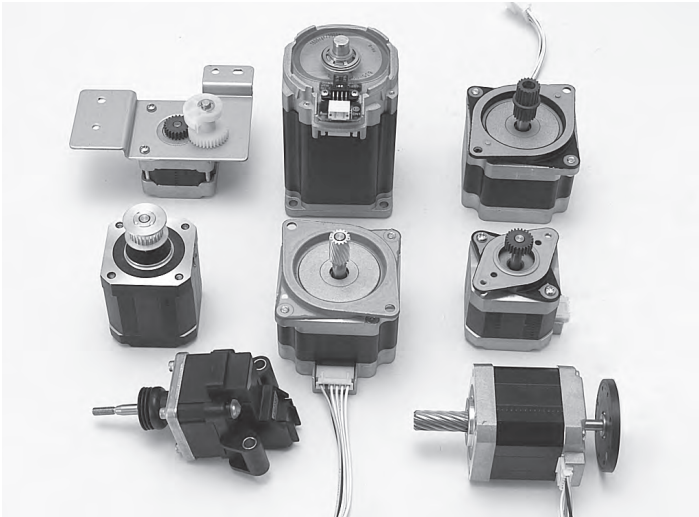
PPLP-03060-001



**i** Characteristics are reference only. Feel free to contact sales office or sales agent for detailed information.

Stepping Motor  
BLDC Motor  
Motor Driver  
Other Motor

# Customization Examples



## Shaft customization

- Helical gear
- Knurl
- Key groove
- Flat / Double flats
- Press fit gear / pulley

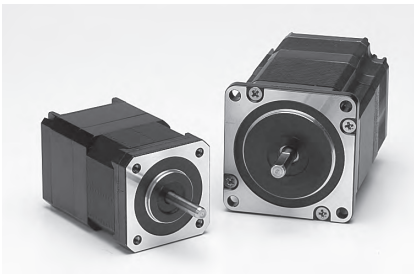
## Mounting customization

- Attachment plate
- Unique bracket
- Mount damper
- Extra holes

## Other customization

- Roll damper
- Optical / Magnetic encoder
- Brake

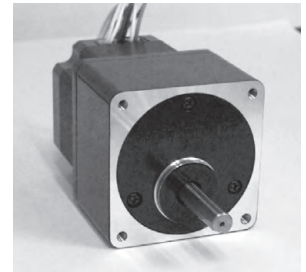
## Driver and Controller Integrated Stepping Motor



## Geared Stepping Motor

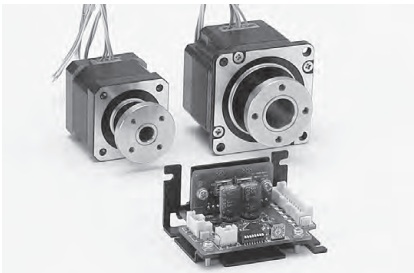


□ 42 gear box



□ 60 gear box

## Hollow shaft Stepping Motor



## Blower Assembly



Stepping Motor

BLDC Motor

Motor Driver

Other Motor

# 2 Phase hybrid stepping motor inquiry form

---

## Your information

Company

Section

Name

Phone

Fax

E-mail

## Your technical requirements

	Specification items	Request
Spec	Base motor (Please circle)	28D / 35D / 36C / 42C / 42D / 43D 45D / 56C / 56D / 59D / 60D / 86D
	Motor length	mm (max)
	Step angle (Full step)	1.8° / STEP                      0.9° / STEP
	Winding type	<input type="checkbox"/> Unipolar <input type="checkbox"/> Bipolar
	Driver type	Chopper (Constant current drive)                      Constant voltage drive
	Input voltage	DC                      V
	Rated current	A
	Pulse rate	pps
	Holding torque	mN·m
	Pull out torque	mN·m
	Excitation mode	Full step / Half step / Micro step (                      division)
	Others	..... ..... .....
	Condition	Operating temperature
Operating humidity		~                      %RH
Special note		..... ..... .....

## Drawings and sketch

# Brushless DC motor inquiry form

## Your information

Company

Section

Name

Phone

Fax

E-mail

## Your technical requirements

	Specification items	Request
Spec	Motor size	Outer diameter                      mm                      Length                      mm
	Motor power	Output                      W
	Input voltage	DC                      V AC                      V                      Hz
	Rated current	A
	Rated Speed	r/min
	Load condition	Torque                      mN·m                      (Motor)
		Air Flow                      M <sup>3</sup> /min                      · Pressure                      Pa                      (Blower Motor)
	Gear ratio (if available)	
	Shaft diameter	mm
	Shaft shape	Flat / Round / Others (                      )
	Mounting orientation	Shaft horizontal / Shaft vertical / Other
	Drive circuit	Integrated / External / Not necessary
	Control circuit	Integrated / External / Not necessary
	Life	H
	Noise level	dB
	Rotative direction	CW / CCW / 2way
	Protection and safety	Yes / No
If Yes: Oil / Water / Vibration / Others (                      )		
Others	..... ..... .....	
Condition	Operating temperature	to                      deg.C
	Operating humidity	to                      %RH
	Special note	..... ..... .....

## Drawings and sketch

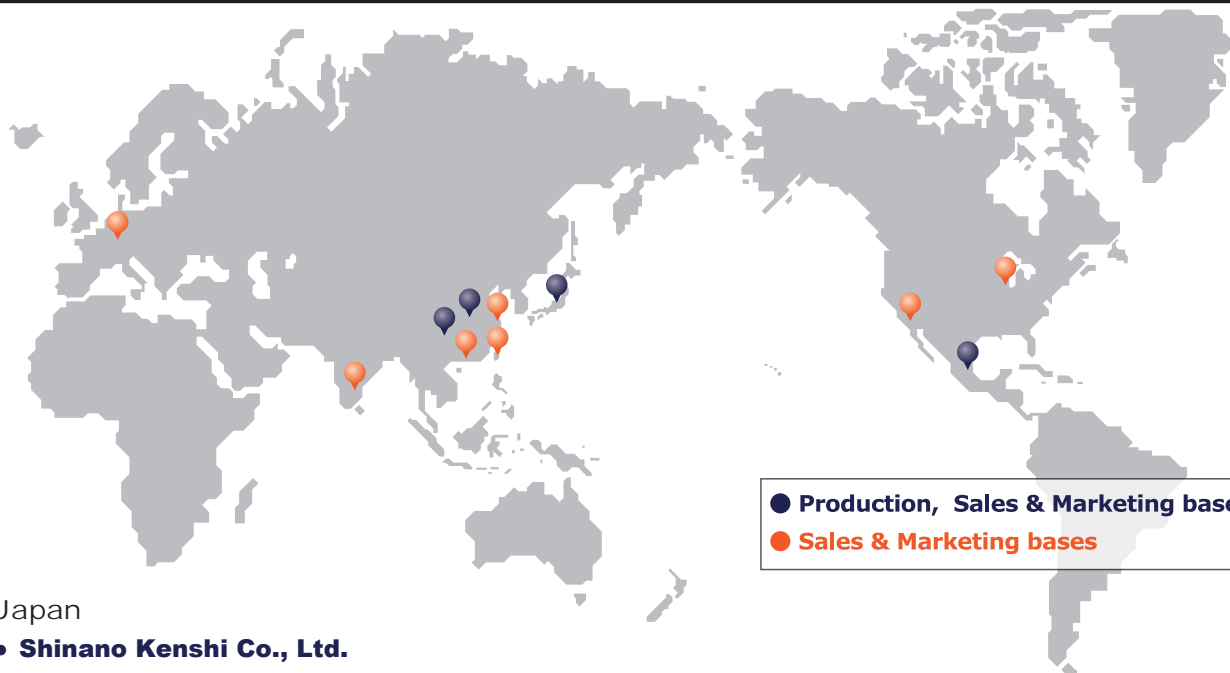
Stepping Motor

BLDC Motor

Motor Driver

Other Motor

# ASPINA Business Locations



## Japan

- **Shinano Kenshi Co., Ltd.**

Address: 1078, Kami-maruko, Ueda-shi, Nagano-ken,  
386-0498, JAPAN

- **Car Mechatronics Business Unit**

Phone: (+81)268-41-1861

- **Automating Life & Work Business Unit**

Phone: (+81)268-75-5796

- **Medical Engineering Business Unit**

Phone: (+81)268-41-1833

- **Life Environment Business Unit**

Phone: (+81)268-41-1824

## China

- **Dongguan Shinano Motor Co., Ltd.**

Address: Xiangxin West Road, Yantian Village, Fenggang  
Town, Dongguan City, Guangdong Province, CHINA

Phone: (+86)769-87772818 Fax: (+86)769-87772134

E-mail: skyyingye@shinanomotor.com

- **Hefei Shinano Motor Co., Ltd.**

Address: No.59, Fenglin Road, Shuangfeng Economic  
Development Zone, Changfeng County, Hefei City,  
Anhui Province, CHINA

Phone: (+86)551-65689688 Fax: (+86)551-65689588

- **Dongguan Shinano Motor Co., Ltd.  
Shanghai Sales Office**

Address: Room 907, Pine City Hotel, No.8 Dongan Road,  
Xuhui District, Shanghai City 200032, CHINA

Phone: (+86)21-644-30521 Fax: (+86)21-644-38583

E-mail: skseigyo@skcj.com.cn

- **Shinano Kenshi (Hong Kong) Co., Ltd.**

Address: Section D, 24th Floor, Southeast Industrial  
Building, 611-619, Castle Peak Road, Tsuen Wan,  
New Territories, HONG KONG

Phone: (+852)2411-0013 Fax: (+852)2413-6338

E-mail: shinano\_hksales@skcj.co.jp

- **Shinano Kenshi Co., Ltd.  
Taipei Representative Office**

Address: Room 3A38, Taiwan External Trade Development  
Council, No.5, Hsinyi Road, Section 5, Taipei City  
11011, TAIWAN

Phone: (+886)28786-1588 Fax: (+886)28786-1589

E-mail: shinano\_twsales@skcj.co.jp

## USA

- **Shinano Kenshi Corporation**

Address: 6065 Bristol Parkway, Culver City, California  
90230 U.S.A.

Phone: (+1)310-693-7600 Fax: (+1)310-693-7599

E-mail: info@shinano.com

- **Shinano Kenshi Corporation Detroit Office**

Address: 30201 Orchard lake Road, Suite 255, Farmington  
Hills, Michigan, 48334 U.S.A.

Phone: (+1)248-419-3272 Fax: (+1)248-419-3273

## Mexico

- **Shinano Kenshi, S.A. de C.V.**

Address: Avenida Rio Mississippi 1043,  
Parque Technoindustrial Castro del Rio, Irapuato,  
Guanajuato, C.P.36815, MEXICO

Phone: (+52)1-462-693-7154

## Europe

- **Shinano Kenshi Europe GmbH**

Address: Mergenthalerallee 77, 65760 Eschborn, GERMANY

Phone: (+49)6196-96980-0 Fax: (+49)6196-96980-20

E-mail: motor@shinano.de

## India

- **Shinano ABV Technologies Private Limited**

Address: Plot 131, Kiadb Industrial Area, Bommasandra-  
Jigani Link Road, Jigani, Bangalore 560105, INDIA

Phone: (+91)80-6633-8872 Fax: (+91)80-6633-8861

E-mail: sales@shinano.in



# ASPINA Plants



## Headquarters in Japan Shinano Kenshi Co., Ltd.

1078, Kami-maruko,  
Ueda-Shi, Nagano-ken, 386-0498, JAPAN



## China Plant Dongguan Shinano Motor Co., Ltd.

Xiangxin West Road, Yantian Village, Fenggang Town,  
Dongguan City, Guangdong Province, CHINA  
Phone: (86)769-87772818 Fax: (86)769-87772134



### Access information:

From Hong Kong airport to KCR Lo Wu station.  
Approximately 40 minutes drive from KCR Lo Wu station.

## Hefei Shinano Motor Co., Ltd.

No.59, Fenglin Road,  
Shuangfeng Economic Development Zone, Changfeng County,  
Hefei City, Anhui Province, CHINA  
Phone: (86)551-65689688 Fax: (86)551-65689588



## Mexico Plant Shinano Kenshi, S.A. de C.V.

Address: Avenida Rio Mississippi 1043,  
Parque Technoindustrial Castro del Rio, Irapuato,  
Guanajuato, C.P.36815, MEXICO  
Phone: (+52)1-462-693-7154



# MEMO



# ASPINA

Engineered to Inspire

Model number, specification and the other description in this catalog are subject to change for motor improvement without any announcement in advance.  
Please contact above in that case.