



 **MABUCHI MOTOR**
MABUCHI MOTOR MICRO TECH CO., LTD.

10 Jumonji, Shibukawa, Nihonmatsu,
Fukushima 969-1403, Japan

<https://www.mabuchi-microtech.jp/>



PRODUCTS CATALOG

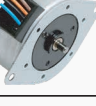
MABUCHI MOTOR MICRO TECH CO., LTD.

Line-up

Brushless motor

Model	Appearance	Size [mm]	Mass [g]	Nominal Voltage [V]	Stall torque [mNm]	Maximum output [W]
TB12M		Φ12×27	18.5	12~24	18~25	5~10

Stepping motor

Series	Appearance	Size [mm]		Step angle [°]	Standard mounting pitch	Driving method	
		Externals	Thickness			Bipolar	Unipolar
KFL25L		Φ25	15.8	7.5	32	○	○
KVL35S		Φ35	8.9	3.75	42	○	○
KJL35S		Φ35	15.2	7.5	42	○	○
KJL35L		Φ35	19.6	7.5	42	○	○
KBL42S		Φ42	16	7.5	49.5	○	○
KBL42L		Φ42	22.9	7.5	49.5	○	○
KCL42S		Φ42	16	7.5	49.5	○	○
KDL42S		Φ42	16	3.75	49.5	○	○
KFL42L		Φ42	23.9	7.5	49.5	○	○
KFL49L		Φ49	29.5	7.5	59.5	○	○

Geared motor

Series	Appearance	Size [mm]		Resistance value [Ω]	Gear ratio	Step angle [°]	Driving method	
		Externals	Thickness				Bipolar	Unipolar
KFG20A		Φ20	20.7	34.5	1/12	1.25	○	—
				70/160	1/12	1.25	—	○
					1/24	0.625	—	○
KFG25A		Φ25	27.6	98.5/125	1/7.5	1	—	○
					1/12.5	0.6	—	○
					1/20	0.375	—	○
KFG25H		Φ25	27.6	30/64	1/4	1.875	—	○
					1/7.5	1	—	○
					1/12.5	0.6	—	○
KFG30A		Φ30	18	15	1/5	3	○	—
KFG42B		Φ42	25.9	6.5	1/2.5	3	○	—
				15			—	○
KFG42S		Φ42	16.4	8.7	1/2.5	3	○	—
				17/21			—	○

Rotary Solenoid(Swing Selector)

Series	Appearance	Type	Standard switching angle [°]	Size [mm]		Shaft diameter
				Width	Thickness	
KSA30H		Small type	20	32	16	Φ6
KSA40F		Large type	30	40	19	Φ6
KSD35H		Hollow shaft Type	20	35	14.7	Φ8

Gas Valve

Series	Appearance	Type	Size [mm]	
			Externals	Thickness
KBA35		Motor type	Φ35	20.7

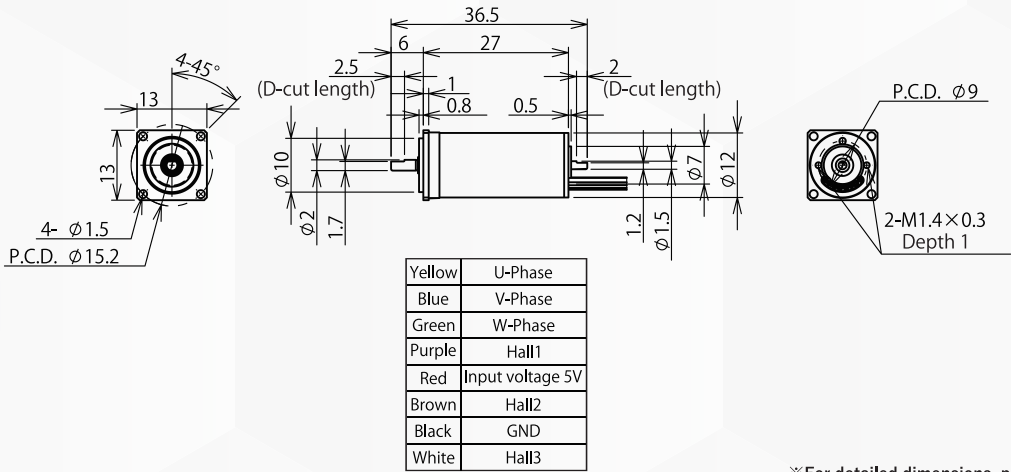
TB12M - Thumbelina® -

TB12M - Thumbelina® -

Specs

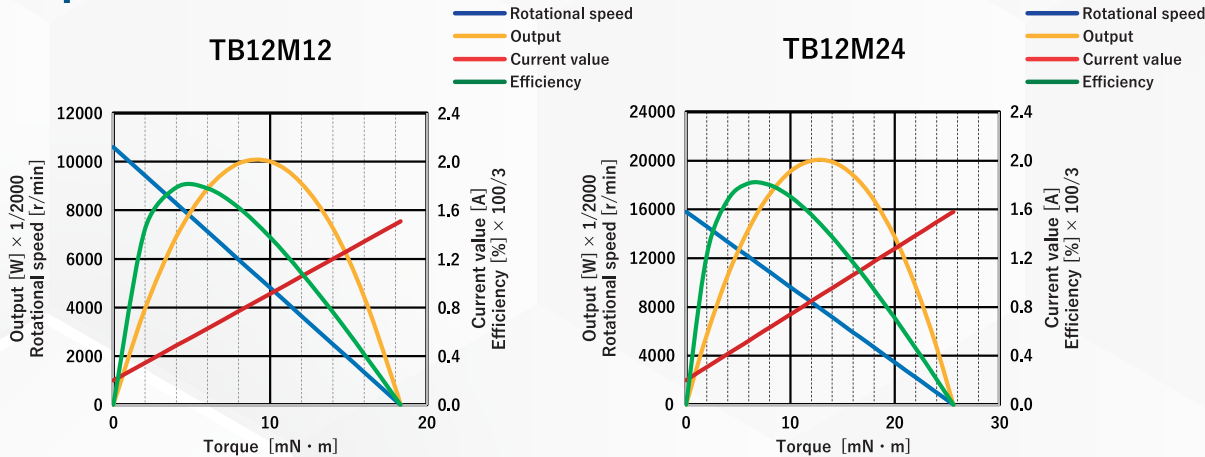
Model	TB12M12	TB12M24
Nominal voltage	12V	24V
No-load speed	10,000r/min	15,000r/min
No-load current	0.2A	0.2A
Rated torque	6mN・m	6mN・m
Rotational speed at rated torque	7,000r/min	12,000r/min
Current at rated torque	0.6A	0.5A
Maximum output	5W	10W
Maximum efficiency	60%	60%
Stall torque	18mN・m	25mN・m
Terminal resistance	4Ω	8Ω
Torque constant	13mN・m/A	17mN・m/A
Speed/torque gradient	550 (r/min) /mN・m	600 (r/min) /mN・m

Exterior view



※For detailed dimensions, please contact us.

Torque characteristics



※Thumbelina is registered trademark of MABUCHI MOTOR MICRO TECH CO., LTD.
※These characteristics are catalog values, not guaranteed values.
※For detailed characteristics or specifications other than those listed above, please contact us separately.
※Please verify the temperature rise on the actual equipment during use.

Three-phase brushless motors
Thumbelina®
Motors with options

We offer motors with options,
including four types of small reduction gears
and an encoder mounted on the Thumbelina®.

The encoder is a magnetic type with a resolution of 1024ppr.
Signals can be selected from ABZ, ±ABZ, SSI, ±SSI, and SinCos.



Harmonic Drive® □13
with encoder

Reduction ratio : 1/30 1/50 1/100



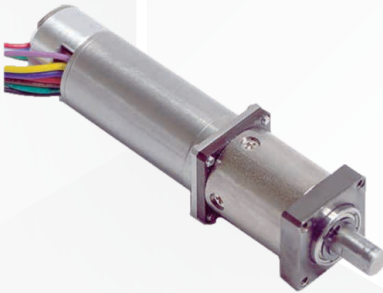
Harmonic Drive® □20
with encoder

Reduction ratio : 1/30 1/50 1/100



CROWN ROBOXGEAR □13
with encoder

Reduction ratio : 1/50



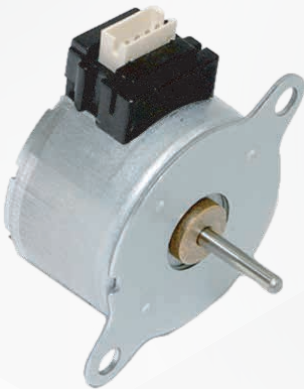
Planetary □13
with encoder

Reduction ratio : 1/4 1/16 1/48 1/64 1/256

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※Harmonic Drive is a registered trademark of Harmonic Drive Systems Inc.

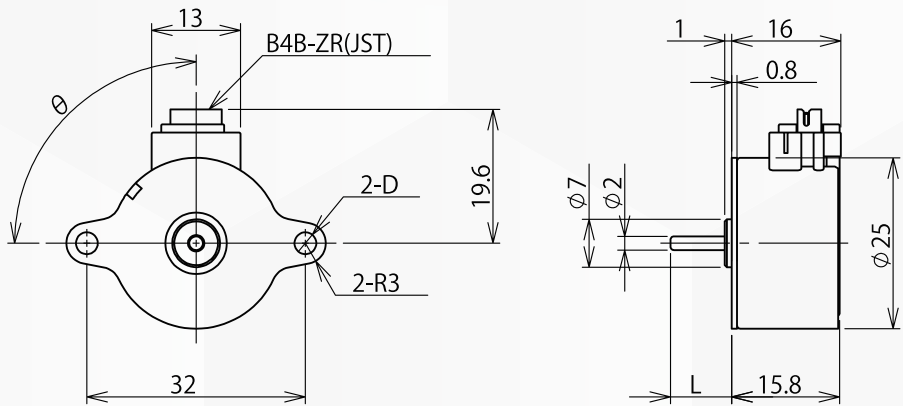
KFL25L

Specs



Model	KFL25L	
Drive method	Bipolar constant current	Unipolar constant current
Coil resistance	5Ω	4.7Ω
Step angle	7.5°	
Number of steps	48	
Insulation resistance	100MΩMin (DC500V)	
Dielectric strength	AC500V (50Hz,1min.)	
Insulation Class	Class E	

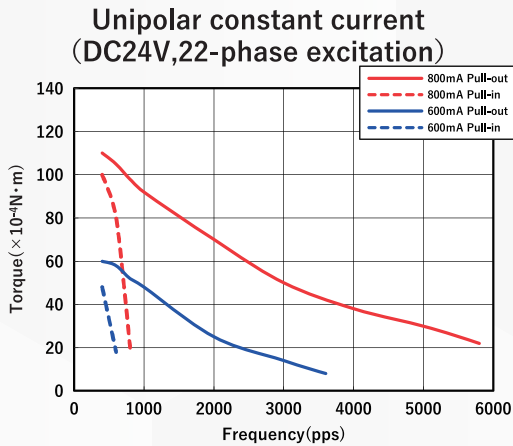
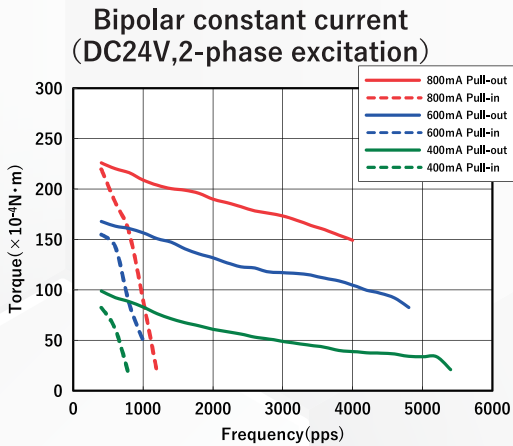
Exterior view



D	θ
Φ3.2 M3Burring	0° 15° 30° 45° 60° 75° 90° 105° 120° 135° 150° 165°

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※For detailed dimensions, please contact us.

Torque characteristics



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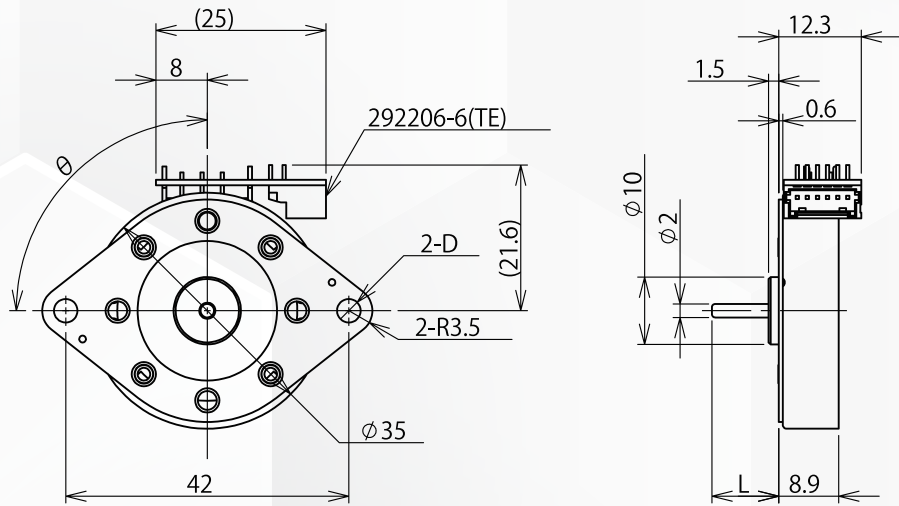
KVL35S

Specs



Model	KVL35S	
Drive method	Bipolar constant current	Unipolar constant current
Coil resistance	4.8Ω	4.7Ω
Step angle	3.75°	
Number of steps	96	
Insulation resistance	100MΩMin (DC500V)	
Dielectric strength	AC500V (50Hz,1min.)	
Insulation Class	Class E	

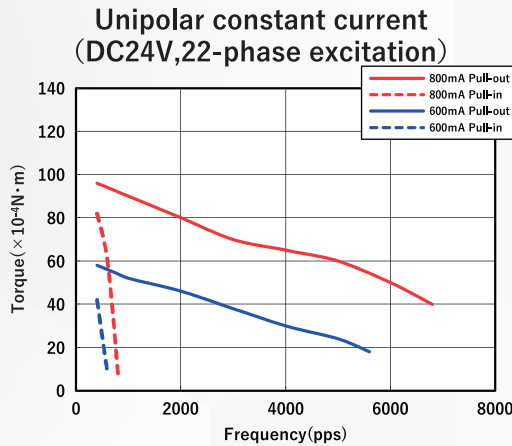
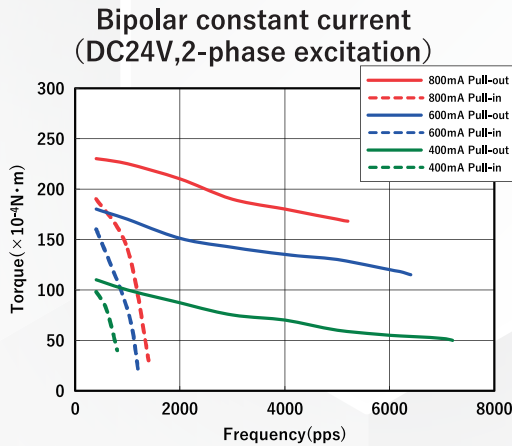
Exterior view



D	θ
Φ3.5 M3Burring Φ2.7Burring	45° 60° 90° 105° 135° 150°

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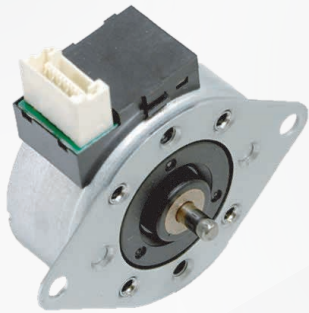
Torque characteristics



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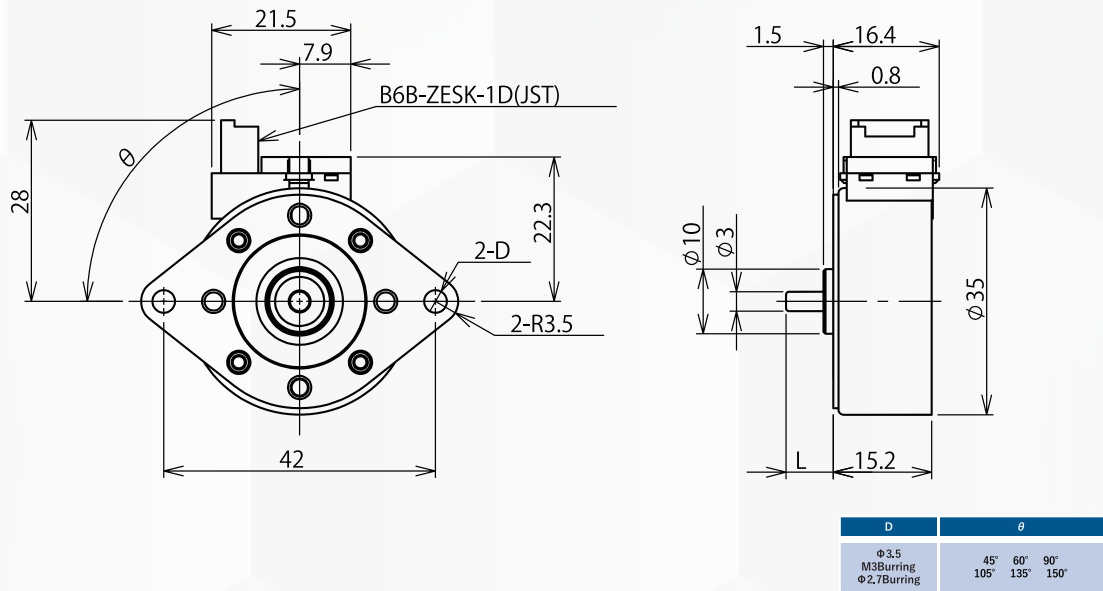
KJL35S

Specs



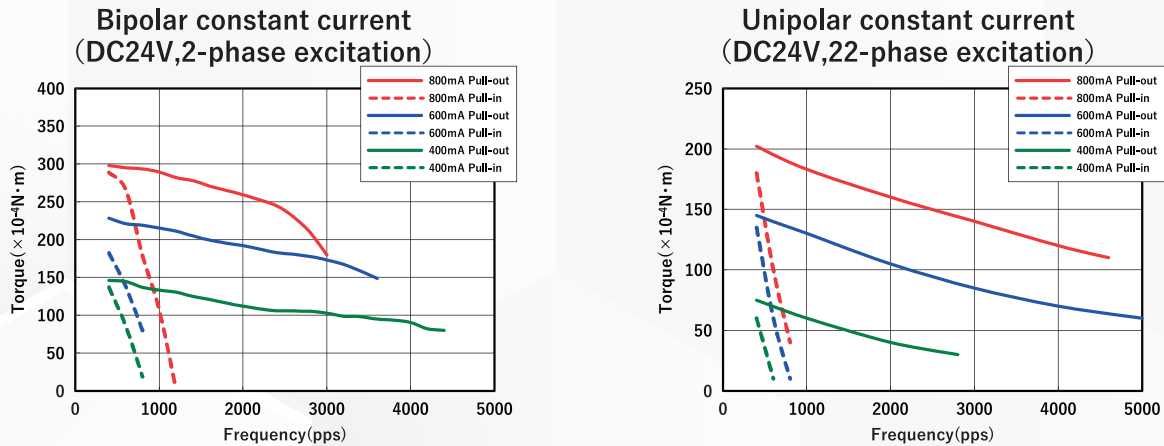
Model	KJL35S	
Drive method	Bipolar constant current	Unipolar constant current
Coil resistance	4Ω	5.2Ω
Step angle	7.5°	
Number of steps	48	
Insulation resistance	100MΩMin (DC500V)	
Dielectric strength	AC500V (50Hz,1min.)	
Insulation Class	Class E	

Exterior view



※The drawing shown is for the unipolar specification.
※For detailed dimensions, please contact us.

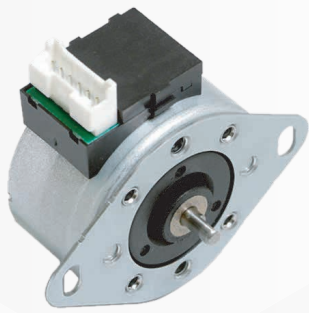
Torque characteristics



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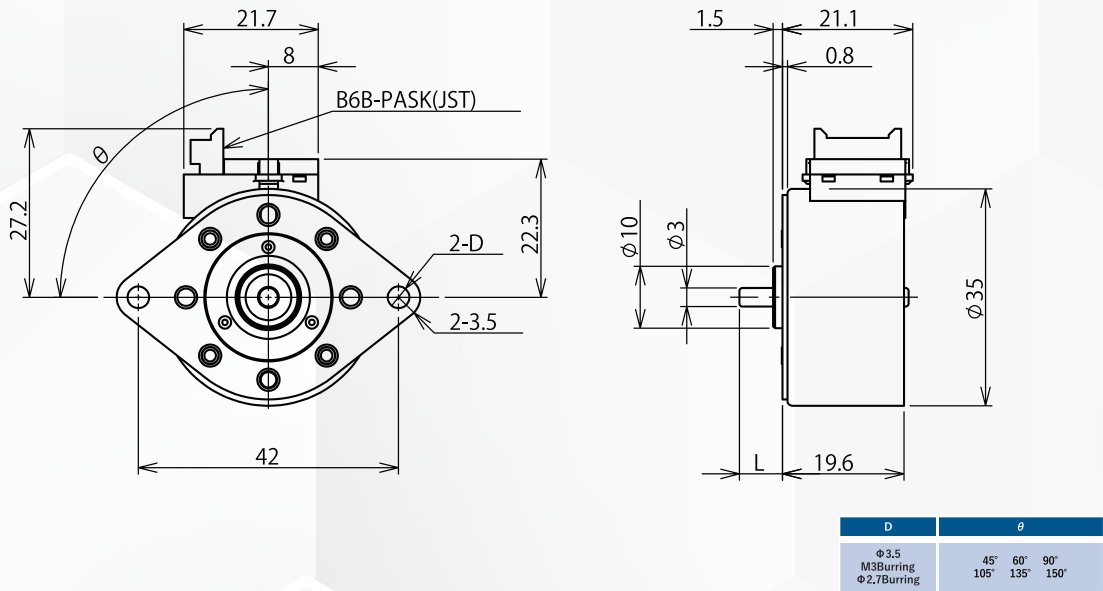
KJL35L

Specs



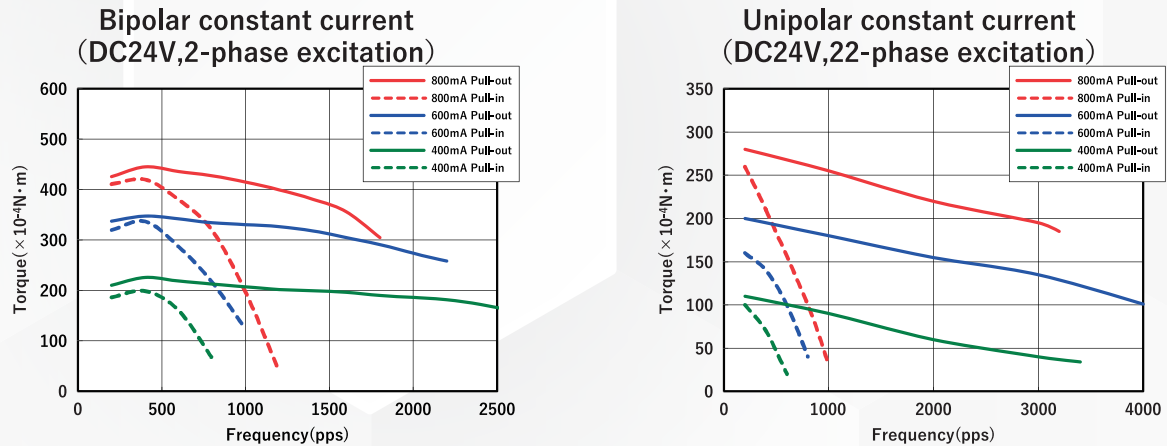
Model	KJL35L	
Drive method	Bipolar constant current	Unipolar constant current
Coil resistance	5Ω	5.2Ω
Step angle	7.5°	
Number of steps	48	
Insulation resistance	100MΩMin (DC500V)	
Dielectric strength	AC500V (50Hz,1min.)	
Insulation Class	Class E	

Exterior view



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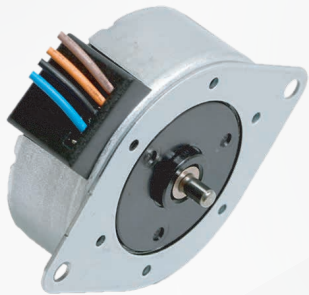
Torque characteristics



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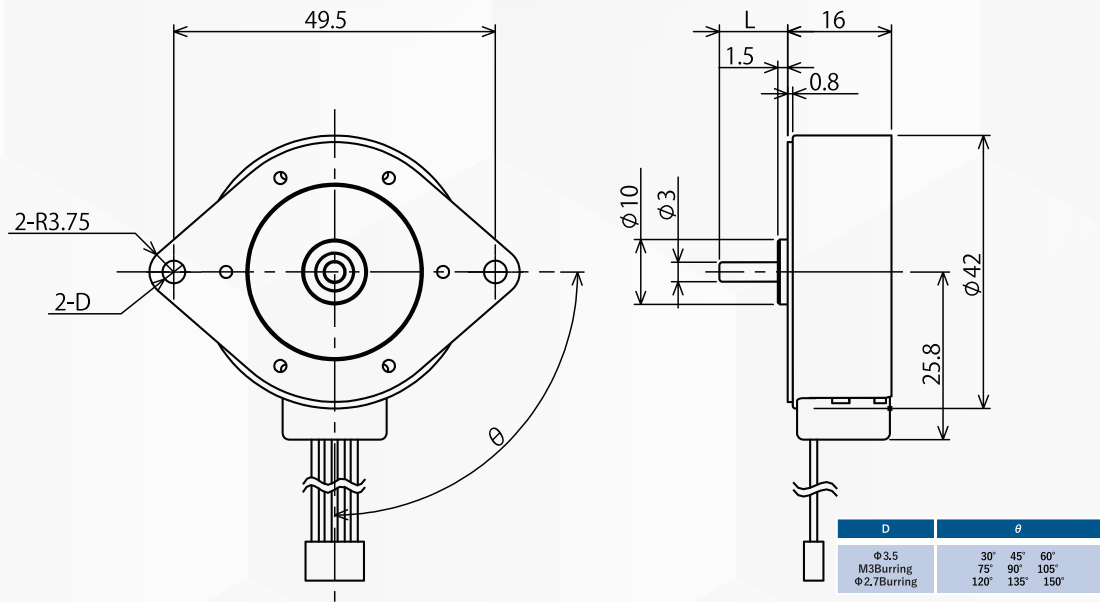
KBL42S

Specs



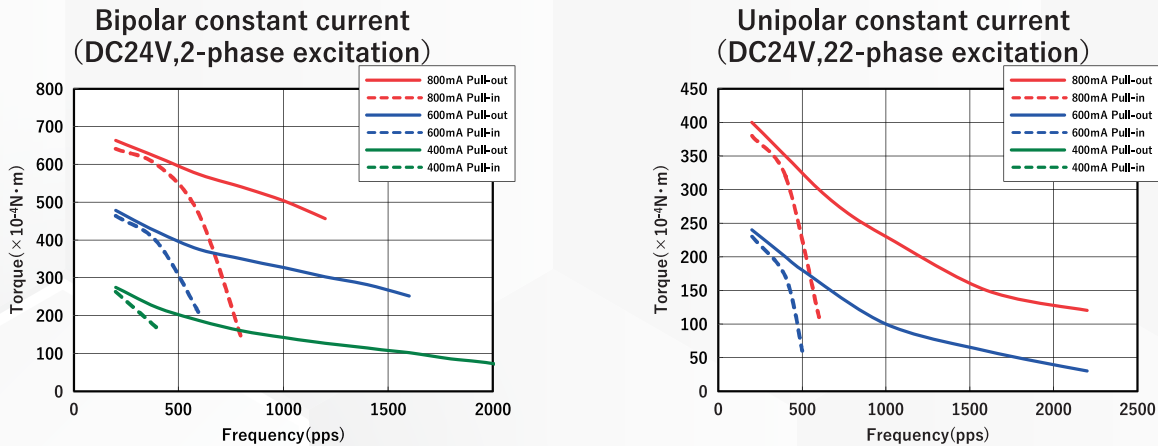
Model	KBL42S	
Drive method	Bipolar constant current	Unipolar constant current
Coil resistance	4.9Ω	5Ω
Step angle	7.5°	
Number of steps	48	
Insulation resistance	100MΩMin (DC500V)	
Dielectric strength	AC500V (50Hz,1min.)	
Insulation Class	Class E	

Exterior view



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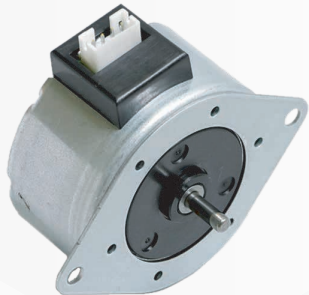
Torque characteristics



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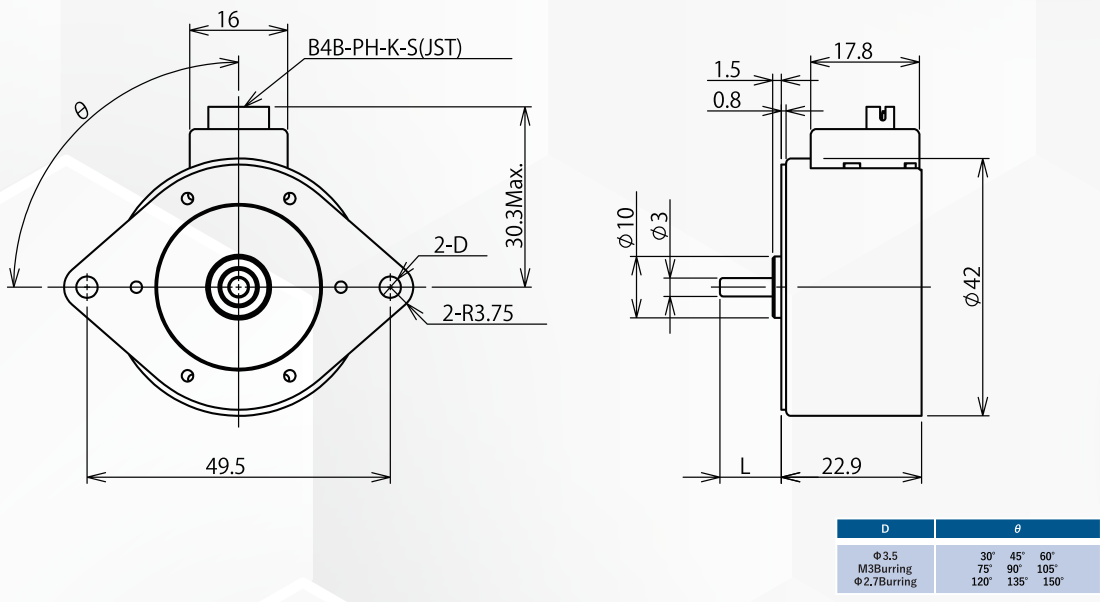
KBL42L

Specs



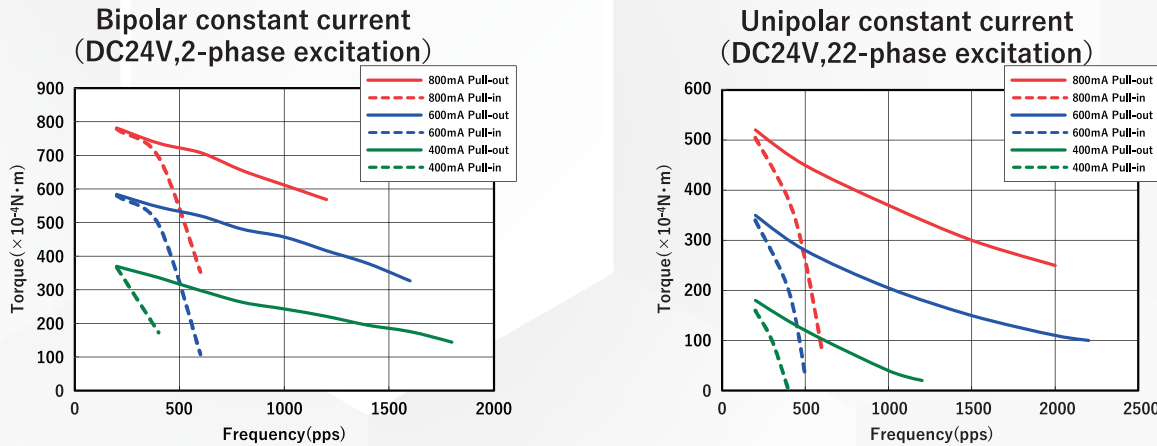
Model	KBL42L	
Drive method	Bipolar constant current	Unipolar constant current
Coil resistance	4.3Ω	5.2Ω
Step angle	7.5°	
Number of steps	48	
Insulation resistance	100MΩMin (DC500V)	
Dielectric strength	AC500V (50Hz,1min.)	
Insulation Class	Class E	

Exterior view



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Torque characteristics



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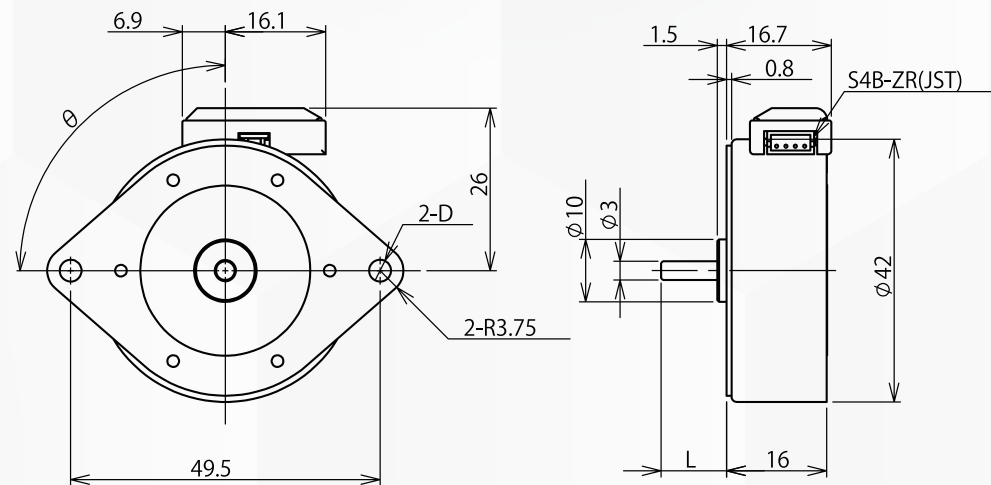
KCL42S

■ Specs



Model	KCL42S	
Drive method	Bipolar constant current	Unipolar constant current
Coil resistance	5 Ω	5.1 Ω
Step angle	7.5°	
Number of steps	48	
Insulation resistance	100MΩMin (DC500V)	
Dielectric strength	AC500V (50Hz,1min.)	
Insulation Class	Class E	

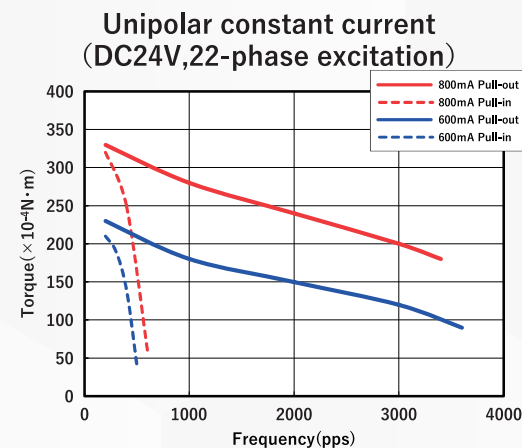
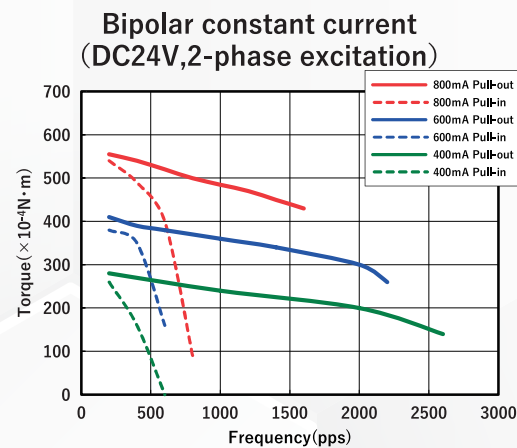
■ Exterior view



D	θ		
$\Phi 3.5$	30°	45°	60°
M3Burring	75°	90°	105°
$\Phi 2.7$ Burring	120°	135°	150°

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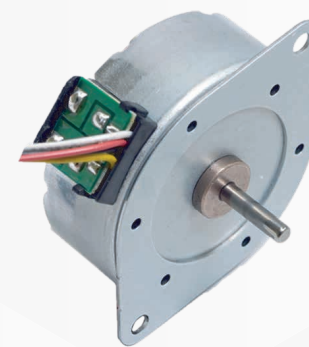
■ Torque characteristics



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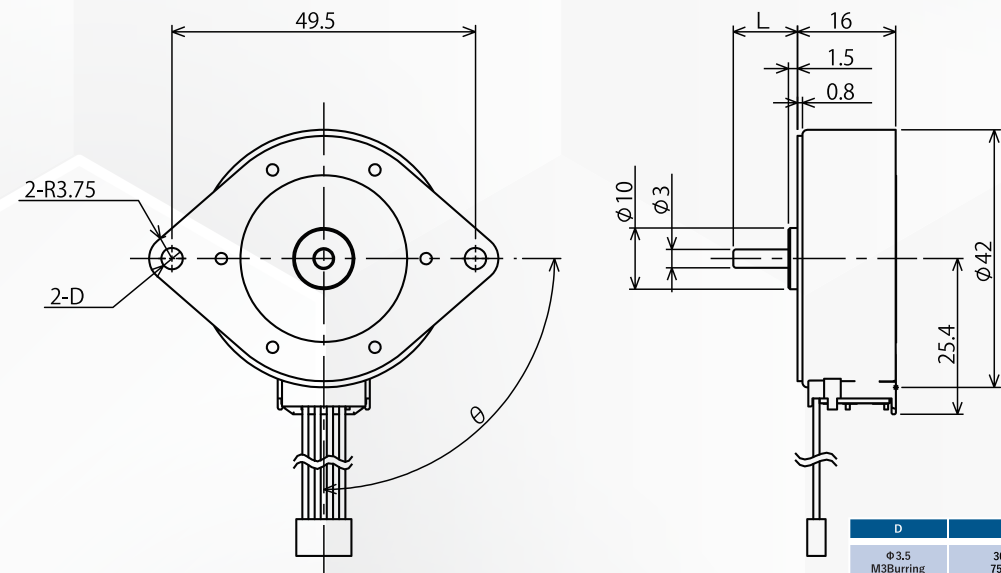
KDL42S

■ Specs



Model	KDL42S	
Drive method	Bipolar constant current	Unipolar constant current
Coil resistance	5Ω	5.1Ω
Step angle	3.75°	
Number of steps	96	
Insulation resistance	100MΩ Min (DC500V)	
Dielectric strength	AC500V (50Hz,1min.)	
Insulation Class	Class E	

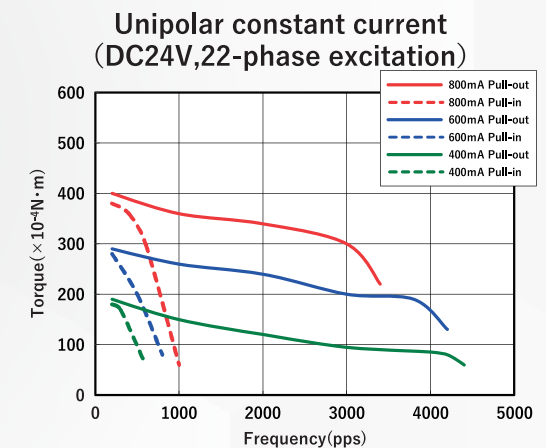
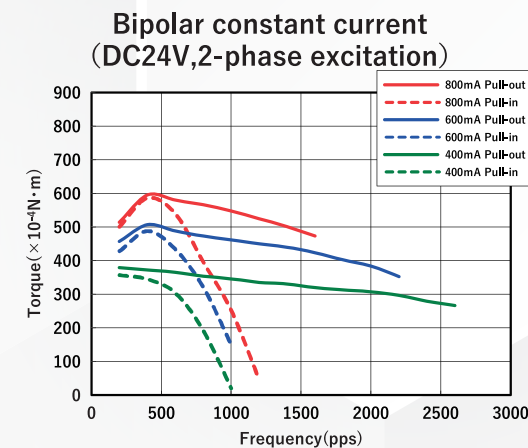
■ Exterior view



D	θ		
$\Phi 3.5$	30°	45°	60°
M3Burring	75°	90°	105°
$\Phi 2.7$ Burring	120°	135°	150°

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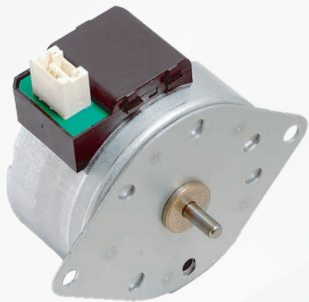
■ Torque characteristics



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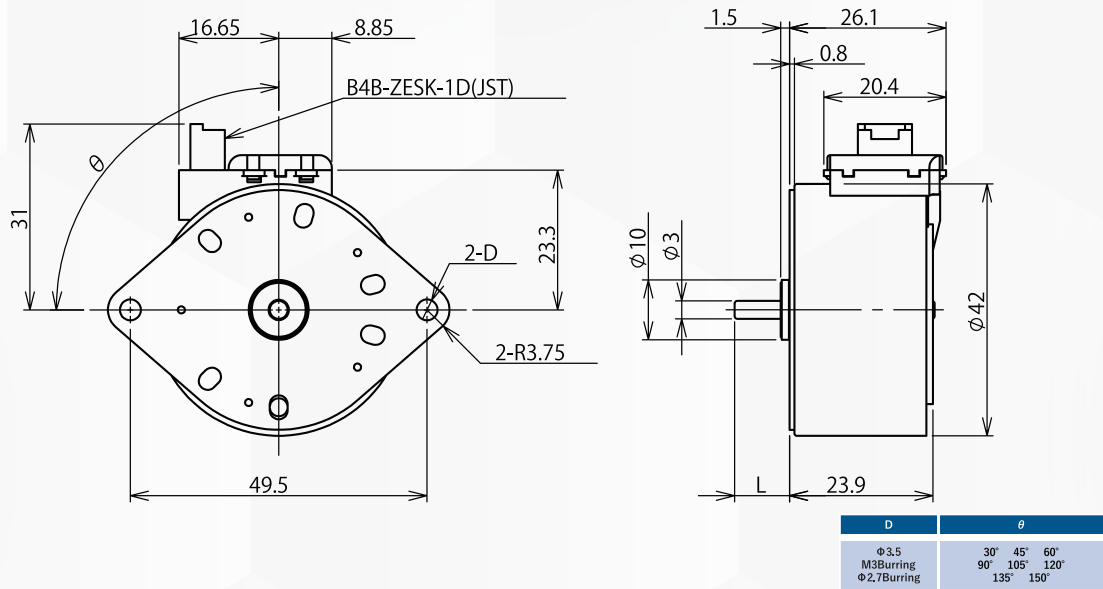
KFL42L

Specs



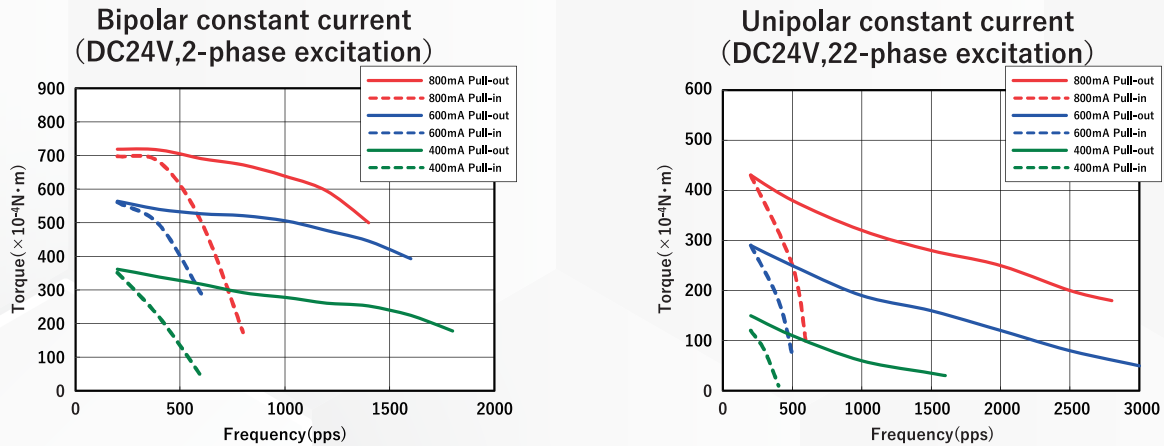
Model	KFL42L	
Drive method	Bipolar constant current	Unipolar constant current
Coil resistance	5Ω	4.9Ω
Step angle	7.5°	
Number of steps	48	
Insulation resistance	100MΩMin (DC500V)	
Dielectric strength	AC500V (50Hz,1min.)	
Insulation Class	Class E	

Exterior view



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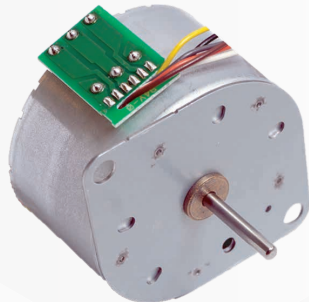
Torque characteristics



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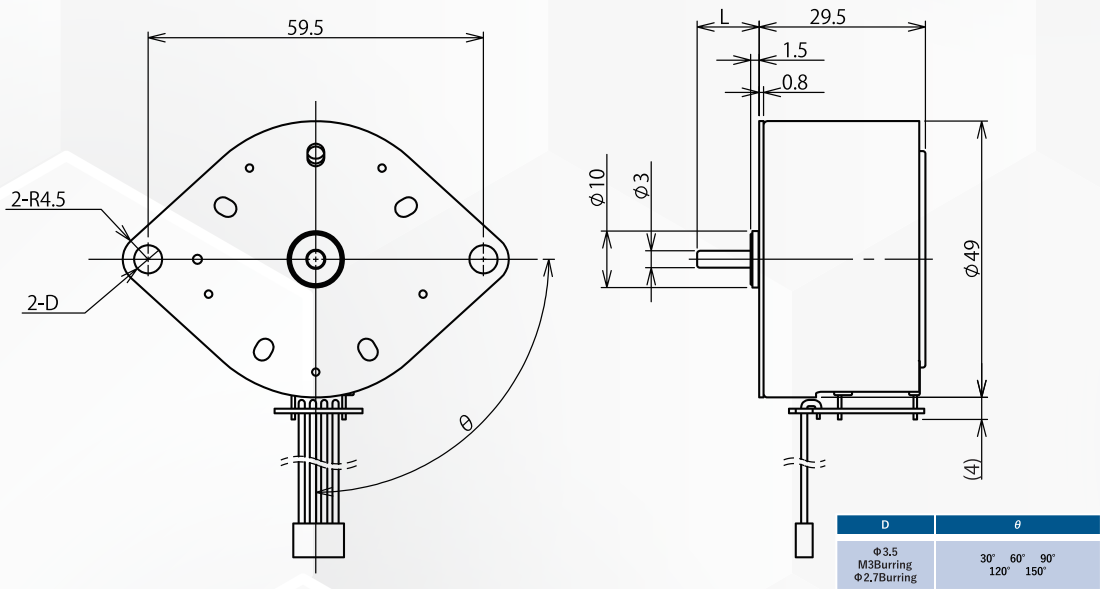
KFL49L

Specs



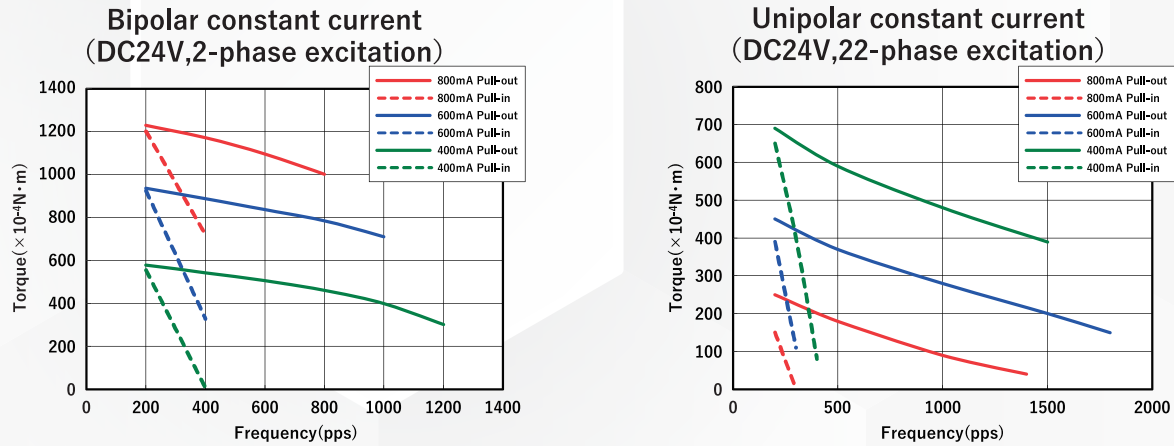
Model	KFL49L	
Drive method	Bipolar constant current	Unipolar constant current
Coil resistance	4.7Ω	5Ω
Step angle	7.5°	
Number of steps	48	
Insulation resistance	100MΩMin (DC500V)	
Dielectric strength	AC500V (50Hz,1min.)	
Insulation Class	Class E	

Exterior view



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Torque characteristics



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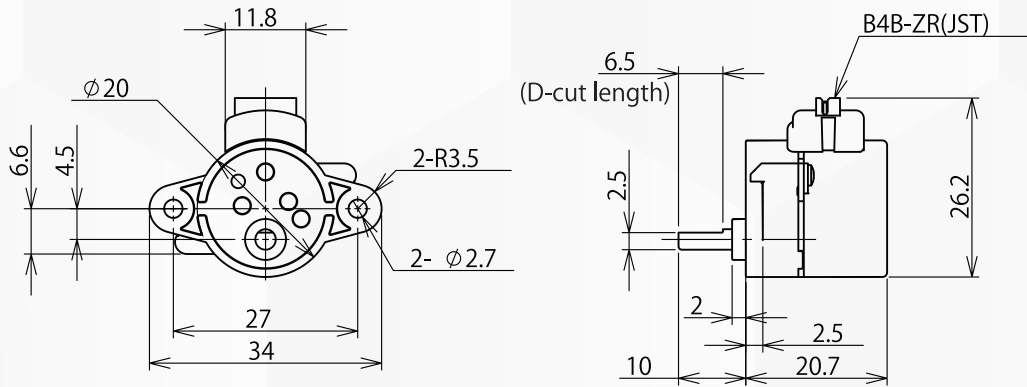
KFG20A

Specs

Model	KFG20A120Z	KFG20A120A/B	KFG20A240A/B
Drive method	Bipolar constant current		Unipolar constant voltage
Gear ratio	1/12	1/12	1/24
Coil resistance	34.5Ω	A · · · 70Ω B · · · 160Ω	
Step angle	1.25°	1.25°	0.625°
Number of steps per revolution	288	288	576
Insulation resistance	100MΩMin (DC500V)		
Dielectric strength	AC500V (50Hz,1min.)		
Insulation Class	Class E		

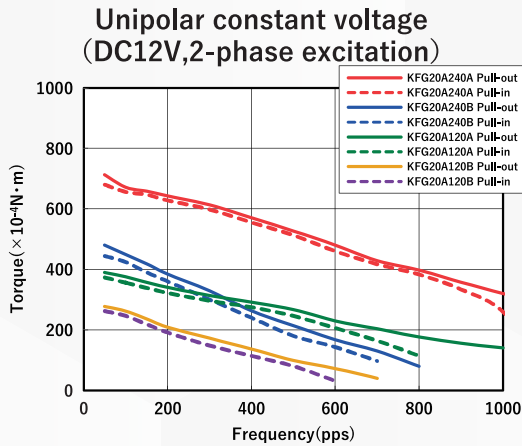
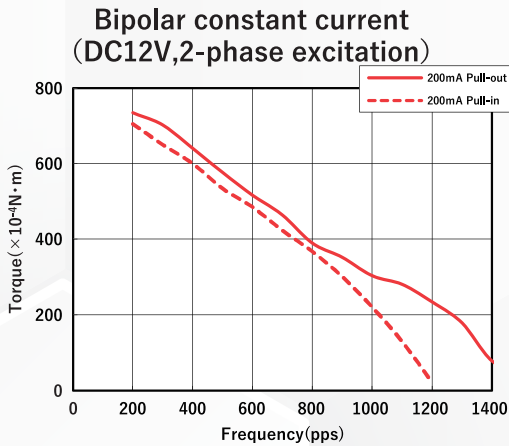


Exterior view



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Torque characteristics



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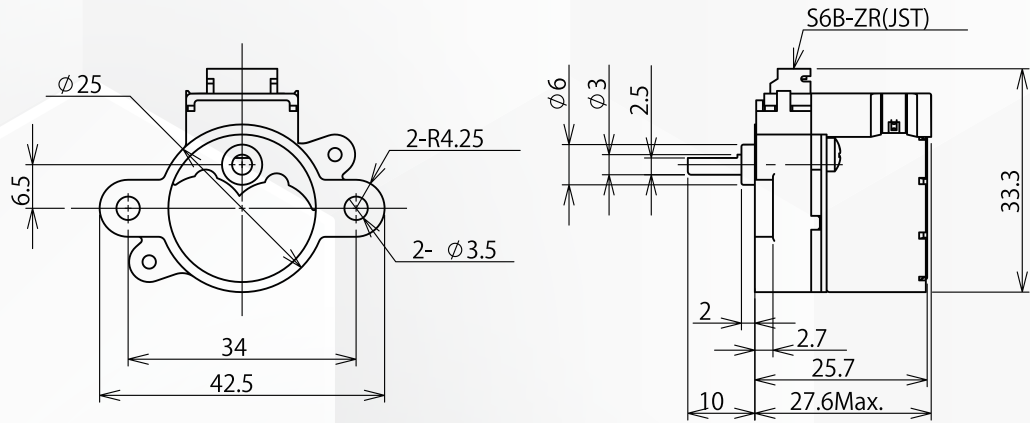
KFG25A

Specs

Model	KFG25A200A/C	KFG25A125A/C	KFG25A075A/C
Drive method	Unipolar constant voltage		
Gear ratio	1/20	1/12.5	1/7.5
Coil resistance	A · · · 98.5Ω C · · · 125Ω		
Step angle	0.375°	0.6°	1°
Number of steps per revolution	960	600	360
Insulation resistance	100MΩMin (DC500V)		
Dielectric strength	AC500V (50Hz,1min.)		
Insulation Class	Class E		

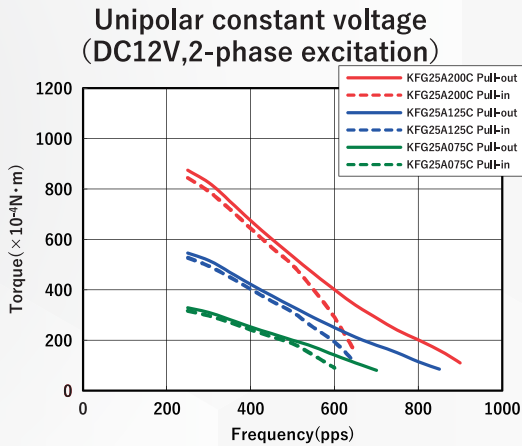
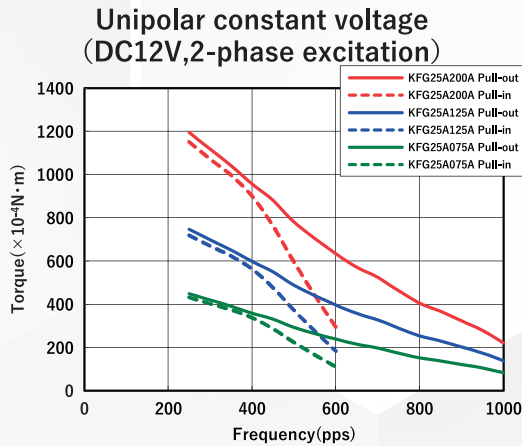


Exterior view



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Torque characteristics



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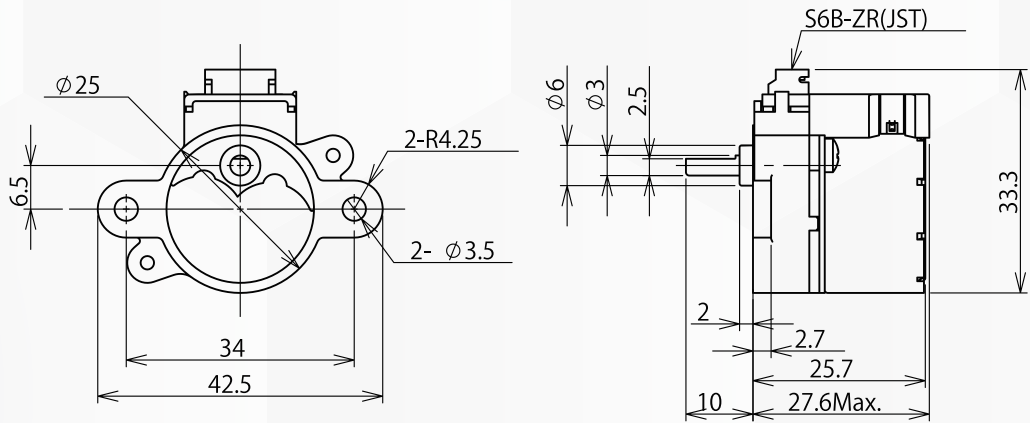
KFG25H

Specs

Model	KFG25H125D/E	KFG25H075D/E	KFG25H040D/E
Drive method	Unipolar constant voltage		
Gear ratio	1/12.5	1/7.5	1/4
Coil resistance	D · · · 30Ω E · · · 64Ω		
Step angle	0.6°	1°	1.875°
Number of steps per revolution	600	360	192
Insulation resistance	100MΩMin (DC500V)		
Dielectric strength	AC500V (50Hz,1min.)		
Insulation Class	Class E		

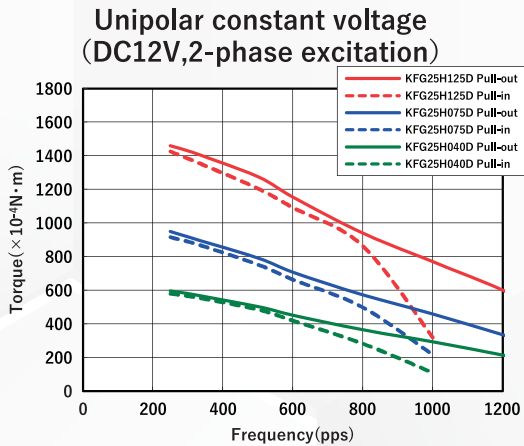


Exterior view



※For detailed dimensions, please contact us.

Torque characteristics

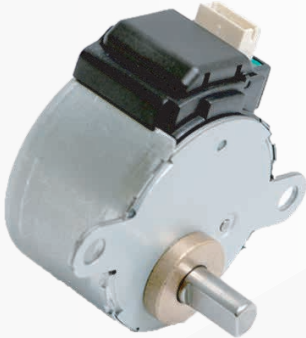


※These characteristics are catalog values, not guaranteed values.
※For detailed characteristics or specifications other than those listed above, please contact us separately.
※Please verify the temperature rise on the actual equipment during use.

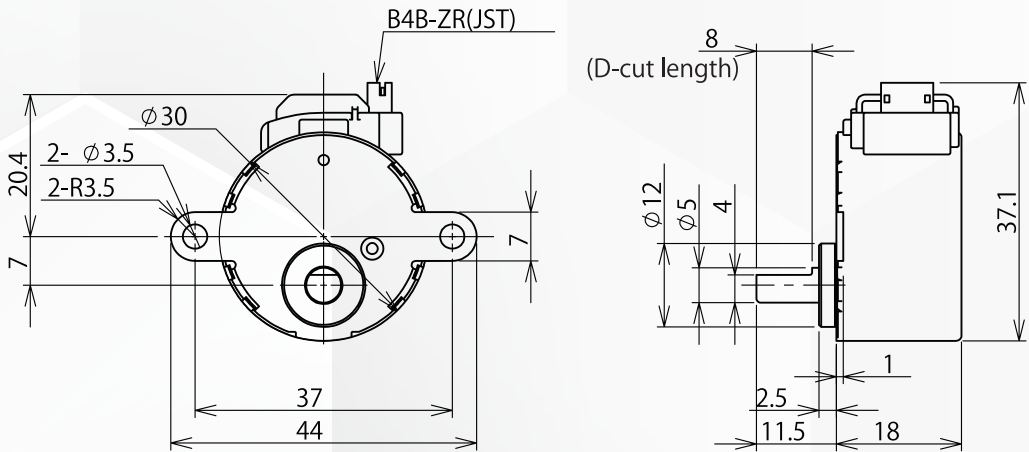
KFG30A

Specs

Model	KFG30A050Z
Drive method	Bipolar constant current
Gear ratio	1/5
Coil resistance	15Ω
Step angle	3°
Number of steps per revolution	120
Insulation resistance	100MΩMin. (DC500V)
Dielectric strength	AC500V (50Hz,1min.)
Insulation Class	Class E

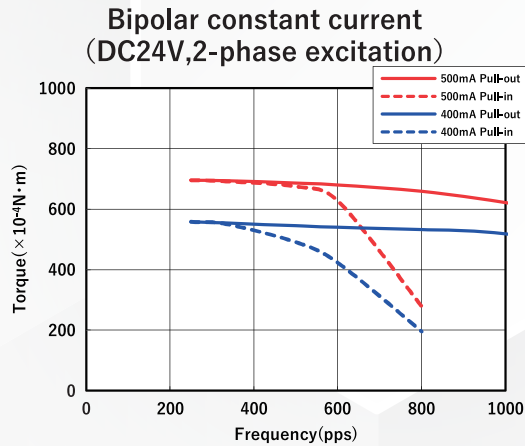


Exterior view



※For detailed dimensions, please contact us.

Torque characteristics



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※For detailed characteristics or specifications other than those listed above, please contact us separately.
※Please verify the temperature rise on the actual equipment during use.

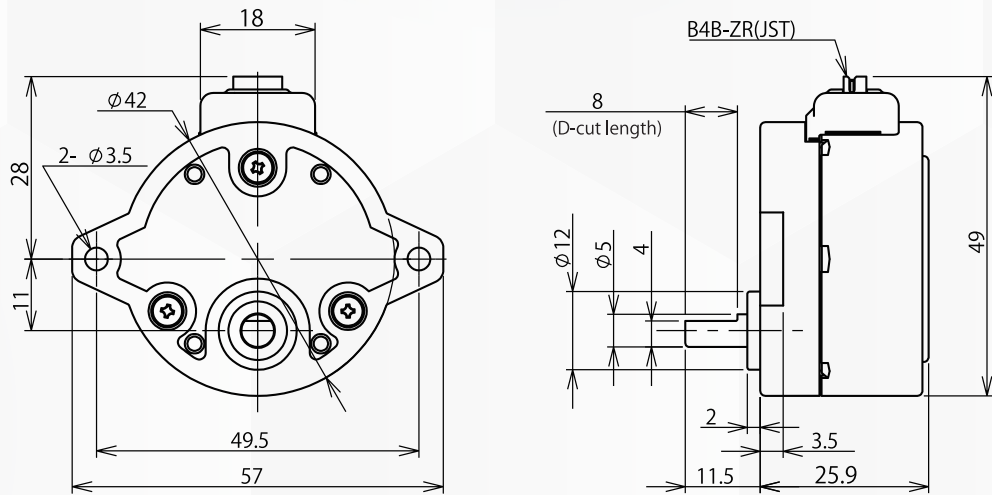
KFG42B

Specs



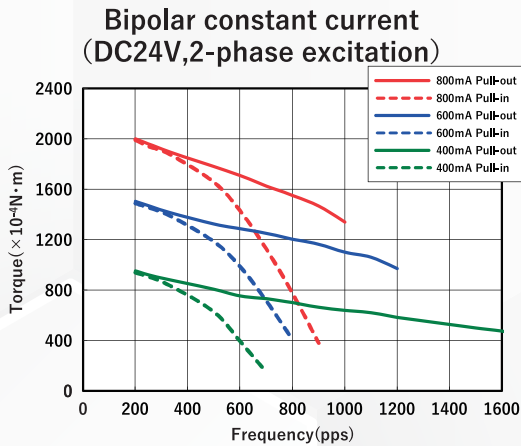
Model	KFG42B025Z	KFG42B025A
Drive method	Bipolar constant current	Unipolar constant voltage
Gear ratio	1/2.5	1/2.5
Coil resistance	6.5Ω	15Ω
Step angle	3°	
Number of steps per revolution	120	
Insulation resistance	100MΩMin (DC500V)	
Dielectric strength	AC500V (50Hz,1min.)	
Insulation Class	Class E	

Exterior view



※The drawing shown is for the bipolar specification.
※For detailed dimensions, please contact us.

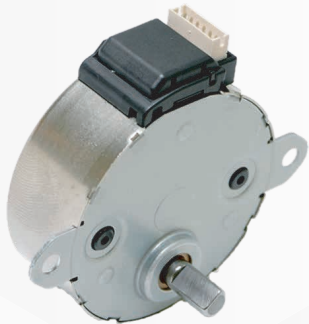
Torque characteristics



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※Please verify the temperature rise on the actual equipment during use.

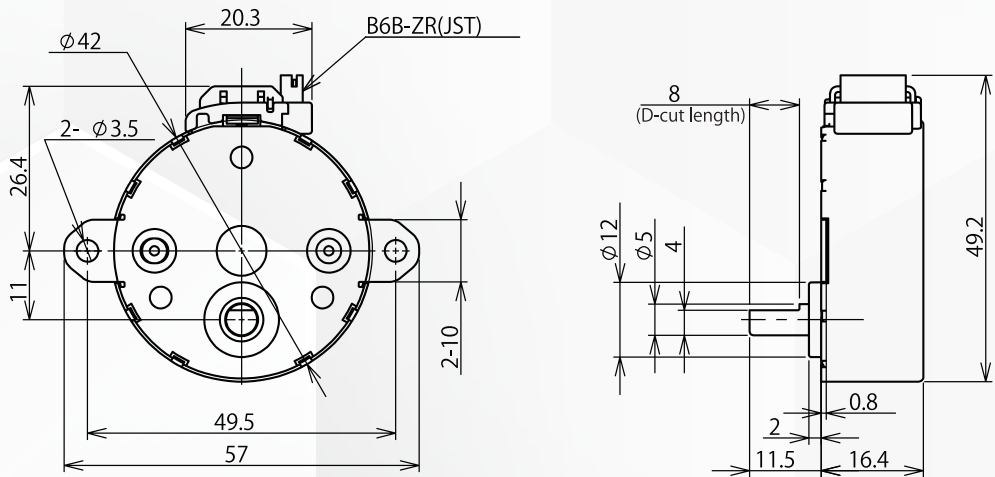
KFG42S

Specs



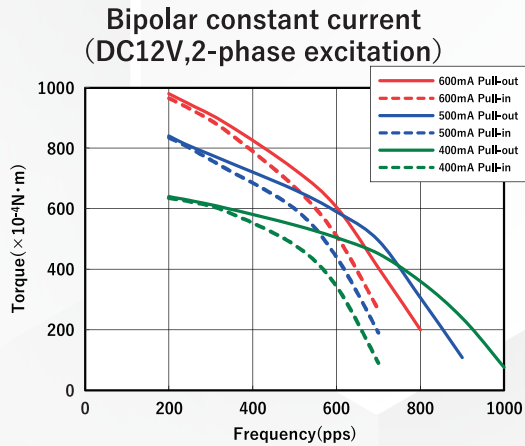
Model	KFG42S025Z	KFG42S025A/B
Drive method	Bipolar constant current	Unipolar constant voltage
Gear ratio	1/2.5	1/2.5
Coil resistance	8.7Ω	A · · · 17Ω B · · · 21Ω
Step angle	3°	
Number of steps per revolution	120	
Insulation resistance	100MΩMin (DC500V)	
Dielectric strength	AC500V (50Hz,1min.)	
Insulation Class	Class E	

Exterior view

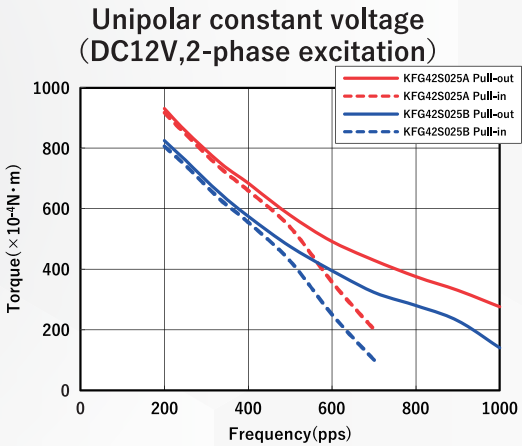


※The drawing shown is for the unipolar specification.
※For detailed dimensions, please contact us.

Torque characteristics



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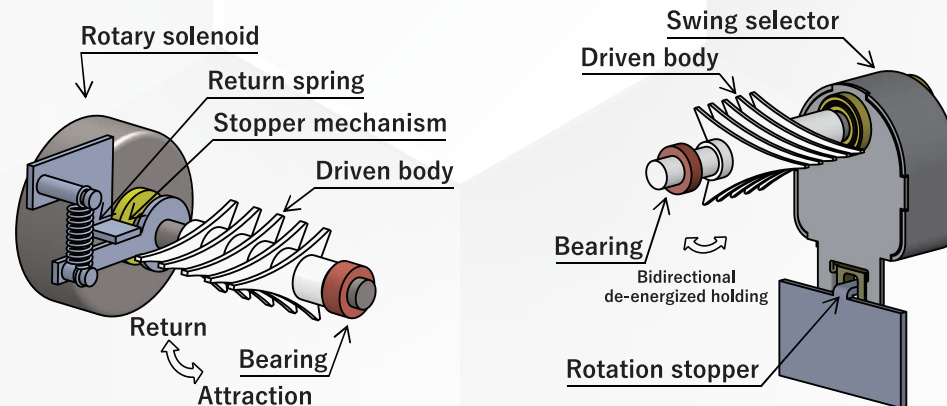
■ What is Swing Selector?

Swing Selector is a type of rotary solenoid that performs reciprocating motion at a fixed angle.

It is used to directly drive components that switch the traveling direction of media, such as banknotes in ATMs and tickets in ticket machines.

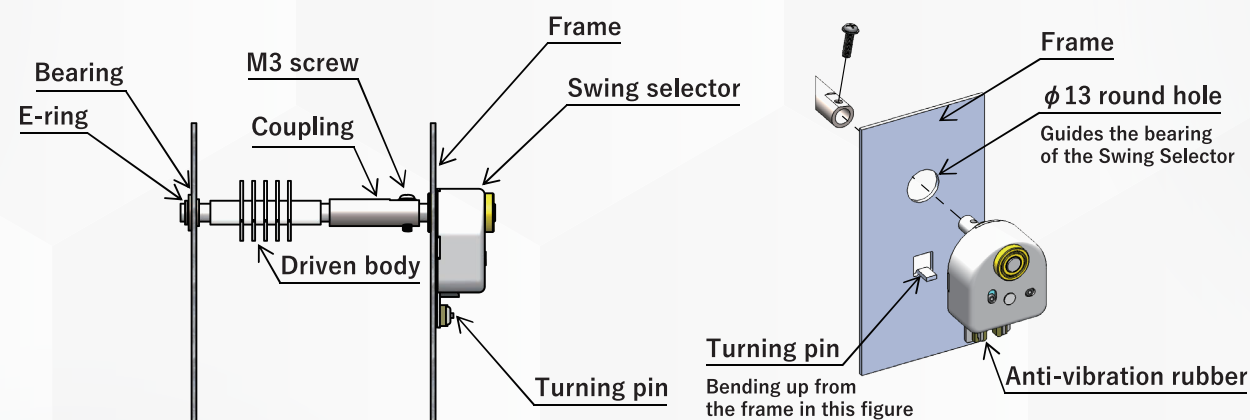
The name “Swing Selector” is our product name.

■ Difference from general rotary solenoids



- | | |
|--|---|
| <ul style="list-style-type: none"> ■ Can directly drive the driven body, but requires a spring for return. ■ Requires a stopper mechanism to determine the stop position. ■ Requires energization to hold on the attraction side. | <ul style="list-style-type: none"> ■ Can directly drive the driven body, and since the stationary position is fixed, no other mechanical components are required. ■ Self-holding force is applied in both directions even when not energized, eliminating the need for power during stop. |
|--|---|

■ Mounting example



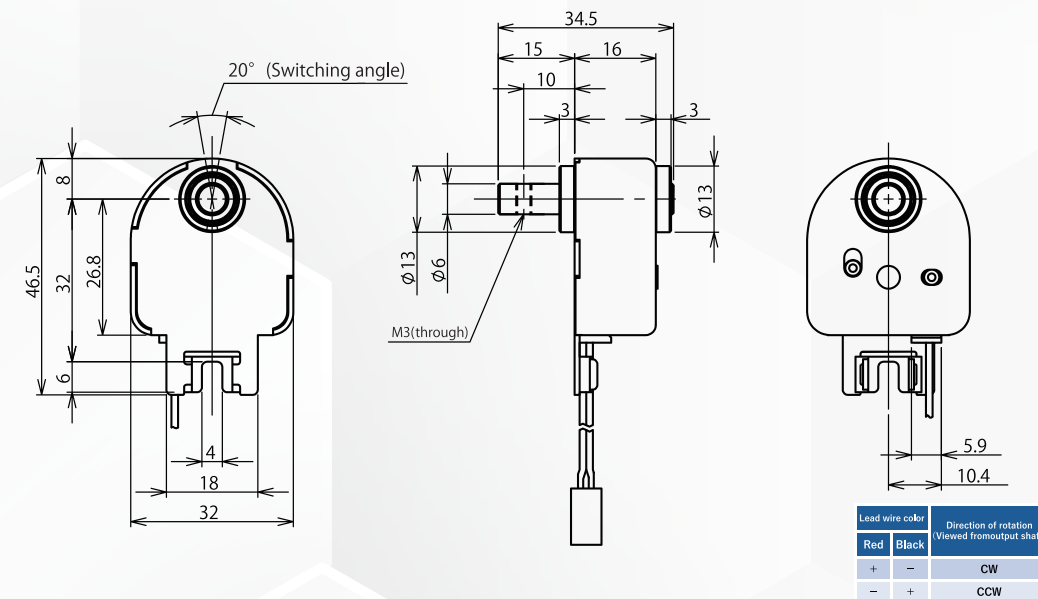
- Use the bearing of the Swing Selector as a guide and fasten it to the drive shaft with M3 screws. At the same time, insert the rotation stopper into the anti-vibration rubber of the Swing Selector to restrict rotational movement.
- Provide axial play to prevent rotational load.
To ensure sufficient axial play, it is recommended to mount the Swing Selector so that it is slightly raised from the equipment frame.
- It is recommended to apply a screw-locking adhesive to the M3 screws to prevent loosening.

■ Specs



Model	KSA30H
Coil resistance	38Ω
Coil inductance	17mH
Switching angle	20°
Non-energized holding torque	$230 \times 10^{-4} \text{ N} \cdot \text{m}$
Response time (No load/24V)	8ms
Weight	Approx. 60g
Insulation Class	Class E

■ Exterior view



※For detailed dimensions, please contact us.

■ Features

- This is a high-speed reciprocating rotary drive actuator.
- The reciprocating rotary motion of the device mechanism can be driven directly.
- A simple structure enables compactness, high reliability, and high responsiveness, making it ideal for more compact and lightweight mechanisms.
- Self-holding force is maintained in both directions even when power is turned off.
- Since there is no axial movement like with a rotary solenoid, connection to the device mechanism is easy.

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※For detailed characteristics or specifications other than those listed above, please contact us separately.

※Please verify the temperature rise on the actual equipment during use.

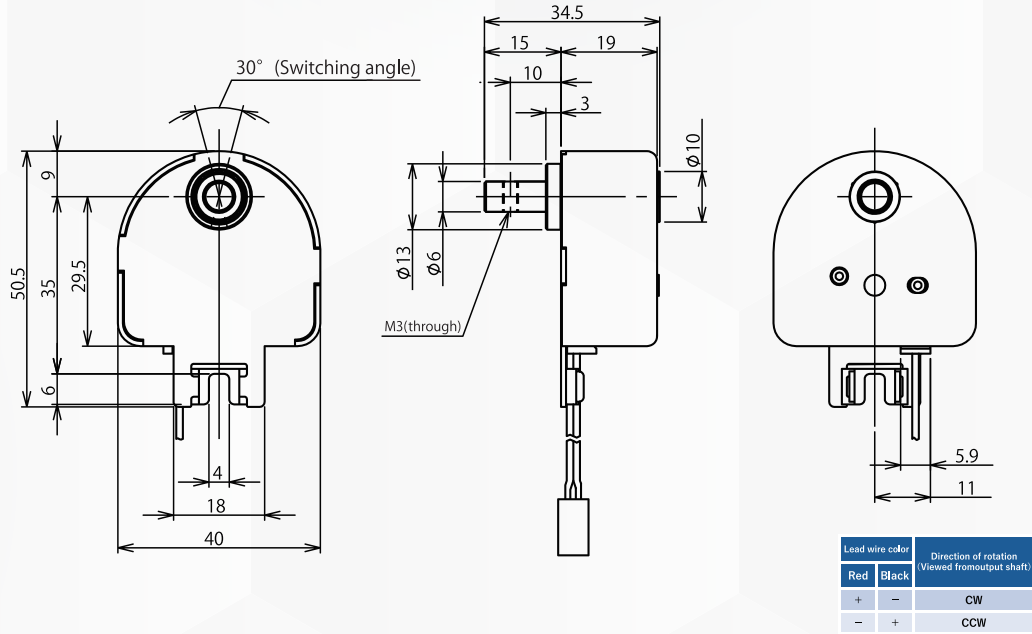
KSA40F

Specs



Model	KSA40F
Coil resistance	38Ω
Coil inductance	26.5mH
Switching angle	30°
Non-energized holding torque	250×10 ⁻⁴ N・m
Response time (No load/24V)	12ms
Weight	Approx. 75g
Insulation Class	Class E

Exterior view



※For detailed dimensions, please contact us.

Features

- This is a high-speed reciprocating rotary drive actuator.
- The reciprocating rotary motion of the device mechanism can be driven directly.
- A simple structure enables compactness, high reliability, and high responsiveness, making it ideal for more compact and lightweight mechanisms.
- Self-holding force is maintained in both directions even when power is turned off.
- Since there is no axial movement like with a rotary solenoid, connection to the device mechanism is easy.

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※Please verify the temperature rise on the actual equipment during use.

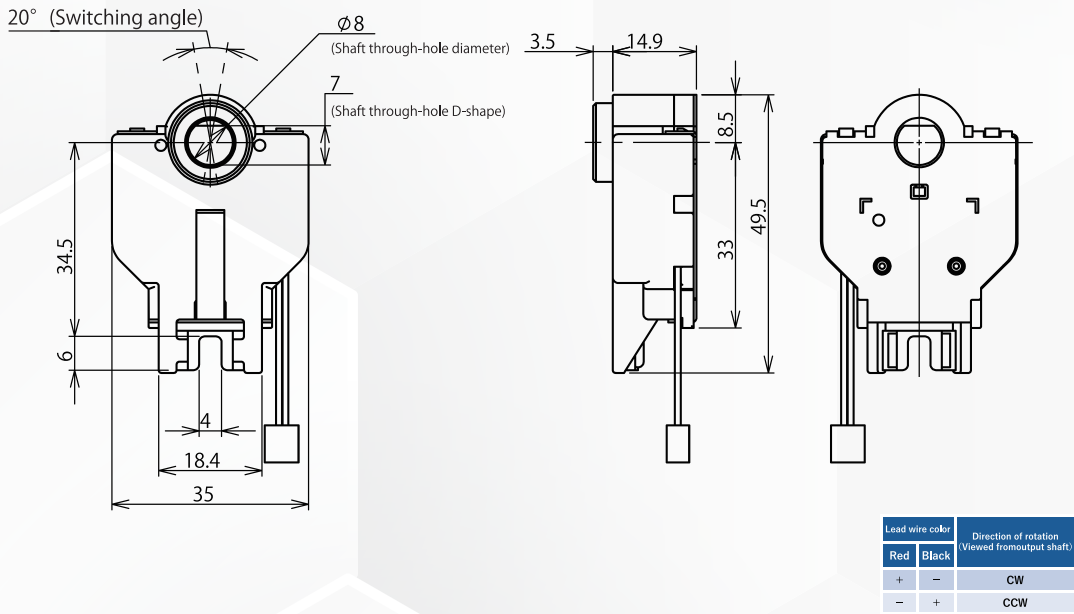
KSD35H

Specs



Model	KSD35H
Coil resistance	24.7Ω
Coil inductance	7.7mH
Switching angle	20°
Non-energized holding torque	80×10 ⁻⁴ N・m
Response time (No load/24V)	16ms
Weight	Approx. 30g
Insulation Class	Class E

Exterior view



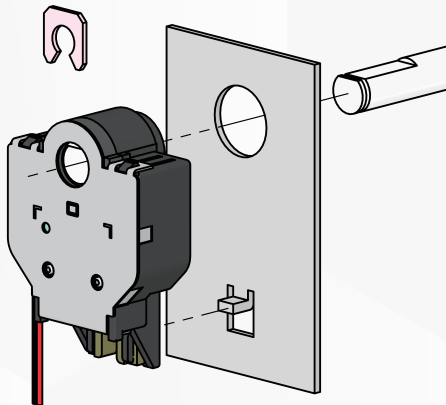
※For detailed dimensions, please contact us.

Features

- Uses a hollow shaft with a D-cut shape.
- Can be assembled simply inserting the D-cut shaft and securing it with a retaining ring.
- No coupling is required, making it ideal for reducing components and saving space.
- Slim design contributes to downsizing the equipment.
- Achieves ultra-lightweight by using a resin frame.

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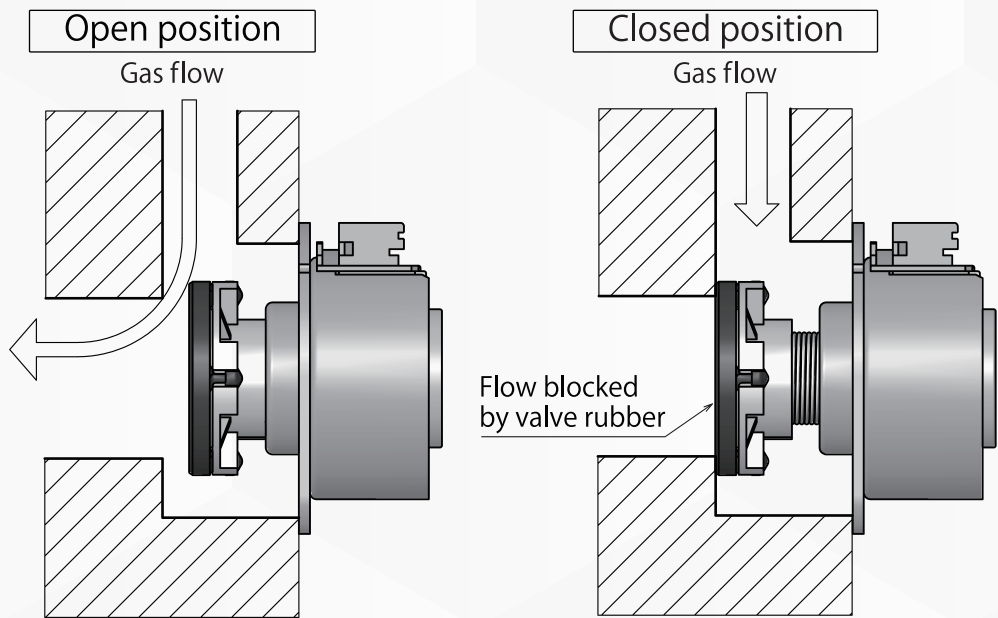
Mounting example



Features

- This is a motorized gas shut-off valve developed for safety mechanisms in gas meters, gas appliances, and other gas shut-off applications.
- By combining sealing and actuator technologies, we were the first in the industry to commercialize a motorized gas shut-off valve.
- In addition to shut-off, reset operations can also be performed remotely. Custom designs are available to suit your equipment.

Operation image



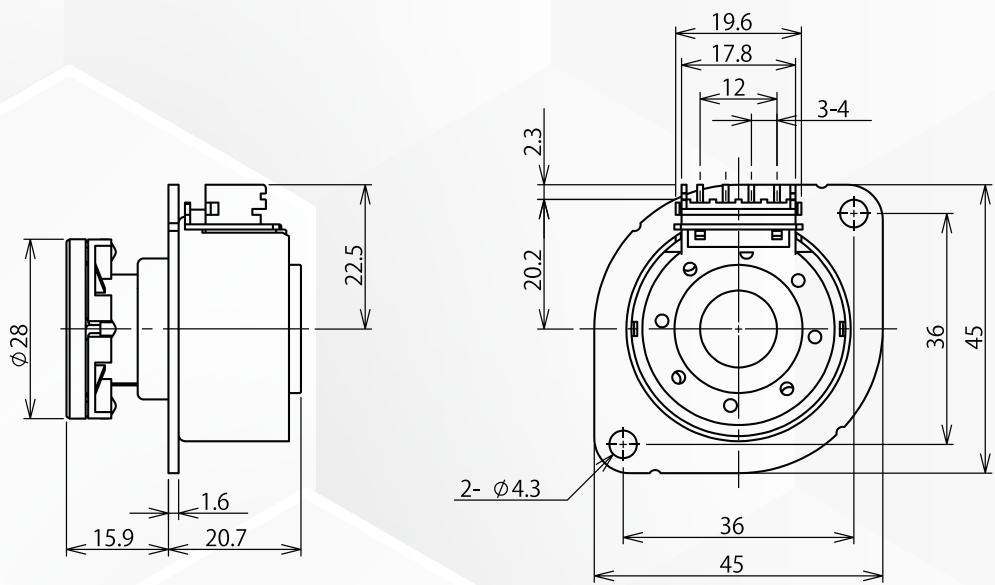
- Rotating the motor forward closes the valve; reversing the rotation opens the valve.
- The valve maintains its open/closed state without power.
- The inside of the motor has a sealing function to prevent gas leakage. Please provide a gasket or similar sealant for the mounting surface.

Specs

Model	KBA35SL***	KBA35ML***
Motor diameter	Φ35mm	Φ35mm
Motor thickness	19.8mm	20.7mm
Valve diameter	Φ32mm	Φ28mm
Operating stroke	6mm	4mm
Drive power voltage	DC3V	DC3V
Motor excitation method	2-phase excitation	2-phase excitation
Motor step count	48steps/1 revolution	48steps/1 revolution
Lead pitch	2mm/1 revolution	1.5mm/1 revolution



Exterior view



KBA35ML example dimensions
※For detailed dimensions, please contact us.

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※Please verify the temperature rise on the actual equipment during use.