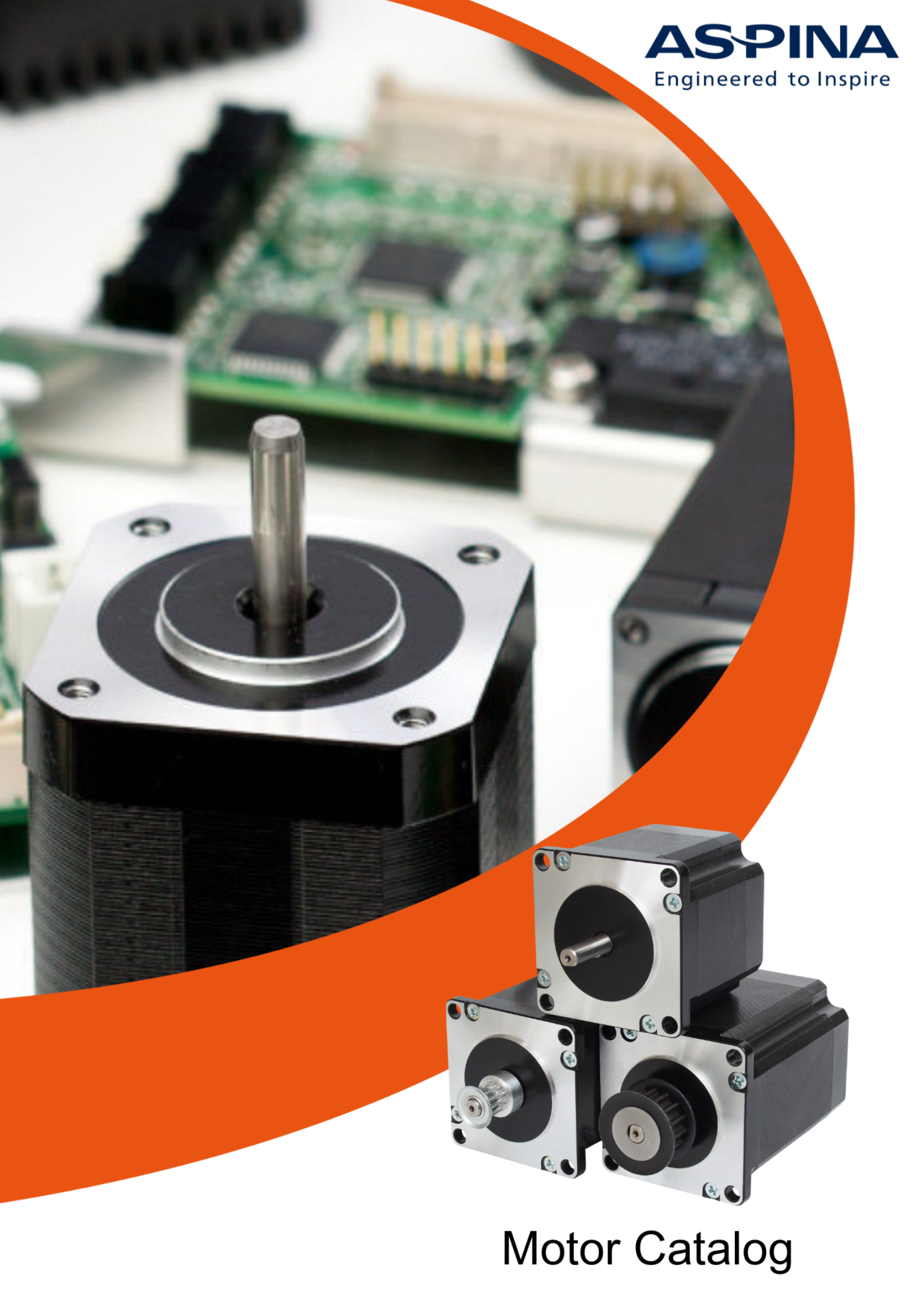




Motor Catalog

2 Phase Hybrid Stepper Motor Hollow shaft SERIES

□60mm □86mm

1.8°

Bipolar

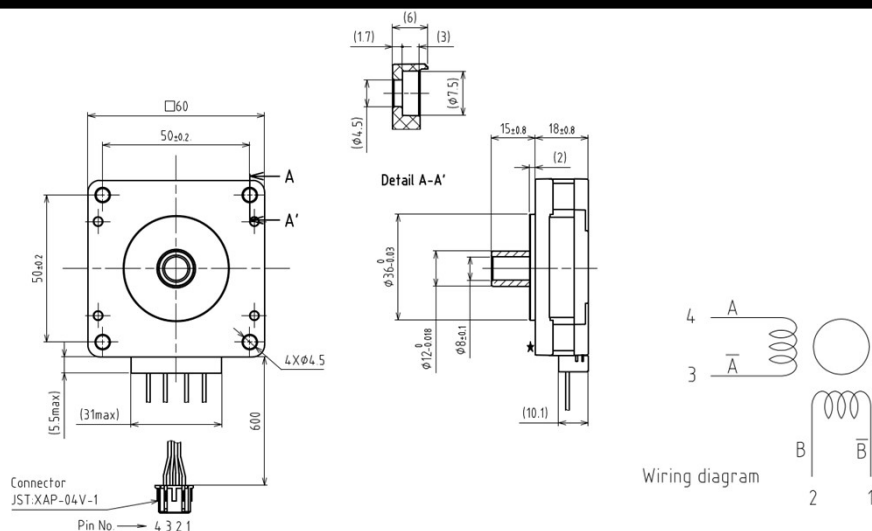


CHARACTERISTICS

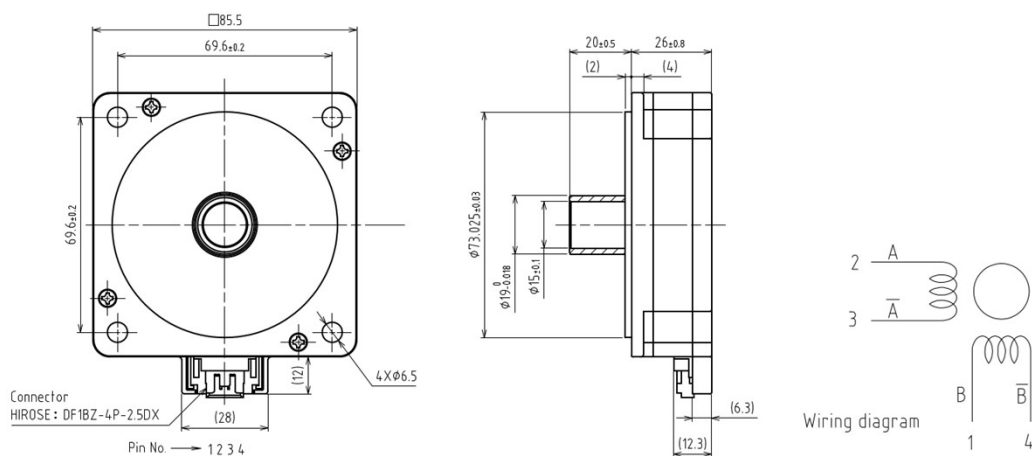
MODEL	STEP ANGLE	VOLTAGE	CURRENT	RESISTANCE	HOLDING TORQUE	ROTER INERTIA	MASS	LENGTH
	Deg.	V	A/Φ	Ω/Φ	mN · m	g · cm ²	kg	mm
PMSB-B60D0HW	1.8	3.2	1.6	2.0	310	146	0.23	18
PMSB-B86D0HW	1.8	2.8	2.0	1.4	870	579	0.6	26

DIMENSIONS[EXAMPLE]

PMSB-B60D0HW



PMSB-B86D0HW

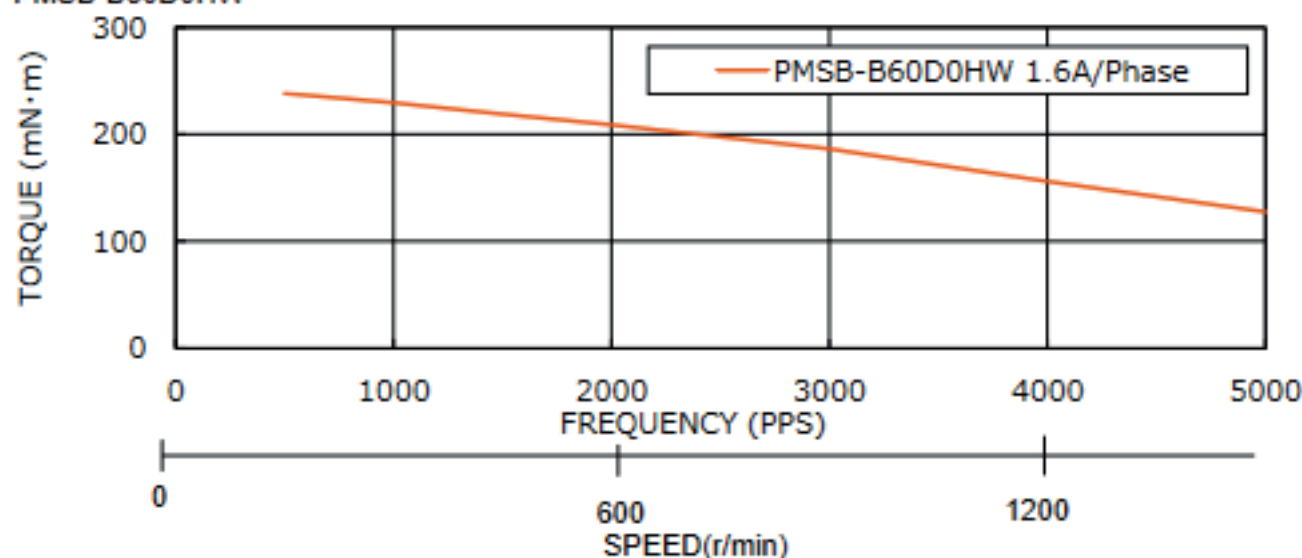


TORQUE RANGE

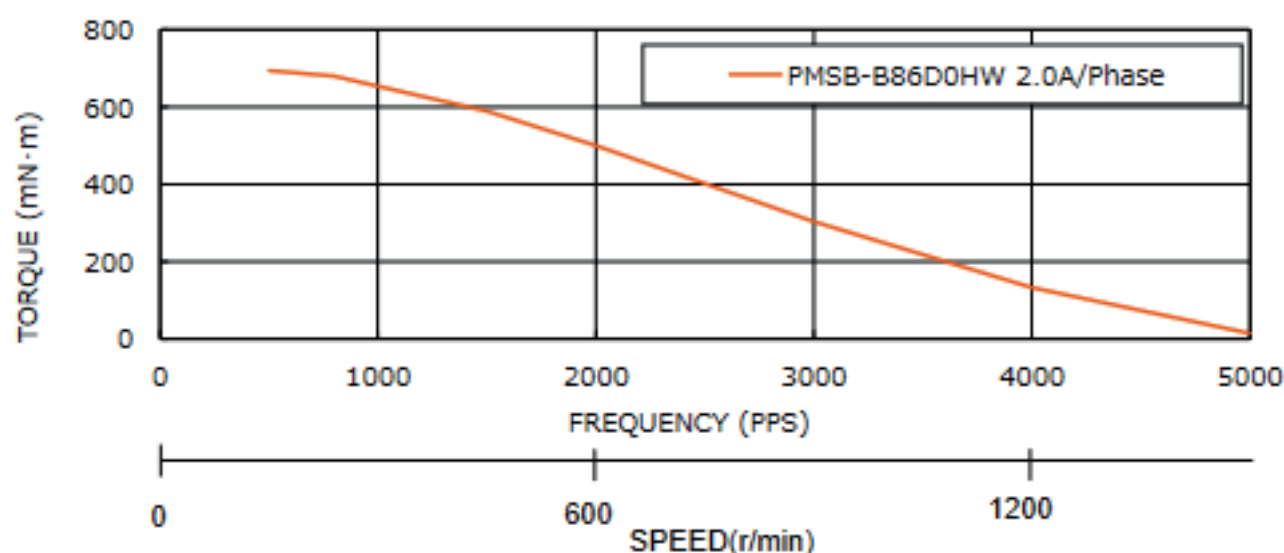
STEP ANGLE	SIZE		WINDINGS	MODEL	TORQUE[mN·m] FREQUENCY at 1000pps												
					0	50	100	200	300	400	500	600	700				
1.8°	□60mm	NEMA24	Bipolar	60D0													
	□86mm	NEMA34		86D0													

PULL OUT TORQUE CURVE

PMSB-B60D0HW



PMSB-B86D0HW



*Specifications and appearance are subject to change without notice.

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Issue Date: October 2023

Compact planetary geared stepper motor

STP Series



Size
□ 42 x 72mm
□ 60 x 107mm

Holding torque
max.
1.5 Nm

Reduction gear
Planetary gear

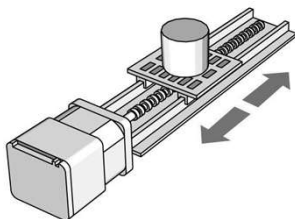
DC
24 V

Features

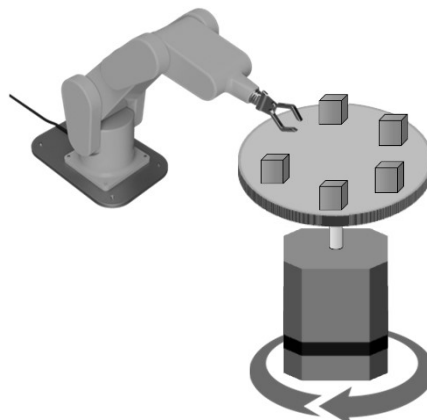
- Compact design as the motor and gearbox are integrated
- Stepper motors have higher torque than AC motors of the same size.
- Center shaft allows for a highly flexible layout

Application examples

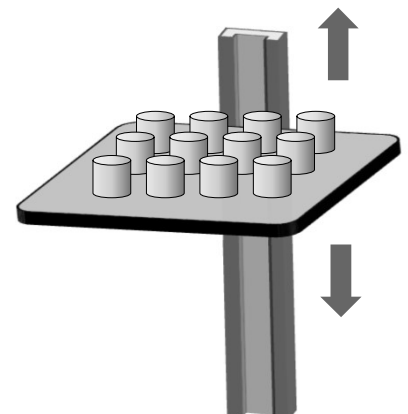
Linear actuator



Turn table



Lifter



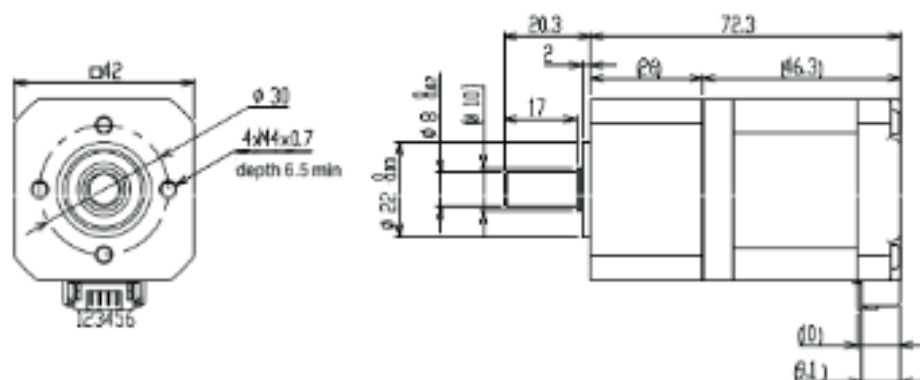
Specification

Model	Size [mm]	Windings	Gear ratio	Holding torque [N · m]	Step angle [°]	Current [A/φ]	Resistance [Ω]
STP-42G	□42 x 72.3	Bipolar	1 : 3	0.9	0.6	2	1.9
		Bipolar	1 : 5	1.5	0.36	2	1.9
		Bipolar	1 : 9	1.5	0.2	2	1.9
STP-60G	□60 x 107.3	Bipolar	1 : 3	0.9	0.6	2	1.2
		Bipolar	1 : 5	1.5	0.36	2	1.2
		Bipolar	1 : 7	1.5	0.257	2	1.2

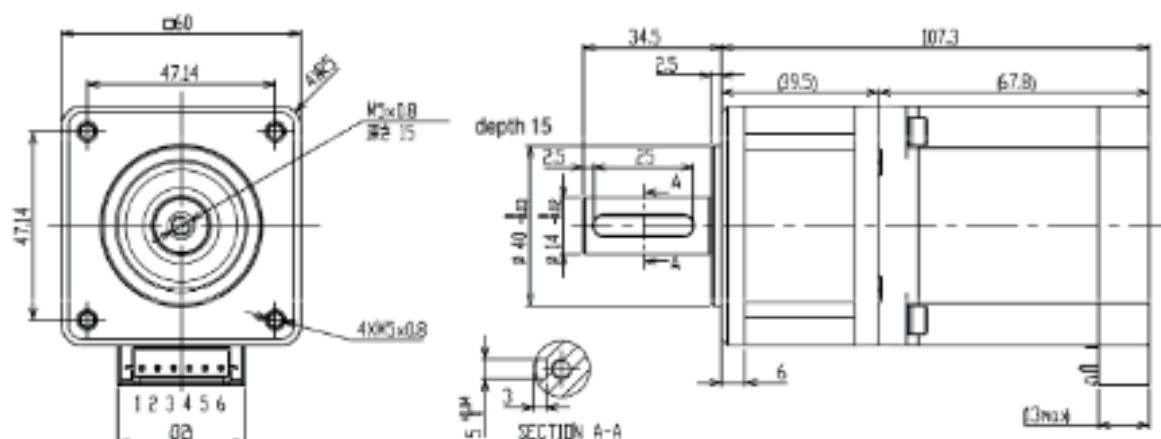
Dimensions

STP-42G

Unit : mm



STP-60G



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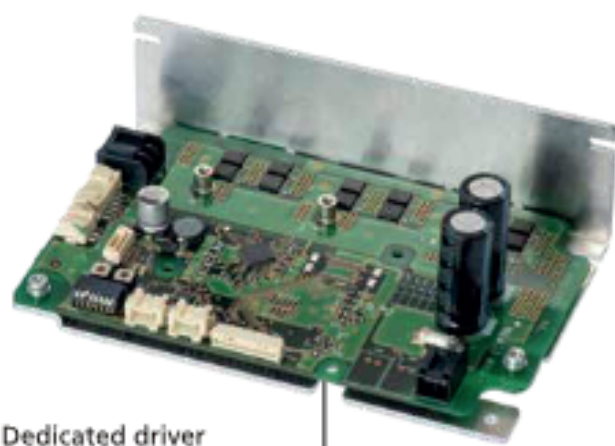
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Issue Date: October 2023

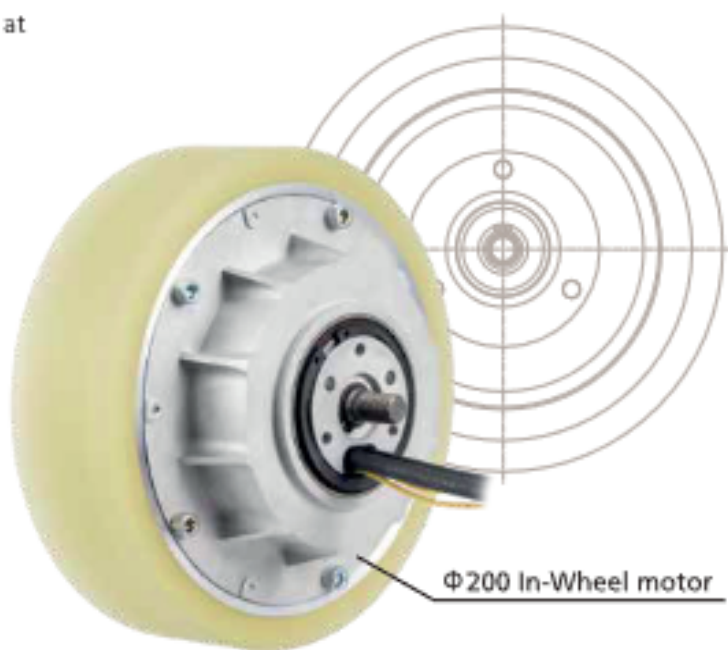
High efficiency & control

The ASPINA in-wheel motor combines high efficiency, controllability and reliability in a compact package which houses not only a high efficiency BLDC motor but also a precision planetary gearing and electric power-off brake. With our dedicated driver as an option, this is a great drive system for battery powered mobile devices. Designed for high motion quality at lower speeds, this package is well suited for Autonomous Mobile Robots (AMR), Automated Guided Vehicles (AGV) as well as human guided and power assistive platforms.



Dedicated driver

Φ150 In-Wheel motor



Φ200 In-Wheel motor

Broad range of applications

Power-Assisted Platform

At Construction site / Warehouse



Heavy
Duty

Autonomous Mobile Robot

At Warehouse



Semi-
Automated

At Production / Hospital



At Retail Store

Fully
Automated



Light
Duty

ASPINA Compact In-Wheel Motor

Φ 150 Direct drive

Φ 200 Built-in reduction gear & Power-off brake

Φ150In-Wheel

High efficiency & High torque

Brushless DC motor with high-density winding provides high efficiency and torque.

Compact direct drive

For applications not requiring gear reduction, our direct drive solution provides space saving while providing smooth operation with no back drive torque.

Design flexibility for operating conditions and applications

Dust & Water-Proof IP44 design is applicable to a wide range of operating conditions and applications.



Φ200In-Wheel

High efficiency & High torque

IPM motor structure provides high efficiency, high torque, robust, and highly reliable products.

Built-in reduction gear and brake

Gear reduction and power-off brake are integrated within this slim, space saving in-wheel motor.

High precision & High reduction ratio gear

Precise mechanical reduction gear offers stability at low speed and precise positioning.

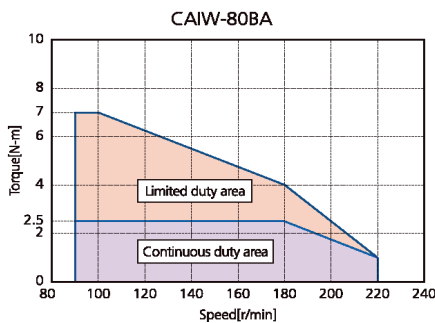
Design flexibility for operating conditions and applications

Dust & Water-Proof IP44 design and interchangeable tire design are applicable to a wide range of operating conditions and applications.

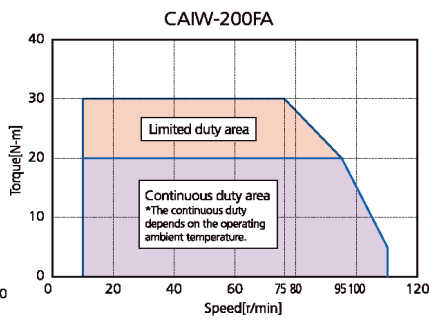


Compact In-Wheel Motor Specifications

Model	CAIW-80BA Φ150 In-Wheel Motor	CAIW-200FA Φ200 In-Wheel Motor
Rated output	80W	200W
Rated torque	4Nm	20Nm
Rated speed (Revolutions)	5.1 km/h (180 r/m)	3.6 km/h (95 r/m)
Peak torque	7 Nm	30 Nm
Voltage	DC 36 V	DC 24 V
IP rating	IP 44 *Excluding lead wire outlet	IP 44 *Excluding lead wire outlet
Weight	3kg	7.2 kg
Maximum radial load	1800N Max	2500N Max
Electromagnetic brake	Not applicable	Non-Excitation operation type Static friction torque 5Nm *Brake spec without reduction gear
Gear ratio	Not applicable	1/16.38
Tire rubber material	Urethane	Urethane
Rubber hardness	HS 85	HS 90 -95

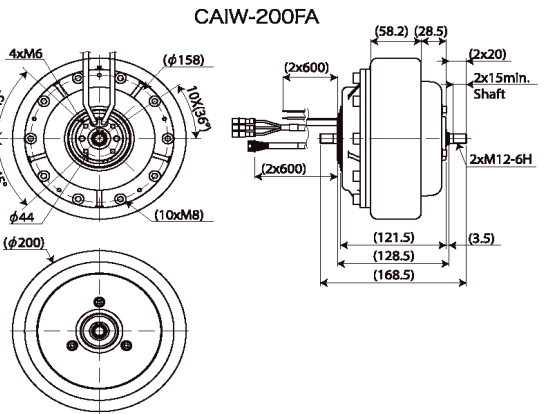
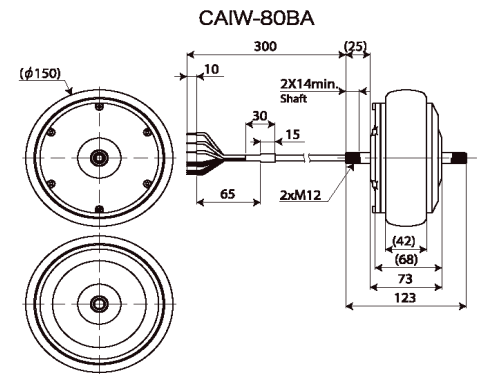


Note) In-Wheel motor coasts to a stop when the load of limited duty area is applied in about 10 seconds or more due to overload protection.



Note) The characteristic is 24V condition with the dedicated driver. In-Wheel motor coasts to a stop when the load of limited duty area is applied in about 10 seconds or more due to overload protection.

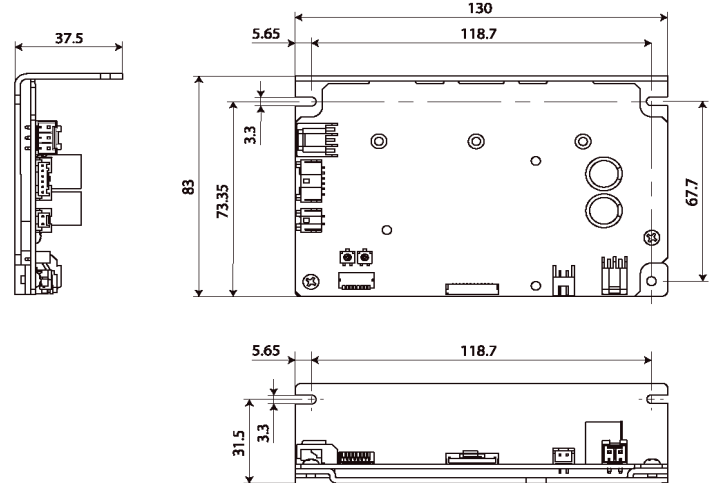
Outline



Driver Specifications

Model	For Φ150 In-Wheel	For Φ200 In-Wheel
Control mode	Current(torque) control, Speed control	
Speed control range	90~220rpm	10~110rpm
Current(torque) control range	0-7Nm Equivalent	0-30Nm Equivalent
Rating	Input voltage	DC 36V
	Input current	2.0A Typical
Input	Digital	Motor operation/stop signal input, Alarm reset, Brake (Φ200 In-Wheel only)
	Analog	Torque command, Speed command
Output	Digital	Alarm, ENC output A/B (Open collector NPN output)
Hall sensor ENC output (per a phase)	10.5P/R	171.99P/R
Serial I/F	RS-485	
Function setting	DIPSW setting: Termination resistor, Communication ID setting, Control mode setting	
	VR1/VR2: Speed limit(At current control) or Current limit	
Indicator	LED	Power : Green / Alarm: Orange
Protection function	CPU error, Over-voltage, Over-current, Over-speed, Low-voltage, Overheat	
Regenerative resistor	External	
Operating condition	Ambient temperature	-10~+40 Deg.C
	Ambient humidity	85% or Less, No freezing and condensing

Outline



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High efficiency & High torque

Our CBA series of Hollow shaft, flat BLDC motors provides high torque and high efficiency in a compact, light-weight package. Combined with our dedicated driver, this drive system is ideal for applications such as Industrial or service robotics.



Dedicated driver

Large hollow-shaft structure
contributes design flexibilities



Product lineup : 50W, 100W
and 150W output

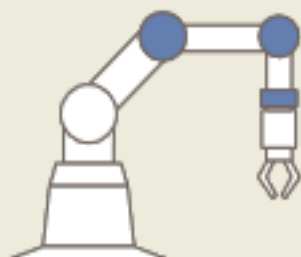


Light-weight and flat design
save space

Flexible design for various applications

Collaborative robot

Ease of use allows for flexibility in
system configuration in robot-links and
end-effectors.



Industrial robot

Compact design can simplify maintenance
of power transfer components.



Mobile service robot

Space saving design with high efficiency.



ASPINA Flat Hollow-shaft Brushless DC Motor

CBA-50JHWC : 50W + Dedicated Driver

CBA-100JHWC : 100W + Dedicated Driver

CBA-150JHWC : 150W + Dedicated Driver

Adaptable design allows for integration of features such as hollow encoders, reduction gears, brakes, etc.

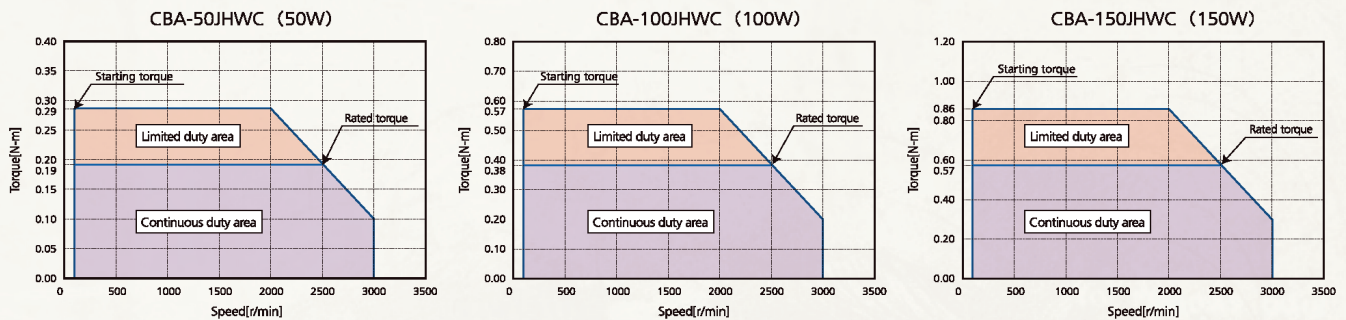
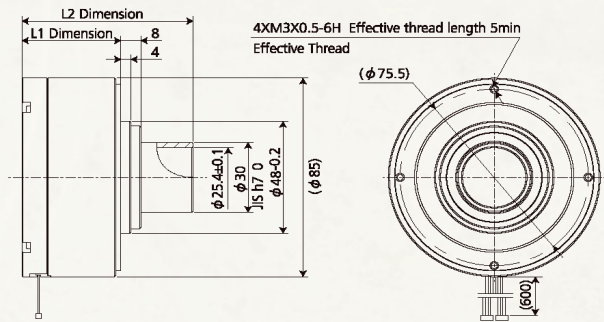
*Not a standard product option. Please contact us for details.



Flat Hollow-shaft Brushless DC Motor Specifications

Model	CBA-50JHWC	CBA-100JHWC	CBA-150JHWC
Rated output [W]	50	100	150
Rated torque [N·m]	0.19	0.38	0.57
Rated speed [r/min]	2,500		
Voltage [V]	DC 48V		
Motor diameter [mm]	Φ85		
Motor L1 dimension [mm]	27.6	33.9	40.2
Motor L2 dimension [mm]	56.6	62.9	69.2
Motor weight [g]	500	650	800
Shaft dimension [mm]	Outer Diameter Φ30, Inner Diameter Φ25.4		

Outline

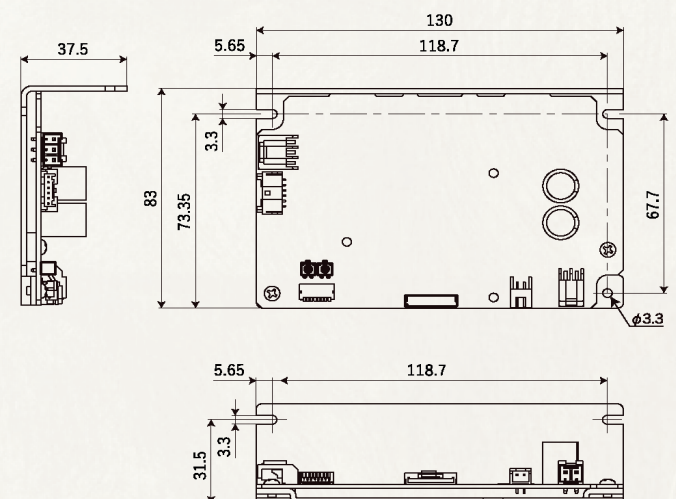


Note) Autostop feature will stop the motor when rated torque is exceeded for over 10 seconds or if starting load is exceeded. Motor is mounted to a 200x200x6mm heat sink or equivalent.

Driver Specifications

Model		For 50W	For 100W	For 150W
Control mode		Current(torque) control, Speed control		
Speed control range		90~3000rpm		
Current(torque) control range		0-0.29 Nm Equivalent	0-0.57Nm Equivalent	0-0.86Nm Equivalent
Rating	Input voltage	DC 48V +/-10%		
	Input current	1.6 A	3.5A	4.3A
Input	Digital	Motor operation/stop signal input, Speed setting, Alarm reset		
	Analog	Torque command, Speed command		
Output	Digital	Alarm, Speed (Open collector NPN output)		
Speed output (Hall sensor)		24P/R		
Serial I/F		RS-485		
Function setting		DIPSW setting: Termination resistor, Communication ID setting, Control mode setting		
		VR1/VR2: Internal speed setting, Acceleration/Deceleration time setting		
Indicator	LED	Power : Green / Alarm: Orange		
Protection function		CPU error, Over-voltage, Over-current, Over-speed, Low-voltage, Overheat		
Regenerative resistor		External		
Operating condition	Ambient temperature	0~+50 Deg.C		
	Ambient humidity	85% or Less, No freezing and condensing		

Outline



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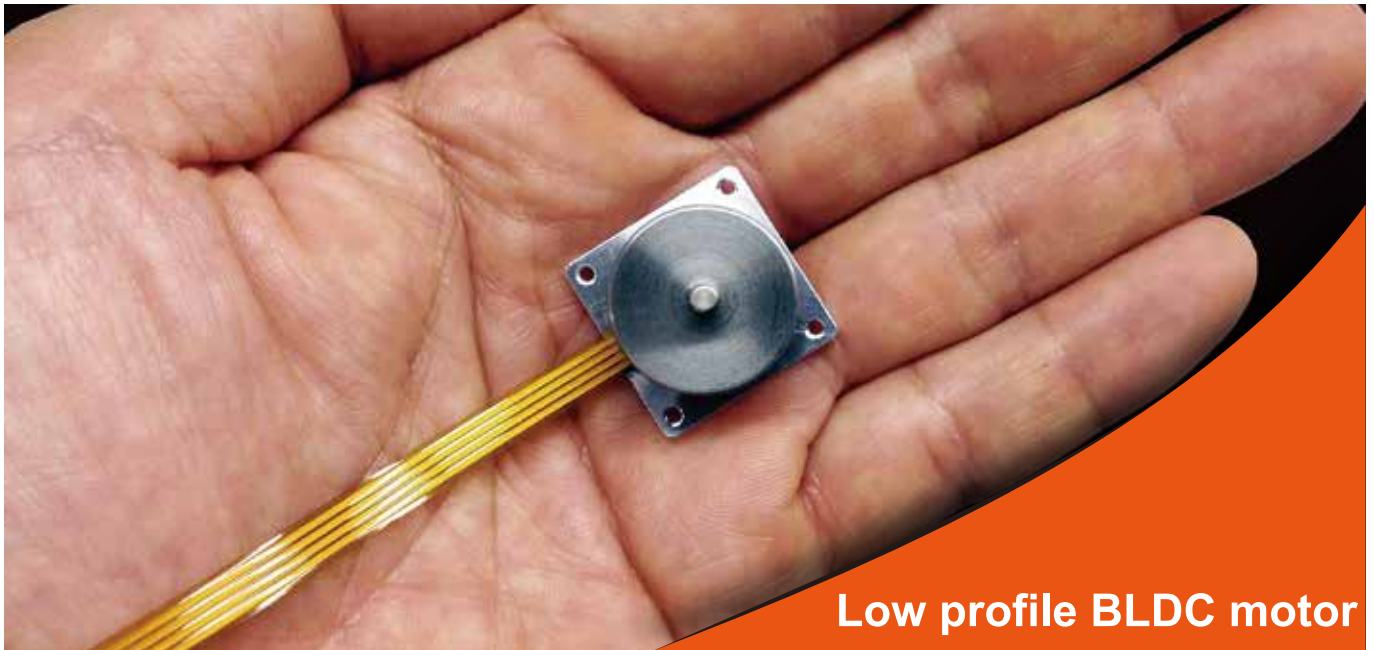
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Smaller in size, larger in business with ASPINA motors.



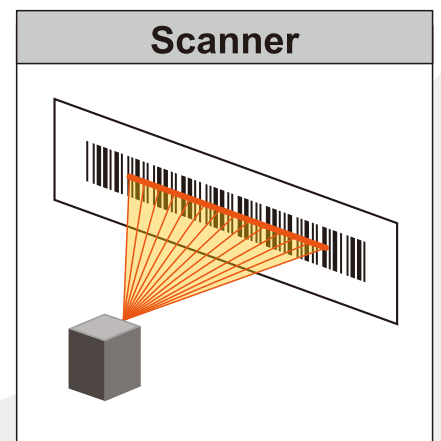
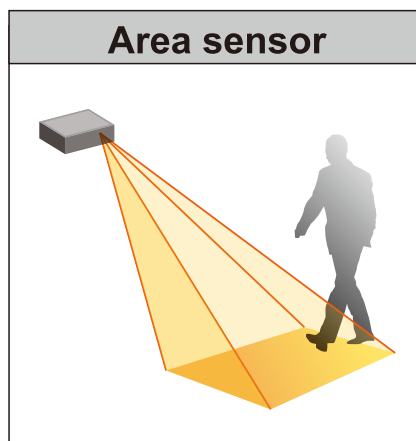
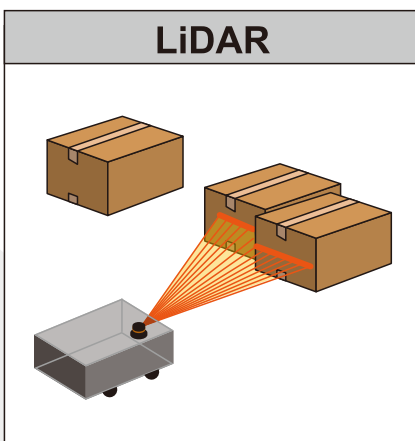
Low profile BLDC motor

Features

Flat shape	8.4 mm
Small footprint	22 mm ²
Low weight	10 g

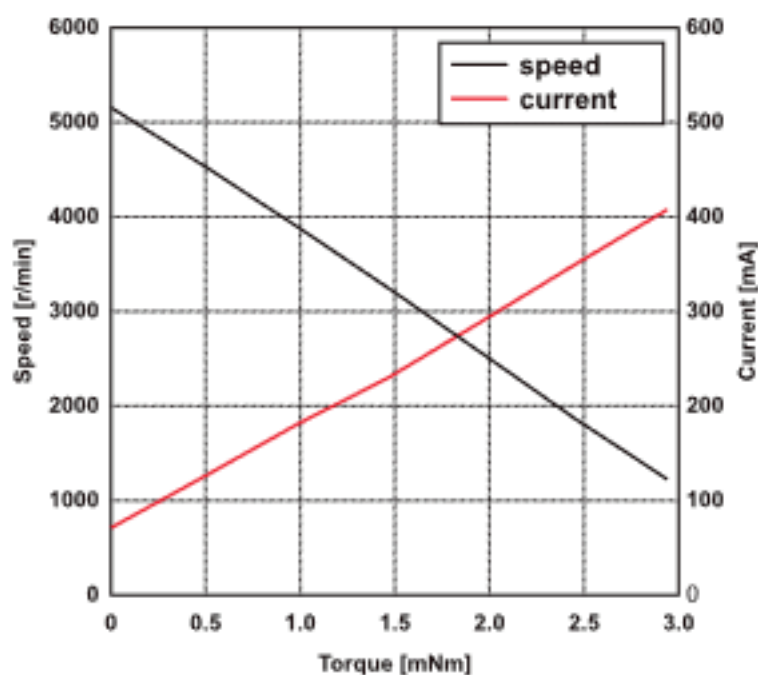


Applications

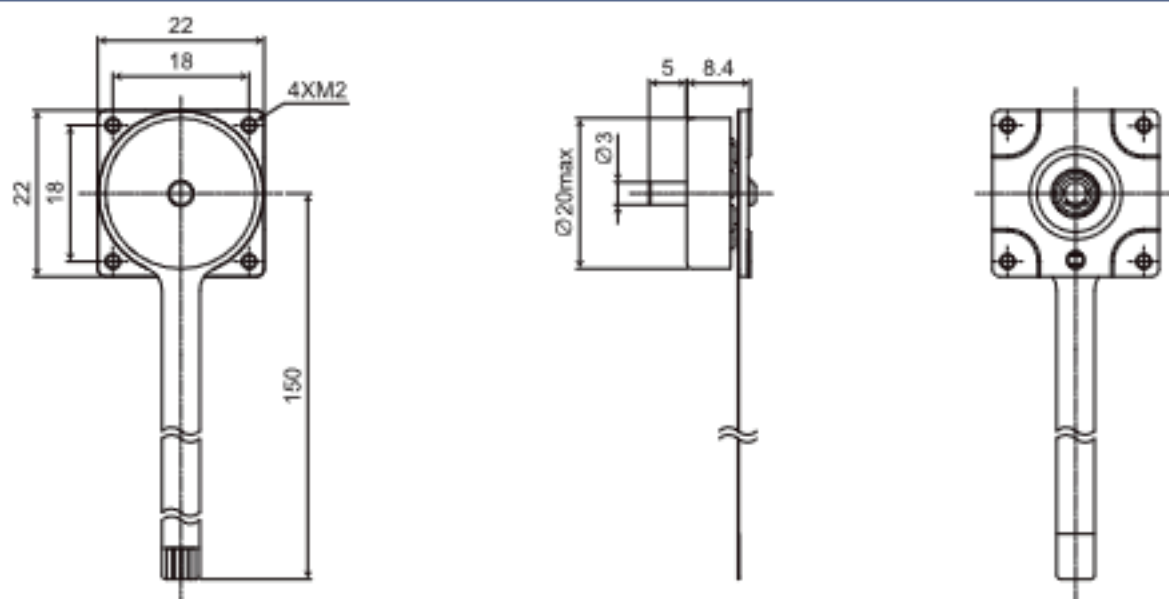


Specifications

Model	DR-20312
Type	Outer rotor type
Number of phase	3
Number of poles / slots	12 / 9
Classification of protection	Open type (IP20)
Rated voltage	5 VDC
Rated output	0.5 W
Rated speed	3'000 r/min
Mass of motor	10 g



Dimensions



Contact

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Japan

2 Phase Hybrid Stepper Motor with Battery-less Absolute Encoder

□28mm □42mm □60mm

1.8°

Bipolar



CHARACTERISTICS

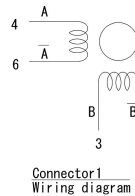
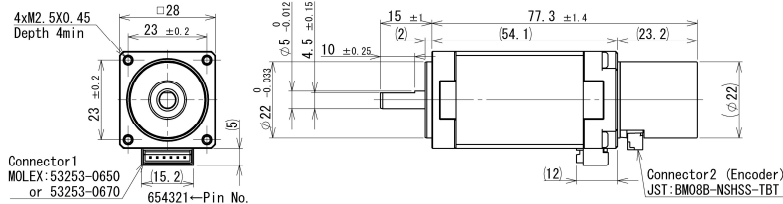
MODEL	STEP ANGLE	VOLTAGE V	CURRENT A/Φ	RESISTANCE Ω/Φ	HOLDING TORQUE mN · m	ROTER INERTIA g · cm ²	MASS kg	LENGTH mm
	Deg.							
SST28D3130E-AS	1.8	2.93	1.3	2.25	183	17	0.23	77.3
SST42D3200E-AS	1.8	2.40	2.0	1.20	530	65	0.32	65.7
SST60D3280E-AS	1.8	2.66	2.8	0.95	1647	440	0.91	79

Encoder

Electrical Resolution Singleturn	17bit
Multiturn Range	16bit
Interface	SSI
Electrical Specification of Interface	RS422

DIMENSIONS[EXAMPLE]

SST28D3130E-AS



Encoder Pin No.

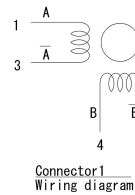
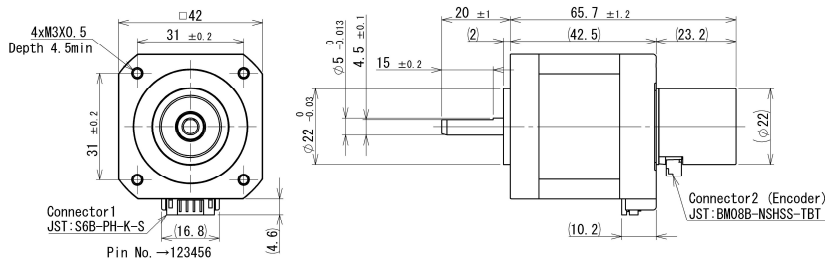
Connector2
Pin No. → 87654321



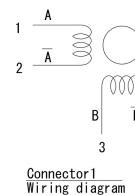
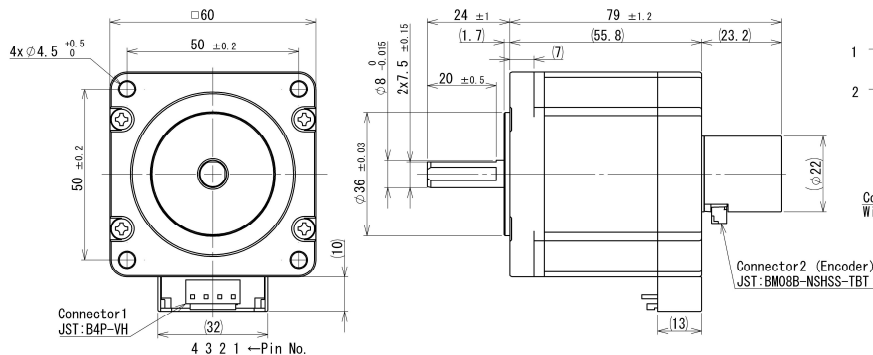
Connector2
Pin Assignment

PIN No.	SIGNAL
1	GND
2	Preset
3	Config
4	Data+
5	Data-
6	CLOCK-
7	CLOCK+
8	VCC

SST42D3200E-AS



SST60D3280E-AS

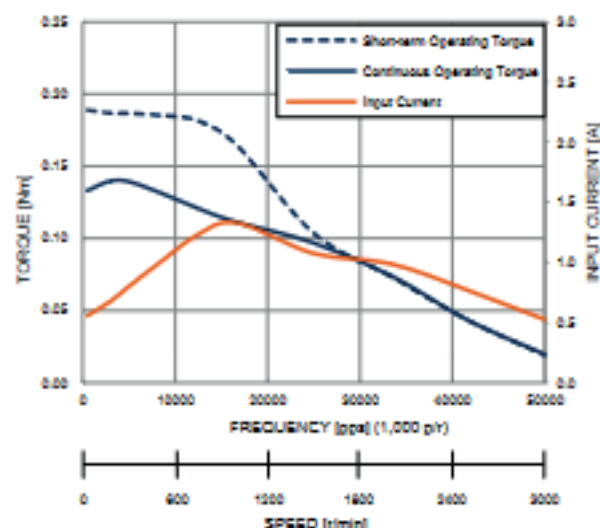


TORQUE RANGE

STEP ANGLE	SIZE	WINDINGS	MODEL	TORQUE [mN-m] *Speed at 300 rpm											
				0	100	200	300	400	500	600	800	1,000	1,200	2,000	
1.5	☐ 25 NEMA11	Bipolar	28D3												
	☐ 42 NEMA17		42D3												
	☐ 60 NEMA24		60D3												

PULL OUT TORQUE CURVE

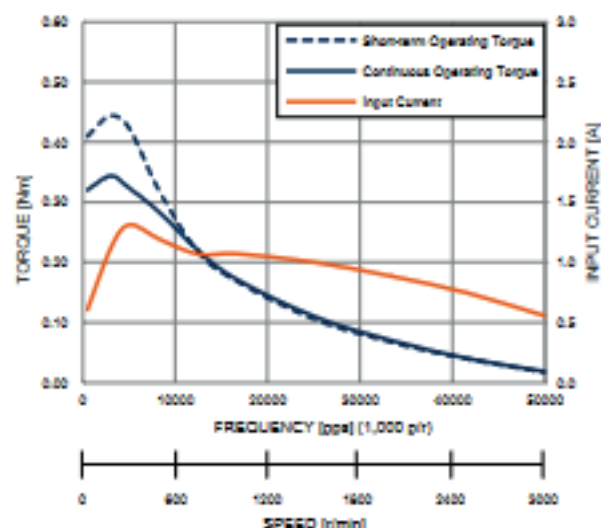
SST28D3130E-AS



DRIVER: Vector Control

SUPPLY VOLTAGE: DC24V

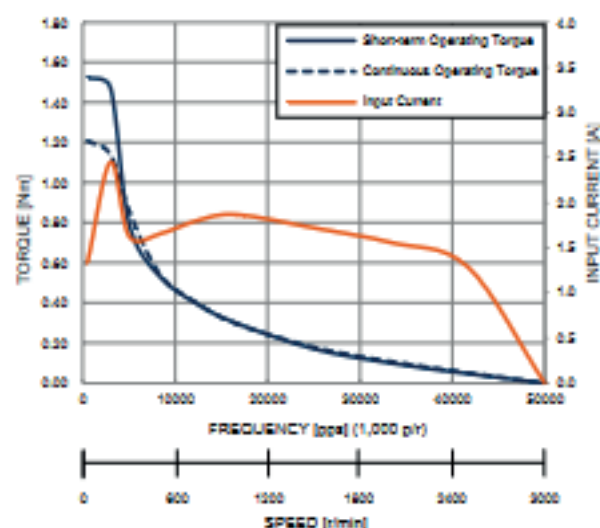
SST42D3200E-AS



DRIVER: Vector Control

SUPPLY VOLTAGE: DC24V

SST60D3280E-AS



DRIVER: Vector Control

SUPPLY VOLTAGE: DC24V

*Specifications and appearance are subject to change without notice.

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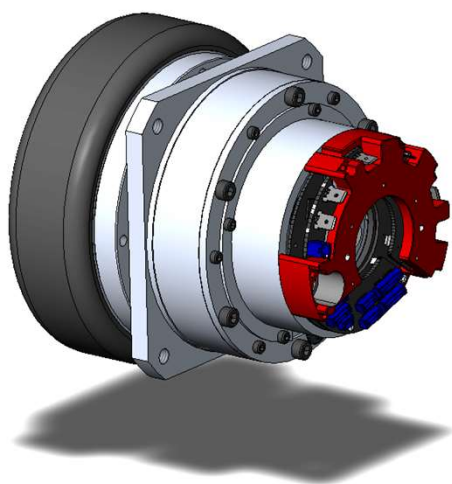
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Issue Date: October 2023

Wheel Drive Actuator



Input voltage **24~48V_{DC}**

Items	Φ150 wheel	Φ200 wheel
Rated voltage	24~48 (V)	
Rated current	TBD (A)	
Rated torque	10.8 (N/m)	30.3 (N/m)
Rated speed	333 (r/m)	107 (r/m)
Wheel speed	9.4 (km/h)	4.0 (km/h)
Gear ratio	1/9	1/28
Wheel output	300 (W)	

Characteristics

- Low profile drive actuator
- Compliant with AMR/AGV safety standards
- Ideal for 300 to 600 kg transport units

Application examples

Transportation +300kg

AGV Robotics

Hand truck



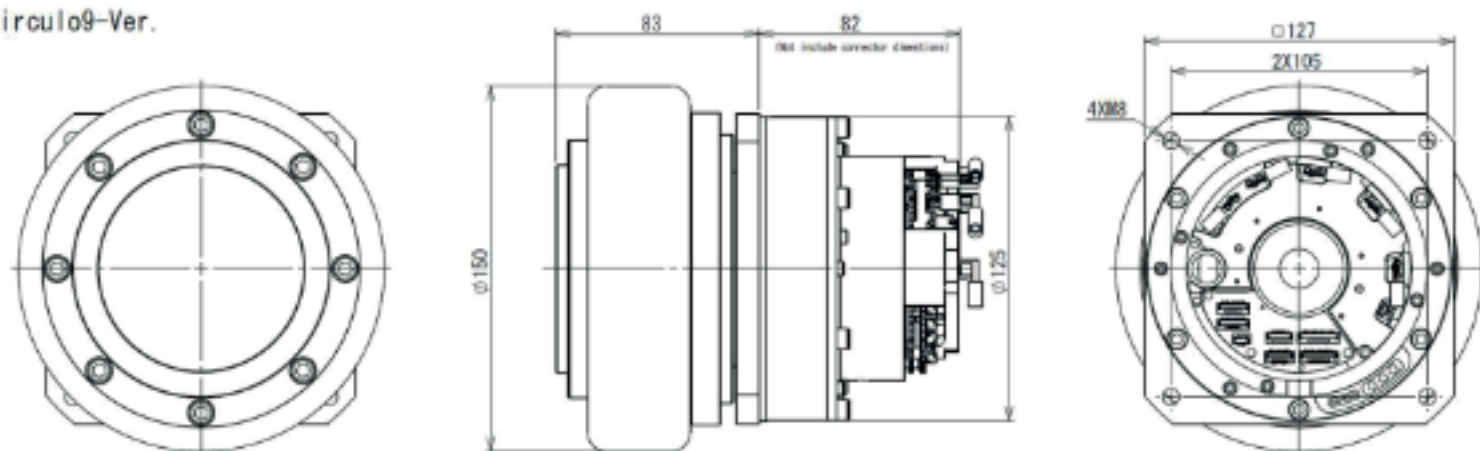
Specifications SOMANET CIRCULO 7 + CIRCULO 9

Communication Interface	EtherCAT, DS402, CoE, FoE, FSoE
Rated supply voltage DC	24-48 V
Maximum voltage DC	60 V
Continuous phase current RMS	Circulo 9: 20 Arms
Maximum phase current RMS for more details please refer to our documentation	Circulo 9: 60 Arms
Maximum efficiency	99 %
Integrated absolute encoder (option)	Circulo 9: 2 x 20 bit (1 x multi-turn)
Hardware protections	Overcurrent, overvoltage, undervoltage, overtemperature, PWM deadtime, PWM shoot through
Sensors on-board	3 x I _{phase} , U _{DC} , t _{MOSFET} , t _{core}
Encoder interface (ext.)	Port 1: SSI / BiSS-C Port 2: ABZ / SSI / BiSS-C / Nikon
Brake output	Nominal 1A @ 48V, peak 4A, pwm controlled
GPIO	5x DIO(3.3/5V), 1x DO(3.3/5V), 1x DI(24V) 1x Analog In Single Ended (0-10V) 1x Analog In Differential (+5V)
Heatsink	Aluminum, anodized, precision machined
Standard safety functions	STO / SBC according to SIL 3 PL-e
Safe Motion Module (optional)	FSoE, STO, SBC, SS1/2, SOS, SMS, 4xSLS, Safe Process Data (position, velocity), 1 x safe analog input, 2 x safe digital inputs, 1 x safe digital output (OSSD)
Integrated brake	Solenoid actuator for latching motor brake (optional)

Unit : mm

Dimensions

• Circulo9-Ver.



*Specifications and appearance are subject to change without notice.

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ASPINA

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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.