

BRUSHLESS DC MOTORS

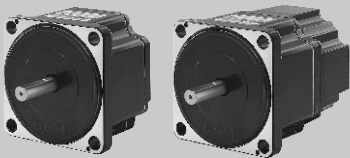


Power : 20 - 400W
Gear Ratio : 1/5-1/200

BRUSHLESS DC MOTOR UNIT - X Series

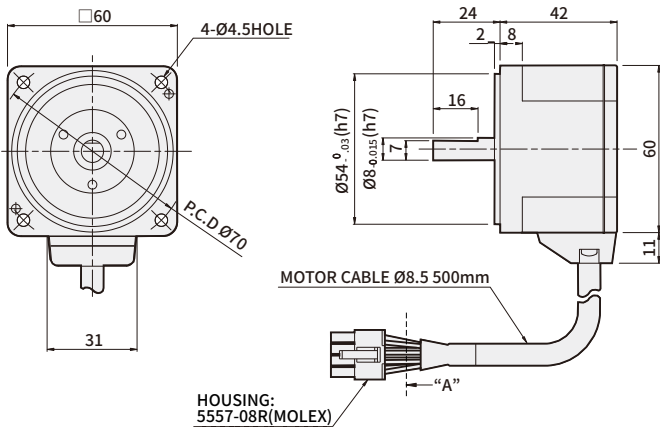
30W

60mm
DC 24V Input

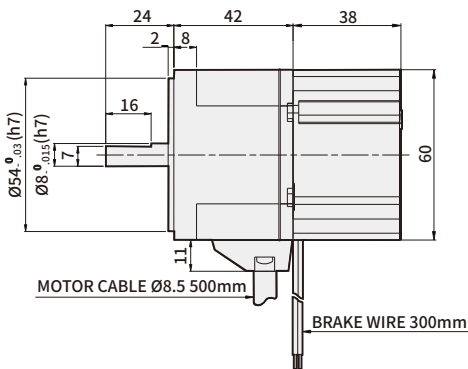


DIMENSIONS

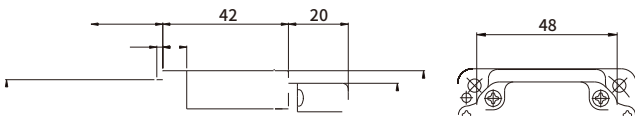
K6XS30N2
Weight : 0.5Kg



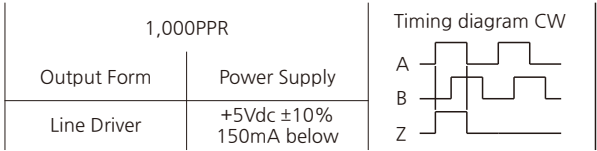
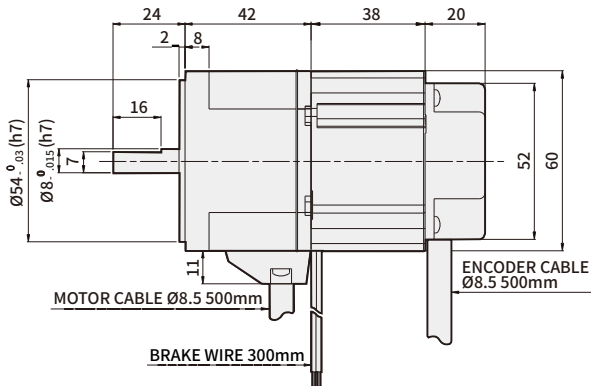
K6XS30N2-B (Brake type)
Weight : 0.8Kg



K6XS30N2-E (Encoder type)
Weight : 0.6Kg



K6XS30N2-BE (Brake Encoder type)
Weight : 0.9Kg



ENCODER PIN MAP			MOTOR PIN MAP		
PIN No.	COLOR	SIGNAL	PIN No.	COLOR	SIGNAL
1	BLUE	Vcc(5Vdc)	1	YELLOW	Vcc
2	BROWN	A	2	BLUE	U
3	WHITE	/A	3	PURPLE	V
4	ORANGE	B	4	GRAY	W
5	YELLOW	/B	5	GREEN	Ground
6	GREEN	Z	6	ORANGE	Hw
7	PURPLE	/Z	7	WHITE	Hv
8	GRAY	Ground	8	BROWN	Hu

→ Specification

Product name	GEAR TYPE	K6XH30N2	K8XH50N2	K9XH100N2	K10XH200N2	K10XH400N9
	STRAIGHT TYPE	K6XS30N2	K8XS50N2	K9XS100N2	K10XS200N2	K10XS400N9
Rating output (continuous) W		30	50	100	200	400
Power input	Rating voltage V	DC24				DC 48
	Rating voltage allowance	±10%				
	Rating input current A	2.1	3.1	6	13	11
	Maximum input current A	3.7	5.4	9.8	25	18
Rating torque N·m(kgf·cm)		0.12	0.2	0.4	0.65	1.3
Starting torque N·m(kgf·cm)		0.15	0.24	0.5	1.15	1.8
Rating rotation speed r/min		2500			3000	
Speed control range r/min		100~3000			100~4000	
Allowed inertia load moment of round shaft type $J \times 10^{-4} \text{ kg} \cdot \text{m}^2$		1.8	3.3	5.6	8.75	15
Rotor inertia moment $J \times 10^{-4} \text{ kg} \cdot \text{m}^2$		0.086	0.234	0.61	0.61	0.66
Speed change rate	Load	Less than or equal to ±1% : condition 0-rated torque, rated rotation speed, rated voltage, room temperature				
	Voltage	Less than or equal to ±1% : condition rating voltage ±10%, rating rotation speed, no load, room temperature				
	Temperature	Less than or equal to ±1% : condition surrounding temperature 0~+40℃, rating rotation speed, no load, rating voltage				

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.

※ The usage duration for starting torque is within 5 seconds at less than 2000 r/min.

※ Each specification value is the characteristic of motor by itself.

→ Common specifications

Product name	Specification
Rotation speed setting method	● Set up by external potentiometer ● Set up by external DC 0~5V
Acceleration time deceleration time	0.5~10 seconds : set at 2000 r/min when there is no load (it may change depending on the size of the load) Acceleration time and deceleration control equipment to control at the same time
Input signal	Internal full-up input method, external input voltage read as greater than 2v high(off) same at all input ports
Protection function	If the following protection mode comes on, control unit alarm signal is shown. Motor stops automatically. ● Overload protection mode : If torque that is greater than the rating is applied to the motor for more than 5 seconds ● Overvoltage protection : If voltage applied to the control unit goes over the upper bound of the rating allowance ● Open phase protection : If cable sensor line gets disconnected during motor operation ● Undervoltage protection : If voltage applied to the control unit is less than the lower bound of the rating voltage allowance ● Over speed protection : If motor rotation speed is faster than 2500 r/min
Motor insulation class	E TYPE(120℃)
Maximum extension distance	MOTOR - CONTROL UNIT 2m
Rated time	Continuous

※ Like weight carried being downwards, X SERIES cannot control motor speed through weight.

Motor gets stopped automatically through overvoltage protection of load is being carried downwards or it is heavier than allowed load inertia.

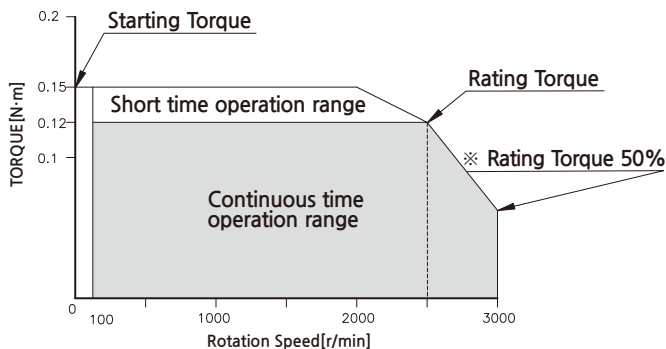
→ Normal specifications

Items		Motor	Control unit
Insulation Resistance		After being operated continuously at room temperature and humidity, the value measured between coil and vase by DC 500V MEGA is greater than or equal to 100M Ω	After being operated continuously at room temperature and humidity, the value measured between heatproof plate and power input is greater than or equal to 100M Ω
Dielectric Strength		After being operated continuously at room temperature and humidity, there shouldn't be any problem between coil and case even when AC 0.5kV is applied for 1 minute	No problem when 50Hz, AC 0.5kV is applied for one minute No problem when AC 0.5kV is applied for one minute
Used environment	Used Ambient temperature	0℃~+50℃ (should not freeze)	
	Used Ambient Humidity	less than or equal to 85% (not from dews)	
	Vibration	Altitude less than 1000m	
	Ambient environment	Cannot be used under special circumstances such as withcorrosive gas, dust, radioactive material, magnetic and vacuum	
	Vibration	Should not apply constant vibration or huge impact according to the JIS C 60068-2-6 sine wave vibration test method Frequency range : 10~55Hz, peak amplitude : 0.15mm, sweet direction : 3 direction(X,Y,Z), number of sweeps : 20 times	
Conservation environment	Ambient temperature	-25 ~ +70℃ (should not freeze)	
	Ambient Humidity	less than or equal to 85% (not form dews)	
	Altitude	Altitude less than 3000m	
Insulation class		UL, CSA STANDARD A TYPE(105℃), EN STANDARD E TYPE(120℃)	
Protection class		IP65	

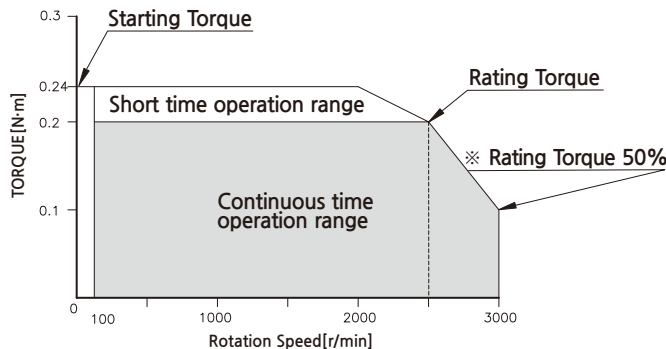
- ※ Preservation environment is a short-term value, which includes transportation.
- ※ Do not measure insulation resistance and pressure resistance while motor and driver are connected.

→ Rotation speed- torque characteristic

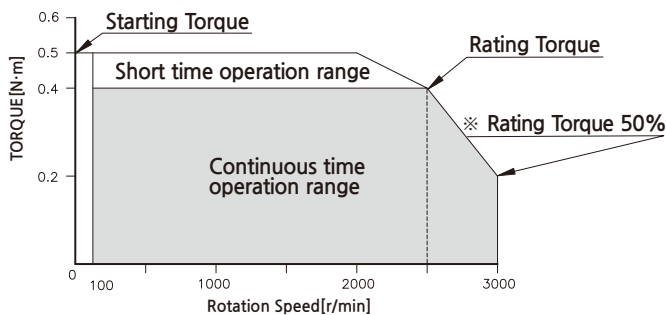
K6XS30N2 / K6XH30N2



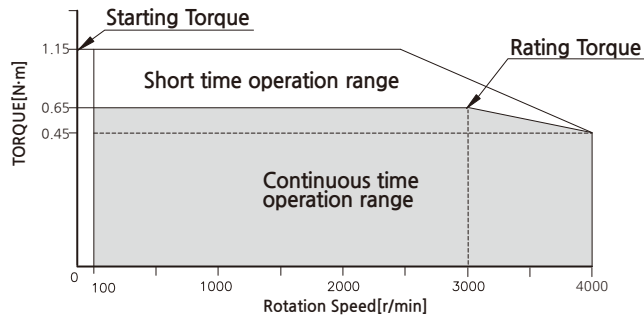
K8XS50N2 / K8XH50N2



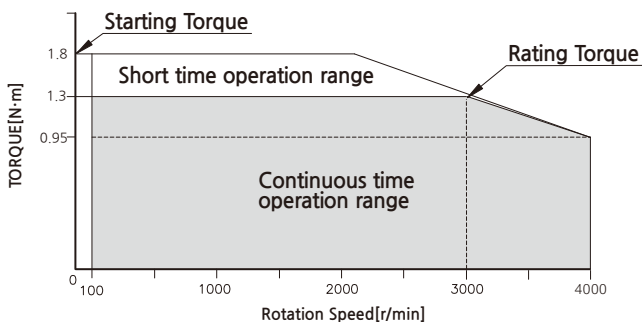
K9XS100N2 / K9XH100N2



K10XS200N2/K10XH200N2



K10XS400N9/K10XH400N9



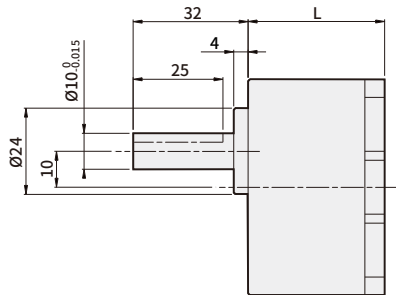
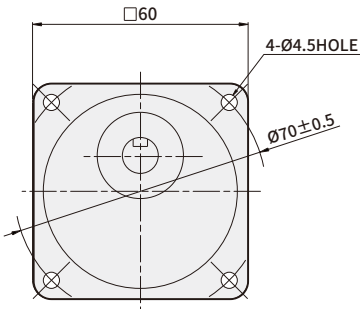
- ※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.
- ※ DC24V is the value without cable extension.

BRUSHLESS AC/DC MOTOR UNIT - Gearhead

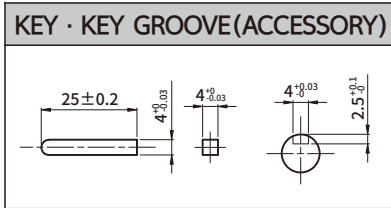
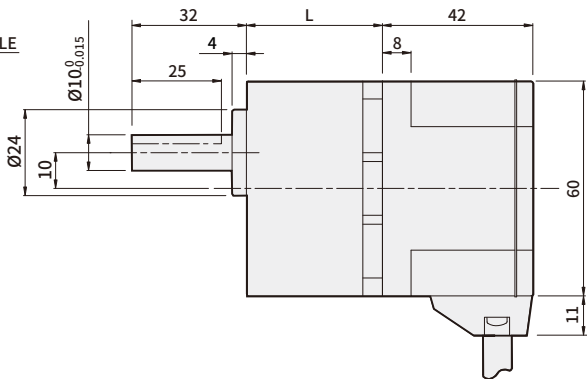
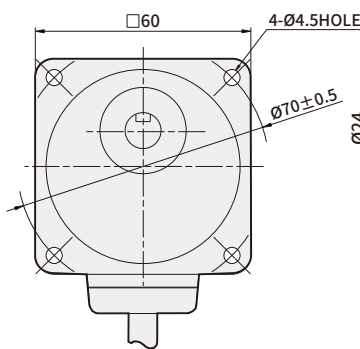
DIMENSIONS

GEARHEAD K6H□B

K6H□B
Weight : 0.4Kg



K6BH30N■ + K6H□B
K6FH30NC + K6H□B
K6XH30N2 + K6H□B
Weight : 0.9Kg



DIMENSION TABLE

GEARHEAD PRODUCT NAME	DECELERATION RATIO	L	FIXING BOLT
K6H□B	5,10,15,20	34	M4 P0.7×50
	30,50,100	38	M4 P0.7×55
	200	43	M4 P0.7×60

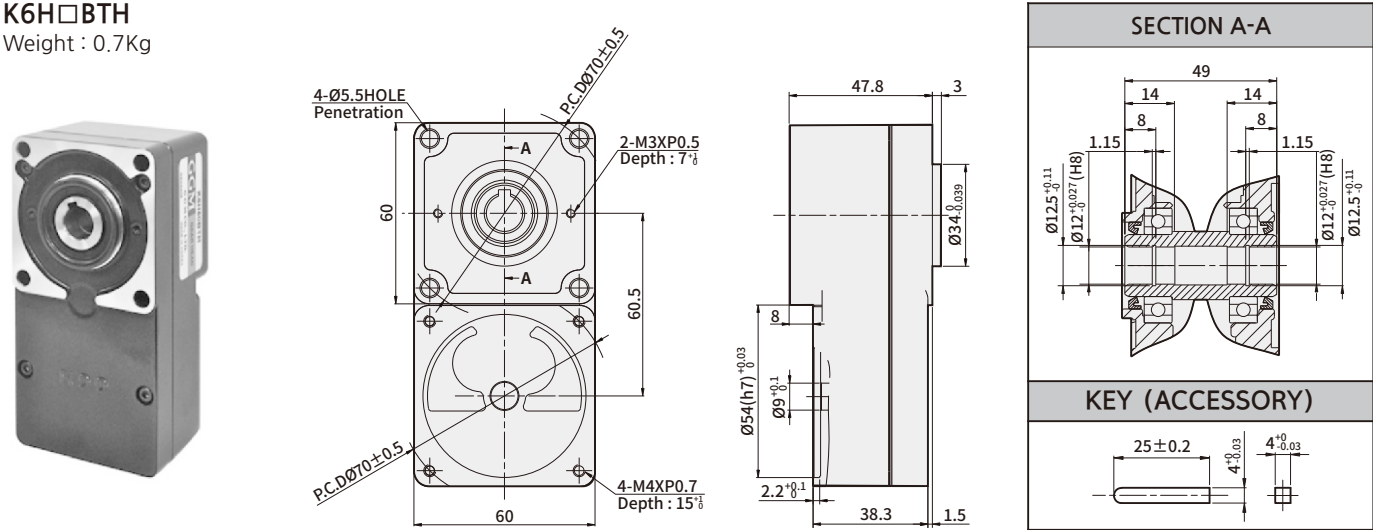
※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.
※ In ■ of the model name voltage U (single-phase 100~115V), C (single-phase 200~230V) will be shown.
※ In □ of name, it represents a deceleration ratio.
※ Geared motor is included with fixing bolt set. (flat washer, spring washer, hexagonal nut 4pcs each)

BRUSHLESS AC/DC MOTOR UNIT - Gearhead

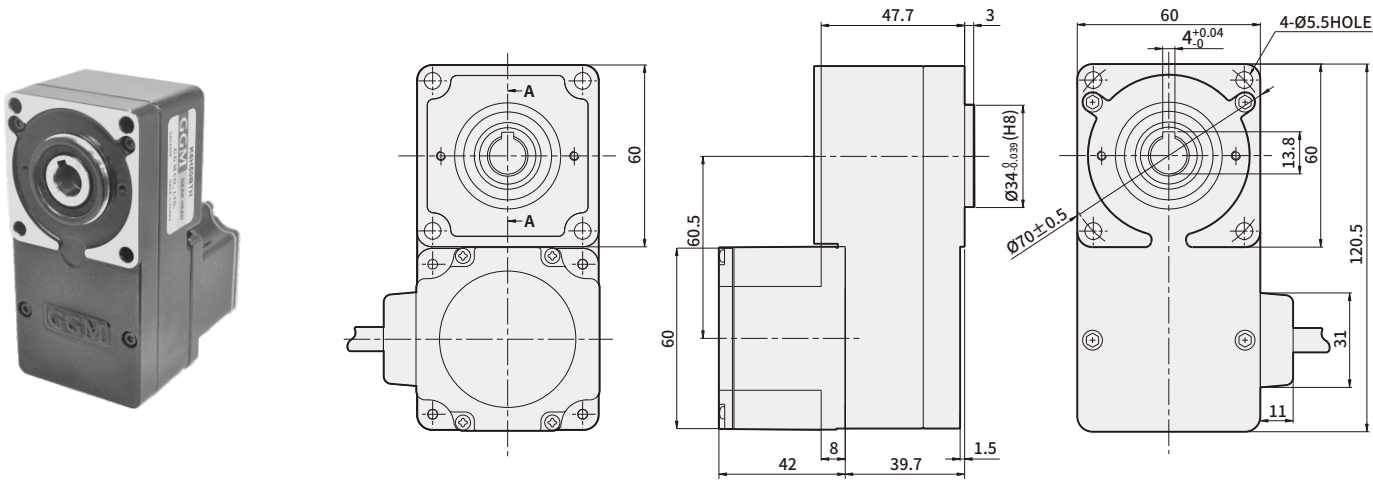
DIMENSIONS

GEARHEAD K6H□BTH

K6H□BTH
Weight : 0.7Kg



K6BH30N■ + K6H□BTH
K6FH30NC + K6H□BTH
K6XH30N2 + K6H□BTH
Weight : 1.2Kg



DIMENSION TABLE

GEARHEAD PRODUCT NAME	DECELERATION RATIO	FIXING BOLT
K6H□BTH	5, 10, 15, 20, 30 50, 100, 200	M5 P0.8×65

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.
※ In ■ of the model name voltage U (single-phase 100~115V), C (single-phase 200~230V) will be shown.
※ In □ of name, it represents a deceleration ratio.
※ Geared motor is included with fixing bolt set. (flat washer, spring washer, hexagonal nut 4pcs each)

→ Delivery efficiency of gearhead

Product name	Deceleration ratio	5	10	15	20	30	50	100	200
	K6H□B	90%				86%			81%
	K8H□B	90%				86%			81%
	K9H□B	90%				86%			81%
	K10H□BU	90%				86%		81%	
	K6H□BTH	80%	85%						
	K8H□BTH	85%							
	K9H□BTH	85%							
	K10H□BTH	85%							

→ Allowed torque of AC Motor + Gearhead

Unit = N·m

Product name	Deceleration ratio	5	10	15	20	30	50	100	200
	Speed control range[r/min]	20~600	10~300	6.7~200	5~150	3.3~100	2~60	1~30	0.5~15
K6BH30N■ + K6H□B	100~3000	0.45	0.9	1.4	1.8	2.6	4.3	6	6
K8BH60N■ + K8H□B		0.9	1.8	2.7	3.6	5.2	8.6	16	16
K9BH90N■ + K9H□B		1.35	2.7	4.1	5.4	7.7	12.9	25.8	30
K9BH150NC + K9H□B		2.2	4.4	6.6	8.8	12.6	21.1	30	30
K6BH30N■ + K6H□BTH		0.4	0.85	1.3	1.7	2.6	4.3	8.5	17
K8BH60N■ + K8H□BTH		0.85	1.7	2.6	3.4	5.1	8.5	17	34
K9BH90N■ + K9H□BTH		1.9	3.8	5.7	7.7	11.5	19.1	38.3	68
K9BH150NC + K9H□BTH		2.1	4.2	6.2	8.3	12.5	21	42	68
Product name	Deceleration ratio	5	10	15	20	30	50	100	200
	Speed control range[r/min]	20~800	10~400	6.7~266	5~200	3.3~133	2~80	1~40	0.5~20
K6FH30NC+K6H□B	100~3000	0.45	0.9	1.4	1.8	2.6	4.3	6	6
	4000	0.36	0.72	1.08	1.4	2.1	3.4	5.4	5.4
K8FH60NC+K8H□B	100~3000	0.9	1.8	2.7	3.6	5.2	8.6	16	16
	4000	0.68	1.4	2.0	2.7	3.9	6.5	12.9	14
K9FH150NC+K9H□B	100~3000	2.2	4.4	6.6	8.8	12.6	21.1	30	30
	4000	1.4	2.7	4.1	5.4	7.7	12.9	25.8	27
K10FH200NC+K10H□BU	100~3000	2.9	5.9	8.8	11.7	16.8	28	52.7	70
	4000	2	4.1	6.1	8.1	11.6	19.4	36.5	63
K10FH400NC+K10H□BU	100~3000	5.9	11.7	17.6	23.4	33.5	55.9	70	70
	4000	4.3	8.6	12.8	17.1	24.5	40.9	63	63
K6FH30NC+K6H□BTH	100~3000	0.4	0.85	1.3	1.7	2.6	4.3	8.5	17
	4000	0.30	0.64	0.96	1.3	1.9	3.2	6.4	12.8
K8FH60NC+K8H□BTH	100~3000	0.85	1.7	2.6	3.4	5.1	8.5	17	34
	4000	0.64	1.3	1.9	2.6	3.8	6.4	12.8	25.5
K9FH150NC+K9H□BTH	100~3000	2.1	4.2	6.2	8.3	12.5	21	42	68
	4000	1.3	2.6	3.8	5.1	7.7	12.8	25.5	51
K10FH200NC+K10H□BTH	100~3000	2.8	5.5	8.3	11.1	16.6	27.6	55.3	—
	4000	1.9	3.8	5.7	7.7	11.5	19.1	38.3	—
K10FH400NC+K10H□BTH	100~3000	5.5	11.1	16.6	22.1	33.2	55.3	110	—
	4000	4.0	8.1	12.1	16.2	24.2	40.4	80.8	—

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.

※ In ■ of the model name voltage U (single-phase 100~115V), C (single-phase 200~230V) will be shown.

※ In □ of name, it represents a deceleration ratio.

※ Rotation direction shows the same [] color as the motor. In other cases, it's the opposite.

※ Flat Gearbox viewed from front side is opposite rotation direction with motor.

※ Flat Gearbox viewed from back side is same rotation direction with motor.

→ Allowed torque of DC Motor + Gearhead

Unit = N·m

Product name	Deceleration ratio		5	10	15	20	30	50	100	200
	Speed control range[r/min]		20~600	10~300	6.7~200	5~150	3.3~100	2~60	1~30	0.5~15
K6XH30N2 + K6H□B	100~2500		0.54	1.1	1.6	2.2	3.1	5.2	6	6
	3000		0.3	0.54	0.81	1.1	1.5	2.6	5.2	6
K8XH50N2 + K8H□B	100~2500		0.9	1.8	2.7	3.6	5.2	8.6	16	16
	3000		0.45	0.9	1.4	1.8	2.6	4.3	8.6	16
K9XH100N2 + K9H□B	100~2500		1.8	3.6	5.4	7.2	10.3	17.2	30	30
	3000		0.9	1.8	2.7	3.6	5.2	8.6	17.2	30
K6XH30N2 + K6H□BTH	100~2500		0.48	1	1.5	2	3.1	5.1	10.2	17
	3000		0.2	0.51	0.77	1	1.5	2.6	5.1	10.2
K8XH50N2 + K8H□BTH	100~2500		0.85	1.7	2.6	3.4	5.1	8.5	17	34
	3000		0.43	0.85	1.3	1.7	2.6	4.3	8.5	17
K9XH100N2 + K9H□BTH	100~2500		1.7	3.4	5.1	6.8	10.2	17	34	68
	3000		0.85	1.7	2.6	3.4	5.1	8.5	17	34
Product name	Deceleration ratio		5	10	15	20	30	50	100	200
	Speed control range[r/min]		20~800	10~400	6.7~267	5~200	3.3~133	2~80	1~40	0.5~20
K10XH200N2 + K10H□BU	100~3000		2.9	5.9	8.8	11.7	16.8	28	52.7	70
	4000		2.0	4.1	6.1	8.1	11.6	19.4	36.5	63
K10XH400N9 + K10H□BU	100~3000		5.9	11.7	17.6	23.4	33.5	55.9	70	70
	4000		4.3	8.6	12.8	17.1	24.5	40.9	63	63
K10XH200N2 + K10H□BTH	100~3000		2.8	5.5	8.3	11.1	16.6	27.6	55.3	—
	4000		1.9	3.8	5.7	7.7	11.5	19.1	38.3	—
K10XH400N9 + K10H□BTH	100~3000		5.5	11.1	16.6	22.1	33.2	55.3	110	—
	4000		4.0	8.1	12.1	16.2	24.2	40.4	80.8	—

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.

※ In □ of name, it represents a deceleration ratio.

※ Rotation direction shows the same color as the motor. In other cases, it's the opposite.

※ Flat Gearbox viewed from front side is opposite rotation direction with motor. Flat Gearbox viewed from back side is same rotation direction with motor.

→ Allowed overhang load and allowed thrust

Product name		Deceleration ratio	Allowed overhand load				Allowed thrust load	
			From the end of output part 10mm		From the end of output part 20mm			
			N	kgf	N	kgf	N	kgf
GEARHEAD	K6H□B	5	100	10	150	15	40	4
		10,15,20	150	15	200	20		
		30,50,100,200	200	20	300	30		
	K8H□B	5	200	20	250	25	100	10
		10,15,20	300	30	350	35		
		30,50,100,200	450	45	550	55		
	K9H□B	5	300	30	400	40	150	15
		10,15,20	400	40	500	50		
		30,50,100,200	500	50	650	65		
	K10H□BU	5,10,15,20	550	55	800	80	200	20
		30,50	1000	100	1250	125	300	30
		100,200	1400	140	1700	170	400	40
	K6H□BTH	5,10	450	45	370	37	200	20
		15~200	500	50	400	40		
	K8H□BTH	5,10	800	80	660	66	400	40
		15~200	1200	120	1000	100		
	K9H□BTH	5,10	900	90	770	77	500	50
		15,20	1300	130	1110	111		
		30,50,100,200	1500	150	1280	128		
	K10H□BTH	5,10	1230	123	1070	107	800	80
		15,20	1680	168	1470	147		
		30,50,100	2040	204	1780	178		
MOTOR	K6BS30N■,K6FS30NC K6XS30N2		70	7	100	10	· Do not apply THRUST load Please. If you can't help it, 50% or less.	
	K8BS60N■,K8FS60NC K8XS50N2		120	12	140	14		
	K9BS90N■,K9BS150NC K9FS150NC,K9XS100N2		160	16	170	17		
	K10FS200NC,K10FS400NC K10XS200N2,K10XS400N9		197	19.7	220	22		

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.
※ In ■ of the model name voltage U (single-phase 100~115V), C (single-phase 200~230V) will be shown.
※ In □ of name, it represents a deceleration ratio.
※ Permissible overhang load can be withdrawn by calculation.

BRUSHLESS DC MOTOR UNIT - L Series

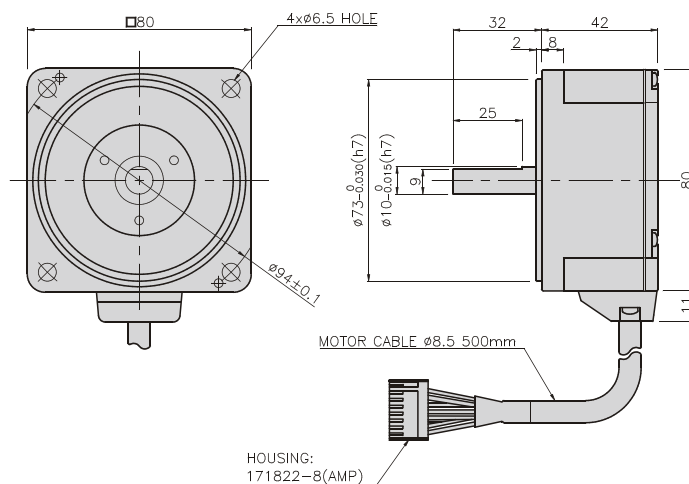
50W

□80mm

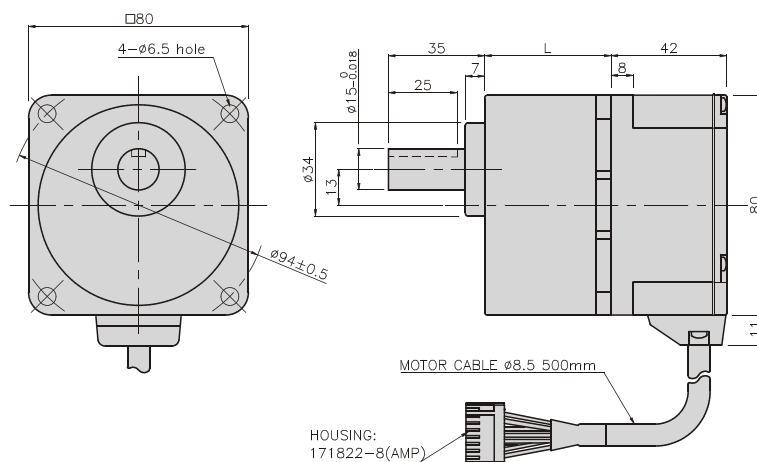
DC24V INPUT

DIMENSIONS

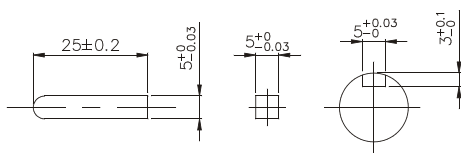
K8LS50N2



K8LH50N2-A□



* KEY · KEY GROOVE



PRODUCT NAME	MOTOR PRODUCT NAME	GEAR HEAD PRODUCT NAME	DECELERATION RATIO	L	FIXING BOLT
K8LH50N2-A□	K8LH50N2	K8H□B	5~20	41	M6 P1.0×65
			30~100	46	M6 P1.0×70
			200	51	M6 P1.0×75

* In □, the number for deceleration ratio should be written.

* Geared motor is included with fixing bolt set (normal washer, spring washer, cube nut; 4 each)

→ Types

◆ GEARED TYPE/COMBINATION TYPE

TYPE	OUTPUT	PRODUCT NAME	DECELERATION RATIO
COMBINATION TYPE	30W	K6LH30N2-A□	5, 10, 15, 20, 30, 50, 100, 200
	50W	K8LH50N2-A□	5, 10, 15, 20, 30, 50, 100, 200
	100W	K9LH100N2-A□	5, 10, 15, 20, 30, 50, 100, 200

◆ STRAIGHT SHAFT TYPE

OUTPUT	POWER VOLTAGE	PRODUCT NAME
30W	DC24V	K6LS30N2
50W		K8LS50N2
100W		K9LS100N2

◆ PINION SHAFT TYPE

OUTPUT	POWER VOLTAGE	PRODUCT NAME
30W	DC24V	K6LH30N2
50W		K8LH50N2
100W		K9LH100N2

◆ GEAR HEAD

APPLIED MOTOR OUTPUT	GEAR HEAD PRODUCT NAME	DECELERATION RATIO
30W	K6H□B	5, 10, 15, 20, 30, 50, 100, 200
50W	K8H□B	5, 10, 15, 20, 30, 50, 100, 200
100W	K9H□B	5, 10, 15, 20, 30, 50, 100, 200

* In □, the number for deceleration ratio should be written.

→ Specification

Product name	Combination type · parallel axis gear head		K6LH30N2-A□	K8LH50N2-A□	K9LH100N2-A□	
	Round shaft type		K6LS30N2	K8LS50N2	K9LS100N	
Rating output (continuous)		W	30	50	100	
Power input	Rating voltage		V			
	Rating voltage allowance		±10%			
	Rating input current		A	2,1	3,1	6,0
	Rating output current		A	3,7	5,4	9,8
Rating torque		N · m	0,12	0,2	0,4	
Starting torque		N · m	0,15	0,24	0,5	
Rating rotation speed		r/min	2500			
Speed control range		r/min	100~3000			
Allowed inertia load moment of round shaft type		J×10 ⁻⁴ kg · m ²	1,8	3,3	5,6	
rotor inertia moment		J×10 ⁻⁴ kg · m ²	0,086	0,234	0,611	
Speed change rate	Load		Less than or equal to ±1%: condition 0-rated torque, rated rotation speed, rated voltage, room temperature			
	Voltage		Less than or equal to ±1%: condition rating voltage ±10%, rating rotation speed, no load, room temperature			
	Temperature		Less than or equal to ±1%: condition surrounding temperature 0~+40° C, rating rotation speed, no load, rating voltage			

- * The usage duration for starting torque is within 5 seconds at less than 2000r/min
- * In □, the number for deceleration ratio should be written.
- * Each specification value is the characteristic of motor by itself.

→ Common specifications

Product name	Specification
Rotation speed setting method	Controller panel's speed control volume
Acceleration time/deceleration time	0,5~10 seconds: set at 2500r/min when there is no load (it may change depending on the size of the load) Acceleration time and deceleration control equipment to control at the same time
Input signal	Internal full-up input method, external input voltage read as greater than 2V high (off), same at all input ports
output signal	Open collector output, common for speed out/alarm out, If input voltage from outside is applied to connector #2 PIN, then it comes out through the applied power. Everything else is internal 5V output UI(CTRL)
Protection function	If the following protection mode comes on, control unit alarm signal is shown. Motor stops automatically. ● Overload protection mode: If torque that is greater than the rating is applied to the motor for more than 5 seconds ● Overvoltage protection : If voltage applied to the control unit goes over the upper bound of the rating voltage allowance ● Open phase protection : If cable sensor line gets disconnected during motor operation ● Undervoltage protection : If voltage applied to the control unit is less than the lower bound of the rating voltage allowance ● Over speed protection : If motor rotation speed is faster than 2500r/min
Motor insulation class	E TYPE (120° C)
Maximum extension distance	MOTOR – CONTROL UNIT 2m
Rated time	continuous

- ※ Like weight carried being downwards, L SERIES cannot control motor speed through weight
- Motor gets stopped automatically through overvoltage protection if load is being carried downwards or it is heavier than allowed load inertia

→ Normal specifications

Items		Motor	Control unit
Insulation resistance		After being operated continuously at room temperature and humidity, the value measured between coil and case by DC 500V MEGA is greater than or equal to 100MΩ	After being operated continuously at room temperature and humidity, the value measured between heatproof plate and power input is greater than or equal to 100MΩ
Dielectric Strength		After being operated continuously at room temperature and humidity, there shouldn't be any problem between coil and case even when AC 0,5kV is applied for 1 minute.	No problem when 50Hz, AC 0,5kV is applied for one minute No problem when AC 0,5kV is applied for one minute
Used environment	Ambient temperature	0~+50° C(should not freeze)	
	Ambient Humidity	Less than or equal to 85% (not form dews)	
	Altitude	Altitude less than 1000m	
	Ambient environment	Cannot be used under special circumstances such as with corrosive gas, dust, radioactive material, magnetic and vacuum	
	Vibration	Should not apply constant vibration or huge impact According to the JIS C 60068-2-6 sine wave vibration test method Frequency range: 10~55Hz, peak amplitude: 0,15mm sweet direction: 3 directions(X, Y, Z) number of sweeps: 20 times	
Storage environment ^{1,2}	Ambient temperature	-25~+70° C(should not freeze)	
	Ambient Humidity	Less than or equal to 85% (not form dews)	
	Altitude	Altitude less than 3000m	
Insulation class		UL, CSA STANDARD A TYPE(105° C) EN STANDARD E TYPE(120° C)	—
Protection class		IP65	IP00

- Preservation environment is a short-term value, which includes transportation
- Do not measure insulation resistance and pressure resistance while motor and driver are connected

→ allowed torque of combination type

Unit=N · m(kgf · cm)

Items	Deceleration ratio		5	10	15	20	30	50	100	200
	Speed control range[r/min]		20~500	10~250	6,7~167	5~125	3,3~83	2~50	1~25	0,5~12,5
			600	300	200	150	100	60	30	15
K6LH30N■-A□	100~2500r/min		0,54(5,4)	1,1(11)	1,6(16)	2,2(22)	3,1(31)	5,2(52)	6(60)	6(60)
	3000r/min		0,27(2,7)	0,54(5,4)	0,81(8,1)	1,1(11)	1,5(15)	2,6(26)	5,2(52)	6(60)
K8LH50N■-A□	100~2500r/min		0,9(9)	1,8(18)	2,7(27)	3,6(36)	5,2(52)	8,6(86)	16(160)	16(160)
	3000r/min		0,45(4,5)	0,9(9)	1,4(14)	1,8(18)	2,6(26)	4,3(43)	8,6(86)	16(160)
K9L100N■-A□	100~2500r/min		1,8(18)	3,6(36)	5,4(54)	7,2(72)	10,3(103)	17,2(172)	30(300)	30(300)
	3000r/min		0,9(9)	1,8(18)	2,7(27)	3,6(36)	5,2(52)	8,6(86)	17,2(172)	30(300)

* Rotation direction shows the same color as the motor. In other cases, it's the opposite.

→ Allowed overhang load and allowed thrust

Product name		Deceleration ratio	Allowed overhang load				Allowed thrust load	
			From the end of output part : 10mm		From the end of output part : 20mm			
			N	kgf	N	kgf	N	kgf
GEARED MOTOR	K6LH30N■—A□	5	100	10	150	15	40	4
		10~20	150	15	200	20		
		30~200	200	20	300	30		
	K8LH50N■—A□	5	200	20	250	25	100	10
		10~20	300	30	350	35		
		30~200	450	45	550	55		
	K9LH100N■—A□	5	300	30	400	40	150	15
		10~20	400	40	500	50		
		30~200	500	50	650	65		
MOTOR	K6LS30N■		70	7	100	10	· Be careful not to weigh thrust. If it' s inevitable, keep it under 50% of the motor weight.	
	K8LS50N■		120	12	140	14		
	K9LS100N■		160	16	170	17		

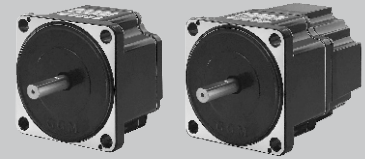
* In dimension, in ■ of name represents power voltage U (single-phase 100~115V) and C (single-phase 200~230V).

* In □ of name, it represents a deceleration ratio.

BRUSHLESS DC MOTOR UNIT - X Series

750W

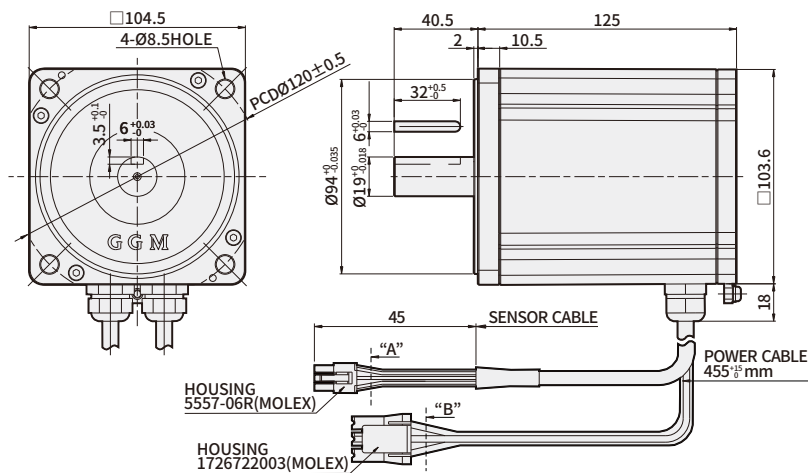
□104mm
DC 48V 입력



DIMENSIONS

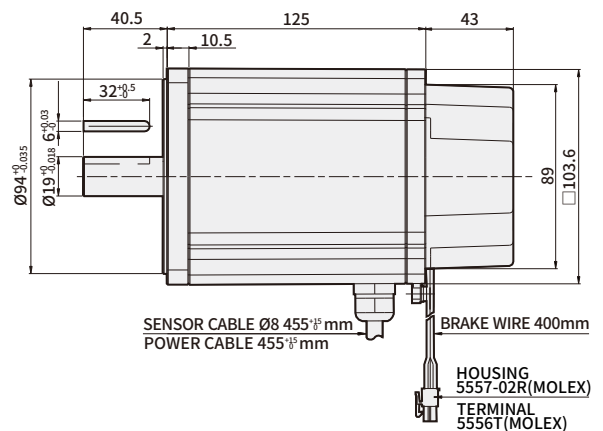
K10XK750N9

무게 : 4.7Kg



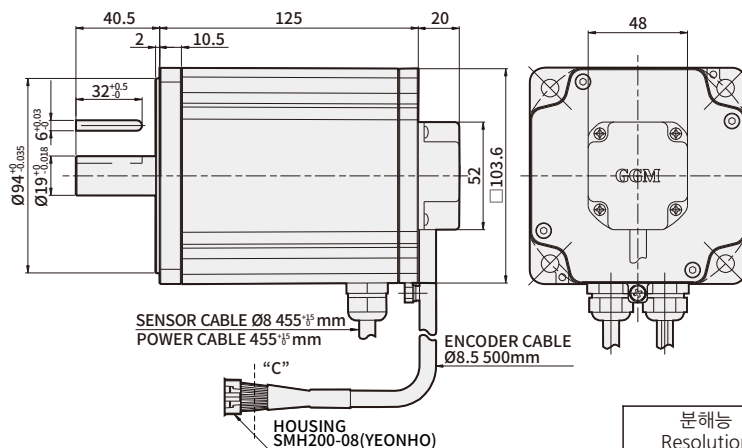
K10XK750N9-B (Brake type)

무게 : 5.3Kg



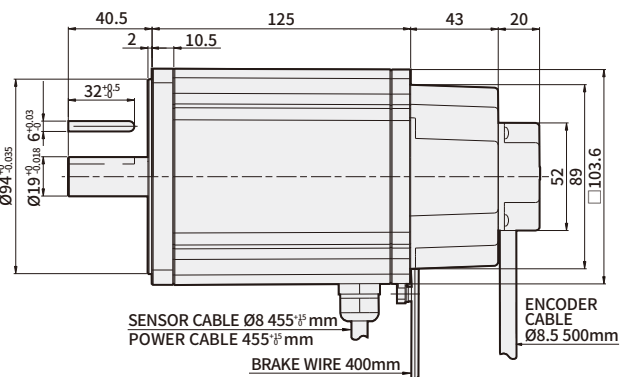
K10XK750N9-E (Encoder type)

무게 : 4.8Kg



K10XK750N9-BE (Brake Encoder type)

무게 : 5.4Kg



분해능 Resolution	1,000PPR		Timing diagram CW A B Z
출력방식 Output Type	출력형태 Output Form	전원 Power Supply	
	Line Driver	+5Vdc ±10% 150mA 이하	

CONNECTOR HOUSING		
MOTOR VIEW "A" / "B"		ENCODER VIEW "C"
A	B	C

ENCODER PIN MAP		
PIN No.	COLOR	SIGNAL
1	BLUE	Vcc(5Vdc)
2	BROWN	A
3	WHITE	/A
4	ORANGE	B
5	YELLOW	/B
6	GREEN	Z
7	PURPLE	/Z
8	GRAY	Ground

MOTOR PIN MAP		
PIN No.	COLOR	SIGNAL
1	YELLOW	VCC
2	BLACK	DRAIN
3	GREEN	Ground
4	BROWN	Hu
5	WHITE	Hv
6	ORANGE	Hw
-	WHITE	U
-	RED	V
-	BLACK	W

→ 사양

품 명		GEAR TYPE	K6XH30N2	K8XH50N2	K9XH100N2	K10XH200N2	K10XH400N9	-
		STRAIGHT TYPE	K6XS30N2	K8XS50N2	K9XS100N2	K10XS200N2	K10XS400N9	-
		KEY TYPE	K6XK30N2	K8XK50N2	K9XK100N2	K10XK200N2	K10XK400N9	K10XK750N9
정격출력 (연속)		W	30	50	100	200	400	750
전원입력	정격전압	V	Dc24				DC 48	
	허용전압범위		±10%					
	정격입력전류	A	2.1	3.1	6	13	11	18
	최대입력전류	A	3.7	5.4	9.8	25	18	30
정격TORQUE		N·m	0.12	0.2	0.4	0.65	1.3	2.4
기동TORQUE		N·m	0.15	0.24	0.5	1.15	1.8	3.5
정격회전속도		r/min	2500			3000		
속도제어범위		r/min	100~3000			100~4000		100~3000
속도변동율	대 부하		±1% 이하 : 조건 0~정격TORQUE, 정격회전속도, 정격전압, 상온					
	대 전압		±1% 이하 : 조건 전원전압 ±10%, 정격회전속도, 무부하, 상온					
	대 온도		±1% 이하 : 조건 사용주위온도 0~+40℃, 정격회전속도, 무부하, 정격전압					

※ 품명 끝에 -B (BRAKE) 또는 -E (ENCODER), -BE (BRAKE+ENCODER) 가 들어갈 수 있습니다.
※ 기동TORQUE의 사용시간은 2000 r/min 이하에서 약 5초 이내입니다.
※ 각 사양의 값은 MOTOR 단품 시의 특성입니다.

→ 공통사양

항 목	사 양
회전속도 설정방법	● 외부 속도 설정기에 의한 설정 ● 외부 직류전압에 의한 설정 (DC 0~5V)
가속시간 / 감속시간	0.5~10초 : 2000 r/min. 무부하시 (단 부하의 크기에 따라 변화할 수 있습니다.) 가속시간 및 감속시간설정으로 공통설정
입력신호	내부 FULL-UP 입력방식, 외부 입력전압 2V이상 HIGH(OFF)으로 인식, 모든 입력포트에서 동일
보호기능	다음의 보호기능이 동작하면 CONTROL UNIT ALARM 신호가 출력되고, MOTOR는 자연 정지합니다. ● 과부하보호기능 : MOTOR에 정격TORQUE를 초과하는 부하가 약 5초이상 인가될 경우 ● 과전압보호기능 : CONTROL UNIT에 인가되는 전압이 정격전압 허용범위 상한치를 초과할 경우 ● 결상보호기능 : MOTOR의 운전중, CABLE의 SENSOR선이 단선될 경우 ● 부족전압보호기능 : CONTROL UNIT에 인가되는 전압이 정격전압 허용범위 하한치를 미달할 경우 ● 과속도보호기능 : MOTOR 회전속도가 3500 r/min 을 초과할 경우
모터 절연 계급	E종(120℃)
최대 연장 거리	MOTOR - CONTROL UNIT 간 2m
시간정격	연속

※ X SERIES는 감아내림 부하 운전처럼, 부하 측에서 MOTOR 측이 돌려지는 용도에서 MOTOR의 속도제어가 불가능합니다.
허용 부하 관성의 값을 넘는 부하를 구동한 경우나, 감아내림 부하 운전에서는 과전압보호 기능이 작동하여 MOTOR를 자연 정지시킵니다.

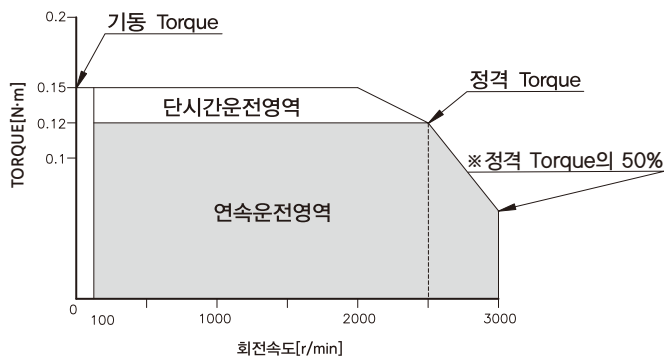
→ 일반사양

항 목		MOTOR	CONTROL UNIT
절연저항		상온·상습에서 연속운전 후 COIL과 CASE간에 DC 500V MEGA TESTER로 측정 시 100MΩ 이상일 것	상온·상습에서 연속운전 후 전원입력과 방열판 사이를 DC500V MEGA로 측정한 값이 100MΩ 이상일 것
절연내압		상온·상습에서 연속운전 후 COIL과 CASE간에 50Hz, AC 0.5kV를 1분간 인가해도 이상이 없을 것	상온·상습에서 연속운전 후 전원입력과 방열판 사이에 50Hz, AC 0.5kV를 1분간 인가해도 이상이 없을 것
사용환경	사용주위온도	0℃~+50℃ (동결 하지 않을 것)	
	사용주위습도	85% 이하 (이슬이 맺히지 않을 것)	
	표고	해발 1000m이하	
	주위환경	부식성 가스, 분진이 없을 것, 방사성물질, 자장, 진공 등의 특수환경에서의 사용은 불가	
	진동	연속적인 진동이나 과도한 충격이 가해지지 않을 것 (JIS C 60068-2-6 정현파진동시험방법에 준거) 주파수범위 : 10~55Hz, 편진폭 : 0.15mm, 소인방향 : 3방향(X,Y,Z), 소인횟수 : 20회	
보존환경	주위온도	-25 ~ +70℃ (동결하지 않을 것)	
	주위습도	85% 이하 (이슬이 맺히지 않을 것)	
	표고	해발 3000m이하	
절연등급		UL, CSA규격 A종(105℃), EN규격 E종(120℃)	
보호등급		IP65	IP00

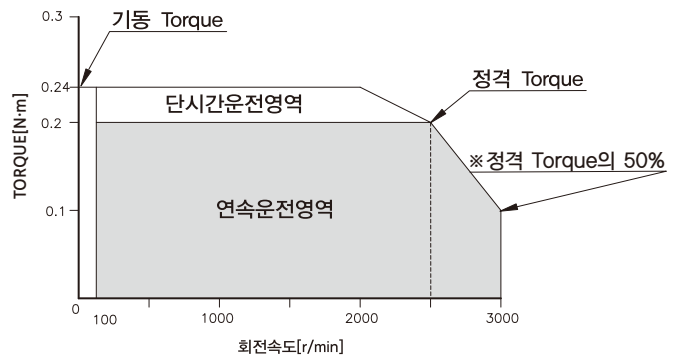
※ 보존환경은 수송 중을 포함한 단기간의 값입니다. ※ MOTOR와 DRIVER를 접속한 상태에서는 절연저항측정, 내압시험을 하지 말아 주십시오.

→ 회전속도-TORQUE 특성

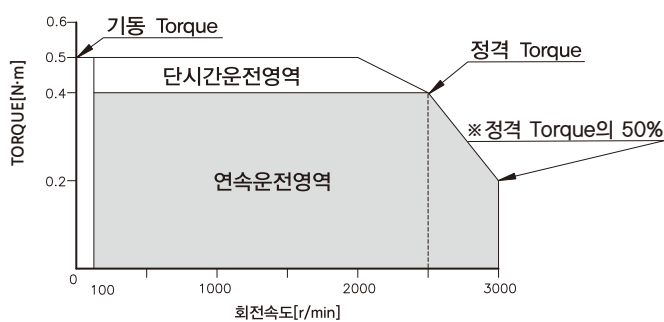
K6XS30N2 / K6XH30N2



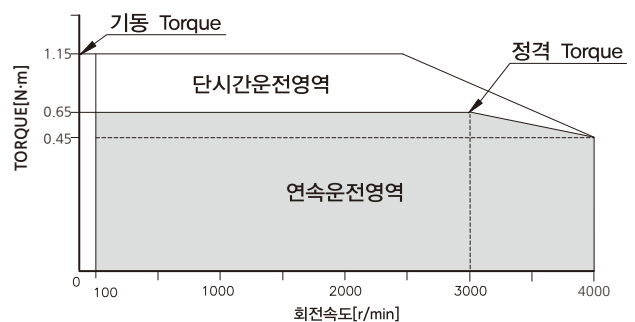
K8XS50N2 / K8XH50N2



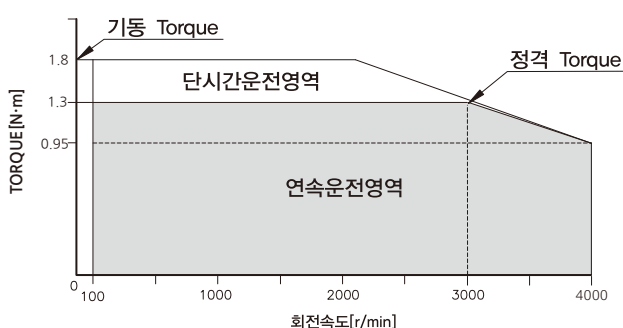
K9XS100N2 / K9XH100N2



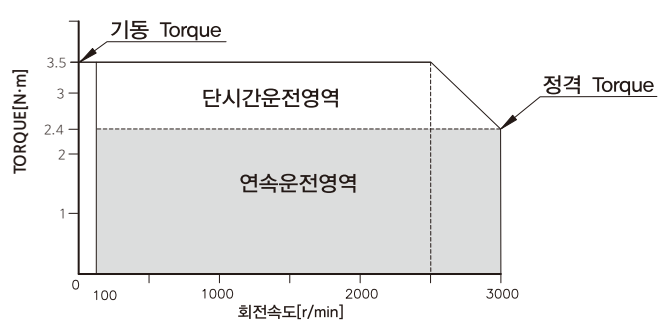
K10XS200N2/K10XH200N2



K10XS400N9/K10XH400N9



K10XK750N9



※ 모터 품명 끝에 -B (BRAKE) 또는 -E (ENCODER), -BE (BRAKE+ENCODER) 가 들어갈 수 있습니다.

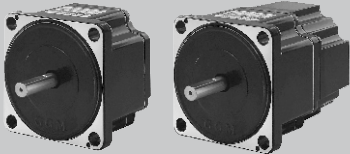
※ DC24V, Cable 연결 없는 경우의 값입니다.

BRUSHLESS DC MOTOR UNIT - X Series

100W

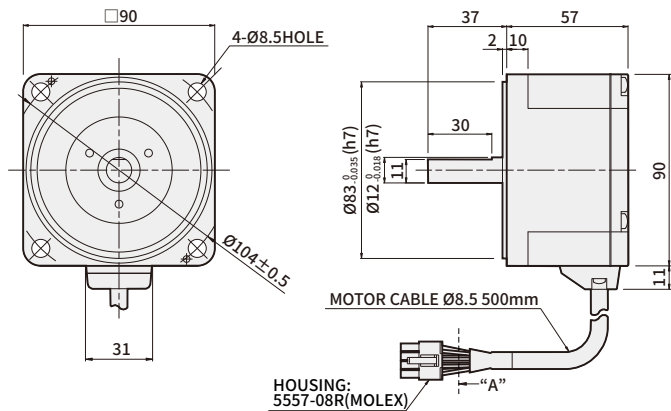
□90mm

DC 24V Input

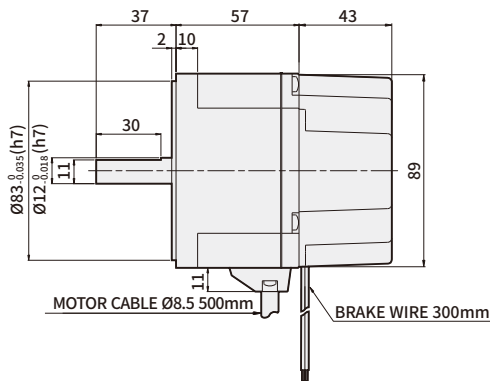


DIMENSIONS

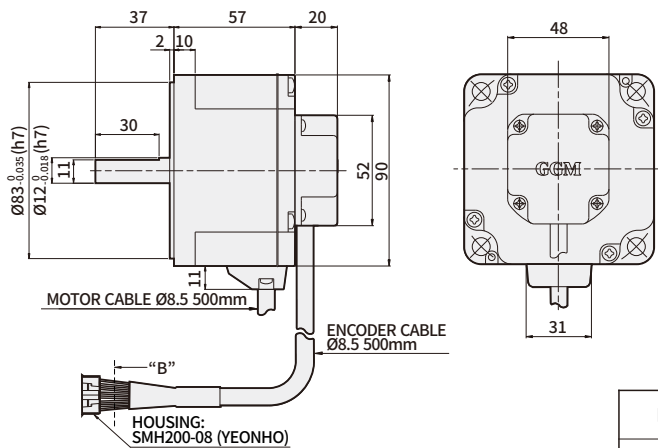
K9XS100N2
Weight : 1.3Kg



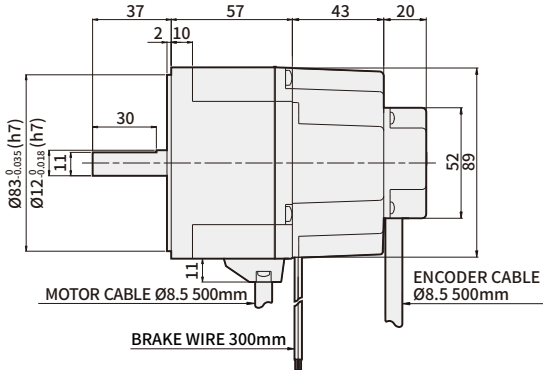
K9XS100N2-B (Brake type)
Weight : 1.9Kg



K9XS100N2-E (Encoder type)
Weight : 1.4Kg

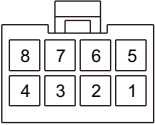
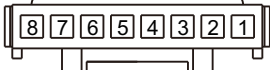


K9XS100N2-BE (Brake Encoder type)
Weight : 2.0Kg



Resolution	1,000PPR		Timing diagram CW 
Output Type	Output Form	Power Supply	
	Line Driver	+5Vdc ±10% 150mA below	

※ Please refer to gearhead assembly page C-5, C-6.

CONNECTOR HOUSING	
MOTOR VIEW "A"	ENCODER VIEW "B"
	

ENCODER PIN MAP		
PIN No.	COLOR	SIGNAL
1	BLUE	Vcc(5Vdc)
2	BROWN	A
3	WHITE	/A
4	ORANGE	B
5	YELLOW	/B
6	GREEN	Z
7	PURPLE	/Z
8	GRAY	Ground

MOTOR PIN MAP		
PIN No.	COLOR	SIGNAL
1	YELLOW	Vcc
2	BLUE	U
3	PURPLE	V
4	GRAY	W
5	GREEN	Ground
6	ORANGE	Hw
7	WHITE	Hv
8	BROWN	Hu

※ 100N2 which are in end of the model name is UL certified ones. UL FILE NO. E504659

→ Specification

Product name	GEAR TYPE	K6XH30N2	K8XH50N2	K9XH100N2	K10XH200N2	K10XH400N9
	STRAIGHT TYPE	K6XS30N2	K8XS50N2	K9XS100N2	K10XS200N2	K10XS400N9
Rating output (continuous) W		30	50	100	200	400
Power input	Rating voltage V	DC24				DC 48
	Rating voltage allowance	±10%				
	Rating input current A	2.1	3.1	6	13	11
	Maximum input current A	3.7	5.4	9.8	25	18
Rating torque N·m(kgf·cm)		0.12	0.2	0.4	0.65	1.3
Starting torque N·m(kgf·cm)		0.15	0.24	0.5	1.15	1.8
Rating rotation speed r/min		2500			3000	
Speed control range r/min		100~3000			100~4000	
Allowed inertia load moment of round shaft type $J \times 10^{-4} \text{ kg} \cdot \text{m}^2$		1.8	3.3	5.6	8.75	15
Rotor inertia moment $J \times 10^{-4} \text{ kg} \cdot \text{m}^2$		0.086	0.234	0.61	0.61	0.66
Speed change rate	Load	Less than or equal to ±1% : condition 0-rated torque, rated rotation speed, rated voltage, room temperature				
	Voltage	Less than or equal to ±1% : condition rating voltage ±10%, rating rotation speed, no load, room temperature				
	Temperature	Less than or equal to ±1% : condition surrounding temperature 0~+40℃, rating rotation speed, no load, rating voltage				

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.

※ The usage duration for starting torque is within 5 seconds at less than 2000 r/min.

※ Each specification value is the characteristic of motor by itself.

→ Common specifications

Product name	Specification
Rotation speed setting method	● Set up by external potentiometer ● Set up by external DC 0~5V
Acceleration time deceleration time	0.5~10 seconds : set at 2000 r/min when there is no load (it may change depending on the size of the load) Acceleration time and deceleration control equipment to control at the same time
Input signal	Internal full-up input method, external input voltage read as greater than 2v high(off) same at all input ports
Protection function	If the following protection mode comes on, control unit alarm signal is shown. Motor stops automatically. ● Overload protection mode : If torque that is greater than the rating is applied to the motor for more than 5 seconds ● Overvoltage protection : If voltage applied to the control unit goes over the upper bound of the rating allowance ● Open phase protection : If cable sensor line gets disconnected during motor operation ● Undervoltage protection : If voltage applied to the control unit is less than the lower bound of the rating voltage allowance ● Over speed protection : If motor rotation speed is faster than 2500 r/min
Motor insulation class	E TYPE(120℃)
Maximum extension distance	MOTOR - CONTROL UNIT 2m
Rated time	Continuous

※ Like weight carried being downwards, X SERIES cannot control motor speed through weight.

Motor gets stopped automatically through overvoltage protection of load is being carried downwards or it is heavier than allowed load inertia.

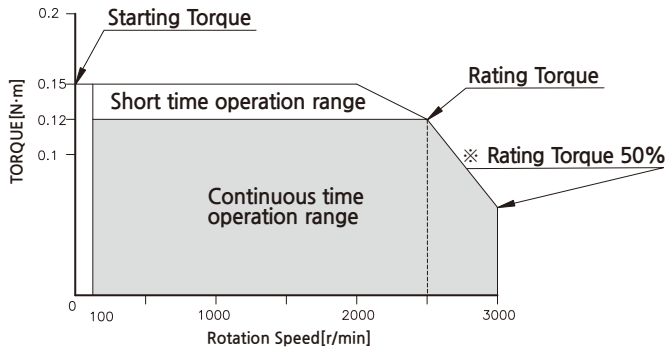
→ Normal specifications

Items		Motor	Control unit
Insulation Resistance		After being operated continuously at room temperature and humidity, the value measured between coil and vase by DC 500V MEGA is greater than or equal to 100MΩ	After being operated continuously at room temperature and humidity, the value measured between heatproof plate and power input is greater than or equal to 100MΩ
Dielectric Strength		After being operated continuously at room temperature and humidity, there shouldn't be any problem between coil and case even when AC 0.5kV is applied for 1 minute	No problem when 50Hz, AC 0.5kV is applied for one minute No problem when AC 0.5kV is applied for one minute
Used environment	Used Ambient temperature	0℃~+50℃ (should not freeze)	
	Used Ambient Humidity	less than or equal to 85% (not from dews)	
	Vibration	Altitude less than 1000m	
	Ambient environment	Cannot be used under special circumstances such as withcorrosive gas, dust, radioactive material, magnetic and vacuum	
	Vibration	Should not apply constant vibration or huge impact according to the JIS C 60068-2-6 sine wave vibration test method Frequency range : 10~55Hz, peak amplitude : 0.15mm, sweet direction : 3 direction(X,Y,Z), number of sweeps : 20 times	
Conservation environment	Ambient temperature	-25 ~ +70℃ (should not freeze)	
	Ambient Humidity	less than or equal to 85% (not form dews)	
	Altitude	Altitude less than 3000m	
Insulation class		UL, CSA STANDARD A TYPE(105℃), EN STANDARD E TYPE(120℃)	
Protection class		IP65	

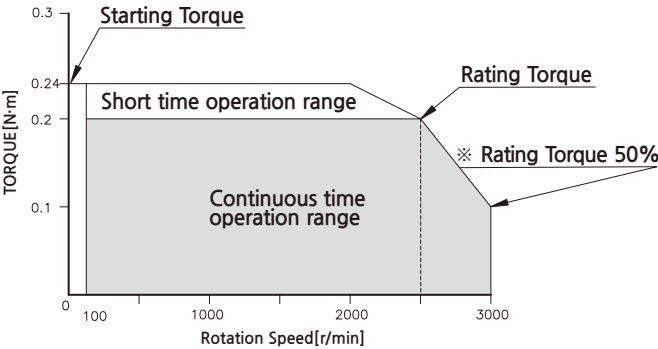
- ※ Preservation environment is a short-term value, which includes transportation.
- ※ Do not measure insulation resistance and pressure resistance while motor and driver are connected.

→ Rotation speed- torque characteristic

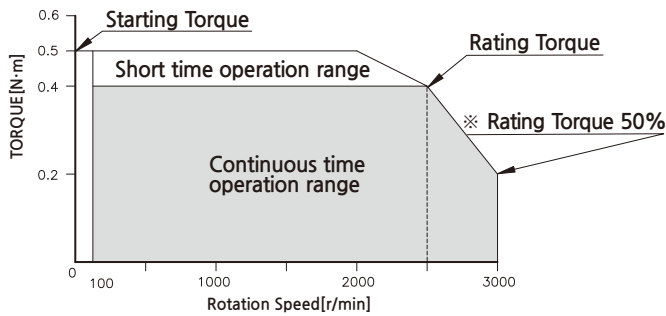
K6XS30N2 / K6XH30N2



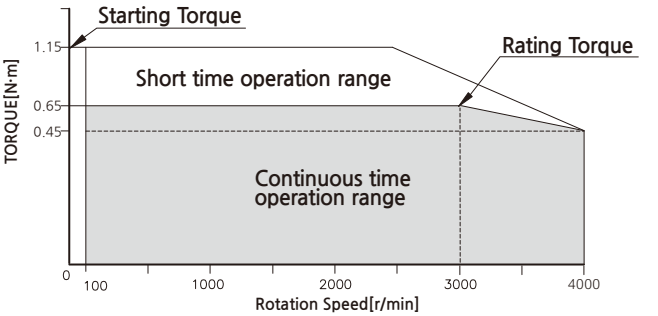
K8XS50N2 / K8XH50N2



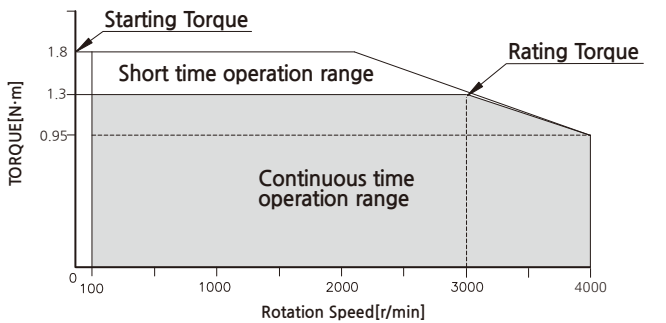
K9XS100N2 / K9XH100N2



K10XS200N2/K10XH200N2



K10XS400N9/K10XH400N9



- ※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.
- ※ DC24V is the value without cable extension.

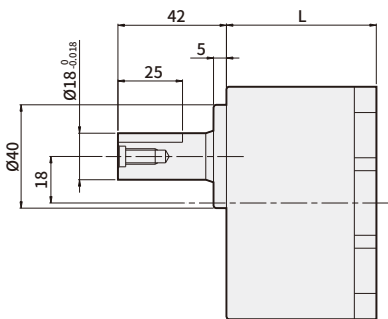
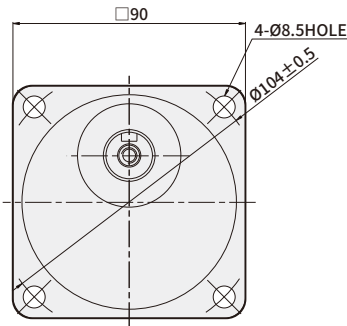
BRUSHLESS AC/DC MOTOR UNIT - Gearhead

DIMENSIONS

GEARHEAD K9H□B

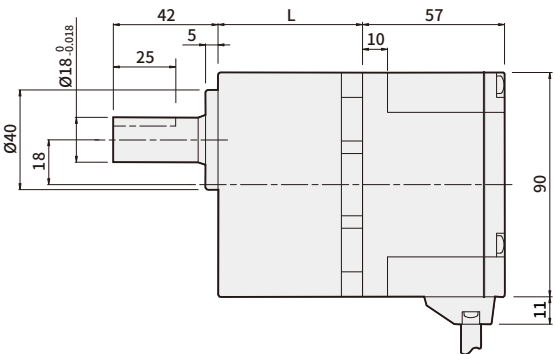
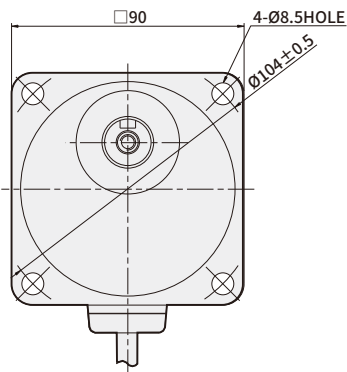
K9H□B

Weight : 1.3Kg

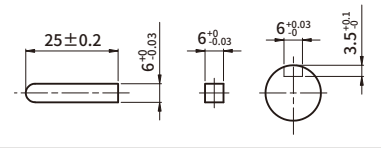


K9BH90N■ + K9H□B
K9BH150NC + K9H□B
K9FH150NC + K9H□B
K9XH100N2 + K9H□B

Weight : 2.6Kg



KEY · KEY GROOVE (ACCESSORY)



DIMENSION TABLE

GEARHEAD PRODUCT NAME	DECELERATION RATIO	L	FIXING BOLT
K9H□B	5,10,15,20	45	M8 P1.25×75
	30,50,100	58	M8 P1.25×90
	200	64	M8 P1.25×95

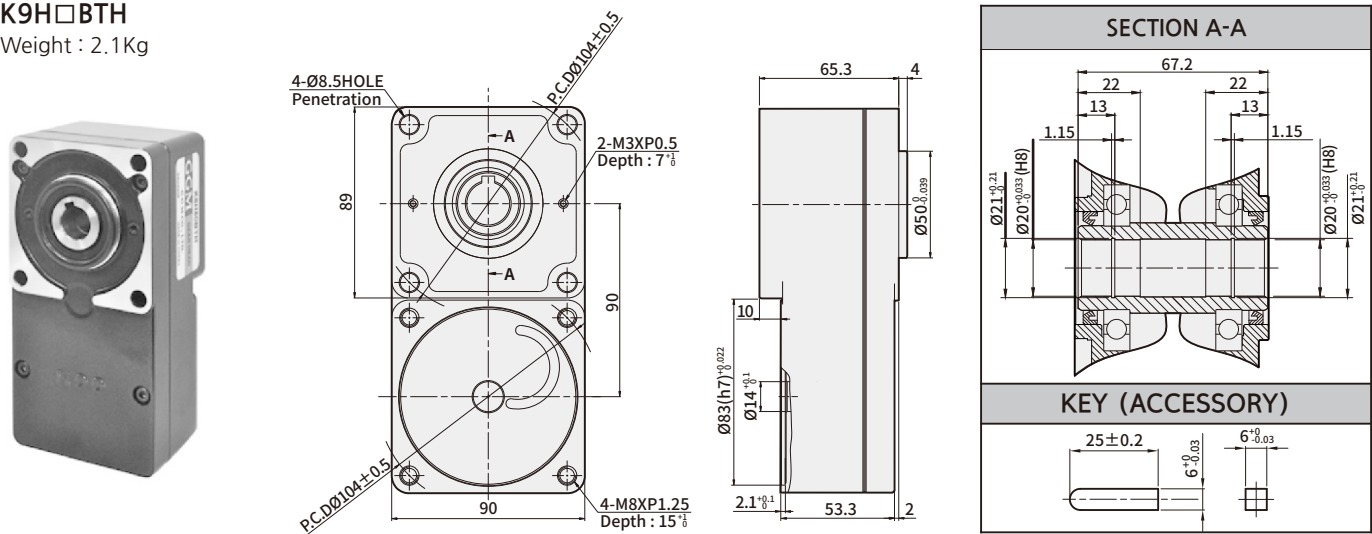
- ※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.
- ※ In ■ of the model name voltage U (single-phase 100~115V), C (single-phase 200~230V) will be shown.
- ※ In □ of name, it represents a deceleration ratio.
- ※ Geared motor is included with fixing bolt set. (flat washer, spring washer, hexagonal nut 4pcs each)

BRUSHLESS DC MOTOR UNIT - Gearhead

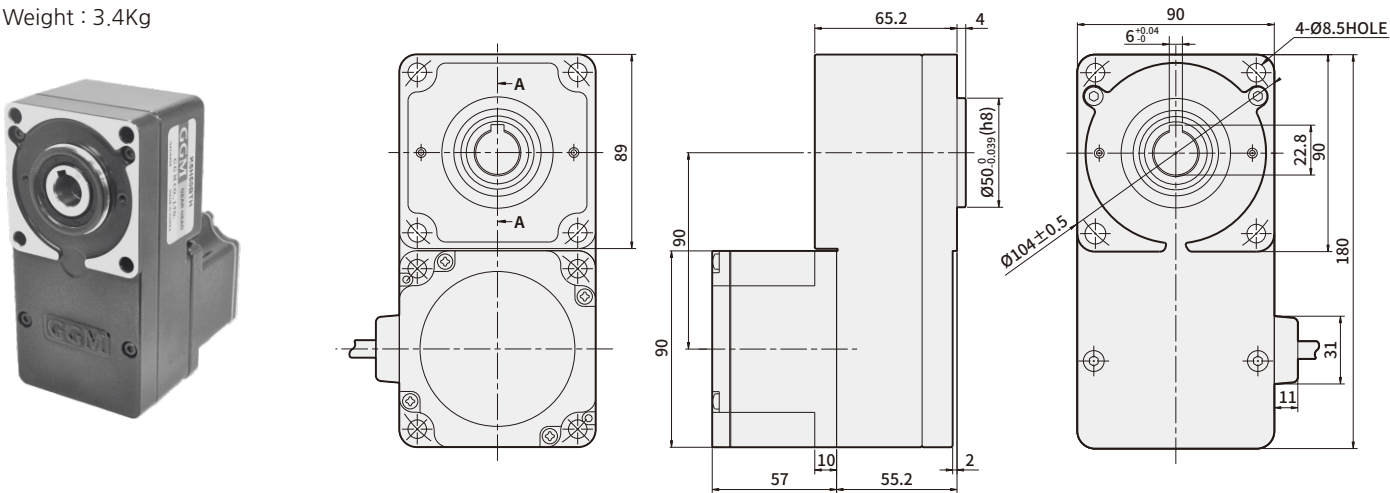
DIMENSIONS

GEARHEAD K9H□BTH

K9H□BTH
Weight : 2.1Kg



K9BH90N■ + K9H□BTH
K9BH150NC + K9H□BTH
K9FH150NC + K9H□BTH
K9XH100N2 + K9H□BTH
Weight : 3.4Kg



DIMENSION TABLE

GEARHEAD PRODUCT NAME	DECELERATION RATIO	FIXING BOLT
K9H□BTH	5, 10, 15, 20, 30 50, 100, 200	M8 P1.25×90

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.
※ In ■ of the model name voltage U (single-phase 100~115V), C (single-phase 200~230V) will be shown.
※ In □ of name, it represents a deceleration ratio.
※ Geared motor is included with fixing bolt set. (flat washer, spring washer, hexagonal nut 4pcs each)

→ Delivery efficiency of gearhead

Product name	Deceleration ratio	5	10	15	20	30	50	100	200
	K6H□B	90%				86%			81%
	K8H□B	90%				86%			81%
	K9H□B	90%				86%			81%
	K10H□BU	90%				86%		81%	
	K6H□BTH	80%	85%						
	K8H□BTH	85%							
	K9H□BTH	85%							
	K10H□BTH	85%							

→ Allowed torque of AC Motor + Gearhead

Unit = N·m

Product name	Deceleration ratio	5	10	15	20	30	50	100	200
	Speed control range[r/min]	20~600	10~300	6.7~200	5~150	3.3~100	2~60	1~30	0.5~15
K6BH30N■ + K6H□B	100~3000	0.45	0.9	1.4	1.8	2.6	4.3	6	6
K8BH60N■ + K8H□B		0.9	1.8	2.7	3.6	5.2	8.6	16	16
K9BH90N■ + K9H□B		1.35	2.7	4.1	5.4	7.7	12.9	25.8	30
K9BH150NC + K9H□B		2.2	4.4	6.6	8.8	12.6	21.1	30	30
K6BH30N■ + K6H□BTH		0.4	0.85	1.3	1.7	2.6	4.3	8.5	17
K8BH60N■ + K8H□BTH		0.85	1.7	2.6	3.4	5.1	8.5	17	34
K9BH90N■ + K9H□BTH		1.9	3.8	5.7	7.7	11.5	19.1	38.3	68
K9BH150NC + K9H□BTH		2.1	4.2	6.2	8.3	12.5	21	42	68
Product name	Deceleration ratio	5	10	15	20	30	50	100	200
	Speed control range[r/min]	20~800	10~400	6.7~266	5~200	3.3~133	2~80	1~40	0.5~20
K6FH30NC+K6H□B	100~3000	0.45	0.9	1.4	1.8	2.6	4.3	6	6
	4000	0.36	0.72	1.08	1.4	2.1	3.4	5.4	5.4
K8FH60NC+K8H□B	100~3000	0.9	1.8	2.7	3.6	5.2	8.6	16	16
	4000	0.68	1.4	2.0	2.7	3.9	6.5	12.9	14
K9FH150NC+K9H□B	100~3000	2.2	4.4	6.6	8.8	12.6	21.1	30	30
	4000	1.4	2.7	4.1	5.4	7.7	12.9	25.8	27
K10FH200NC+K10H□BU	100~3000	2.9	5.9	8.8	11.7	16.8	28	52.7	70
	4000	2	4.1	6.1	8.1	11.6	19.4	36.5	63
K10FH400NC+K10H□BU	100~3000	5.9	11.7	17.6	23.4	33.5	55.9	70	70
	4000	4.3	8.6	12.8	17.1	24.5	40.9	63	63
K6FH30NC+K6H□BTH	100~3000	0.4	0.85	1.3	1.7	2.6	4.3	8.5	17
	4000	0.30	0.64	0.96	1.3	1.9	3.2	6.4	12.8
K8FH60NC+K8H□BTH	100~3000	0.85	1.7	2.6	3.4	5.1	8.5	17	34
	4000	0.64	1.3	1.9	2.6	3.8	6.4	12.8	25.5
K9FH150NC+K9H□BTH	100~3000	2.1	4.2	6.2	8.3	12.5	21	42	68
	4000	1.3	2.6	3.8	5.1	7.7	12.8	25.5	51
K10FH200NC+K10H□BTH	100~3000	2.8	5.5	8.3	11.1	16.6	27.6	55.3	—
	4000	1.9	3.8	5.7	7.7	11.5	19.1	38.3	—
K10FH400NC+K10H□BTH	100~3000	5.5	11.1	16.6	22.1	33.2	55.3	110	—
	4000	4.0	8.1	12.1	16.2	24.2	40.4	80.8	—

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.

※ In ■ of the model name voltage U (single-phase 100~115V), C (single-phase 200~230V) will be shown.

※ In □ of name, it represents a deceleration ratio.

※ Rotation direction shows the same [] color as the motor. In other cases, it's the opposite.

※ Flat Gearbox viewed from front side is opposite rotation direction with motor.

※ Flat Gearbox viewed from back side is same rotation direction with motor.

→ Allowed torque of DC Motor + Gearhead

Unit = N·m

Product name	Deceleration ratio		5	10	15	20	30	50	100	200
	Speed control range[r/min]		20~600	10~300	6.7~200	5~150	3.3~100	2~60	1~30	0.5~15
K6XH30N2 + K6H□B	100~2500		0.54	1.1	1.6	2.2	3.1	5.2	6	6
	3000		0.3	0.54	0.81	1.1	1.5	2.6	5.2	6
K8XH50N2 + K8H□B	100~2500		0.9	1.8	2.7	3.6	5.2	8.6	16	16
	3000		0.45	0.9	1.4	1.8	2.6	4.3	8.6	16
K9XH100N2 + K9H□B	100~2500		1.8	3.6	5.4	7.2	10.3	17.2	30	30
	3000		0.9	1.8	2.7	3.6	5.2	8.6	17.2	30
K6XH30N2 + K6H□BTH	100~2500		0.48	1	1.5	2	3.1	5.1	10.2	17
	3000		0.2	0.51	0.77	1	1.5	2.6	5.1	10.2
K8XH50N2 + K8H□BTH	100~2500		0.85	1.7	2.6	3.4	5.1	8.5	17	34
	3000		0.43	0.85	1.3	1.7	2.6	4.3	8.5	17
K9XH100N2 + K9H□BTH	100~2500		1.7	3.4	5.1	6.8	10.2	17	34	68
	3000		0.85	1.7	2.6	3.4	5.1	8.5	17	34
Product name	Deceleration ratio		5	10	15	20	30	50	100	200
	Speed control range[r/min]		20~800	10~400	6.7~267	5~200	3.3~133	2~80	1~40	0.5~20
K10XH200N2 + K10H□BU	100~3000		2.9	5.9	8.8	11.7	16.8	28	52.7	70
	4000		2.0	4.1	6.1	8.1	11.6	19.4	36.5	63
K10XH400N9 + K10H□BU	100~3000		5.9	11.7	17.6	23.4	33.5	55.9	70	70
	4000		4.3	8.6	12.8	17.1	24.5	40.9	63	63
K10XH200N2 + K10H□BTH	100~3000		2.8	5.5	8.3	11.1	16.6	27.6	55.3	—
	4000		1.9	3.8	5.7	7.7	11.5	19.1	38.3	—
K10XH400N9 + K10H□BTH	100~3000		5.5	11.1	16.6	22.1	33.2	55.3	110	—
	4000		4.0	8.1	12.1	16.2	24.2	40.4	80.8	—

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.

※ In □ of name, it represents a deceleration ratio.

※ Rotation direction shows the same color as the motor. In other cases, it's the opposite.

※ Flat Gearbox viewed from front side is opposite rotation direction with motor. Flat Gearbox viewed from back side is same rotation direction with motor.

→ Allowed overhang load and allowed thrust

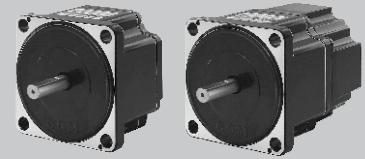
Product name		Deceleration ratio	Allowed overhand load				Allowed thrust load	
			From the end of output part 10mm		From the end of output part 20mm			
			N	kgf	N	kgf	N	kgf
GEARHEAD	K6H□B	5	100	10	150	15	40	4
		10,15,20	150	15	200	20		
		30,50,100,200	200	20	300	30		
	K8H□B	5	200	20	250	25	100	10
		10,15,20	300	30	350	35		
		30,50,100,200	450	45	550	55		
	K9H□B	5	300	30	400	40	150	15
		10,15,20	400	40	500	50		
		30,50,100,200	500	50	650	65		
	K10H□BU	5,10,15,20	550	55	800	80	200	20
		30,50	1000	100	1250	125	300	30
		100,200	1400	140	1700	170	400	40
	K6H□BTH	5,10	450	45	370	37	200	20
		15~200	500	50	400	40		
	K8H□BTH	5,10	800	80	660	66	400	40
		15~200	1200	120	1000	100		
	K9H□BTH	5,10	900	90	770	77	500	50
		15,20	1300	130	1110	111		
		30,50,100,200	1500	150	1280	128		
	K10H□BTH	5,10	1230	123	1070	107	800	80
		15,20	1680	168	1470	147		
		30,50,100	2040	204	1780	178		
MOTOR	K6BS30N■,K6FS30NC K6XS30N2		70	7	100	10	· Do not apply THRUST load Please. If you can't help it, 50% or less.	
	K8BS60N■,K8FS60NC K8XS50N2		120	12	140	14		
	K9BS90N■,K9BS150NC K9FS150NC,K9XS100N2		160	16	170	17		
	K10FS200NC,K10FS400NC K10XS200N2,K10XS400N9		197	19.7	220	22		

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.
※ In ■ of the model name voltage U (single-phase 100~115V), C (single-phase 200~230V) will be shown.
※ In □ of name, it represents a deceleration ratio.
※ Permissible overhang load can be withdrawn by calculation.

BRUSHLESS DC MOTOR UNIT - X Series

200W
400W

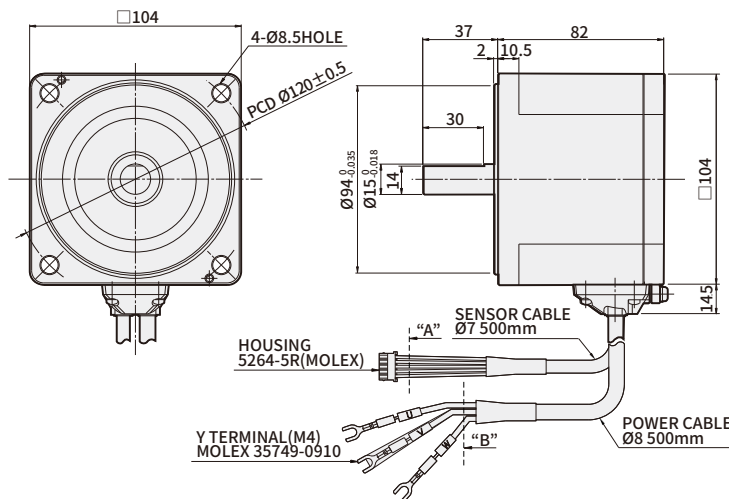
□104mm
DC 24V, 48V Input



DIMENSIONS

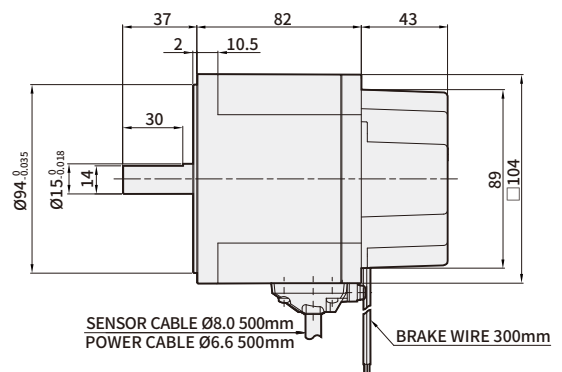
K10XS200N2 (24V)
K10XS400N9 (48V)

Weight : 2.4Kg



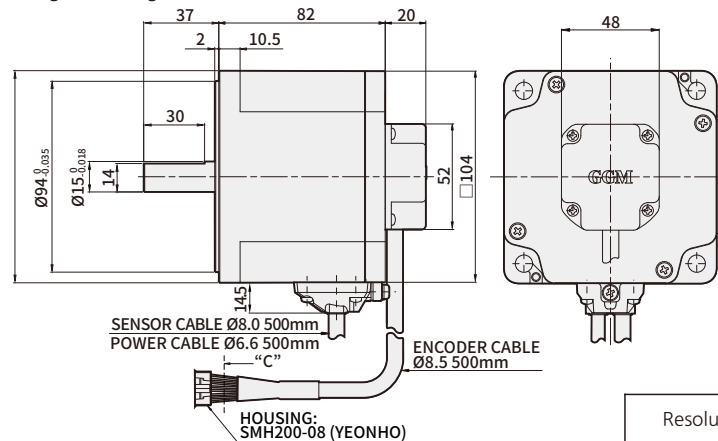
K10XS200N2-B (Brake type)
K10XS400N9-B

Weight : 3Kg



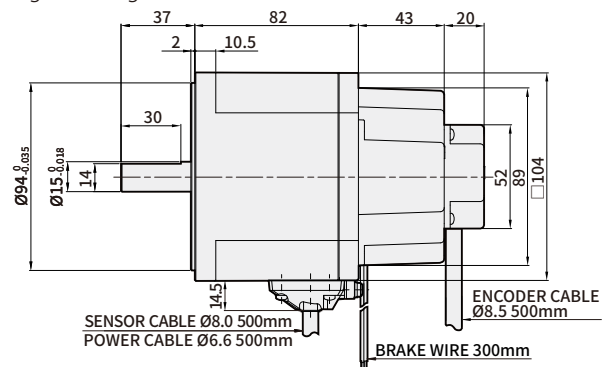
K10XS200N2-E (Encoder type)
K10XS400N9-E

Weight : 2.5Kg



K10XS200N2-BE (Brake Encoder type)
K10XS400N9-BE

Weight : 3.1Kg



Resolution	1,000PPR		Timing diagram CW
Output Type	Output Form	Power Supply	
	Line Driver	+5Vdc ±10% 150mA below	

※ Please refer to gearhead assembly page C-7, C-8.

CONNECTOR HOUSING		
MOTOR VIEW "A" / "B"		ENCODER VIEW "C"

ENCODER PIN MAP		
PIN No.	COLOR	SIGNAL
1	BLUE	Vcc(5Vdc)
2	BROWN	A
3	WHITE	/A
4	ORANGE	B
5	YELLOW	/B
6	GREEN	Z
7	PURPLE	/Z
8	GRAY	Ground

MOTOR PIN MAP		
PIN No.	COLOR	SIGNAL
1	BROWN	Hu
2	WHITE	Hv
3	ORANGE	Hw
4	GREEN	Ground
5	YELLOW	Vcc
-	BLUE	U
-	PURPLE	V
-	GRAY	W

※ 200N2, 400N9 which are in end of the model name is UL certified ones. UL FILE NO. E504659

→ Specification

Product name	GEAR TYPE	K6XH30N2	K8XH50N2	K9XH100N2	K10XH200N2	K10XH400N9
	STRAIGHT TYPE	K6XS30N2	K8XS50N2	K9XS100N2	K10XS200N2	K10XS400N9
Rating output (continuous) W		30	50	100	200	400
Power input	Rating voltage V	DC24				DC 48
	Rating voltage allowance	±10%				
	Rating input current A	2.1	3.1	6	13	11
	Maximum input current A	3.7	5.4	9.8	25	18
Rating torque N·m(kgf·cm)		0.12	0.2	0.4	0.65	1.3
Starting torque N·m(kgf·cm)		0.15	0.24	0.5	1.15	1.8
Rating rotation speed r/min		2500			3000	
Speed control range r/min		100~3000			100~4000	
Allowed inertia load moment of round shaft type $\text{J} \times 10^{-4} \text{ kg} \cdot \text{m}^2$		1.8	3.3	5.6	8.75	15
Rotor inertia moment $\text{J} \times 10^{-4} \text{ kg} \cdot \text{m}^2$		0.086	0.234	0.61	0.61	0.66
Speed change rate	Load	Less than or equal to ±1% : condition 0-rated torque, rated rotation speed, rated voltage, room temperature				
	Voltage	Less than or equal to ±1% : condition rating voltage ±10%, rating rotation speed, no load, room temperature				
	Temperature	Less than or equal to ±1% : condition surrounding temperature 0~+40℃, rating rotation speed, no load, rating voltage				

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.

※ The usage duration for starting torque is within 5 seconds at less than 2000 r/min.

※ Each specification value is the characteristic of motor by itself.

→ Common specifications

Product name	Specification
Rotation speed setting method	● Set up by external potentiometer ● Set up by external DC 0~5V
Acceleration time deceleration time	0.5~10 seconds : set at 2000 r/min when there is no load (it may change depending on the size of the load) Acceleration time and deceleration control equipment to control at the same time
Input signal	Internal full-up input method, external input voltage read as greater than 2v high(off) same at all input ports
Protection function	If the following protection mode comes on, control unit alarm signal is shown. Motor stops automatically. ● Overload protection mode : If torque that is greater than the rating is applied to the motor for more than 5 seconds ● Overvoltage protection : If voltage applied to the control unit goes over the upper bound of the rating allowance ● Open phase protection : If cable sensor line gets disconnected during motor operation ● Undervoltage protection : If voltage applied to the control unit is less than the lower bound of the rating voltage allowance ● Over speed protection : If motor rotation speed is faster than 2500 r/min
Motor insulation class	E TYPE(120℃)
Maximum extension distance	MOTOR - CONTROL UNIT 2m
Rated time	Continuous

※ Like weight carried being downwards, X SERIES cannot control motor speed through weight.

Motor gets stopped automatically through overvoltage protection of load is being carried downwards or it is heavier than allowed load inertia.

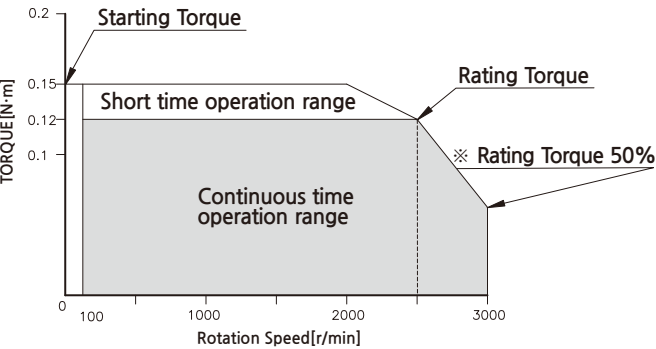
→ Normal specifications

Items		Motor	Control unit
Insulation Resistance		After being operated continuously at room temperature and humidity, the value measured between coil and vase by DC 500V MEGA is greater than or equal to 100MΩ	After being operated continuously at room temperature and humidity, the value measured between heatproof plate and power input is greater than or equal to 100MΩ
Dielectric Strength		After being operated continuously at room temperature and humidity, there shouldn't be any problem between coil and case even when AC 0.5kV is applied for 1 minute	No problem when 50Hz, AC 0.5kV is applied for one minute No problem when AC 0.5kV is applied for one minute
Used environment	Used Ambient temperature	0℃~+50℃ (should not freeze)	
	Used Ambient Humidity	less than or equal to 85% (not from dews)	
	Vibration	Altitude less than 1000m	
	Ambient environment	Cannot be used under special circumstances such as withcorrosive gas, dust, radioactive material, magnetic and vacuum	
	Vibration	Should not apply constant vibration or huge impact according to the JIS C 60068-2-6 sine wave vibration test method Frequency range : 10~55Hz, peak amplitude : 0.15mm, sweet direction : 3 direction(X,Y,Z), number of sweeps : 20 times	
Conservation environment	Ambient temperature	-25 ~ +70℃ (should not freeze)	
	Ambient Humidity	less than or equal to 85% (not form dews)	
	Altitude	Altitude less than 3000m	
Insulation class		UL, CSA STANDARD A TYPE(105℃), EN STANDARD E TYPE(120℃)	
Protection class		IP65	

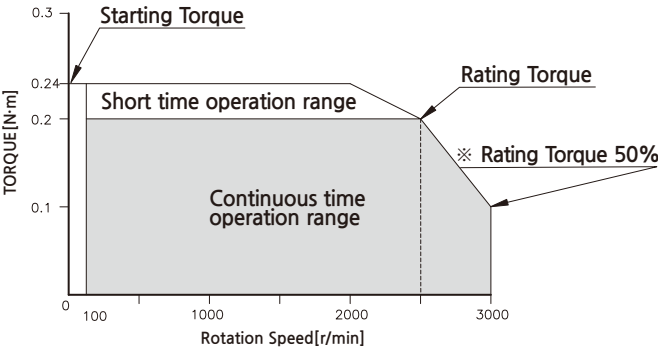
- ※ Preservation environment is a short-term value, which includes transportation.
- ※ Do not measure insulation resistance and pressure resistance while motor and driver are connected.

→ Rotation speed- torque characteristic

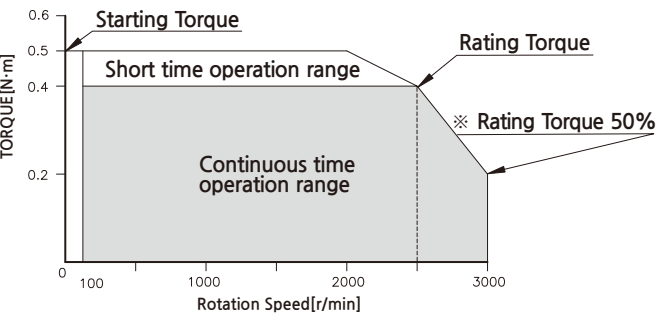
K6XS30N2 / K6XH30N2



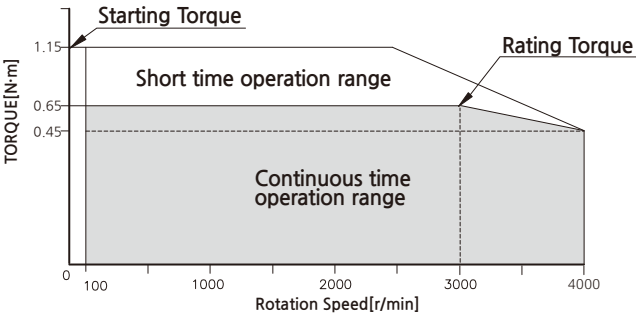
K8XS50N2 / K8XH50N2



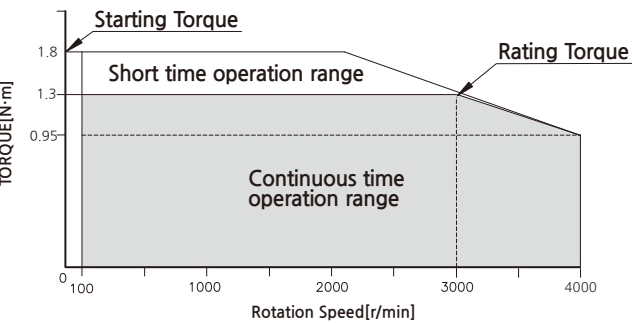
K9XS100N2 / K9XH100N2



K10XS200N2/K10XH200N2



K10XS400N9/K10XH400N9



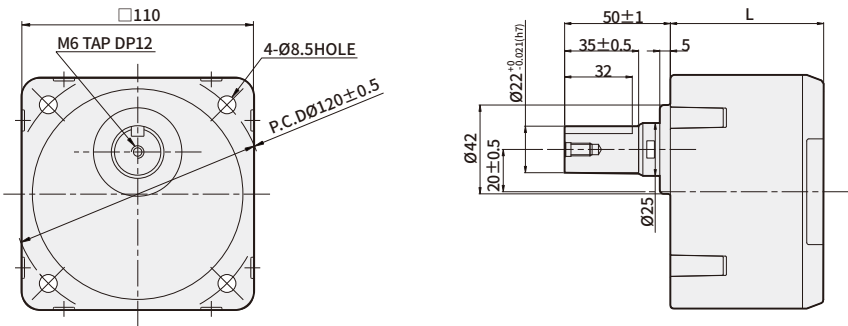
- ※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.
- ※ DC24V is the value without cable extension.

BRUSHLESS AC/DC MOTOR UNIT - Gearhead

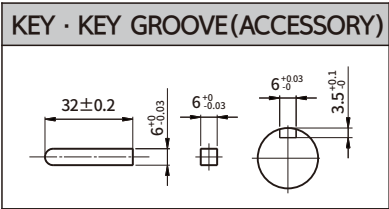
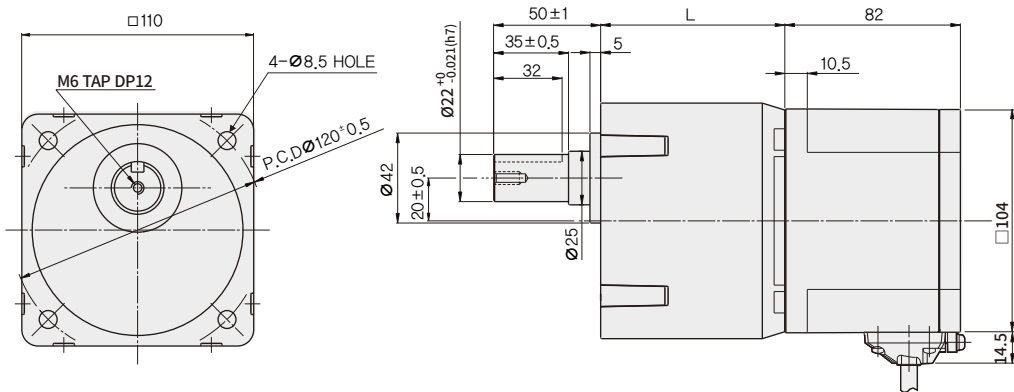
DIMENSIONS

GEARHEAD K10H□B

K10H□BU
Weight : 3Kg



K10FH200NC + K10H□BU
K10FH400NC + K10H□BU
K10XH200N2 + K10H□BU
K10XH400N9 + K10H□BU
Weight : 5.4Kg



DIMENSION TABLE

GEARHEAD PRODUCT NAME	DECELERATION RATIO	L	FIXING BOLT
K10H□BU	5,10,15,20	60	M8 P1.25×95
	30,50	72	M8 P1.25×110
	100,200	86	M8 P1.25×120

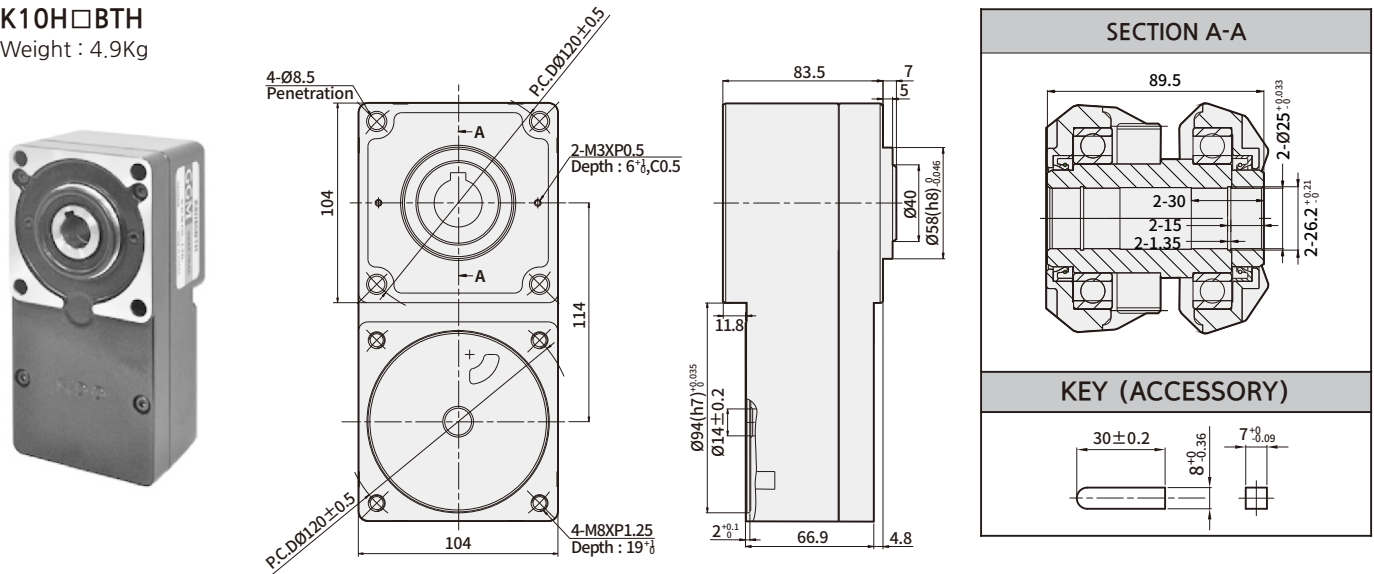
※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.
※ In □ of name, it represents a deceleration ratio.
※ Geared motor is included with fixing bolt set. (flat washer, spring washer, hexagonal nut 4pcs each)

BRUSHLESS DC MOTOR UNIT - Gearhead

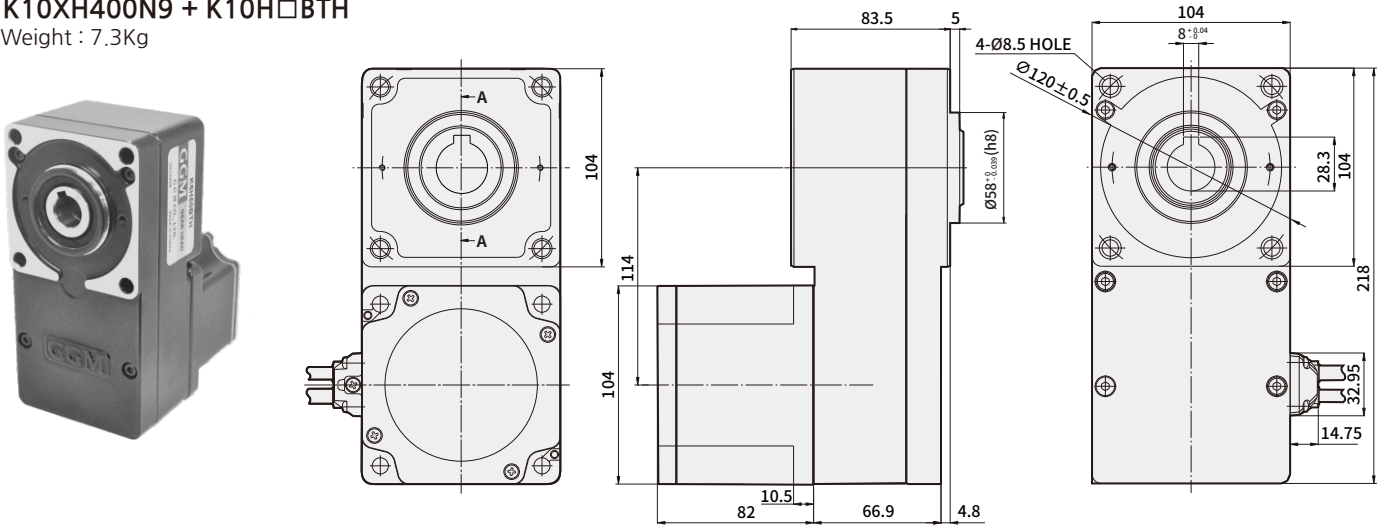
DIMENSIONS

GEARHEAD K10H□BTH

K10H□BTH
Weight : 4.9Kg



K10FH200NC + K10H□BTH
K10FH400NC + K10H□BTH
K10XH200N2 + K10H□BTH
K10XH400N9 + K10H□BTH
Weight : 7.3Kg



DIMENSION TABLE

GEARHEAD PRODUCT NAME	DECELERATION RATIO	FIXING BOLT
K10H□BTH	5, 10, 15, 20, 30 50, 100	M8 P1.25×100

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.
※ In □ of name, it represents a deceleration ratio.
※ Geared motor is included with fixing bolt set. (flat washer, spring washer, hexagonal nut 4pcs each)

→ Delivery efficiency of gearhead

Product name	Deceleration ratio	5	10	15	20	30	50	100	200
	K6H□B	90%				86%			81%
	K8H□B	90%				86%			81%
	K9H□B	90%				86%			81%
	K10H□BU	90%				86%		81%	
	K6H□BTH	80%	85%						
	K8H□BTH	85%							
	K9H□BTH	85%							
	K10H□BTH	85%							

→ Allowed torque of AC Motor + Gearhead

Unit = N·m

Product name	Deceleration ratio	5	10	15	20	30	50	100	200
	Speed control range[r/min]	20~600	10~300	6.7~200	5~150	3.3~100	2~60	1~30	0.5~15
K6BH30N■ + K6H□B	100~3000	0.45	0.9	1.4	1.8	2.6	4.3	6	6
K8BH60N■ + K8H□B		0.9	1.8	2.7	3.6	5.2	8.6	16	16
K9BH90N■ + K9H□B		1.35	2.7	4.1	5.4	7.7	12.9	25.8	30
K9BH150NC + K9H□B		2.2	4.4	6.6	8.8	12.6	21.1	30	30
K6BH30N■ + K6H□BTH		0.4	0.85	1.3	1.7	2.6	4.3	8.5	17
K8BH60N■ + K8H□BTH		0.85	1.7	2.6	3.4	5.1	8.5	17	34
K9BH90N■ + K9H□BTH		1.9	3.8	5.7	7.7	11.5	19.1	38.3	68
K9BH150NC + K9H□BTH		2.1	4.2	6.2	8.3	12.5	21	42	68
Product name	Deceleration ratio	5	10	15	20	30	50	100	200
	Speed control range[r/min]	20~800	10~400	6.7~266	5~200	3.3~133	2~80	1~40	0.5~20
K6FH30NC+K6H□B	100~3000	0.45	0.9	1.4	1.8	2.6	4.3	6	6
	4000	0.36	0.72	1.08	1.4	2.1	3.4	5.4	5.4
K8FH60NC+K8H□B	100~3000	0.9	1.8	2.7	3.6	5.2	8.6	16	16
	4000	0.68	1.4	2.0	2.7	3.9	6.5	12.9	14
K9FH150NC+K9H□B	100~3000	2.2	4.4	6.6	8.8	12.6	21.1	30	30
	4000	1.4	2.7	4.1	5.4	7.7	12.9	25.8	27
K10FH200NC+K10H□BU	100~3000	2.9	5.9	8.8	11.7	16.8	28	52.7	70
	4000	2	4.1	6.1	8.1	11.6	19.4	36.5	63
K10FH400NC+K10H□BU	100~3000	5.9	11.7	17.6	23.4	33.5	55.9	70	70
	4000	4.3	8.6	12.8	17.1	24.5	40.9	63	63
K6FH30NC+K6H□BTH	100~3000	0.4	0.85	1.3	1.7	2.6	4.3	8.5	17
	4000	0.30	0.64	0.96	1.3	1.9	3.2	6.4	12.8
K8FH60NC+K8H□BTH	100~3000	0.85	1.7	2.6	3.4	5.1	8.5	17	34
	4000	0.64	1.3	1.9	2.6	3.8	6.4	12.8	25.5
K9FH150NC+K9H□BTH	100~3000	2.1	4.2	6.2	8.3	12.5	21	42	68
	4000	1.3	2.6	3.8	5.1	7.7	12.8	25.5	51
K10FH200NC+K10H□BTH	100~3000	2.8	5.5	8.3	11.1	16.6	27.6	55.3	—
	4000	1.9	3.8	5.7	7.7	11.5	19.1	38.3	—
K10FH400NC+K10H□BTH	100~3000	5.5	11.1	16.6	22.1	33.2	55.3	110	—
	4000	4.0	8.1	12.1	16.2	24.2	40.4	80.8	—

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.

※ In ■ of the model name voltage U (single-phase 100~115V), C (single-phase 200~230V) will be shown.

※ In □ of name, it represents a deceleration ratio.

※ Rotation direction shows the same [] color as the motor. In other cases, it's the opposite.

※ Flat Gearbox viewed from front side is opposite rotation direction with motor.

※ Flat Gearbox viewed from back side is same rotation direction with motor.

→ Allowed torque of DC Motor + Gearhead

Unit = N·m

Product name	Deceleration ratio		5	10	15	20	30	50	100	200
	Speed control range[r/min]		20~600	10~300	6.7~200	5~150	3.3~100	2~60	1~30	0.5~15
K6XH30N2 + K6H□B	100~2500		0.54	1.1	1.6	2.2	3.1	5.2	6	6
	3000		0.3	0.54	0.81	1.1	1.5	2.6	5.2	6
K8XH50N2 + K8H□B	100~2500		0.9	1.8	2.7	3.6	5.2	8.6	16	16
	3000		0.45	0.9	1.4	1.8	2.6	4.3	8.6	16
K9XH100N2 + K9H□B	100~2500		1.8	3.6	5.4	7.2	10.3	17.2	30	30
	3000		0.9	1.8	2.7	3.6	5.2	8.6	17.2	30
K6XH30N2 + K6H□BTH	100~2500		0.48	1	1.5	2	3.1	5.1	10.2	17
	3000		0.2	0.51	0.77	1	1.5	2.6	5.1	10.2
K8XH50N2 + K8H□BTH	100~2500		0.85	1.7	2.6	3.4	5.1	8.5	17	34
	3000		0.43	0.85	1.3	1.7	2.6	4.3	8.5	17
K9XH100N2 + K9H□BTH	100~2500		1.7	3.4	5.1	6.8	10.2	17	34	68
	3000		0.85	1.7	2.6	3.4	5.1	8.5	17	34
Product name	Deceleration ratio		5	10	15	20	30	50	100	200
	Speed control range[r/min]		20~800	10~400	6.7~267	5~200	3.3~133	2~80	1~40	0.5~20
K10XH200N2 + K10H□BU	100~3000		2.9	5.9	8.8	11.7	16.8	28	52.7	70
	4000		2.0	4.1	6.1	8.1	11.6	19.4	36.5	63
K10XH400N9 + K10H□BU	100~3000		5.9	11.7	17.6	23.4	33.5	55.9	70	70
	4000		4.3	8.6	12.8	17.1	24.5	40.9	63	63
K10XH200N2 + K10H□BTH	100~3000		2.8	5.5	8.3	11.1	16.6	27.6	55.3	—
	4000		1.9	3.8	5.7	7.7	11.5	19.1	38.3	—
K10XH400N9 + K10H□BTH	100~3000		5.5	11.1	16.6	22.1	33.2	55.3	110	—
	4000		4.0	8.1	12.1	16.2	24.2	40.4	80.8	—

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.

※ In □ of name, it represents a deceleration ratio.

※ Rotation direction shows the same color as the motor. In other cases, it's the opposite.

※ Flat Gearbox viewed from front side is opposite rotation direction with motor. Flat Gearbox viewed from back side is same rotation direction with motor.

→ Allowed overhang load and allowed thrust

Product name		Deceleration ratio	Allowed overhand load				Allowed thrust load	
			From the end of output part 10mm		From the end of output part 20mm			
			N	kgf	N	kgf	N	kgf
GEARHEAD	K6H□B	5	100	10	150	15	40	4
		10,15,20	150	15	200	20		
		30,50,100,200	200	20	300	30		
	K8H□B	5	200	20	250	25	100	10
		10,15,20	300	30	350	35		
		30,50,100,200	450	45	550	55		
	K9H□B	5	300	30	400	40	150	15
		10,15,20	400	40	500	50		
		30,50,100,200	500	50	650	65		
	K10H□BU	5,10,15,20	550	55	800	80	200	20
		30,50	1000	100	1250	125	300	30
		100,200	1400	140	1700	170	400	40
	K6H□BTH	5,10	450	45	370	37	200	20
		15~200	500	50	400	40		
	K8H□BTH	5,10	800	80	660	66	400	40
		15~200	1200	120	1000	100		
	K9H□BTH	5,10	900	90	770	77	500	50
		15,20	1300	130	1110	111		
		30,50,100,200	1500	150	1280	128		
	K10H□BTH	5,10	1230	123	1070	107	800	80
		15,20	1680	168	1470	147		
		30,50,100	2040	204	1780	178		
MOTOR	K6BS30N■,K6FS30NC K6XS30N2		70	7	100	10	· Do not apply THRUST load Please. If you can't help it, 50% or less.	
	K8BS60N■,K8FS60NC K8XS50N2		120	12	140	14		
	K9BS90N■,K9BS150NC K9FS150NC,K9XS100N2		160	16	170	17		
	K10FS200NC,K10FS400NC K10XS200N2,K10XS400N9		197	19.7	220	22		

※ -B (BRAKE), -E (ENCODER) or -BE (BRAKE+ENCODER) can be added to end of the motor model name.
※ In ■ of the model name voltage U (single-phase 100~115V), C (single-phase 200~230V) will be shown.
※ In □ of name, it represents a deceleration ratio.
※ Permissible overhang load can be withdrawn by calculation.