

2-Phase Hybrid Stepping Motor

1.8°

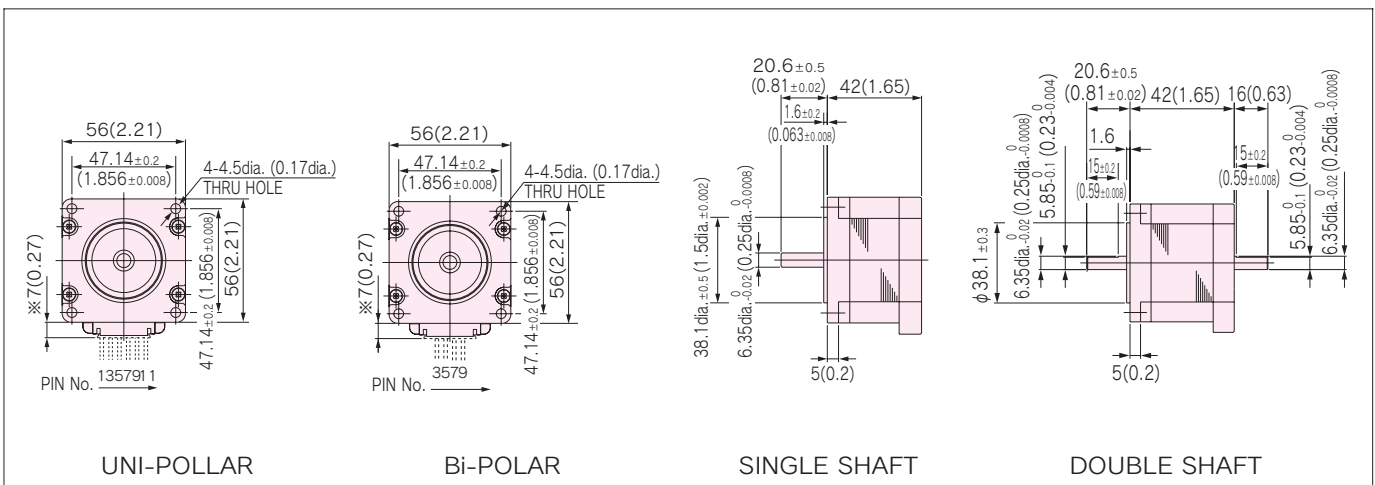
KH56 series

HIGH TORQUE, LOW VIBRATION AND LOW NOISE

STANDARD SPECIFICATIONS

M O D E L		KH56JM2			
		SINGLE SHAFT	-901	-902	-903
		DOUBLE SHAFT	-911	-912	-913
DRIVE METHOD	—	UNI-POLAR			BI-POLAR
NUMBER OF PHASES	—	2			2
STEP ANGLE	deg./step	1.8			1.8
VOLTAGE	V	1.68	2.78	4.9	1.96
CURRENT	A/PHASE	3.0	2.0	1.0	2.0
WINDING RESISTANCE	Ω/PHASE	0.58	1.39	4.9	0.98
INDUCTANCE	mH/PHASE	0.61	1.8	6.68	2.27
HOLDING TORQUE	mN · m	422	422	422	490
	oz · in	60	60	60	69
DETENT TORQUE	mN · m	25	25	25	25
	oz · in	3.5	3.5	3.5	3.5
ROTOR INERTIA	g · cm ²	115	115	115	115
	oz · in ²	0.62	0.62	0.62	0.62
WEIGHTS	g	400	400	400	400
	lb	0.88	0.88	0.88	0.88
INSULATION CLASS	—	JIS Class E (120°C 248° F) (UL VALUE : CLASS B 130°C 266° F)			
INSULATION RESISTANCE	—	500VDC 100MΩmin.			
DIELECTRIC STRENGTH	—	500VAC 50HZ 1min.			
OPERATING TEMP. RANGE	°C	0 to 50			
ALLOWABLE TEMP.RISE	K	70			

DIMENSIONS unit = mm (inch)





Features

- Stronger torque generated in higher speed zone (KH56KM2-901 generates 1.2 times torque of our previous model at 1200 r/min. speed)
- Lowered Vibration by increased stiffness of body construction (lowered by 10% than our previous model)
- Improved Efficiency (1.1 times of our previous model, by high grade materials)

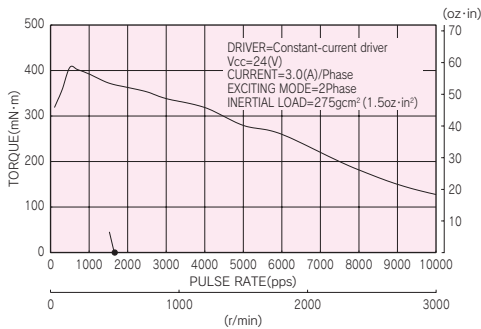
TORQUE CHARACTERISTICS vs. PULSE RATE

UNI-POLAR

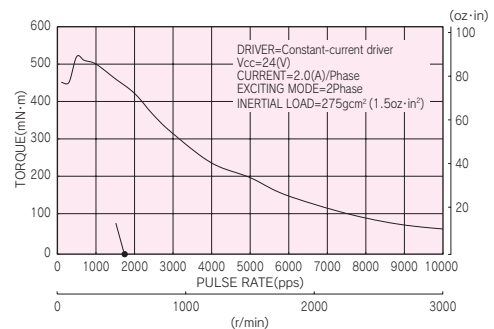
BI-POLAR

— PULL-OUT
● PULL-IN

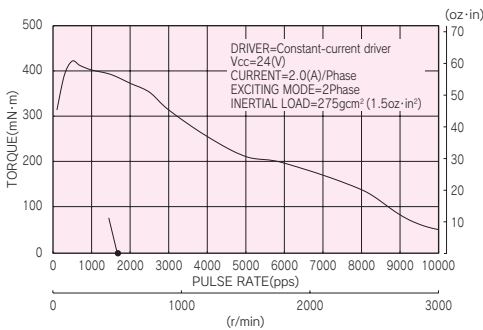
KH56JM2-901, 911



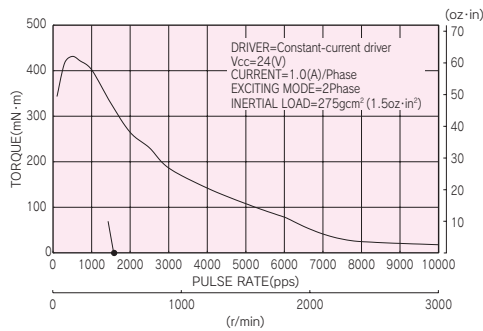
KH56JM2-951, 961



KH56JM2-902, 912

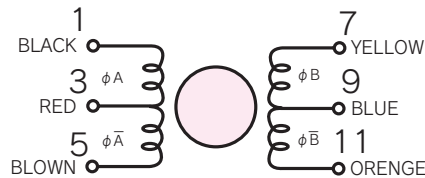


KH56JM2-903, 913



CONNECTION DIAGRAMS

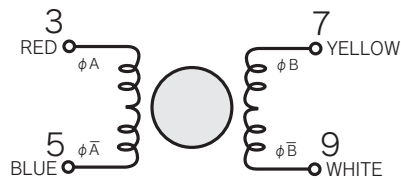
UNI-POLAR



EXCITATION SEQUENCE

STEP	1	2	3	4
BLACK	-	-	-	-
YELLOW	-	-	-	-
BROWN	-	-	-	-
ORANGE	-	-	-	-
RED	+	+	+	+
BLUE	+	+	+	+

BI-POLAR

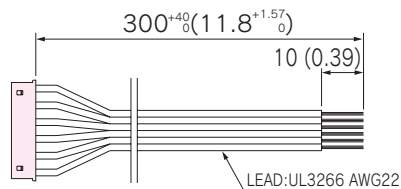


EXCITATION SEQUENCE

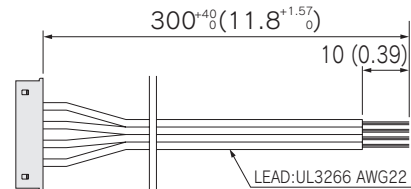
STEP	1	2	3	4
RED	+	+	-	-
YELLOW	-	+	+	-
BLUE	-	-	+	+
WHITE	+	-	-	+

CONNECTION CABLE TO MOTOR unit = mm (inch)

UNI-POLAR



BI-POLAR



2-Phase Hybrid Stepping Motor

1.8°

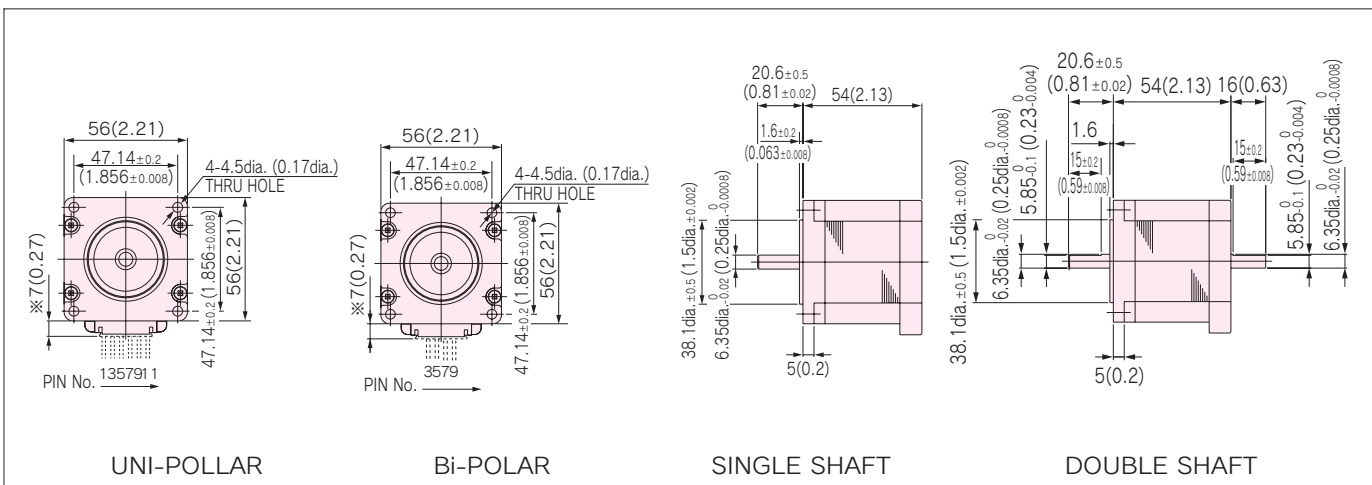
KH56 series

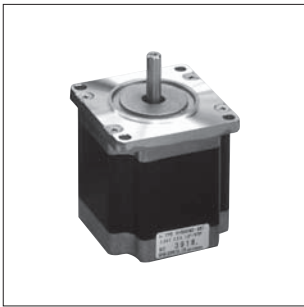
HIGH TORQUE, LOW VIBRATION AND LOW NOISE

STANDARD SPECIFICATIONS

M O D E L		KH56KM2			
		SINGLE SHAFT	-901	-902	-903
		DOUBLE SHAFT	-911	-912	-913
DRIVE METHOD	—	UNI-POLAR			BI-POLAR
NUMBER OF PHASES	—	2			2
STEP ANGLE	deg./step	1.8			1.8
VOLTAGE	V	2.3	3.6	6.71	2.4
CURRENT	A/PHASE	3.0	2.0	1.0	2.0
WINDING RESISTANCE	Ω/PHASE	0.77	1.79	6.71	1.32
INDUCTANCE	mH/PHASE	1.04	3.0	9.36	3.19
HOLDING TORQUE	mN · m	834	834	834	932
	oz · in	118	118	118	132
DETENT TORQUE	mN · m	37	37	37	37
	oz · in	5.2	5.2	5.2	5.2
ROTOR INERTIA	g · cm ²	188	188	188	188
	oz · in ²	1.0	1.0	1.0	1.0
WEIGHTS	g	650	650	650	650
	lb	1.4	1.4	1.4	1.4
INSULATION CLASS	—	JIS Class E (120°C 248° F) (UL VALUE : CLASS B 130°C 266° F)			
INSULATION RESISTANCE	—	500VDC 100MΩmin.			
DIELECTRIC STRENGTH	—	500VAC 50HZ 1min.			
OPERATING TEMP. RANGE	°C	0 to 50			
ALLOWABLE TEMP. RISE	K	70			

DIMENSIONS unit = mm (inch)





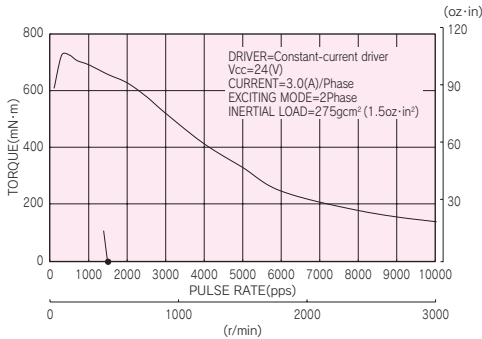
Features

- Stronger torque generated in higher speed zone (KH56KM2-901 generates 1.2 times torque of our previous model at 1200 r/min. speed)
- Lowered Vibration by increased stiffness of body construction (lowered by 10% than our previous model)
- Improved Efficiency (1.1 times of our previous model, by high grade materials)

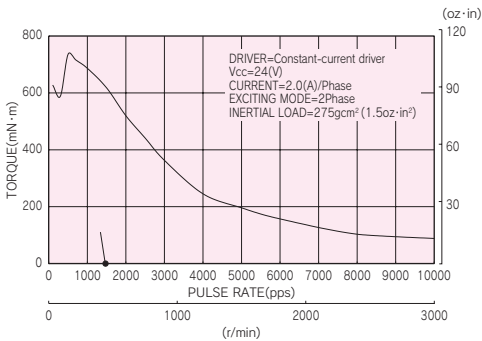
TORQUE CHARACTERISTICS vs. PULSE RATE

UNI-POLAR

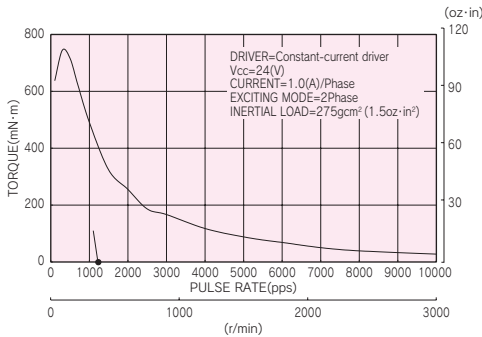
KH56KM2-901, 911



KH56KM2-902, 912

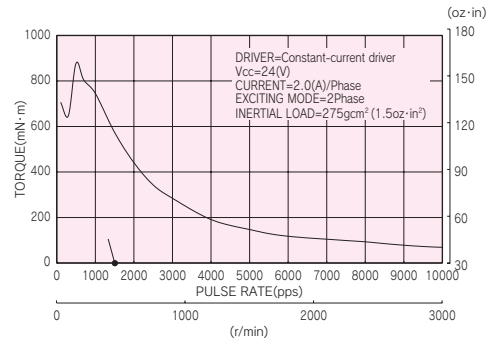


KH56KM2-903, 913



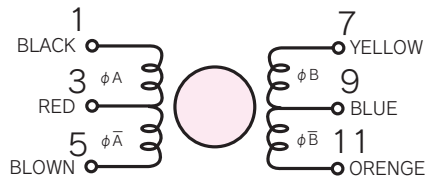
BI-POLAR

KH56KM2-951, 961



CONNECTION DIAGRAMS

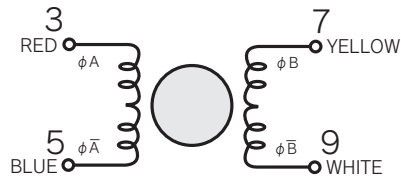
UNI-POLAR



EXCITATION SEQUENCE

STEP	1	2	3	4
BLACK	-	-	-	-
YELLOW	-	-	-	-
BROWN	-	-	-	-
ORANGE	-	-	-	-
RED	+	+	+	+
BLUE	+	+	+	+

BI-POLAR

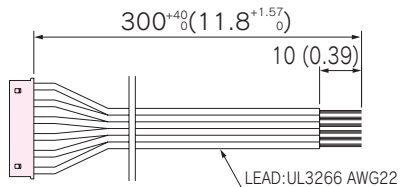


EXCITATION SEQUENCE

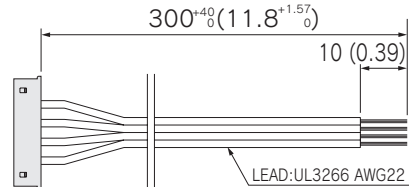
STEP	1	2	3	4
RED	+	+	-	-
YELLOW	-	+	+	-
BLUE	-	-	+	+
WHITE	+	-	-	+

CONNECTION CABLE TO MOTOR unit = mm (inch)

UNI-POLAR



BI-POLAR



2-Phase Hybrid Stepping Motor

1.8°

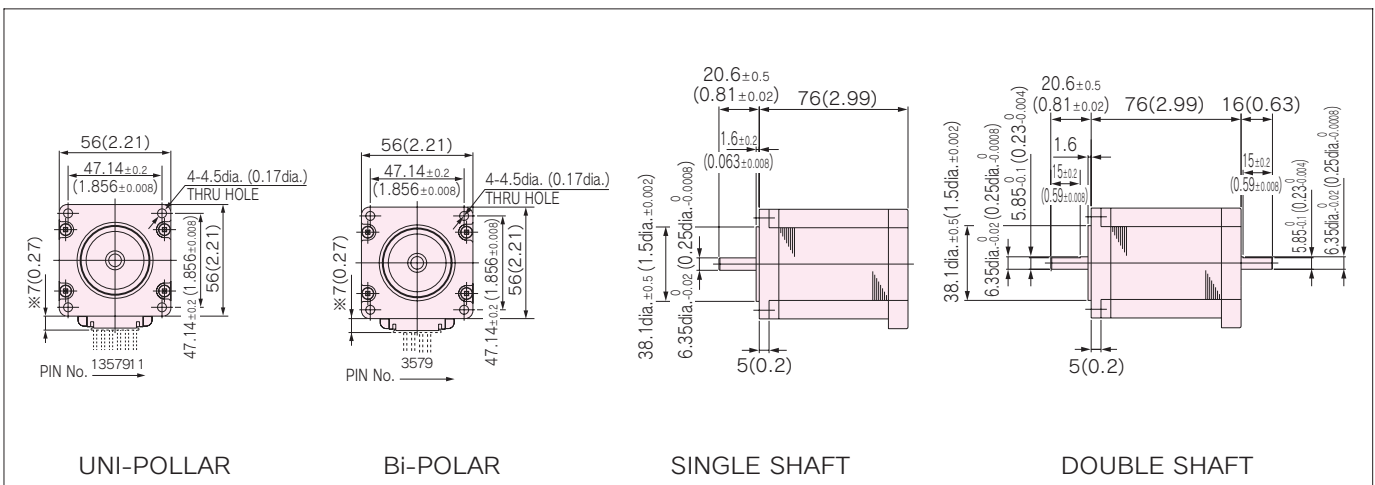
KH56 series

HIGH TORQUE, LOW VIBRATION AND LOW NOISE

STANDARD SPECIFICATIONS

M O D E L		KH56QM2			
		SINGLE SHAFT	-901	-902	-903
		DOUBLE SHAFT	-911	-912	-913
DRIVE METHOD	—	UNI-POLAR			BI-POLAR
NUMBER OF PHASES	—	2			2
STEP ANGLE	deg./step	1.8			1.8
VOLTAGE	V	3.54	5.46	9.9	4.0
CURRENT	A/PHASE	3.0	2.0	1.0	2.0
WINDING RESISTANCE	Ω/PHASE	1.18	2.73	9.9	2.0
INDUCTANCE	mH/PHASE	2.4	5.4	21.6	7.35
HOLDING TORQUE	mN · m	1324	1324	1324	1373
	oz · in	187	187	187	194
DETENT TORQUE	mN · m	69	69	69	69
	oz · in	9.8	9.8	9.8	9.8
ROTOR INERTIA	g · cm ²	269	269	269	269
	oz · in ²	1.47	1.47	1.47	1.47
WEIGHTS	kg	1.0	1.0	1.0	1.0
	lb	2.2	2.2	2.2	2.2
INSULATION CLASS	—	JIS Class E (120°C 248° F) (UL VALUE : CLASS B 130°C 266° F)			
INSULATION RESISTANCE	—	500VDC 100MΩmin.			
DIELECTRIC STRENGTH	—	500VAC 50HZ 1min.			
OPERATING TEMP. RANGE	°C	0 to 50			
ALLOWABLE TEMP. RISE	K	70			

DIMENSIONS unit = mm (inch)





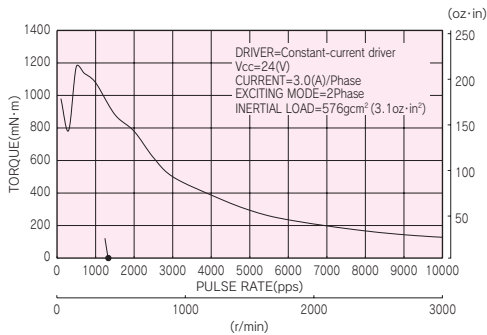
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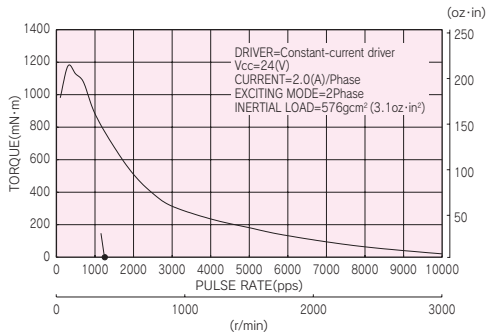
TORQUE CHARACTERISTICS vs. PULSE RATE

UNI-POLAR

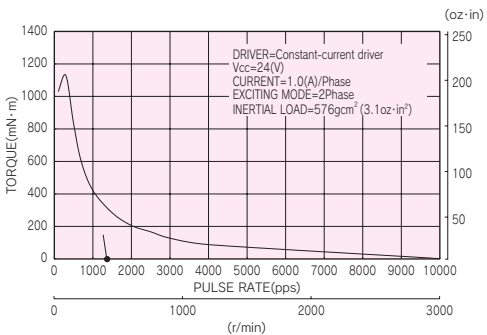
KH56QM2-901, 911



KH56QM2-902, 912

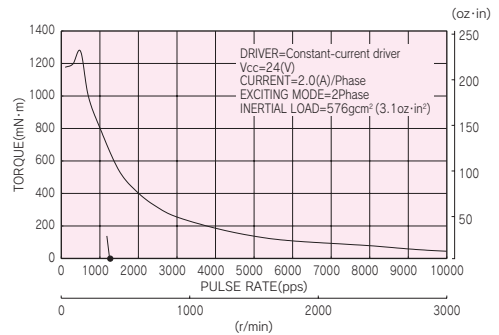


KH56QM2-903, 913



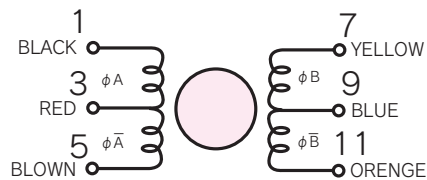
BI-POLAR

KH56QM2-951, 961



CONNECTION DIAGRAMS

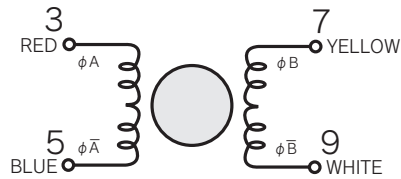
UNI-POLAR



EXCITATION SEQUENCE

STEP	1	2	3	4
BLACK	-	-	-	-
YELLOW	-	-	-	-
BROWN	-	-	-	-
ORANGE	-	-	-	-
RED	+	+	+	+
BLUE	+	+	+	+

BI-POLAR

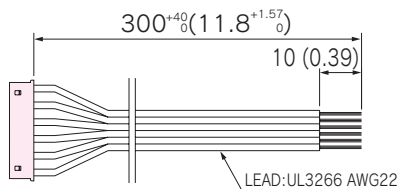


EXCITATION SEQUENCE

STEP	1	2	3	4
RED	+	+	-	-
YELLOW	-	+	+	-
BLUE	-	-	+	+
WHITE	+	-	-	+

CONNECTION CABLE TO MOTOR unit = mm (inch)

UNI-POLAR



BI-POLAR

