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Brake motors

■ BMS model (Non-excited operation type brake brake motors)
■ BMM model (Electromagnetic actuated typebrake brake motors)

Brake torque [N·m]

	1	10	100	1000
BMS				
BMM				

■ Selection

1 Selection of categories

First, select the brake class in accordance with the intended use. Select the appropriate brake class by the adaptability and characteristic described below. If the required torque is clear, narrow the size of the brake motor.

2 Mounting

After selecting the class, choose the motor mounting form by the mounting method (base mounting or flange mounting).

3 Setting of use conditions

After selecting the mounting method, determine the type from the dimensions and specification table.

4 Confirmation of use conditions

After the type of the brake motor is determined, reconfirm if the rated torque,dimension, amount of work (operation frequency and allowable mount of work) or operating time corresponds to the use conditions.

■ Model list

●···Adjustment ○···Suitable depending on applications
△···Available by special order

		Brake motor			
Type		**BMS-□-NHB**	**BMS-□-NHF**	**BMM-□-NHB**	**BMM-□-NHF**
Appearance					
Descriptive page		P143~144		P145~146	
Brake class		Non-excited operation type	Non-excited operation type	Electromagnetic actuated type	Electromagnetic actuated type
Adaptability	Position control	●	●	●	●
	Forward reverse operation	●	●	●	●
	Speed change	●	●	●	●
	Start · stop (High frequency)	○	○	●	●
	Wrapping · coupling output	●	●	●	●
	Braking · holding during electrical power failure	●	●		
Characteristic	Optional mounting direction	○	○	○	○
	Same dimensions with general-purpose motor	●	●	●	●
	With release lever	●	●		
	Easy to mount and use	●	●	●	●
	Quiet operation	●	●	●	●
	5 power supplies correspondence	△	△	△	△
	Reverse terminal box position	△		△	
	Built-in power supply	●	●	●	●

*Speed change is possible by an inverter. As to the inverter, select our V series inverter.
*The BMS model can not be mounted under the output shaft. And the BMM model can not be mounted on the output shaft. Contact us for the corresponding products.
*The 5-power supply correspondence is a combination of AC380V50Hz, AC400V60Hz, AC415V50Hz, AC440V60Hz and the brake specification voltage DC180V.
*For the BMM model, 5.5kW~ 11kW are supported as a particular case. Conac t us for further information.
*Contac us for other particular motors (different pole number, voltage, etc.).

Brake motor

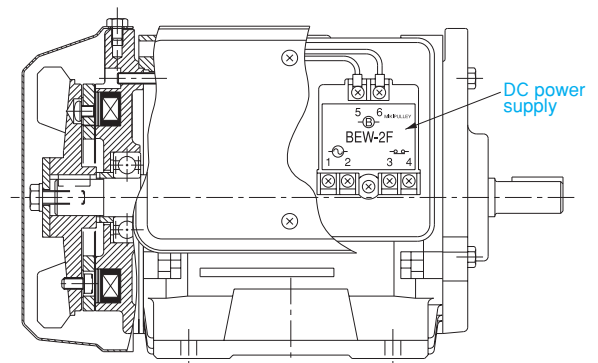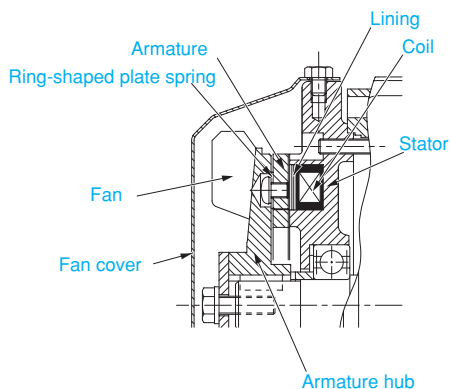# ■ Structure and principle of operation

● BMS structure
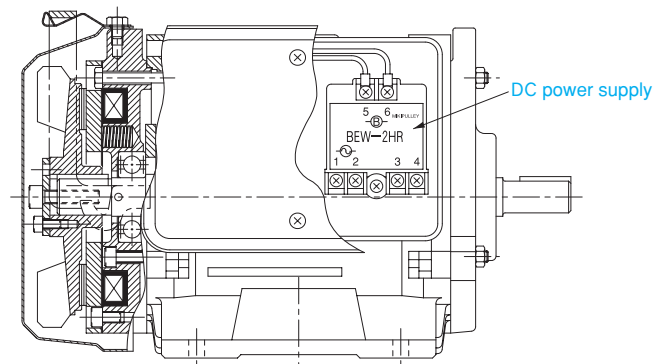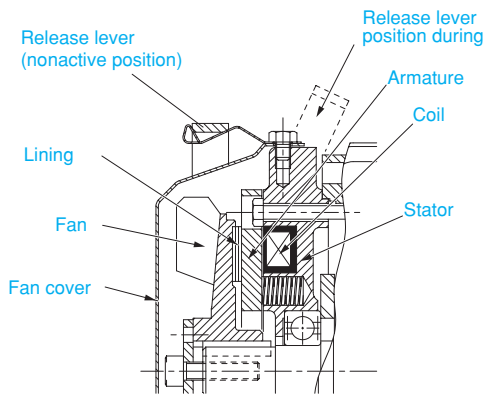
● BMS model principle of operation

The brake is a spring actuated type (non-excited operation type) electromagnetic brake.When turning on the power, the stator is magnetized simultaneously with the motor, and the armature is suctioned to the stator when the generated suction power surpasses the pressure of the spring. At that time, a space is generated between the disc and armature, and the brake is completely released to rotate the motor shaft. When turning off the power, the magnetic suction power disappears. The armature is pushed back bythe torque spring force, and gives a braking force to the disc to stop the motor shaft quickly.

Brake operation when interrupting current

Brake operation when applying current
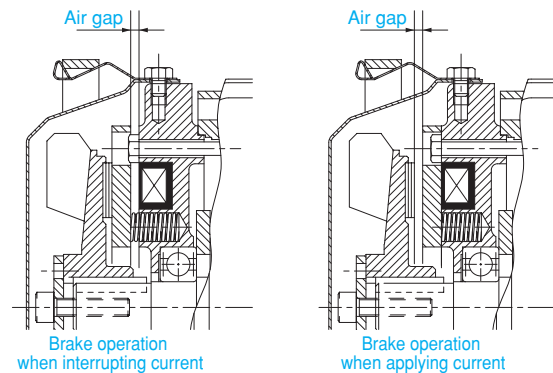
● BMM structure

● BMM principle of operation

The brake is a non-excited operation type electromagnetic brake. When applying current through the coil, the stator is magnetized to suction the armature. At this time, the braking torque of the brake is generated by the frictional force exerted between the lining and armature. When turning off the current, the armature is pulled back by the ring-shaped plate spring located between the armature and hub to release the lining and armature quickly.

Brake release when interrupting current

Brake operation when applying current

BMS model

Non-excited operation type brake brake motors
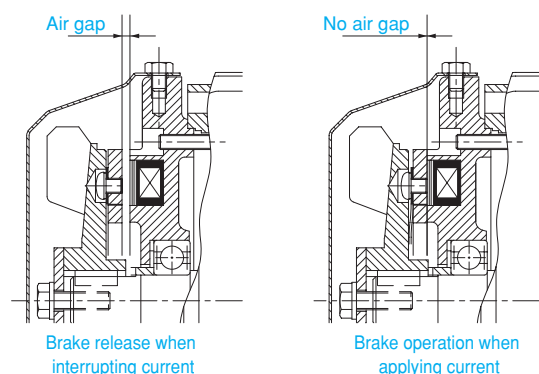
Electromagnetic actuated type clutches and brakes | Electromagnetic actuated type clutches and brakes | Clutch and brake units | Non-excited operation type brakes | Electromagnetic toothed clutch | **Brakemotor** | Power supply for clutches & brakes
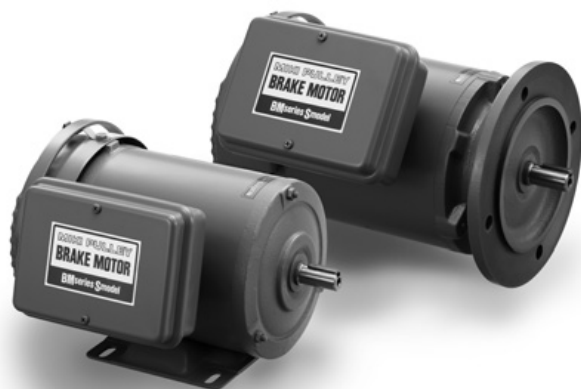
■**Quiet operation**
The rotating disc is completely integrated with the motor shaft to ensure quiet operation.

■**Manual release**
Braking force can be manually released by the release lever.

■**Longer operating life**
A large friction area achieves a long operating life.

■**Same dimensions as general-purpose motors**
A non-excited brake is incorporated inside without changing the size of a general-purpose motor for easy mounting.

■**Built-in power supply**
A compact power supply unit is contained for easy handling.

Torque range	**[N·m]**	2～15
Operational temperature	**[℃]**	－10～＋40
Backlash		Little

■ Specification

| Type	Motor			Brake								Rotating part moment of inertia J[kg·m²]	Allowable braking work rate $P_{baℓ}$[W]	Total braking work E_T[J]	Operating time			Mass [kg]
	Frame number	Output [kW] (quadrupole)	Torque T [N·m]	Coil (at20℃)				Heat-resistance class	Air gap						Armature suction time t_a[S]	Coasting time		
				Voltage [V]	Amperage [A]	Resistance [Ω]	Wattage [W]		Rated value [mm]	Limit value [mm]						Simultaneous switching [s]	DC separate switching [s]	
BMS-024-NHBN	63	0.2	2	DC90	0.20	440	18	B	0.15～0.25	0.40	$0.8×10^{-3}$	18	$3.5×10^7$	0.04	0.1	0.08	7.5
BMS-024-NHFN																	8.5
BMS-044-NHB	71	0.4	4	DC90	0.28	324	25	B	0.15～0.25	0.40	$1.5×10^{-3}$	26.2	$7.0×10^7$	0.05	0.1	0.08	10
BMS-044-NHF																	11
BMS-074-NHB	80	0.75	8	DC90	0.33	270	30	B	0.20～0.30	0.50	$3.8×10^{-3}$	29.4	$12.5×10^7$	0.05	0.14	0.09	15
BMS-074-NHF																	17
BMS-154-NHBN	90	1.5	15	DC90	0.34	261	31	B	0.20～0.30	0.60	$6.8×10^{-3}$	45.8	$20.0×10^7$	0.11	0.15	0.09	20
BMS-154-NHFN																	23

*The motor is a standard totally-enclosed-fan-cooled motor that conforms to the JIS 4210.
Refer to the section of structural instructions for the allowable braking frequency of the brake motor. For the detailed frequency, confirm by the calculation formula since it is different depending on the load conditio
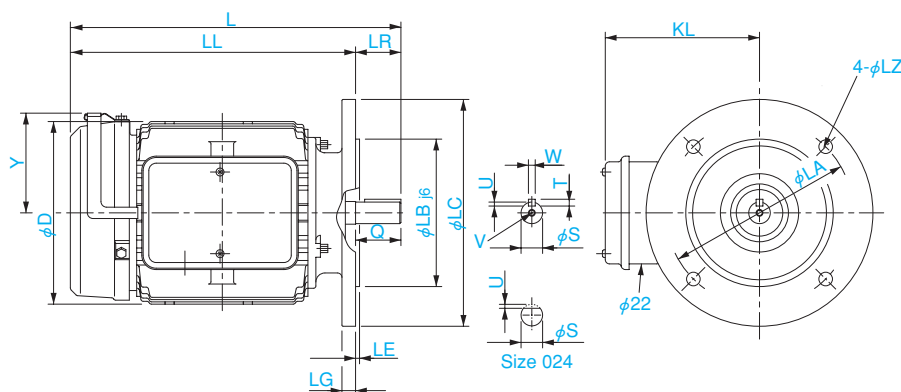
■ Dimensions BMS-□-NHB

Size 024

G type
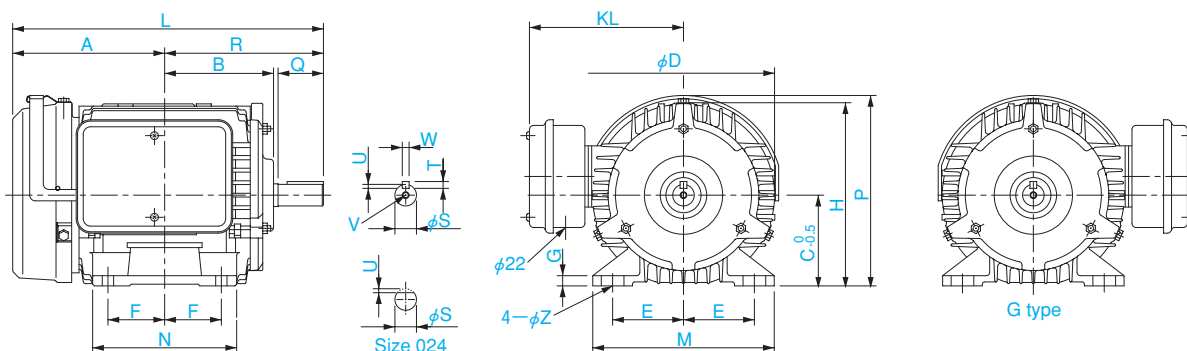
Unit [mm]

Type	Body dimensions																			CAD File No.
	L	R	A	B	D	KL	H	P	C	F	E	N	M	G	Z	S	W	U	T	Q	V	
BMS-024-NHBN	215	103	112	79	130	115	128	134	63	40	50	100	130	3.2	7×21	11h6	—	1	—	23	—	BMS-NHB1
BMS-044-NHB	244	120	124	87	145	141	143.5	150	71	45	56	115	140	3.2	7×20	14 j6	5	3	5	30	M5×0.8Depth18	BMS-NHB2
BMS-074-NHB	278.5	140	138.5	97	163	138.5	161.5	168	80	50	62.5	125	160	3.2	10×25	19 j6	6	3.5	6	40	M6×1Depth20	BMS-NHB3
BMS-154-NHBN	332.5	168.5	164	116	180	145	180	189	90	62.5	70	155	170	10	10	24 j6	8	4	7	50	M6×1Depth20	BMS-NHB4

■ Dimensions BMS-□-NHF

Size 024

Unit [mm]

| Type | Body dimensions | | | | | | | | | | | | | | | | CAD File No. |
	L	LR	LL	D	KL	LC	Y	LB	LA	LE	LG	LZ	S	W	U	T	Q	V	
BMS-024-NHFN	241	23	218	130	115	160	70	110	130	3.5	8	10	11 h6	—	1	—	23	—	BMS-NHF1
BMS-044-NHF	265	30	235	145	134.5	160	79	110	130	3.5	10	10	14 j6	5	3	5	30	M5×0.8Depth18	BMS-NHF2
BMS-074-NHF	293	40	253	163	142	200	88	130	165	3.5	12	12	19 j6	6	3.5	6	40	M6×1Depth20	BMS-NHF3
BMS-154-NHFN	340.5	50	290.5	180	145	200	99	130	165	3.5	12	12	24 j6	8	4	7	50	M6×1Depth20	BMS-NHF4

■ Option correspondence (Available by special order)

● Reverse motor terminal box position (Available by special order)

Option sign: G (BMS-□-NHB-G)

By the mounting position of the brake motor, the motor terminal box may not be able to be mounted in the dimensional position of the standard product. In such case, the mounting dimension can be considered by this product. Refer to the dimensional drawing for the terminal box position of the G type.

● Brake rectifier BEW-2H (Available by special order)

Option sign: 2H (BMS-□-NH□-2H)

If a quick response is required for combining the brake motor with an inverter, the DC switching power supply (BEW-2H) can be optionally mounted.

● 5-power supply corresponding product (Available by special order)

Option sign: DV (BMS-□NH□-DV)

As a brake-motor input voltage, 400V-class 5-power corresponding product is available except the standard 200V class.

Motor voltage and brake voltage list

Motor voltage specification	Motor input voltage	Attached rectifier specification	Brake voltage
Standard	AC200V50Hz	BEW-2HR (Half wave rectification power supply) Built-in relay type	DC90V
	AC200V60Hz		
	AC220V60Hz		
5-power supply (DV)	AC380V50Hz	BEW-4H (Half wave rectification power supply)	DC180V
	AC400V50Hz		
	AC400V60Hz		
	AC415V50Hz		
	AC440V60Hz		

■ Accessory list

The parts described in the right-hand table are attached to the brake motor. By using the tap on the motor shaft end in combination with the accessories, a V-belt pulley, for instance, can be easily mounted on the brake-motor output shaft. Besides, the motor output shaft of the size 024 has a flat edging that there is no tap processing on the shaft end and no accessory is attached.

Unit [mm]

Size		024	044	074	154
Tightening collar 1	φ6.5×φ35×3.2t	—	◯	◯	◯
Threaded rod 1	M5×70	—	◯		
	M6×100	—		◯	◯
Hexagon nut 1	M5	—	◯		
	M6	—		◯	◯

■ Ordering Information

BMS-024-NHBN-□

- Option sign   Standard: Blank   Reverse terminal box position: G
  5-power corresponding product: DV   Brake rectifier BEW-2H: 2H
- For the 0.2kW and 1.5kW model, enter N.
- Mounting form B: Base type   F: flange type
- Motor capacity・pole number   0.2kW4P: 024   0.4kW4P: 044   0.75kW4P: 074   1.5kW4P: 154

Brake motor

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BMM model

Electromagnetic actuated type brake brake motors

Electromagnetic actuated type clutches and brakes	Electromagnetic actuated type clutches and brakes	Clutch and brake units	Non-excited operation type brakes	Electromagnetic toothed clutch	Brakemotor	Power supply for clutches & brakes

■ Stable quick braking
Torque is transmitted by a constant-load plate spring to ensure always-stable braking.

■ Longer operating life
A large friction area achieves a long operating life.

■ Same dimensions as general-purpose motors
An electromagnetic brake is incorporated inside without changing the size of a general-purpose motor.

■ Built-in power supply
A compact power supply unit is contained for easy handing.

|		
Torque range	[N·m]	2.5～50
Operational temperature	[℃]	－10～＋40
Backlash		Zero

■ Specification

Type	Motor		Brake								Rotating part moment of inertia J[kg·m²]	Allowable braking work rate P$_{baℓ}$ [W]	Total braking work E$_T$[J]	Operating time		Mass [kg]
	Frame number	Output	Torque T [N·m]	Coil (at 20℃)				Heat-resistance class	Air gap					Armature suction time t$_a$ [S]	Armature release time t$_{ar}$ [S]	
				Voltage [V]	Amperage [A]	Resistance [Ω]	Wattage [W]		Rated value [mm]	Limit value [mm]						
BMM-024-NHBN	63	0.2	2.5	DC180	0.06	2956	11	B	0.10～0.20	0.30	0.9×10⁻³	11	5.0×10⁷	0.015	0.015	7
BMM-024-NHFN																8
BMM-044-NHB	71	0.4	5	DC180	0.07	2572	12.6	B	0.10～0.20	0.35	2.4×10⁻³	26.2	7.0×10⁷	0.030	0.030	9
BMM-044-NHF																10
BMM-074-NHB	80	0.75	10	DC180	0.089	2025	16	B	0.15～0.25	0.45	3.3×10⁻³	32.7	17.0×10⁷	0.040	0.040	14
BMM-074-NHF																16
BMM-154-NHBN	90	1.5	20	DC180	0.123	1466	22.1	B	0.15～0.25	0.70	8.2×10⁻³	45.8	25.0×10⁷	0.060	0.060	19
BMM-154-NHFN																22
BMM-224-NHBN	100	2.2	30	DC180	0.167	1080	30	B	0.20～0.30	1.00	10.2×10⁻³	58.9	50.0×10⁷	0.070	0.070	25
BMM-224-NHFN																29
BMM-374-NHBN	112	3.7	50	DC180	0.17	1059	30.6	B	0.20～0.30	1.10	17.8×10⁻³	73.6	75.0×10⁷	0.070	0.080	33
BMM-374-NHFN																37

*The motor is a standard totally-enclosed-fan-cooled motor that conforms to the JIS C4210.
*Refer to the section of structural instructions for the allowable braking frequency of the brake motor. For the detailed frequency, confirm by the calculation formula since it is different depending on the load condition.
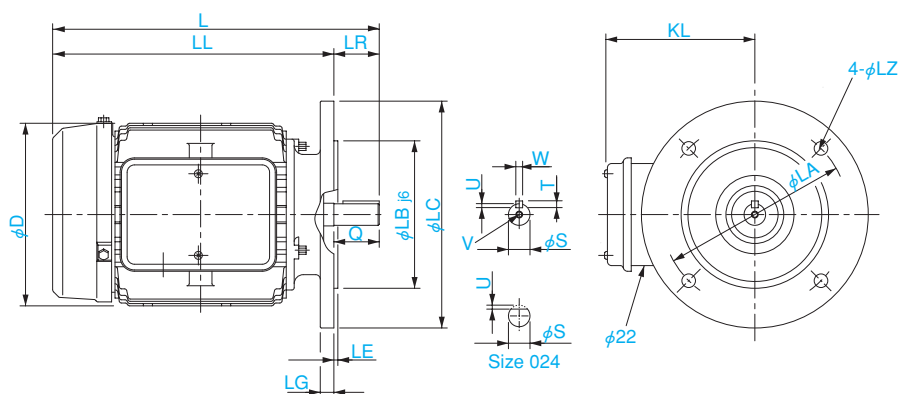
■ Dimensions BMM-□-NHB

Size 024

G type
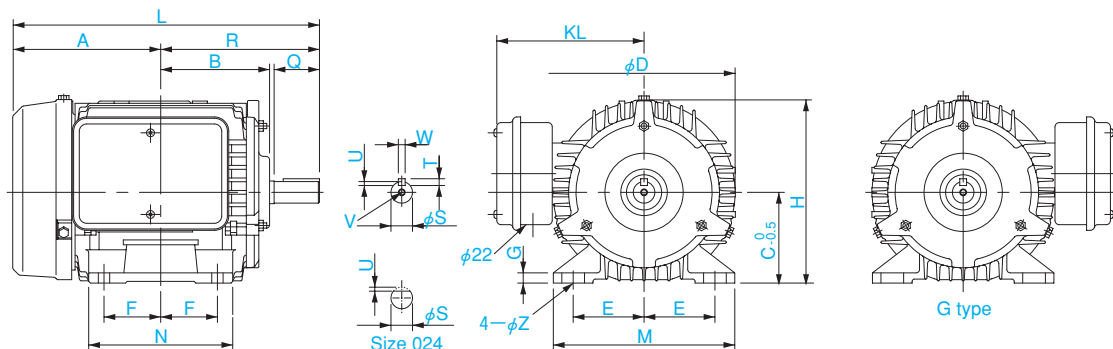
Unit [mm]

Type	Body dimensions																		CAD File No.
	L	R	A	B	D	KL	H	C	F	E	N	M	G	Z	S	W	U	T	Q	V	
BMM-024-NHBN	215	103	112	80	130	115	128	63	40	50	100	130	3.2	7×21	11h6	—	1	—	23	—	BMM-NHB1
BMM-044-NHB	235.5	120	115.5	87	145	131	143.5	71	45	56	115	140	3.2	7×20	14 j6	5	3	5	30	M5×0.8Depth18	BMM-NHB2
BMM-074-NHB	268.5	140	128.5	97	163	138.5	161.5	80	50	62.5	125	160	3.2	10×25	19 j6	6	3.5	6	40	M6×1Depth20	BMM-NHB3
BMM-154-NHBN	328	168.5	159.5	116	180	139	180	90	62.5	70	155	170	10	10	24 j6	8	4	7	50	M6×1Depth20	BMM-NHB4
BMM-224-NHBN	363.5	193	170.5	130.5	199	147	199.5	100	70	80	175	195	12.5	12	28 j6	8	4	7	60	M6×1Depth20	BMM-NHB5
BMM-374-NHBN	384	200	184	137.5	223	161	223.5	112	70	95	175	224	14	12	28 j6	8	4	7	60	M6×1Depth20	BMM-NHB6

CAD

Size 024

Unit [mm]

Type	Body dimensions																CAD File No.
	L	LR	LL	D	KL	LC	LB	LA	LE	LG	LZ	S	W	U	T	Q	V	
BMM-024-NHFN	241	23	218	130	115	160	110	130	3.5	8	10	11h6	—	1	—	23	—	BMM-NHF1
BMM-044-NHF	256.5	30	226.5	145	124.5	160	110	130	3.5	10	10	14 j6	5	3	5	30	M5×0.8Depth18	BMM-NHF2
BMM-074-NHF	283	40	243	163	132	200	130	165	3.5	12	12	19 j6	6	3.5	6	40	M6×1Depth20	BMM-NHF3
BMM-154-NHFN	336	50	286	180	139	200	130	165	3.5	12	12	24 j6	8	4	7	50	M6×1Depth20	BMM-NHF4
BMM-224-NHFN	363.5	60	303.5	199	147	250	180	215	4.0	16	14.5	28 j6	8	4	7	60	M6×1Depth20	BMM-NHF5
BMM-374-NHFN	384	60	324	223	161	250	180	215	4.0	16	14.5	28 j6	8	4	7	60	M6×1Depth20	BMM-NHF6

■ Option correspondence (Available by special order)

● Reverse motor terminal box position (Available by special order)

Option sign: G (BMM-□-NHB-G)

By the mounting position of the brake motor, the motor terminal box may not be able to be mounted in the dimensional position of the standard product. In such case, the mounting dimension can be considered by this product. Refer to the dimensional drawing for the terminal box position of the G type.

● Large output motor 5.5kW to 11kW (Available by special order)

This product corresponds to the large output motor (5.5kW to 11kW). Contact us for more detail.

BMM-□-NH□-□

Motor capacity・pole number　5.5kW4P: 554
7.5kW4P; 754
11kW4P: 1104

■ Accessory list

The parts described in the right-hand table are attached to the brake motor. By using the tap on the motor shaft end in combination with the accessories, a V-belt pulley, for instance, can be easily mounted on the brake-motor output shaft. Besides, the motor output shaft of the size 024 has a flat edging that there is no tap processing on the shaft end and no accessory is attached.

● 5-power supply corresponding product (Available by special order)

Option sign: DV (BMM-□NH□-DV)

As a brake-motor input voltage, 400V-class 5-power corresponding product is available except the standard 200V class.

Motor voltage and brake voltage list

Motor voltage specification	Motor input voltage	Attached rectifier specification	Brake voltage
Standard	AC200V50Hz	BEW-2F (Half wave rectification power supply)	DC180V
	AC200V60Hz		
	AC220V60Hz		
5-power supply (DV)	AC380V50Hz	BEW-4H (Half wave rectification power supply)	DC180V
	AC400V50Hz		
	AC400V60Hz		
	AC415V50Hz		
	AC440V60Hz		

Unit [mm]

Size		024	044	074	154	224	374
Tightening collar　1	φ6.5×φ35×3.2t	—	○	○	○	○	○
Threaded rod　1	M5×70	—	○				
	M6×100	—		○	○	○	○
Hexagon nut　1	M5	—	○				
	M6	—		○	○	○	○

■ Ordering Information

BMM-[024]-NH[B][N]-[ ]

Option sign　Standard: Blank　Reverse terminal box position: G
5-power corresponding product: DV

For the 0.2kW, 1.5kW 2.2kW and 3.7kW model, enter N.

Mounting form　B: Base type　F: flange type

Motor capacity　pole number　0.2kW4P: 024　0.4kW4P: 044　0.75kW4P: 074
1.5kW4P: 154　2.2kW4P: 224　3.7kW4P: 374

Brake motor

■ Structural instructions

When using a brake motor for machinery, how to maximize the performances and features in design. During the design of the equipment here ard some important factors to consider: When connecting the machine with a V-belt pulley, refer to the catalog of the motor maker.

❶ Leave an appropriate space on the fan cover side for cooling effect and maintenance.

❷ If it is not used within the allowable operating temperature -10℃ to +40℃, contact us.

❸ If this brake motor is used for a winch or lift, use a brake with different mechanism in combination for safety.

❹ For mounting a phase advance capacitor, contact us.

❺ The brake motor is a finite product with consumable parts such as lining. Please make provision for all consumable parts. In addition, if the start-stop frequency exceeds the allowable value, it causes damage to the motor part or brake lining. Therefore, confirm if the start-stop frequency is below the allowable value.

Brake motor allowable start-stop frequency

Model	Output [kW]	Frequency [operation/h]		Load moment of inertia J[kg·m²]
		40%ED	60%ED	
BMS	0.2	500	400	0.00125
	0.4	900	845	0.00128
	0.75	630	585	0.00205
	1.5	395	320	0.0045
BMM	0.2	450	360	0.00125
	0.4	900	845	0.00128
	0.75	630	585	0.00205
	1.5	395	320	0.0045
	2.2	270	215	0.0088
	3.7	225	185	0.0143

* The above table indicates the values when it is quadrupole, 50Hz of frequency and under condition of the load moment of inertia J. For 60 Hz of frequency, apply 70% of the above value.
* The indicated frequency is a total value of the motor part and brake. It is different for single piece.
* The %ED is a duty factor during reverse operation.
* The load moment of inertia J in the above table is about the same as the motor part moment of inertia J.
* This brake motor has a heat-resistance class B. The motor inside coil temperature rise must be below 85℃ for under 600W and below 80℃ for over 600W (when the environmental temperature is 40℃). (Use the motor external surface temperature of 80 to 90℃ as a measure.)

❻ Brake torque is not stable especially in the initial state. Perform a test

operation (40 to 60 times) to condition the friction surface.

❼ Turn off the switch in the event of power loss. Unexpected accident may occur by electricity.

❽ For the BMS model, confirm if the release lever is at nonactive position before operation.

■ Wire connection

● BMS

For the BMS model, the built-in relay power (BEW-2HR) is incorporated so that it can be generally used with the responsiveness close to the DC separate switching. If a quicker response is required for combining an inverter, the DC separate switching power supply (BEW-2H) can be optionally mounted.

BEW-2HR: Brake power supply for BMS built-in relay. (Integrated in the terminal box)
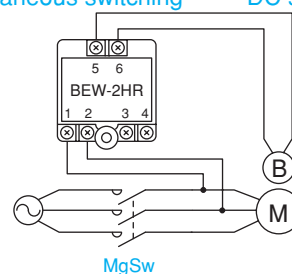
MgSw : Electromagnetic switch
M : Motor
B : Brake

The power supply, motor terminal block and brake are previously connected that it can be used by wiring the motor U, V and W.
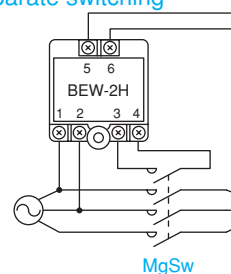
Separate switching power supply for BMS
（Assign when ordering the brake motor.）

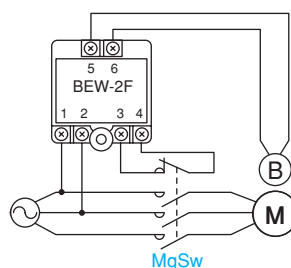Simultaneous switching　　DC separate switching

● BMM

BEW-2F: Brake power supply for BMM (Integrated in the terminal box)

MgSw : Electromagnetic switch
M : Motor
B : Brake

(The BEW-2F is previously connected.)

Note

* If an inverter or reduced-voltage starting is used, connect the brake and brake power supply on the power supply side of the inverter or reduced-voltage starter.
* If the same pipe is used for the brake circuit wiring and power line, make sure to shield.
  When performing a high-frequency inching with over the allowable start-stop frequency of the BMS and BMM brake motors, confirm the contact capacity of the direct-current switching.
* If condenser for power factor improvement is inserted, make sure to use separate switching circuit.
* When the standard cut circuit is used for a winch for lifting and lowering, it becomes θ load during braking delay time to generate the electrogenic voltage in the motor, and the breaks went out by the effect. Make sure to use a direct-current switching or separate switching circuit.
* The earth terminal is set in the inside or side of the terminal box, or the flame under part. Make sure that the ground is properly connected. Especially for mobile and portable machinery, it is specified in the occupational safety and health regulation. This will help to prevent accidents by an electric shock, use a thick ground cable.
* Keep voltage unbalance rate to 1% or less. Furthermore, in case of voltage unbalance, keep maximum current value of each phase to 105% or less of rating plate current value.
* Make sure to attach the terminal box cover after connecting.

Brake motor

■ Selection

1 Selection of use conditionsz
········Setting of application, torque, number of operations, etc.
2 Study of torque
········Confirm by the formula ① and ②.
3 Provisional selection of size and model
········Provisionally select from the evaluated torque value.
4 Study of braking time
········Provisionally select from the evaluated torque value.
5 Study of work volume
········Confirm by the formula ④ and ⑤.
6 Study of braking number
········Confirm by the formula ⑥ and ⑦.
7 Determination of size and type

● Study of torque

$$T_M = \frac{9550 \cdot P}{n} \ [N \cdot m] \quad \cdots\cdots\cdots\cdots\cdots\cdots \ ①$$

T_M : Motor rated torque [N・m]
P : Motor output [kW]
n : Motor rated rotation speed [min^{-1}]

$$T_B = K \cdot T_M \ [N \cdot m] \quad \cdots\cdots\cdots\cdots\cdots\cdots \ ②$$

T_B: Braking torque [N・m]
K : Safety factor (1.5～2.0)

● Study of braking time

The braking time of the brake is evaluated by the formula below.

$$t_{ab} = \frac{J \cdot n}{9.55 \cdot (T \pm T_\ell)} \ [s] \quad \cdots\cdots\cdots\cdots\cdots \ ③$$

t_{ab} : Braking time [s]
J : Brake moment of inertia [kg・m^2]
n : Motor rotation speed [min^{-1}]
T : Brake rated torque [N・m]
T_ℓ : Load torque [N・m]
(T_ℓ : It is + when the load works on the direction of enhancing the brake, and is - when the load works on the direction of counteracting.)

The time required from when the brake coil of the BMM model is excited until when the load is stopped can be evaluated by adding the armature suction time to the previously evaluated braking time t_{ab}.
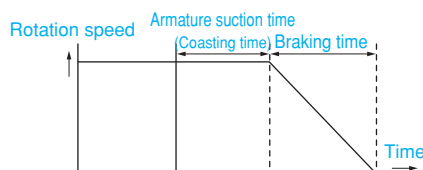
The time required from when the brake motor of the BMS model is turned OFF until the load is stopped, can be evaluated by adding the armature release time to the previously evaluated braking time t_{ab}.
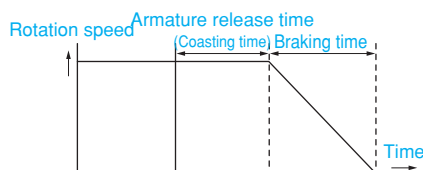
The brake has wear components. After a perios of use readjustment of the air gap is necessary. Perform a gap adjustment according to the maintenance and inspection items of the manual.

● Study of work volume

The braking work rate of the brake is evaluated by the formula below.

$$P = \frac{J \cdot n^2}{182} \cdot \frac{T}{(T \pm T_\ell)} \cdot \frac{S}{60} \ [W] \quad \cdots\cdots\cdots\cdots \ ④$$

P: Braking work rate [W]
S: Braking frequency [operations/min]

Determine the frequency in order that the value P becomes below the allowable braking work rate $P_{ba\ell}$.

$$P \ll P_{ba\ell} \quad \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots \ ⑤$$

● Study of braking number

The number of operations before air gap readjust can be evaluated by the formula below.

$$E_b = \frac{J \cdot n^2}{182} \cdot \frac{T}{(T \pm T_\ell)} \ [J] \quad \cdots\cdots\cdots\cdots\cdots\cdots \ ⑥$$

E_b:Single braking work [J]

$$L = \frac{E_T}{E_b} \ [Operation] \quad \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots \ ⑦$$

L : Number of operations before space readjustment [Operation]
E_T : Total braking work [J]

■ Instruction for use

Check on the following items periodically.
❶ Confirm if it is properly functions.
❷ Confirm if there is no water or oil is attached on the brake part.
❸ Confirm if the mounting screw for each part is completely tightened.
❹ During periodic inspection, remove the motor fan cover to remove the abrasion powder by compressed air or dust collection equipment.
❺ Confirm if the air gap is in the range of operating life limit. If it becomes the limit value, adjust the space to the specified value in reference to the manual.
❻ Especially for the BMS model, if the air gap exceeds the limit value, the brake is unable to release because of the suction incapability, this may cause motor burnout or other troubles.