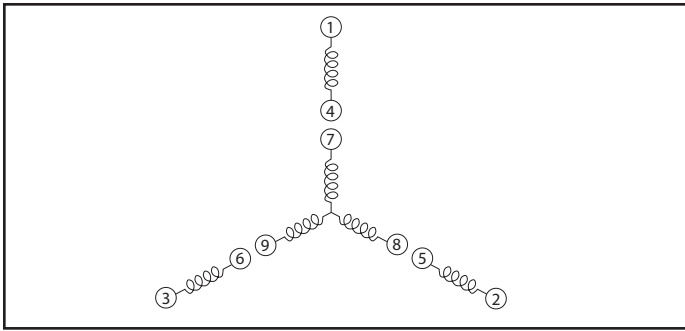


Fig. 1.1: 1/8, 1/4, 1/2, 1 Hp Three Phase Voltages



208/230V				460V			
Line	Lead Label			Line	Lead Label		
L1	1	7	4	L1	1	7	4
L2	2	8	5	L2	2	8	5
L3	3	9	6	L3	3	9	6

Table 1.1: Three Phase 1/8, 1/4, 1/2, 1, 2, 3 Hp Motors

Horsepower	Voltage (V)	Frequency (Hz)	Full Load Current (A)	Full Load (RPM)	Starts Per Minute
1/8 Hp	208	60	0.56	1710	10
	230	60	0.57	1730	
	400	50	0.31	1410	
	460	60	0.29	1730	
1/4 Hp	208	60	1.00	1700	10
	230	60	1.00	1720	
	400	50	0.56	1400	
	460	60	0.50	1720	
1/2 Hp	208	60	1.80	1700	10
	230	60	1.80	1720	
	400	50	1.00	1400	
	460	60	0.90	1720	
1 Hp	208	60	2.9	1740	10
	230	60	2.8	1750	
	400	50	1.60	1450	
	460	60	1.40	1750	
2 Hp	208	60	5.9	1750	10
	230	60	5.7	1760	
	400	50	3.2	1460	
	460	60	2.9	1760	
3 Hp	208	60	8.3	1760	10
	230	60	7.9	1770	
	400	50	4.5	1470	
	460	60	4.0	1770	

Table 1.2: Single Phase 1/8, 1/4, 1/2 Hp Motors

Horsepower	Motor Type	Voltage (V)	Frequency (Hz)	Full Load Current (A)	Full Load (RPM)	Capacitor (included with Gearmotor)
						mFD
1/8 Hp	Capacitor Run	115	60	1.50	1730	24
		220	60	0.75	1720	6
		230	60	0.75	1730	6
1/4 Hp	Capacitor Start	115	50	4.50	1420	250
		220	50	2.20	1410	250
		230	50	2.30	1420	250
		115	60	4	1700	250
		220	60	2.00	1690	250
		230	60	2.00	1700	250
1/2 Hp	Capacitor Start	115	50	7.40	1440	250
		220	50	3.70	1440	250
		230	50	3.70	1440	250
		115	60	6.70	1730	250
		220	60	3.50	1730	250
		230	60	3.40	1730	250

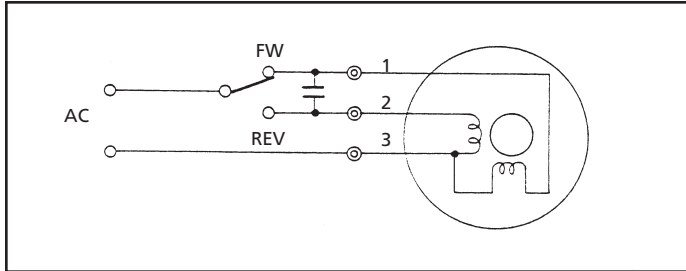
Fig 1.2 UL/CSA/CE/RoHS

Voltage	Horsepower	UL/cUL File No.	RoHS	CE Details
Three Phase	1/8 Hp, 1/4 Hp, 1/2 Hp 1 Hp, 2 Hp, 3 Hp	E172017	Yes	Low Voltage Directive 73/23/EEC
Single Phase	1/4 Hp, 1/2 Hp	E172017	Yes	EN Standards: EN60034-1 (Regulations on motors in general)
Single Phase	1/8 Hp	E153713	Yes	

Notes:

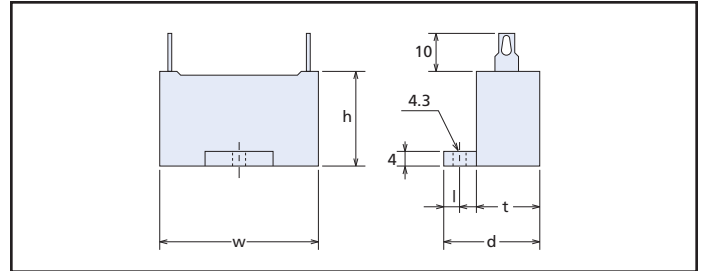
1. Motors in File E172017 comply to UL1004 Standard for Safety Electric Motors.
2. Motors in UL File E153713 comply to UL2111 Overheating Protection for Motors.
3. Products bear the UL component recognition marking for UL and cUL (CSA).
4. Products with the cUL marking comply with CSA standards and can be legally sold in Canada.
5. Products bear the CE marking on the nameplate.

Fig. 1.5: 1/8 Hp Single Phase Voltages



Wire	Color Code 115V	Color Code 220V, 230V
1	Blue	Brown
2	Black	Black
3	Grey	Grey

Fig. 1.6: Capacitors for 1/8 Hp Single Phase



1/8 Hp Single Phase Motor Capacitors

Part No.	mFd	Volts*	W	h	t	d	l
C24M220V	24	220V *	2.28	1.46	0.93	1.52	0.28
C6.0M440V	6	440V **	2.28	1.61	1.14	1.73	0.28

\* 220V Capacitors are for operation with 115V Motors

\*\* 440V Capacitors are for operation with 220V or 230V motors.

Fig. 1.7: 1/4, 1/2 Hp Single Phase Voltage 115V

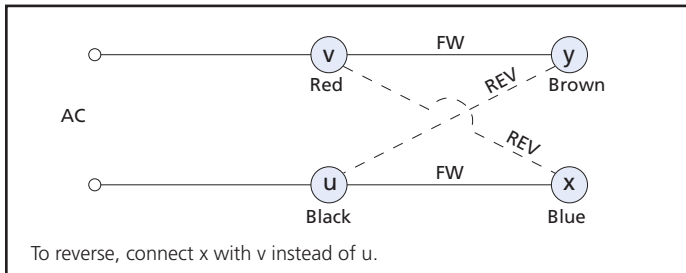


Fig. 1.8: 1/4, 1/2 Hp Single Phase Voltage 220, 230V

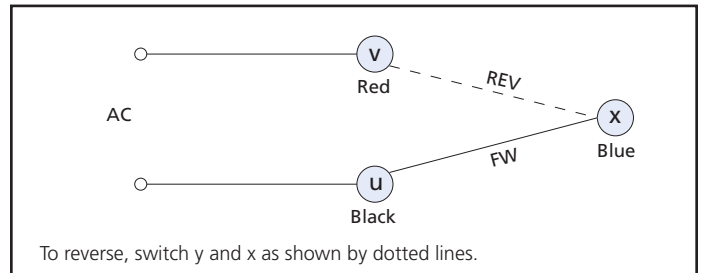
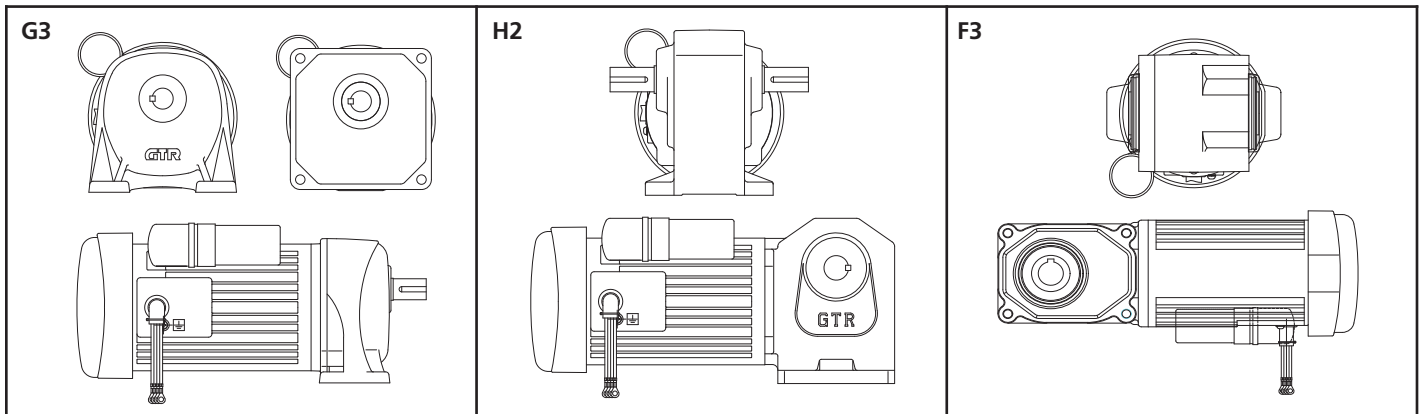


Fig 1.9 1/4 and 1/2 Hp Capacitor Start Models



Notes:

1. These are capacitor start gearmotors using a governor switch to cut-out the starting capacitor.
2. For specific dimensions please consult Brother. Drawings are also available at [www.BrotherGearmotors.com](http://www.BrotherGearmotors.com)

Table 1.3: Brake Data G3, H2, F3 Mid Type 1/8 to 3 Hp Three and Single Phase Standard

Horsepower		1/8 Hp	1/4 Hp	1/2 Hp	1 Hp	2 Hp	3 Hp	1/8 Hp	1/4 Hp	1/2 Hp
Motor Phase		Three Phase						Single Phase		
Brake Type		Power Off-Brake On, Spring Close								
Static Friction Torque (in-lb) <sup>1</sup>		8.67	17.35	34.70	65	130	191	8.67	17.35	34.70
Dynamic Friction Torque (in-lb) <sup>1</sup>		6.90	13.90	27.79	52	104	152	6.90	13.90	27.79
Voltage DC (Average) (VDC)	100V Class	-						90 VDC (Rectifier A100-D90: Included with Gearmotor)		
	200V Class	90 VDC (Rectifier A200-D90: Included with Gearmotor)						90 VDC (Rectifier A200-D90: Included with Gearmotor)		
	400V Class	180 VDC (Rectifier A400-D180: Included with Gearmotor)						-		
Power (@ 75C) (W)	100V Class	-						14	14	24
	200V Class	14	14	16	24	37	37	14	14	16
	400V Class	14	14	17	26	41	41	-		
Current (@ 75C) (A)	100V Class	-						0.15	0.15	0.27
	200V Class	0.15	0.15	0.18	0.27	0.41	0.41	0.15	0.15	0.18
	400V Class	0.08	0.08	0.09	0.14	0.23	0.23	-		
Allowable Total Work Emax (in-lb)		1.3x10 <sup>9</sup>	1.3x10 <sup>9</sup>	1.3x10 <sup>9</sup>	3.47x10 <sup>9</sup>	5.2x10 <sup>9</sup>	5.2x10 <sup>9</sup>	1.3x10 <sup>9</sup>	1.3x10 <sup>9</sup>	3.47x10 <sup>9</sup>
Allowable Braking Frequency (times/minute) <sup>2</sup>		10/min						6/min		

<sup>1</sup>Target value.

<sup>2</sup>Used as a reference value only. Can increase or decreased based on the application.

Fig. 1.10: G3, H2, F3 Mid Type 1/8 to 1/2 Hp Three Phase and Single Phase

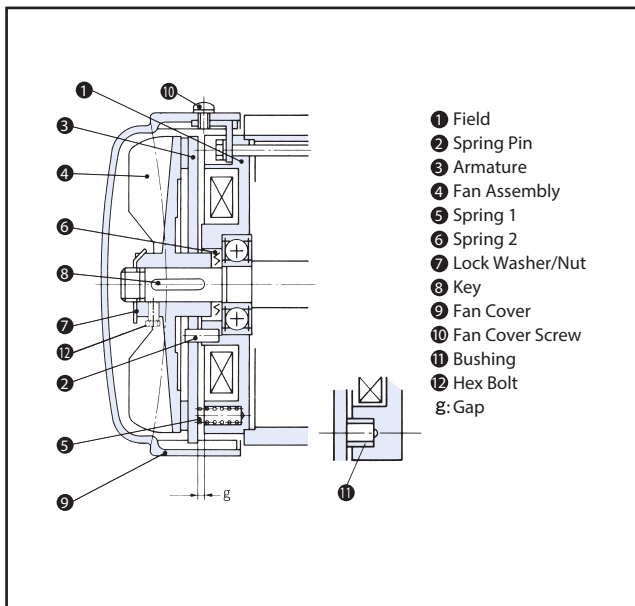


Fig. 1.11: G3, H2, F3 Mid Type 1 to 3 Hp Three Phase

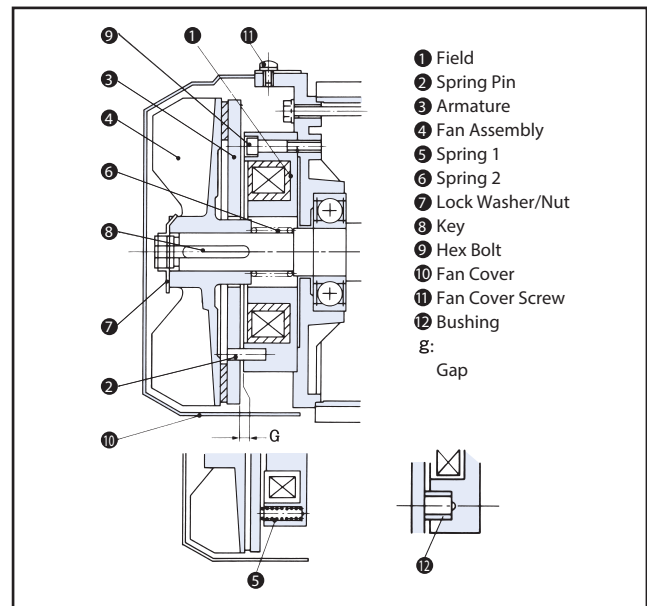
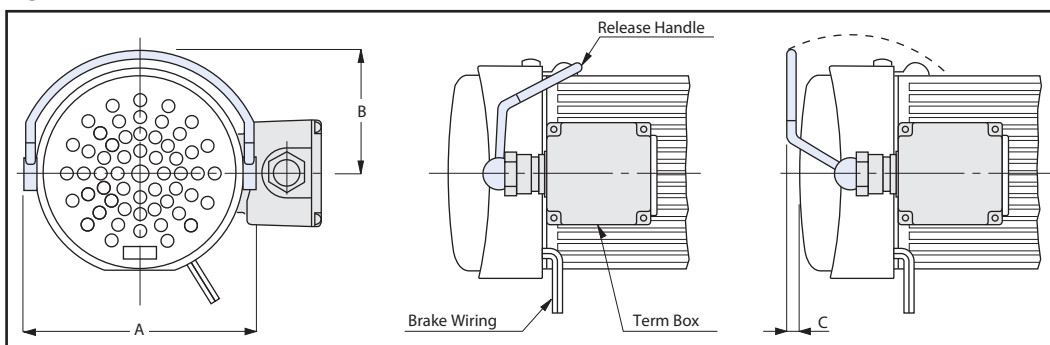


Fig. 1.12: Manual Brake Release



Note: Manual Brake release is optional and must be specified on your order.

Table 1.4: Manual Release Dimensions

Dim (in)	Hp	1/8	1/4	1/2	1	2	3
A	6.14	6.14	6.14	6.14	7.09	8.35	8.35
B	3.27	3.27	3.27	3.27	4.02	4.88	4.88
C	0.32	0	0	0	0.08	0.24	0.24

Table 1.5: Brake Data G3, H2, F3 Mid Type 1/8 to 1 Hp Three Phase IP-65

Horsepower		1/8 Hp	1/4 Hp	1/2 Hp	1 Hp	2 Hp	3 Hp	
Brake Type		Power Off-Brake On, Spring Close					-	-
Static Friction Torque (in-lb) <sup>1</sup>		8.67	17.35	34.70	65	-	-	
Dynamic Friction Torque (in-lb) <sup>1</sup>		6.90	13.90	27.79	52	-	-	
Voltage DC (Average) (VDC)	200V Class	90 VDC (Rectifier A200-D90: Included with Gearmotor)					-	-
	400V Class	180 VDC (Rectifier A400-D180: Included with Gearmotor)					-	-
Power (@ 75C) (W)	200V Class	10	16	18	22	-	-	
	400V Class	12	18	20	25	-	-	
Current (@ 75C) (A)	200V Class	0.11	0.18	0.20	0.25	-	-	
	400V Class	0.06	0.10	0.11	0.14	-	-	
Allowable Total Work Emax (in-lb)		1.3x10 <sup>9</sup>	1.3x10 <sup>9</sup>	1.3x10 <sup>9</sup>	3.47x10 <sup>9</sup>	-	-	
Allowable Braking Frequency (times/minute) <sup>2</sup>		10/min					-	-

<sup>1</sup>Target value.

<sup>2</sup>Used as a reference value only. Can increase or decreased based on the application.

Fig 1.13: 1/8 Hp IP-65 Brake

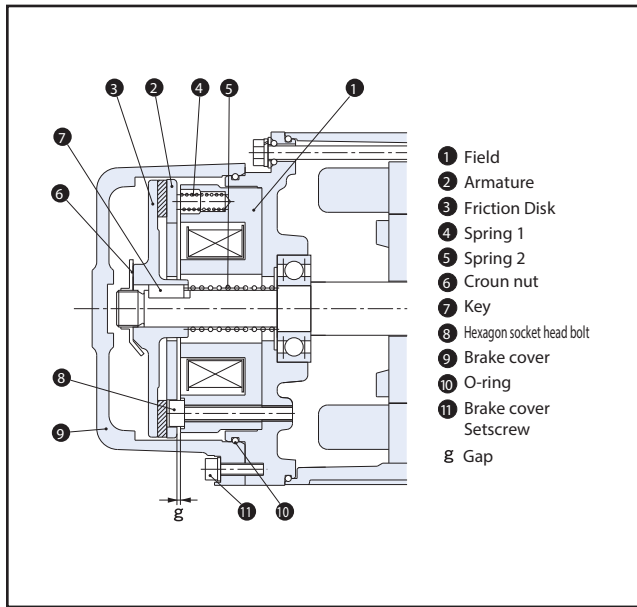


Fig 1.14: 1/4 to 3 Hp IP-65 Brake

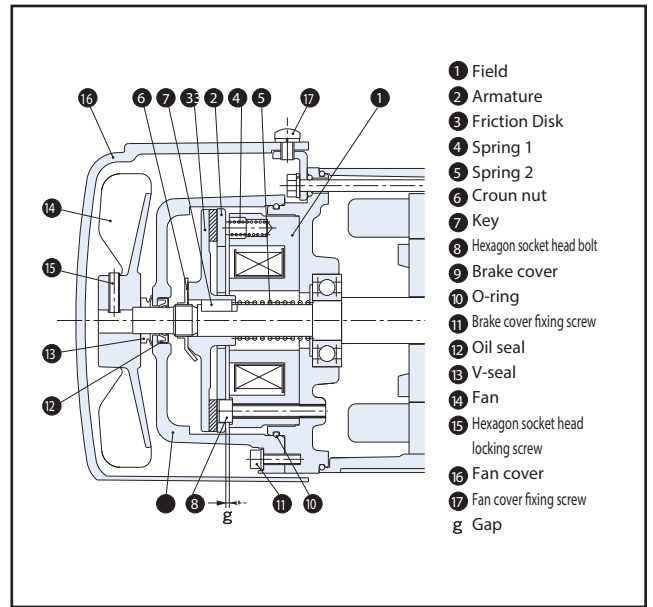
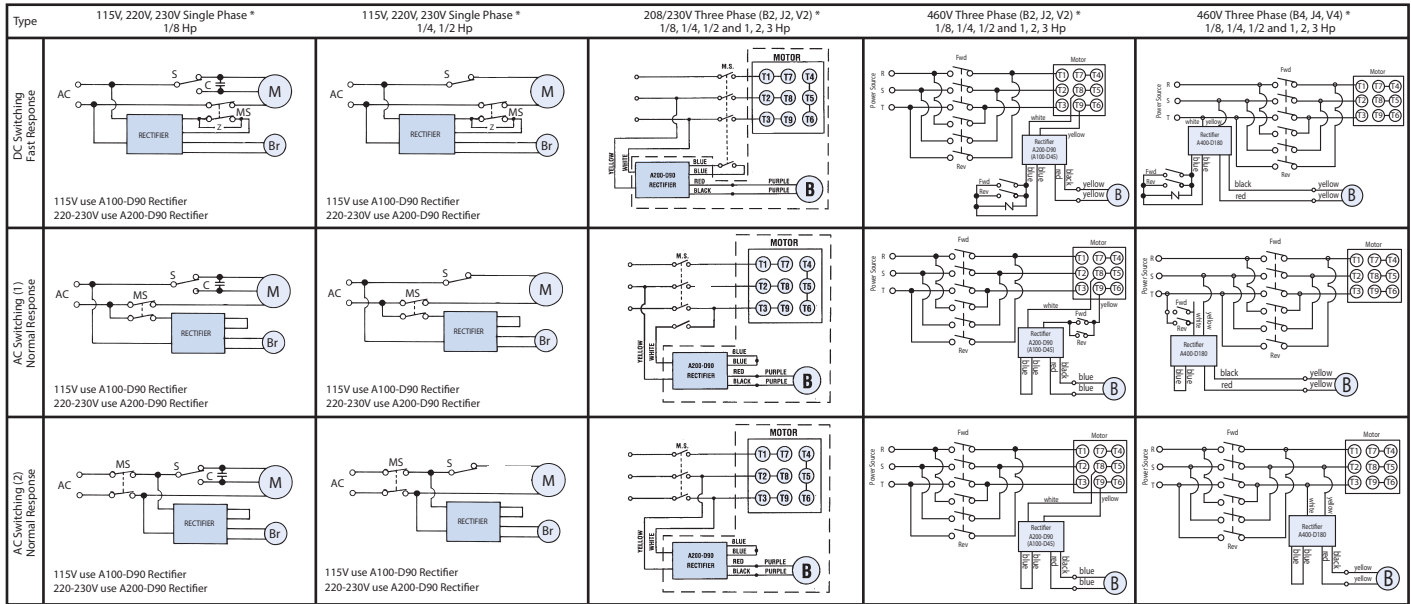


Fig. 1.15: Mid Type: 1/8, 1/4, 1/2, 1, 2, and 3 Hp



\* For wiring with an Inverter, see page 17

M: Motor Br: Brake S: Reversing switch C: Capacitor MS: Magnetic switch Z: Surge Suppressor

Fig. 1.16A Rectifier

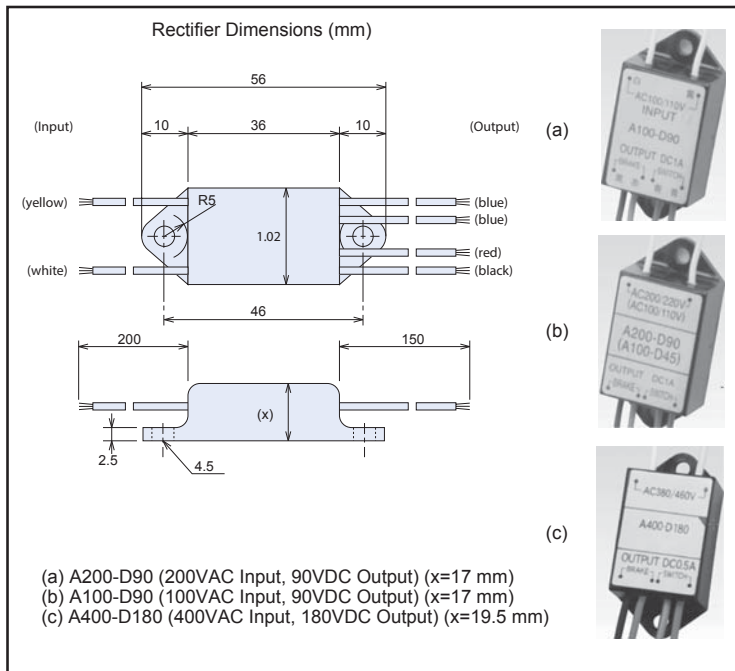


Fig. 1.16B Surge Suppressor

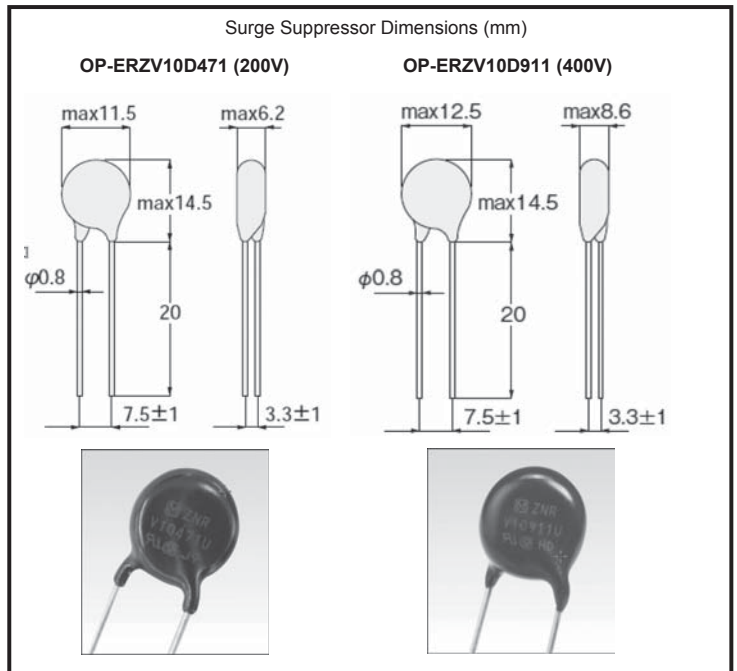
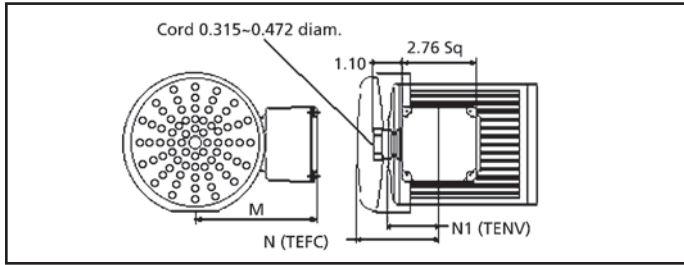


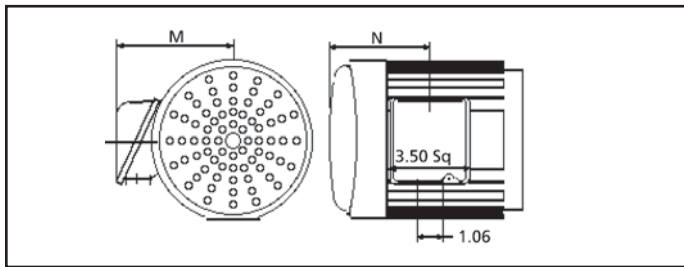
Fig. 1.18: "A" Box: G3, H2 Models

1 Phase: 1/8, 1/4 Hp



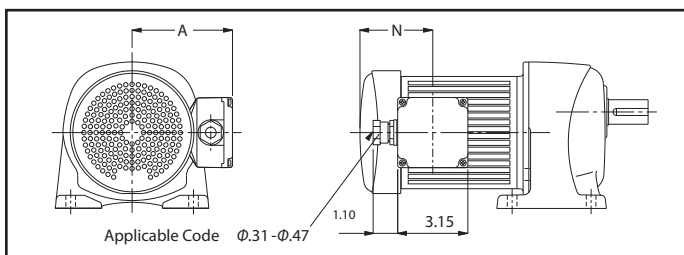
Dim	Single Phase	
	1/8 Hp	1/4 Hp
N1 (1/8 Hp 3 Ø only)	—	—
N (motor)	3.09	3.29
N (Brakemotor)	3.44	3.96
M	4.61	4.61

Fig. 1.20: "S" Box: G3, H2 Models  
1/2 Hp Single Phase



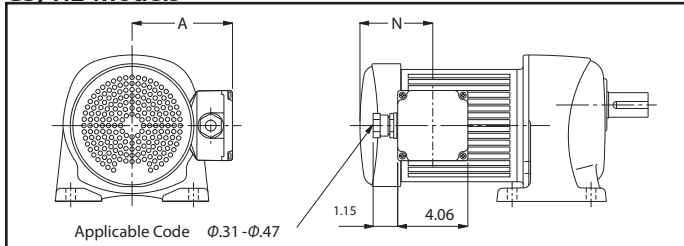
Dim	Single Phase
	1/2 Hp
N (motor)	3.98
N (Brakemotor)	4.25
M	4.80

Fig 1.22: "E" Box: G3, H2 Models  
1/8, 1/4, 1/2 Hp



Dim	1/8 Hp	1/4 Hp	1/2 Hp	1 Hp	2 Hp	3 Hp
	A	4.27	4.27	4.51	4.98	5.41
N (motor)	1.87	3.07	3.27	3.70	4.35	4.35
N (Brakemotor)	3.90	5.04	5.55	6.44	n/a	n/a

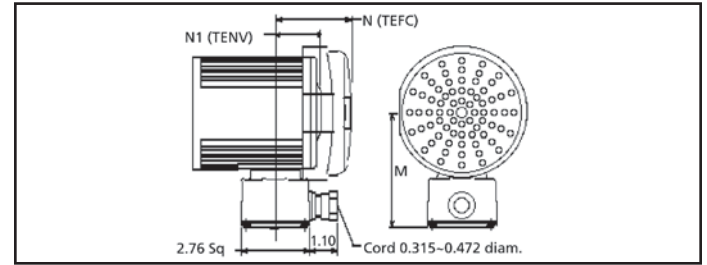
Fig. 1.24: "W" Box 1 to 3 Hp  
G3, H2 Models



Dim	IP-44			IP-65		
	1 Hp	2 Hp	3 Hp	1 Hp	2 Hp	3 Hp
A	5.22	5.50	5.93	5.22	5.50	5.93
N (motor)	3.87	4.66	4.70	3.87	4.66	4.70
N (Brakemotor)	3.27	5.65	5.69	6.33	-	-

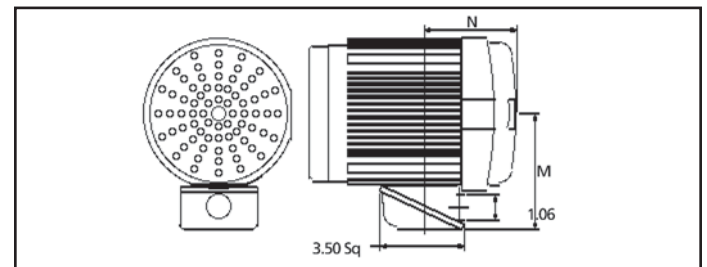
Fig. 1.19: "A" Box: F3 Model

1 Phase: 1/8, 1/4 Hp



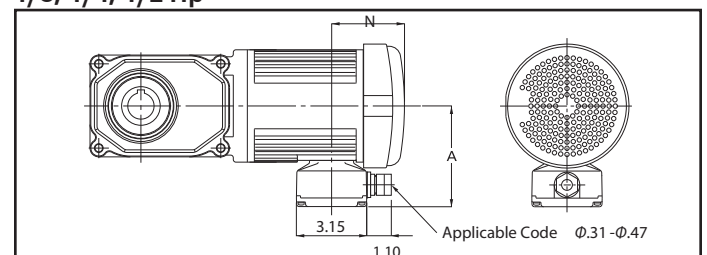
Dim	Single Phase	
	1/8 Hp	1/4 Hp
N1 (1/8 Hp 3 Ø only)	—	—
N (motor)	3.09	3.29
N (Brakemotor)	3.44	3.96
M	4.61	4.61

Fig. 1.21: "S" Box: F3 Models  
1/2 Hp Single Phase



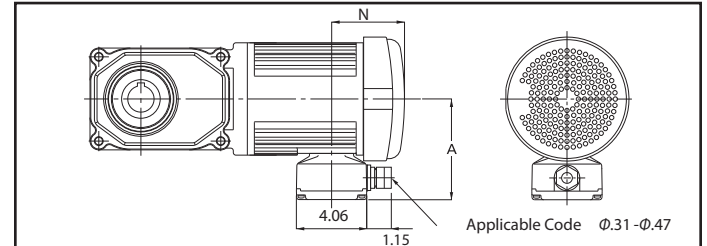
Dim	Single Phase
	1/2 Hp
N (motor)	3.98
N (Brakemotor)	4.25
M	4.80

Fig 1.23: "E" Box: F3 Models  
1/8, 1/4, 1/2 Hp



Dim	1/8 Hp	1/4 Hp	1/2 Hp	1 Hp	2 Hp	3 Hp
	A	4.27	4.27	4.51	4.98	5.41
N (motor)	1.87	3.07	3.27	3.70	4.35	4.35
N (Brakemotor)	3.90	5.04	5.55	6.44	n/a	n/a

Fig. 1.25: "W" Box 1 to 3 Hp  
F3 Models



Dim	IP-44			IP-65		
	1 Hp	2 Hp	3 Hp	1 Hp	2 Hp	3 Hp
A	5.22	5.50	5.93	5.22	5.50	5.93
N (motor)	3.87	4.66	4.70	3.87	4.66	4.70
N (Brakemotor)	3.27	5.65	5.69	6.33	-	-

Fig 1.24A: Directing the Position of the Terminal Box or Lead Wires

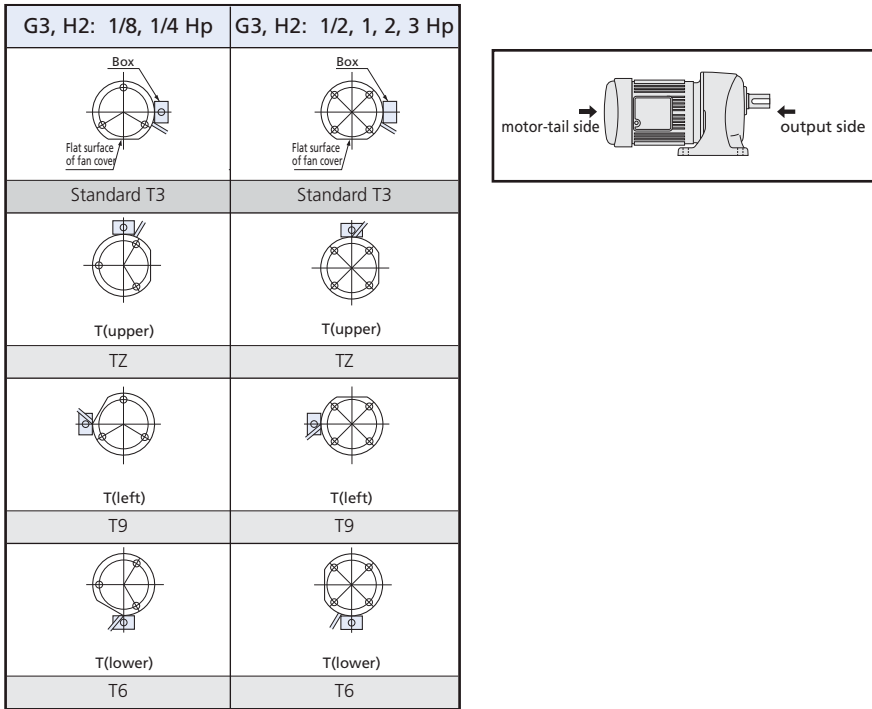
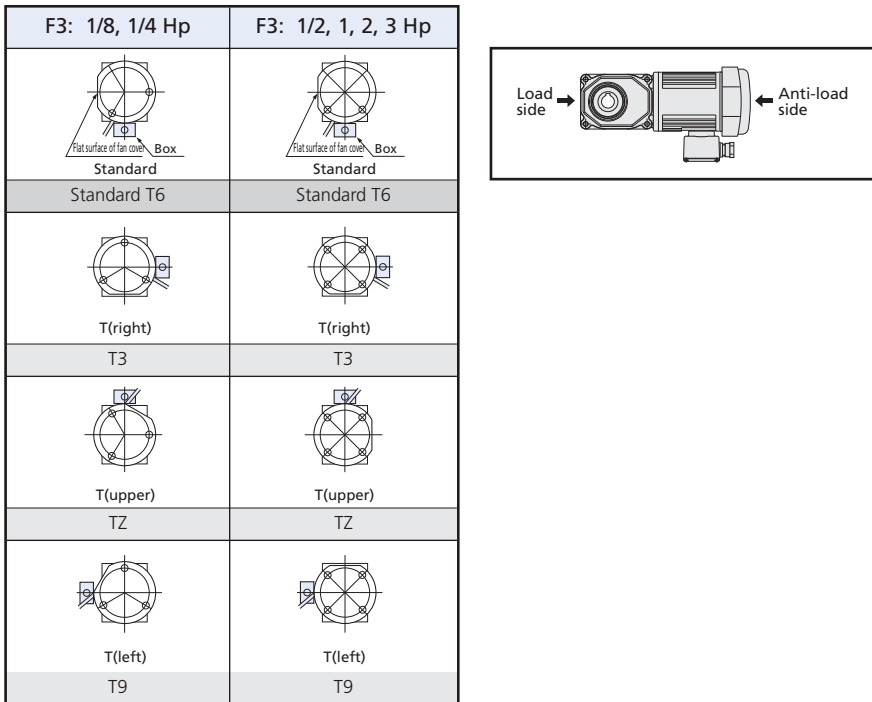


Fig 1.24B: Directing the Position of the Terminal Box or Lead Wires



Notes:

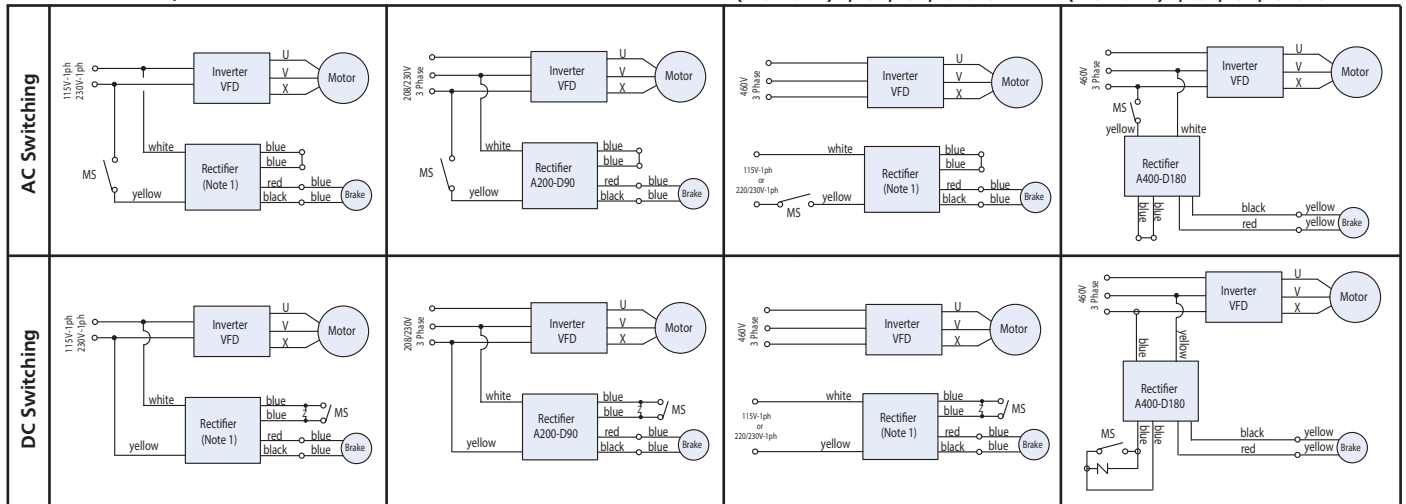
1. Please select the "X" at the end of the gearmotor part number and indicate the position code per the applicable chart.
2. If the standard box position is desired or acceptable, there is no need to make any designation.
3. The position of the 1/8 and 1/4 Hp models cannot be rotated in the field in 90 degree increments. Positioning at 90 degree increments is achieved in the factory by position of the tapped mounting holes. Please be careful and specify prior to shipment.

Fig 1.26A: VFD Wiring 115V 1 Phase 220/230V 1 Phase

Fig 1.26B: VFD Wiring 208/230V 3 Phase

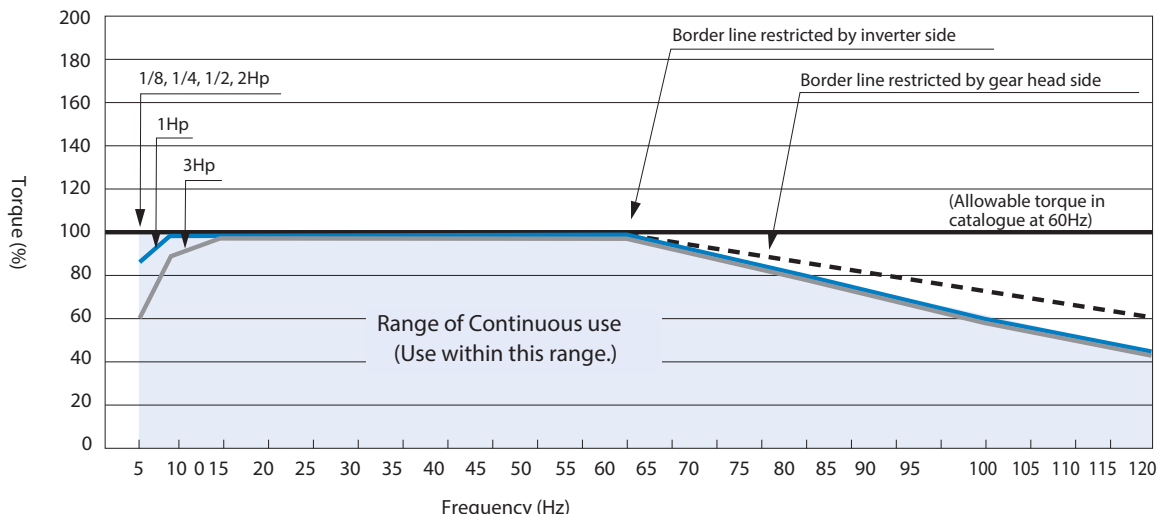
Fig 1.26C: 460V Three Phase (B2, J2, V2) 1/8, 1/4, 1/2, 1, 2, 3 Hp

Fig 1.26B: 460V Three Phase (B4, J4, V4) 1/8, 1/4, 1/2, 1, 2, 3 Hp



Note: If the input power is 115V 1 phase, use Rectifier A100-D90. If the input power is 220/230V 1 phase, use rectifier A200-D90. (Input power to the brake is 90vdc)  
 MS: Magnetic Switch (not supplied by Brother) Z: Surge Suppressor. (See Figure 1.16B)

Fig 1.27 Speed/Torque with a VFD (1/8, 1/4, 1/2 Hp, 1, 2, 3 Hp)



Cautionary Notes for Use with a VFD:

- In general operation from 5~120 Hz ia allowed if the torque capacity can be handled.
- In applications requiring operation above 60 hz, vibration and noise will increase. The life of the oil seal will also be reduced due to increased circumferential velocity.
- In low speed operations the effect of the cooling fan decreases. Be sure to check the motor temperature rise remains below allowable limits.  
 The surface temperature of the motor should not exceed 176 °F (80°C).
- The torque characteristics of the motor differ according to the VFD brand and type used. The above speed/torque curves were generated using a commercially available Volts/Hertz VFD. You should test the brand you use to confirm the performance.
- When using a brake equipped motor, be sure to bypass the VFD and power the rectifier on the input side. Powering the rectifier using the output wires from the VFD to the motor will result in motor and/or brake failure.
- When operating a VFD at 400~480V a repetitive surge voltage may arise and weaken the insulation of the motor causing premature failure. There are two ways to suppress surge voltage...
  - Output Reactor: may be effective if the lead wires are relatively short. Install it on the inverter output side.
  - Output Filter: install it near the inverter output side.

The remedies A and B may be effective. However, we recommend you consult the inverter manufacturer for more detailed recommendations as the inverter settings, lead length, etc effect the recommendation.