



Spec Table 3.1

Specifications						Dimensional Drawings Page 43												
Hp	Frame	Ratio X:1 GR	Nominal RPM n	Torque (in-lbs) TR	O.H.L. (lbs) OHL	1 Phase Std	Motor 3 Phase Std	3 Phase IP-65	1 Phase Std	Brakemotor 3 Phase Std	3 Phase IP-65							
1/8 Hp	20	5	360	19	221	Dwg 3.1	Dwg 3.1	Dwg 3.1	Dwg 3.1	Dwg 3.1	Dwg 3.1							
		7.5	240	28	243													
		10	170	38	265													
		12.5	144	48	287													
		15	120	58	298													
		20	90	76	331													
		25	72	97	353													
		30	60	115	375													
		40	45	159	408													
		50	36	195	419													
	60	30	221	419														
	25	80	22.5	283	573	Dwg 3.1	Dwg 3.1	Dwg 3.1	Dwg 3.1	Dwg 3.1	Dwg 3.1							
		100	18	363	573													
		120	15	434	573													
		160	11.2	584	573													
		200	9	717	573													
		240	7.5	867	573													
		30	300	6	974							706	n/a	Dwg 3.2	Dwg 3.2	n/a	Dwg 3.2	Dwg 3.2
			375	4.8	1213							706						
		35	450	4	1460							816	n/a	Dwg 3.2	Dwg 3.2	n/a	Dwg 3.2	Dwg 3.2
600			3	1832	816													
750	2.4		2292	816														
45	900	2	2956	1169	n/a	Dwg 3.2	Dwg 3.2	n/a	Dwg 3.2	Dwg 3.2								
	1200	1.5	3939	1169														
55	1500	1.2	5213	2205	n/a	Dwg 3.2	Dwg 3.2	n/a	Dwg 3.2	Dwg 3.2								

Notes:

1. Motor and brakemotor electrical data shown on Page 10 Table 1.1 (3 Phase) and Page 11 Table 1.2 (1 Phase).
2. Brake electrical data shown on Pages 12~14.
3. Brother 3 Phase gearmotors are suitable for use with a VFD. See Page 17 for details.
4. See Page 15 for terminal box type or lead wire dimensional details.

Model Number for Ordering

F3	S	28	N	010	--	B	M	H	4	A	X
Type	Mount Form	Frame	Shaft/Bore Arrangement	Gear Ratio		UL/CSA	Motor Type	Motor Power	Supply Voltage	Terminal Box/Leads	Special Spec
F3: F3 Series	S: Hollow Bore	20 25 30 35 45 55	N: Common Code	005 : 5:1 007 : 7.5:1 012 : 12.5:1 030 : 30:1 120 : 120:1 900 : 900:1 12X : 1200:1		B: UL/CSA	M: IP-44 Motor B: IP-44 Brakemotor J: IP-44 Brakemotor w/ manual release WM: IP-65 Motor WB: IP-65 Brakemotor	H: 1/8 Hp	1: 115V, 60Hz, 1ph 4: 208/230V/460, 60Hz, 3ph 5: 220V, 60Hz, 1ph 6: 230V, 60Hz, 1ph 7: OEM Spec. 1ph 8: OEM Spec. 3ph Special Voltages Fig 1.3, Pg 10 Fig 1.4. Pg 10	A: Die Cast IP-44 N: Leads, (4.5 inch) E: Die Cast IP-65	Blank: Standard Type X: Special Spec See Special Specs Below

CAD Drawings

Go to [www.BrotherGearmotors.com](http://www.BrotherGearmotors.com) and enter the desired model number in the configurator. DXF, 3D, and PDF files are available to view or download.

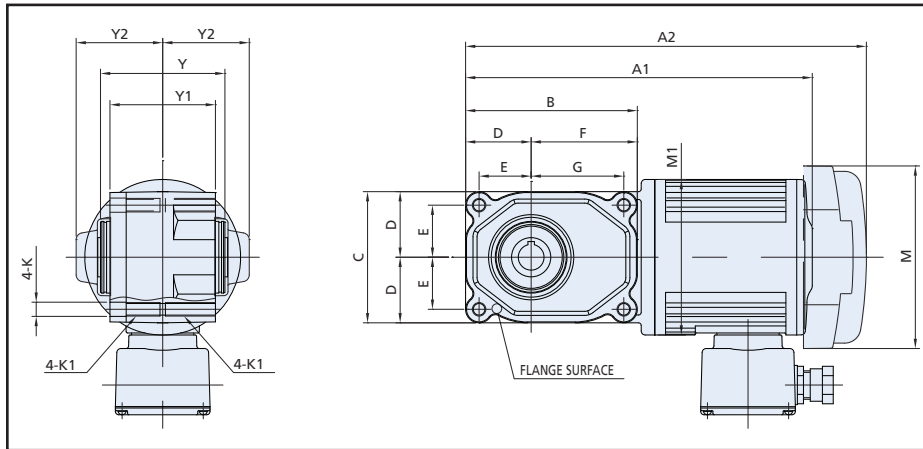
Special Specs

Notes:

1. Lead Wire or Terminal Box Location: specify the code from Page 16, Fig 1.24B on your purchase order.
2. Special Voltage: specify the Voltage/Frequency from Page 10, Fig 1.3 (3 Phase) or Fig 1.4 (1 Phase) on your purchase order.
3. Special Bore Size: see Page 54, Fig 3.1 for available options.
4. For any other special OEM requirement, please consult Brother.

Frame	Motor/ Brake-motor	Dwg	A1 (Motor)	A2 (Brake)	M1 (TENV) (Motor)	M (TEFC) (Brake)	B	C	D	E	F	G	K	K1	Y	Y1	Y2	Motor Wt	Brake-motor Wt
20	3 Phase Std	3.1	10.10	11.67	4.53	5.31	5.00	3.82	1.91	1.52	3.09	2.70	0.41	M10	3.62	3.07	2.52	13.25	16.5
25			11.32	12.89	4.53	5.31	6.26	4.21	2.11	1.71	4.15	3.76	0.41	M10	4.49	3.94	3.11	17.75	21
20	3 Phase IP-65	3.1	10.10	12.13	4.53	5.31	5.00	3.82	1.91	1.52	3.09	2.70	0.41	M10	3.62	3.07	2.52	14.5	17.75
25			11.32	13.35	4.53	5.31	6.26	4.21	2.11	1.71	4.15	3.76	0.41	M10	4.49	3.94	3.11	17.75	21
20	1 Phase Std	3.1	11.67	11.67	n/a	5.31	5.00	3.82	1.91	1.52	3.09	2.70	0.41	M10	3.62	3.07	2.52	13.25	16.5
25			12.89	12.89	n/a	5.31	6.26	4.21	2.11	1.71	4.15	3.76	0.41	M10	4.49	3.94	3.11	17.75	21

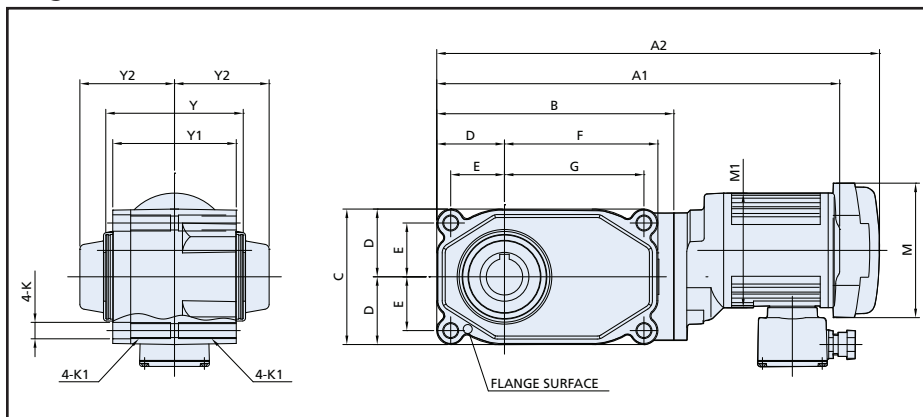
**Dwg. 3.1**



Note: Bore Dimensions see Page 54, Fig 3.1.  
Terminal box or lead wire dim see Page 15.

Frame	Motor/ Brake-motor	Dwg	A1 (Motor)	A2 (Brake)	M1 (TENV) (Motor)	M (TEFC) (Brake)	B	C	D	E	F	G	K	K1	Y	Y1	Y2	Motor Wt	Brake-motor Wt
30	3 Phase Std	3.2	14.11	15.69	4.53	5.31	7.56	4.57	2.28	1.81	4.80	4.33	0.41	M10	4.72	4.17	3.23	23.25	26.5
35			15.93	17.50	4.53	5.31	9.37	5.35	2.68	2.13	6.06	5.51	0.65	M16	5.43	4.88	3.74	31	34.25
45			18.37	19.94	4.53	5.31	11.48	6.85	3.43	2.72	7.28	6.57	0.81	M20	6.46	5.91	4.25	46.5	49.75
55			21.04	22.62	4.53	5.31	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	168	171
30	1 Phase Std	3.2	14.11	16.14	4.53	5.31	7.56	4.57	2.28	1.81	4.80	4.33	0.41	M10	4.72	4.17	3.23	23.25	26.5
35			15.93	17.95	4.53	5.31	9.37	5.35	2.68	2.13	6.06	5.51	0.65	M16	5.43	4.88	3.74	31	34.25
45			18.37	20.39	4.53	5.31	11.48	6.85	3.43	2.72	7.28	6.57	0.81	M20	6.46	5.91	4.25	46.5	49.75
55			21.04	22.62	4.53	5.31	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	168	171

**Dwg. 3.2**



Note: Bore Dimensions see Page 54, Fig 3.1.  
Terminal box or lead wire dim see Page 15.

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Spec Table 3.2

Specifications						Dimensional Drawings Page 45					
Hp	Frame	Ratio X:1 GR	Nominal RPM n	Torque (in-lbs) TR	O.H.L. (lbs) OHL	1 Phase Std	Motor 3 Phase Std	3 Phase IP-65	1 Phase Std	Brakemotor 3 Phase Std	3 Phase IP-65
1/4 Hp	25	5	360	41	276	Dwg 3.3	Dwg 3.3	Dwg 3.3	Dwg 3.3	Dwg 3.3	Dwg 3.3
		7.5	240	62	309						
		10	170	81	342						
		12.5	144	106	364						
		15	120	124	386						
		20	90	168	419						
		25	72	212	452						
		30	60	239	474						
		40	45	327	518						
		50	36	407	551						
	30	60	30	487	573	Dwg 3.3	Dwg 3.3	Dwg 3.3	Dwg 3.3	Dwg 3.3	Dwg 3.3
		80	22.5	628	695						
		100	18	770	706						
		120	15	929	706						
		160	11.2	1239	706						
		200	9	1549	706						
	35	240	7.5	1629	706	Dwg 3.4	Dwg 3.4	Dwg 3.4	Dwg 3.4	Dwg 3.4	Dwg 3.4
		300	6	2080	816						
	45	375	4.8	2602	816	Dwg 3.4	Dwg 3.4	Dwg 3.4	Dwg 3.4	Dwg 3.4	Dwg 3.4
		450	4	3124	1169						
600		3	3948	1169							
55	750	2.4	4930	1169	Dwg 3.4	Dwg 3.4	Dwg 3.4	Dwg 3.4	Dwg 3.4	Dwg 3.4	
	900	2	6258	2205							
	1200	1.5	8346	2205							

Notes:

1. Motor and brakemotor electrical data shown on Page 10 Table 1.1 (3 Phase) and Page 11 Table 1.2 (1 Phase).
2. Brake electrical data shown on Pages 12~14.
3. Brother 3 Phase gearmotors are suitable for use with a VFD. See Page 17 for details.
4. See Page 15 for terminal box type or lead wire dimensional details.

Model Number for Ordering

F3	S	25	N	012	--	B	M	K	4	A	X
Type	Mount Form	Frame	Shaft/Bore Arrangement	Gear Ratio		UL/CSA	Motor Type	Motor Power	Supply Voltage	Terminal Box/Leads	Special Spec
F3: F3 Series	S: Hollow Bore	25 30 35 45 55	N: Common Code	005 : 5:1 007 : 7.5:1 012 : 12.5:1 030 : 30:1 120 : 120:1 900 : 900:1 12X : 1200:1		B: UL/CSA	M: IP-44 Motor B: IP-44 Brakemotor J: IP-44 Brakemotor w/ manual release WM: IP-65 Motor WB: IP-65 Brakemotor	K: 1/4 Hp	1: 115V, 60Hz, 1ph 4: 208/230V/460, 60Hz, 3ph 5: 220V, 60Hz, 1ph 6: 230V, 60Hz, 1ph 7: OEM Spec. 1ph 8: OEM Spec. 3ph Special Voltages Fig 1.3, Pg 10 Fig 1.4, Pg 10	A: Die Cast IP-44 N: Leads, (4.5 inch) E: Die Cast IP-65	Blank: Standard Type X: Special Spec See Special Specs Below

CAD Drawings

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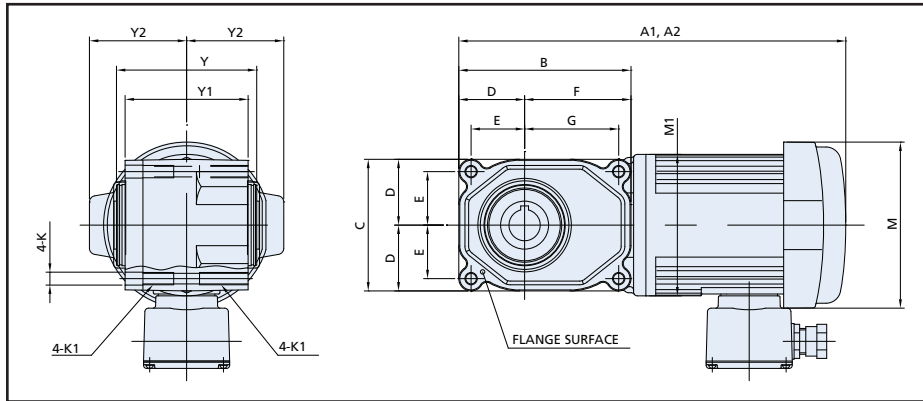
Special Specs

Notes:

1. Lead Wire or Terminal Box Location: specify the code from Page 16, Fig 1.24B on your purchase order.
2. Special Voltage: specify the Voltage/Frequency from Page 10, Fig 1.3 (3 Phase) or Fig 1.4 (1 Phase) on your purchase order.
3. Special Bore Size: see Page 54, Fig 3.1 for available options.
4. For any other special OEM requirement, please consult Brother.

Frame	Motor/ Brake-motor	Dwg	A1 (Motor)	A2 (Brake)	M	B	C	D	E	F	G	K	K1	Y	Y1	Y2	Motor Wt	Brake-motor Wt
25	3 Phase std	3.3	12.40	13.07	5.31	5.51	4.21	2.11	1.71	3.41	3.01	0.41	M10	4.49	3.94	3.11	18.75	22
30			13.96	14.63	5.31	7.09	4.57	2.28	1.81	4.80	4.33	0.49	M12	4.72	4.17	3.23	22	25.5
25	3 Phase IP-65	3.3	12.38	14.35	5.31	5.51	4.21	2.11	1.71	3.41	3.01	0.41	M10	4.49	3.94	3.11	18.75	22
30			13.94	15.91	5.31	7.09	4.57	2.28	1.81	4.80	4.33	0.49	M12	4.72	4.17	3.23	22	25.5
25	1 Phase Std (Note)	3.3	14.37	15.04	5.31	5.51	4.21	2.11	1.71	3.41	3.01	0.41	M10	4.49	3.94	3.11	25.5	28.75
30			15.96	16.59	5.31	7.09	4.57	2.28	1.81	4.80	4.33	0.49	M12	4.72	4.17	3.23	28.75	32

### Dwg. 3.3

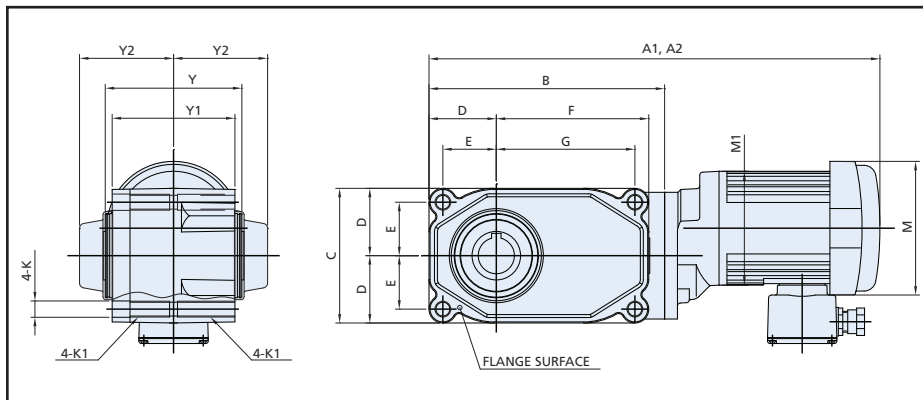


Note: Bore Dimensions see Page 54, Fig 3.1.  
Terminal box or lead wire dim see Page 15.

Note: 1 Phase Std motors have a capacitor mounted, see Page 11, Fig. 1.9.

Frame	Motor/ Brake-motor	Dwg	A1 (Motor)	A2 (Brake)	M	B	C	D	E	F	G	K	K1	Y	Y1	Y2	Motor Wt	Brake-motor Wt
35	3 Phase std	3.4	17.93	18.60	5.31	9.37	5.35	2.68	2.13	6.06	5.51	0.65	M16	5.43	4.88	3.74	33	36.5
45			20.20	20.87	5.31	11.48	6.85	3.43	2.72	7.28	6.57	0.81	M20	6.46	5.91	4.25	48.5	52
55			22.85	23.52	5.31	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	170	173
35	3 Phase IP-65	3.4	17.93	19.88	5.31	9.37	5.35	2.68	2.13	6.06	5.51	0.65	M16	5.43	4.88	3.74	33	36.5
45			20.18	22.15	5.31	11.48	6.85	3.43	2.72	7.28	6.57	0.81	M20	6.46	5.91	4.25	48.5	52
55			22.83	24.80	5.31	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	170	173
35	1 Phase Std (Note)	3.4	19.90	20.57	5.31	9.37	5.35	2.68	2.13	6.06	5.51	0.65	M16	5.43	4.88	3.74	37.5	41
45			22.17	22.83	5.31	11.48	6.85	3.43	2.72	7.28	6.57	0.81	M20	6.46	5.91	4.25	53	56.25
55			24.82	25.49	5.31	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	174.25	177.5

### Dwg. 3.4



Note: Bore Dimensions see Page 54, Fig 3.1.  
Terminal box or lead wire dim see Page 15.

Note: 1 Phase Std motors have a capacitor mounted, see Page 11, Fig. 1.9.

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Spec Table 3.3

Specifications						Dimensional Drawings Page 47					
Hp	Frame	Ratio X:1 GR	Nominal RPM n	Torque (in-lbs) TR	O.H.L. (lbs) OHL	1 Phase Std	Motor 3 Phase Std	3 Phase IP-65	1 Phase Std	Brakemotor 3 Phase Std	3 Phase IP-65
1/2 Hp	30	5	360	81	342	Dwg 3.5	Dwg 3.5	Dwg 3.5	Dwg 3.5	Dwg 3.5	Dwg 3.5
		7.5	240	124	397						
		10	170	168	430						
		12.5	144	212	463						
		15	120	239	485						
		20	90	327	540						
		25	72	407	573						
		30	60	487	595						
		40	45	655	639						
	35	50	36	814	673	Dwg 3.5	Dwg 3.5	Dwg 3.5	Dwg 3.5	Dwg 3.5	Dwg 3.5
		60	30	982	695						
		80	22.5	1239	783						
		100	18	1549	794						
		120	15	1868	794						
		160	11.2	2390	816						
		200	9	2390	816						
		240	7.5	2390	816						
		45	300	6	4169						
375	4.8		5213	1169							
55	450	4	6258	2205	Dwg 3.6	Dwg 3.6	Dwg 3.6	Dwg 3.6	Dwg 3.6	Dwg 3.6	
	600	3	8346	2205							

Notes:

1. Motor and brakemotor electrical data shown on Page 10 Table 1.1 (3 Phase) and Page 11 Table 1.2 (1 Phase).
2. Brake electrical data shown on Pages 12~14.
3. Brother 3 Phase gearmotors are suitable for use with a VFD. See Page 17 for details.
4. See Page 15 for terminal box type or lead wire dimensional details.

Model Number for Ordering

F3	S	30	N	015	--	B	M	L	4	A	X
Type	Mount Form	Frame	Shaft/Bore Arrangement	Gear Ratio		UL/CSA	Motor Type	Motor Power	Supply Voltage	Terminal Box/Leads	Special Spec
F3: F3 Series	S: Hollow Bore	30 35 45 55	N: Common Code	005 : 5:1 007 : 7.5:1 012 : 12.5:1 030 : 30:1 120 : 120:1 900 : 900:1		B: UL/CSA	M: IP-44 Motor B: IP-44 Brakemotor J: IP-44 Brakemotor w/ manual release WM: IP-65 Motor WB: IP-65 Brakemotor	L: 1/2 Hp	1: 115V, 60Hz, 1ph 4: 208/230V/460, 60Hz, 3ph 5: 220V, 60Hz, 1ph 6: 230V, 60Hz, 1ph 7: OEM Spec. 1ph 8: OEM Spec. 3ph Special Voltages Fig 1.3, Pg 10 Fig 1.4. Pg 10	A: Die Cast IP-44, (3 Ph only) N: Leads, (4.5 inch) E: Die Cast IP-65 S: Steel, (1 Ph only)	Blank: Standard Type X: Special Spec See Special Specs Below

CAD Drawings

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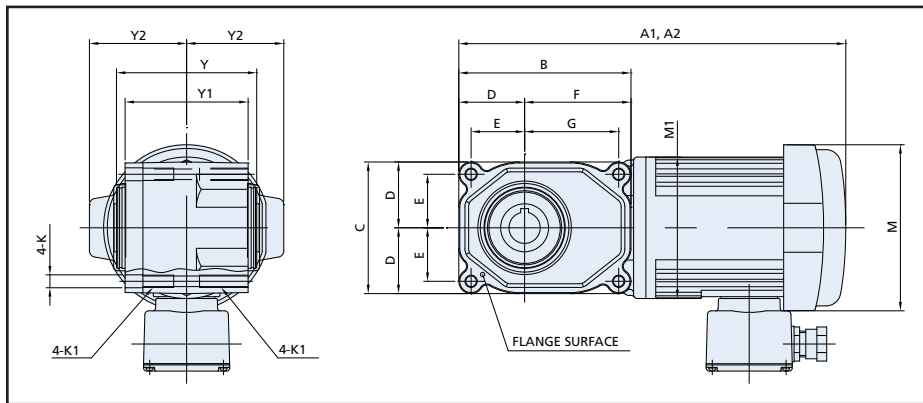
Special Specs

Notes:

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2. Special Voltage: specify the Voltage/Frequency from Page 10, Fig 1.3 (3 Phase) or Fig 1.4 (1 Phase) on your purchase order.
3. Special Bore Size: see Page 54, Fig 3.1 for available options.
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Frame	Motor/ Brake- motor	Dwg	A1 (Motor)	A2 (Brake)	M	B	C	D	E	F	G	K	K1	Y	Y1	Y2	Motor Wt	Brake- motor Wt
30	3 Phase std	3.3	3.5	14.17	14.94	5.55	6.26	4.57	2.28	1.89	3.98	3.58	0.41	M10	4.72	4.17	3.23	25.5
35			3.5	16.48	17.24	5.55	8.74	5.35	2.68	2.13	6.06	5.51	0.65	M16	5.43	4.88	3.74	33
30	3 Phase IP-65	3.3	3.5	14.11	16.40	5.55	6.26	4.57	2.28	1.89	3.98	3.58	0.41	M10	4.72	4.17	3.23	25.5
35			3.5	16.42	18.70	5.55	8.74	5.35	2.68	2.13	6.06	5.51	0.65	M16	5.43	4.88	3.74	33
30	1 Phase Std (Note)	3.3	3.5	17.20	17.48	5.55	6.26	4.57	2.28	1.89	3.98	3.58	0.41	M10	4.72	4.17	3.23	38.75
35			3.5	19.51	19.78	5.55	8.74	5.35	2.68	2.13	6.06	5.51	0.65	M16	5.43	4.88	3.74	46.5

### Dwg. 3.5

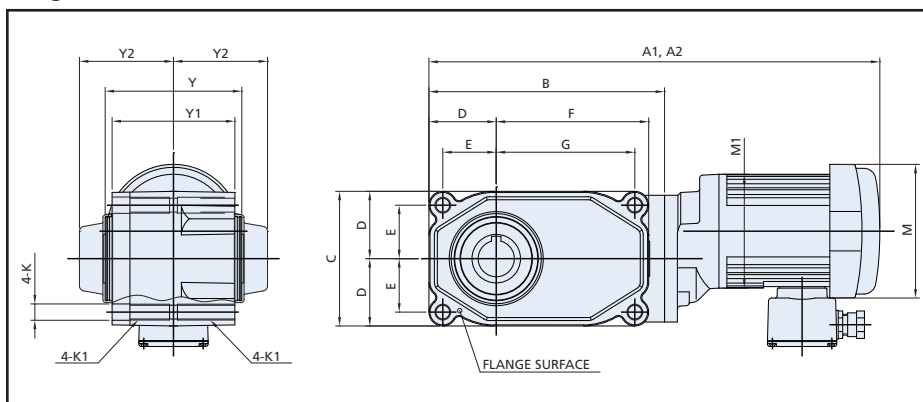


Note: Bore Dimensions see Page 54, Fig 3.1.  
Terminal box or lead wire dim see Page 15.

Note: 1 Phase Std motors have a capacitor mounted, see Page 11, Fig. 1.9.

Frame	Motor/ Brake- motor	Dwg	A1 (Motor)	A2 (Brake)	M	B	C	D	E	F	G	K	K1	Y	Y1	Y2	Motor Wt	Brake- motor Wt
45	3 Phase std	3.6	21.14	21.91	5.55	11.48	6.85	3.43	2.72	7.28	6.57	0.81	M20	6.46	5.91	4.25	53	57.5
55			23.74	24.51	5.55	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	174.25	178.75
45	3 Phase IP-65	3.6	21.08	23.37	5.55	11.48	6.85	3.43	2.72	7.28	6.57	0.81	M20	6.46	5.91	4.25	53	57.5
55			23.68	25.96	5.55	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	174.25	178.75
45	1 Phase Std (Note)	3.6	24.17	24.45	6.38	11.48	6.85	3.43	2.72	7.28	6.57	0.81	M20	6.46	5.91	4.25	66.25	71.75
55			26.77	27.05	6.38	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	187.5	193

### Dwg. 3.6



Note: Bore Dimensions see Page 54, Fig 3.1.  
Terminal box or lead wire dim see Page 15.

Note: 1 Phase Std motors have a capacitor mounted, see Page 11, Fig. 1.9.

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3. Prints are available online using the Brother configurator by entering the complete part number. See [www.BrotherGearmotors.com](http://www.BrotherGearmotors.com)



Spec Table 3.4

Specifications						Dimensional Drawings Page 48			
Hp	Frame	Ratio X:1 GR	Nominal RPM n	Torque (in-lbs) TR	O.H.L. (lbs) OHL	Motor		Brakemotor	
						3 Phase Std	3 Phase IP-65	3 Phase Std	3 Phase IP-65
1 Hp	35	5	360	159	441	Dwg 3.7	Dwg 3.7	Dwg 3.7	Dwg 3.7
		7.5	240	221	507				
		10	170	301	551				
		12.5	144	381	584				
		15	120	460	617				
		20	90	620	673				
		25	72	761	717				
		30	60	921	739				
		40	45	1221	783				
	50	36	1531	783					
	60	30	1841	783					
	45	80	22.5	2328	1069	Dwg 3.7	Dwg 3.7	Dwg 3.7	Dwg 3.7
		100	18	2903	1069				
		120	15	3496	1069				
		160	11.2	4656	1169				
200		9	4903	1169					
240	7.5	4903	1169						
55	300	6	7824	2205	Dwg 3.8	Dwg 3.8	Dwg 3.8	Dwg 3.8	

- Notes:
1. Motor and brakemotor electrical data shown on Page 10 Table 1.1 (3 Phase).
  2. Brake electrical data shown on Pages 12~14.
  3. Brother 3 Phase gearmotors are suitable for use with a VFD. See Page 17 for details.
  4. See Page 15 for terminal box type or lead wire dimensional details.

Model Number for Ordering

F3	S	35	N	015	-	B	M	M	4	S	X
Type	Mount Form	Frame	Shaft/Bore Arrangement	Gear Ratio		UL/CSA	Motor Type	Motor Power	Supply Voltage	Terminal Box/Leads	Special Spec
F3: F3 Series	S: Hollow Bore	35 45 55	N: Common Code	005 : 5:1 007 : 7.5:1 012 : 12.5:1 030 : 30:1 120 : 120:1 300 : 300:1		B: UL/CSA	M: IP-44 Motor B: IP-44 Brakemotor J: IP-44 Brakemotor w/ manual release WM: IP-65 Motor WB: IP-65 Brakemotor	M: 1 Hp	4: 208/230V/460, 60Hz, 3ph 8: OEM Spec. 3ph Special Voltages Fig 1.3, Pg 10	S: Steel IP-44 N: Leads, (4.5 inch) E: Die Cast IP-65	Blank: Standard Type X: Special Spec See Special Specs Below

CAD Drawings

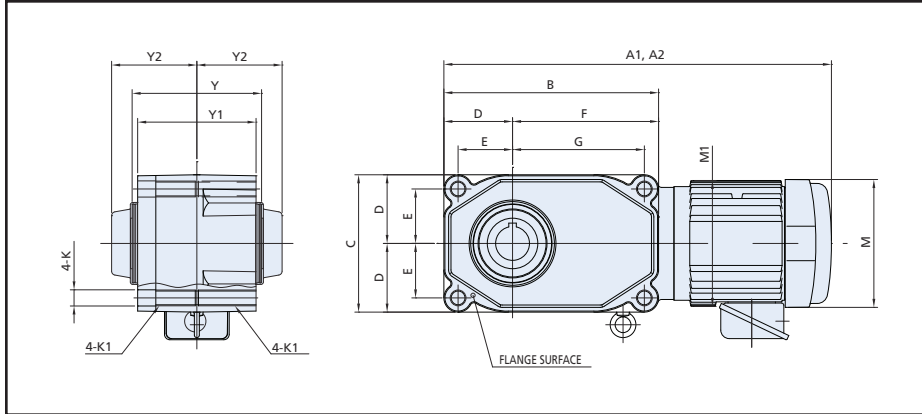
Go to [www.BrotherGearmotors.com](http://www.BrotherGearmotors.com) and enter the desired model number in the configurator. DXF, 3D, and PDF files are available to view or download.

Special Specs

- Notes:
1. Lead Wire or Terminal Box Location: specify the code from Page 16, Fig 1.24B on your purchase order.
  2. Special Voltage: specify the Voltage/Frequency from Page 10, Fig 1.3 (3 Phase) on your purchase order.
  3. Special Bore Size: see Page 54, Fig 3.1 for available options.
  4. For any other special OEM requirement, please consult Brother.

Frame	Motor/ Brake- motor	Dwg	A1 (Motor)	A2 (Brake)	M	B	C	D	E	F	G	K	K1	Y	Y1	Y2	Motor Wt	Brake- motor Wt
35	3 Phase std	3.7	16.00	16.28	6.38	7.28	5.35	2.68	2.20	4.61	4.13	0.49	M12	5.43	4.88	3.74	38.75	43
45			19.33	19.61	6.38	10.71	6.85	3.43	2.72	7.28	6.57	0.81	M20	6.46	5.91	4.25	55.25	59.5
35	3 Phase IP-65	3.7	15.94	18.68	6.38	7.28	5.35	2.68	2.20	4.61	4.13	0.49	M12	5.43	4.88	3.74	38.75	43
45			19.27	22.01	6.38	10.71	6.85	3.43	2.72	7.28	6.57	0.81	M20	6.46	5.91	4.25	55.25	59.5

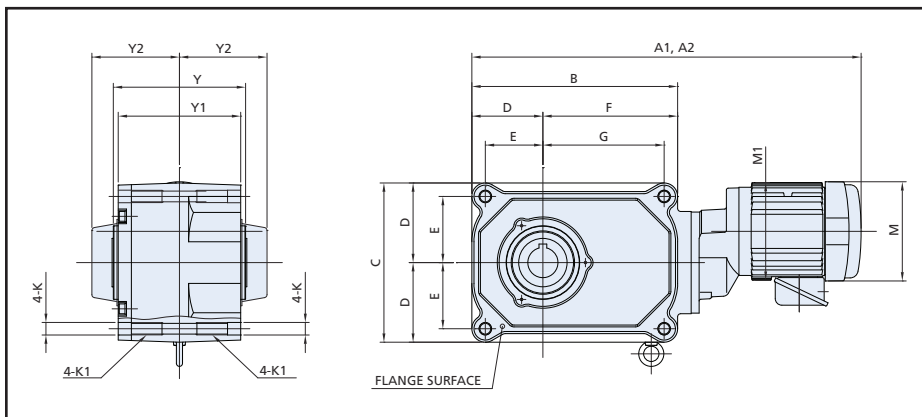
### Dwg. 3.7



Note: Bore Dimensions see Page 54, Fig 3.1.  
Terminal box or lead wire dim see Page 15.

Frame	Motor/ Brake- motor	Dwg	A1 (Motor)	A2 (Brake)	M	B	C	D	E	F	G	K	K1	Y	Y1	Y2	Motor Wt	Brake- motor Wt
55	3 Phase std	3.8	25.04	25.31	6.38	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	181	187.5
55	3 Phase IP-65	3.8	24.98	27.72	6.38	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	181	187.5

### Dwg. 3.8



Note: Bore Dimensions see Page 54, Fig 3.1.  
Terminal box or lead wire dim see Page 15.

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Spec Table 3.5

Specifications						Dimensional Drawings Page 51							
Hp	Frame	Ratio X:1 GR	Nominal RPM n	Torque (in-lbs) TR	O.H.L. (lbs) OHL	Motor		Brakemotor					
						3 Phase Std	3 Phase IP-65	3 Phase Std	3 Phase IP-65				
2 Hp	45	5	360	301	662	Dwg 3.9	Dwg 3.9	Dwg 3.9	n/a				
		7.5	240	460	750								
		10	170	620	816								
		12.5	144	761	882								
		15	120	921	915								
		20	90	1221	1003								
		25	72	1531	1058								
		30	60	1841	1069								
	55	45	40	45	2443	1069	Dwg 3.9	Dwg 3.9	Dwg 3.9	n/a			
			50	36	3054	1069							
			60	30	3682	1069							
			80	22.5	4656	1444							
			100	18	5824	1444							
			120	15	6983	1687							
3 Hp	45	160	11.2	9285	1874	Dwg 3.10	Dwg 3.10	Dwg 3.10	n/a				
		200	9	11188	2029								
		240	7.5	11188	2205								
		5	360	451	706					Dwg 3.10	Dwg 3.10	Dwg 3.10	n/a
		7.5	240	673	794								
		10	170	903	882								
		12.5	144	1115	926								
	15	120	1345	992									
	20	90	1797	1069									
	25	72	2248	1069									
	50	45	30	60	2700	1069	Dwg 3.10	Dwg 3.10	Dwg 3.10	n/a			
			40	45	3594	1180							
			50	36	4496	1180							
			60	30	5390	1180							
80			22.5	6824	1444								
100			18	8532	1444								
120			15	10232	1687								



- Notes:
1. Motor and brakemotor electrical data shown on Page 10 Table 1.1 (3 Phase).
  2. Brake electrical data shown on Pages 12~14.
  3. Brother 3 Phase gearmotors are suitable for use with a VFD. See Page 17 for details.
  4. See Page 15 for terminal box type or lead wire dimensional details.

Model Number for Ordering

F3	S	35	N	015	-	B	M	M	4	S	X
Type	Mount Form	Frame	Shaft/Bore Arrangement	Gear Ratio		UL/CSA	Motor Type	Motor Power	Supply Voltage	Terminal Box/Leads	Special Spec
F3: F3 Series	S: Hollow Bore	45 50 55	N: Common Code	005 : 5:1 007 : 7.5:1 012 : 12.5:1 030 : 30:1 120 : 120:1		B: UL/CSA Blank: NEMA 56C	M: IP-44 Motor B: IP-44 Brakemotor J: IP-44 Brakemotor w/ manual release WM: IP-65 Motor	P: 2 Hp R: 3 Hp	Blank: NEMA 56C 4: 208/230V/460, 60Hz, 3ph 8: OEM Spec. 3ph Special Voltages Fig 1.3, Pg 10	Blank: NEMA 56C S: Steel IP-44 N: Leads, (4.5 inch) E: Die Cast IP-65	Blank: Standard Type X: Special Spec See Special Specs Below

CAD Drawings

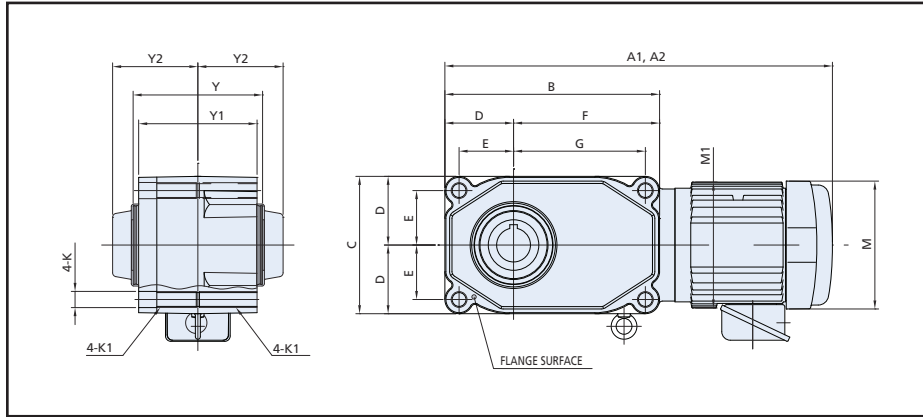
Go to [www.BrotherGearmotors.com](http://www.BrotherGearmotors.com) and enter the desired model number in the configurator. DXF, 3D, and PDF files are available to view or download.

Special Specs

- Notes:
1. Lead Wire or Terminal Box Location: specify the code from Page 16, Fig 1.24B on your purchase order.
  2. Special Voltage: specify the Voltage/Frequency from Page 10, Fig 1.3 (3 Phase) on your purchase order.
  3. Special Bore Size: see Page 54, Fig 3.1 for available options.
  4. For any other special OEM requirement, please consult Brother.

Frame	Motor/ Brake- motor	Dwg	A1 (Motor)	A2 (Brake)	M	B	C	D	E	F	G	K	K1	Y	Y1	Y2	Motor Wt	Brake- motor Wt
45	3 Phase std	3.9	20.00	20.81	7.32	9.25	6.85	3.43	2.87	5.83	5.28	0.65	M16	6.46	5.91	4.25	70.5	77.25
55			23.56	24.37	7.32	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	189.75	196.25
45	3 Phase IP-65	3.9	19.96	n/a	7.32	9.25	6.85	3.43	2.87	5.83	5.28	0.65	M16	6.46	5.91	4.25	70.5	n/a
55			23.52	n/a	7.32	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	189.75	n/a

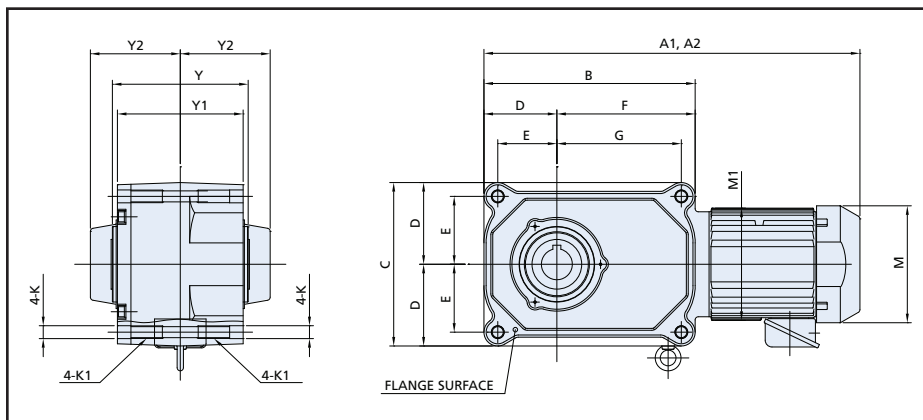
Dwg. 3.9 (2 Hp)



Note: Bore Dimensions see Page 54, Fig 3.1.  
Terminal box or lead wire dim see Page 15.

Frame	Motor/ Brake- motor	Dwg	A1 (Motor)	A2 (Brake)	M	B	C	D	E	F	G	K	K1	Y	Y1	Y2	Motor Wt	Brake- motor Wt
45	3 Phase std	3.10	20.98	21.79	7.32	9.25	6.85	3.43	2.87	5.83	5.28	0.65	M16	6.46	5.91	4.25	77.25	84
50			24.09	24.90	7.32	11.97	8.35	4.65	4.02	7.32	6.69	0.65	M16	6.61	6.06	4.72	97	103.75
55			24.55	25.35	7.32	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	200.75	207.25
45	3 Phase IP-65	3.10	20.94	n/a	7.32	9.25	6.85	3.43	2.87	5.83	5.28	0.65	M16	6.46	5.91	4.25	77.25	n/a
50			24.06	n/a	7.32	11.97	8.35	4.65	4.02	7.32	6.69	0.65	M16	6.61	6.06	4.72	97.00	n/a
55			24.51	n/a	7.32	13.23	10.24	4.57	3.70	8.66	7.80	0.81	M20	8.50	7.87	5.63	200.75	n/a

Dwg. 3.10 (3 Hp)



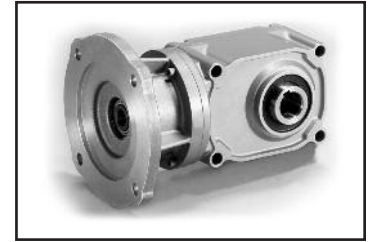
Note: Bore Dimensions see Page 54, Fig 3.1.  
Terminal box or lead wire dim see Page 15.

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Spec Table 3.6

Hp	Frame	Specifications				Dimensional Drawings Page 53
		Ratio X:1 GR	Nominal RPM n	Torque (in-lbs) TR	O.H.L. (lbs) OHL	NEMA 56C Reducer
1/4 Hp	25	5	360	41	276	Dwg 3.11
		7.5	240	62	309	
		10	170	81	342	
		12.5	144	106	364	
		15	120	124	386	
		20	90	168	419	
		25	72	212	452	
		30	60	239	474	
		40	45	327	518	
		50	36	407	551	
	60	30	487	573		
	30	80	22.5	628	695	Dwg 3.11
		100	18	770	706	
		120	15	929	706	
160		11.2	1239	706		
200		9	1549	706		
240		7.5	1629	706		
1/2 Hp	30	5	360	81	342	Dwg 3.11
		7.5	240	124	397	
		10	170	168	430	
		12.5	144	212	463	
		15	120	239	485	
		20	90	327	540	
		25	72	407	573	
		30	60	487	595	
		40	45	655	639	
		50	36	814	673	
	60	30	982	695		
	35	80	22.5	1239	783	Dwg 3.11
		100	18	1549	794	
		120	15	1868	794	
160		11.2	2390	816		
200		9	2390	816		
240		7.5	2390	816		
1 Hp	35	5	360	159	441	Dwg 3.11
		7.5	240	221	507	
		10	170	301	551	
		12.5	144	381	584	
		15	120	460	617	
		20	90	620	673	
		25	72	761	717	
		30	60	921	739	
		40	45	1221	783	
		50	36	1531	783	
	60	30	1841	783		
	45	80	22.5	2328	1069	Dwg 3.11
		100	18	2903	1069	
		120	15	3496	1069	
160		11.2	4656	1169		
200		9	4903	1169		
240		7.5	4903	1169		



Model Number for Ordering

F3	S	25	N	012	-	N	C	K	X
Type	Mount Form	Frame	Shaft/Bore Arrangement	Gear Ratio		UL/CSA	Motor Type	Motor Power	Special Spec
F3: F3 Series	S: Hollow Bore	25 30 35 45	N: Common Code	005 : 5:1 007 : 7.5:1 012 : 12.5:1 030 : 30:1 120 : 120:1		N: Common Code (no UL)	C: NEMA 56C Reducer	K: 1/4 Hp L: 1/2 Hp M: 1 Hp	Blank: Standard Type X: Special Spec Special Specs, consult Brother

CAD Drawings

Go to [www.BrotherGearmotors.com](http://www.BrotherGearmotors.com) and enter the desired model number in the configurator. DXF, 3D, and PDF files are available to view or download.

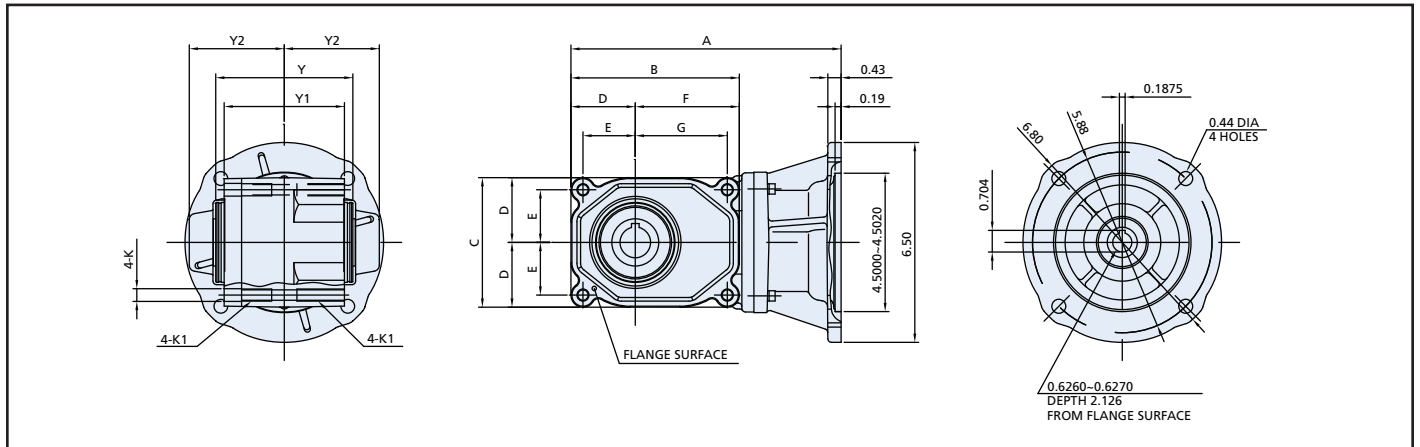
Special Specs

Notes:

1. Special Bore Size: see Page 54, Fig 3.1 for available options.
2. For any other special OEM requirement, please consult Brother.

Hp	Frame	Dwg	A	B	C	D	E	F	G	K (Hole)	K1 (Tap)	Y	Y1	Y2	Wt
1/4 Hp	25	3.11	8.86	5.51	4.21	2.11	1.71	3.41	3.01	0.41	M10	4.49	3.94	3.11	10
	30		10.42	7.09	4.57	2.28	1.81	4.80	4.33	0.49	M12	4.72	4.17	3.23	13.5
1/2 Hp	30	3.11	9.93	6.26	4.57	2.28	1.89	3.98	3.58	0.41	M10	4.72	4.17	3.23	13
	35		12.23	8.74	5.35	2.68	2.13	6.06	5.51	0.65	M16	5.43	4.88	3.74	20.75
1 Hp	35	3.11	11.01	7.28	6.85	3.43	2.72	7.28	6.57	0.81	M20	5.43	4.88	3.74	19
	45		14.34	10.71	6.85	3.43	2.72	7.28	6.57	0.81	M20	6.46	5.91	4.25	37.75

Dwg. 3.11

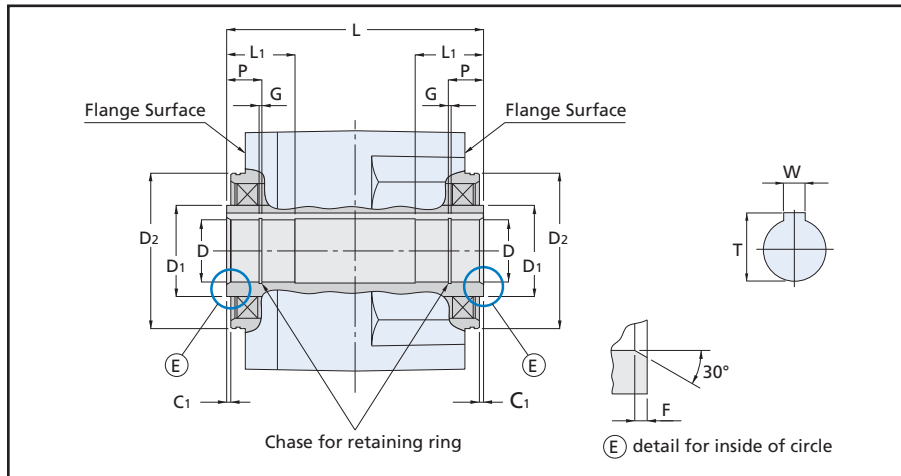


Note: Bore Dimensions see Page 54, Fig 3.1.

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3. Prints are available online using the Brother configurator by entering the complete part number. See [www.BrotherGearmotors.com](http://www.BrotherGearmotors.com)

Fig 3.1: Standard Bore and Optional Bore Dimensions



Frame	Standard or Option	Special Code (Note)	D	W	T	D1 in (mm)	D2 in (mm)	L in (mm)	L1 in (mm)	P in (mm)	C1 in (mm)	F in (mm)	G in (mm)
F3S20	Standard	B07I	0.7500 in +0.0013/-0.0	0.1875 in	0.832 in	1.1417 (28)	2.0866 in +0.0/-0.0012 (53 h <sub>r</sub> )	3.78 (96)	0.94 (24)	0.51 (13)	0.08 (2)	0.08 (2)	0.045 (1.15)
	Option	B20M	20 mm H <sub>8</sub>	6 mm	22.8 mm								
F3S25	Standard	B10I	1.0000 in +0.0013/-0.0	0.2500 in	1.110 in	1.5354 (39)	2.5984 in +0.0/-0.0012 (66 h <sub>r</sub> )	4.65 (118)	1.06 (27)	0.55 (14)	0.08 (2)	0.08 (2)	0.053 (1.35)
	Option	B25M	25 mm H <sub>8</sub>	8 mm	28.3 mm								
F3S30	Standard	B12I	1.2500 in +0.0013/-0.0	0.2500 in	1.366 in	1.7323 (44)	2.9528 in +0.0/-0.0012 (75 h <sub>r</sub> )	4.88 (124)	1.3 (33)	0.67 (17)	0.08 (2)	0.08 (2)	0.053 (1.35)
	Option	B10I	1.0000 in +0.0013/-0.0	0.2500 in	1.110 in								
	Option	B30M	30 mm H <sub>8</sub>	8 mm	33.3 mm								
F3S35	Standard	B14I	1.4375 in +0.0015/-0.0	0.3750 in	1.606 in	1.9291 (49)	3.3465 in +0.0/-0.0014 (85 h <sub>r</sub> )	5.59 (142)	1.5 (38)	0.79 (20)	0.08 (2)	0.08 (2)	0.070 (1.75)
	Option	B12I	1.2500 in +0.0013/-0.0	0.2500 in	1.366 in								
	Option	B10I	1.0000 in +0.0013/-0.0	0.2500 in	1.110 in								
	Option	B35M	35 mm H <sub>8</sub>	10 mm	38.3 mm								
F3S45	Standard	B16I	1.6875 in +0.0015/-0.0	0.3750 in	1.858 in	2.5197 (64)	3.9370 in +0.0/-0.0014 (100 h <sub>r</sub> )	6.61 (168)	1.97 (50)	1.02 (26)	0.08 (2)	0.08 (2)	0.077 (1.95)
	Option	B45M	45 mm H <sub>8</sub>	14 mm	48.8 mm								
F3S50	Standard	B19I	1.9375 in +0.0015/-0.0	0.5000 in	2.161 in	2.9134 (74)	4.3307 in +0.0/-0.0014 (110 h <sub>r</sub> )	6.77 (172)	2.17 (55)	1.14 (29)	0.08 (2)	0.08 (2)	0.087 (2.2)
	Option	B50M	50 mm H <sub>8</sub>	14 mm	53.8 mm								
F3S55	Standard	B19I	1.9375 in +0.0018/-0.0	0.5000 in	2.161 in	3.1102 (79)	4.7244 in +0.0/-0.0014 (120 h <sub>r</sub> )	8.66 (220)	2.4 (61)	1.26 (32)	0.08 (2)	0.08 (2)	0.087 (2.2)
	Option	B55M	55 mm H <sub>8</sub>	16 mm	59.3 mm								

Note: When specifying an optional bore, please use the special part code "X" at the end of the part number and designate the bore size by the code on your purchase order. When ordering the standard bore, you do not need to specify the bore code.

Fig 3.2: Metric Tolerances (mm)

Dimension	Bore: H8 (Ref D)	Shaft/Pilot: h7 (Ref D2)
Over 18~30 mm	+0.033/-0.000	+0.000/-0.021
Over 30~50 mm	+0.039/-0.000	+0.000/-0.030
Over 50~80 mm	+0.046/-0.000	+0.000/-0.035

### F3S Type Hollow Shaft • Flange Mounted

When an F3S unit is flange mounted and used as the bearing support on one side of the driven load alignment should be precise to avoid burnout of the motor and/or damage to the bearings caused by misalignment.

- The F3 Series has a pilot D2 for guiding the attachment as shown in Fig. 3.1. The dimension tolerance for the bore  $\phi A$  is "h7". (Pilot D2 is inserted in  $\phi A$ )
- Four fixing bolts should be used as shown in Fig. 3.1 to assure a secure mount.

Fig 3.3: Flange Mounting

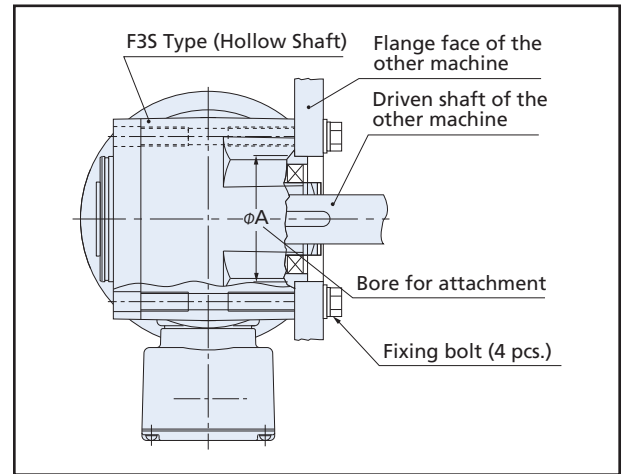
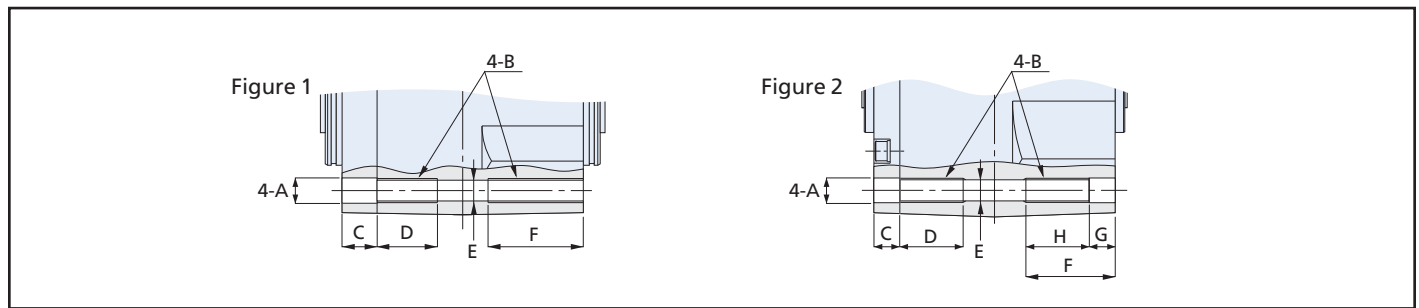
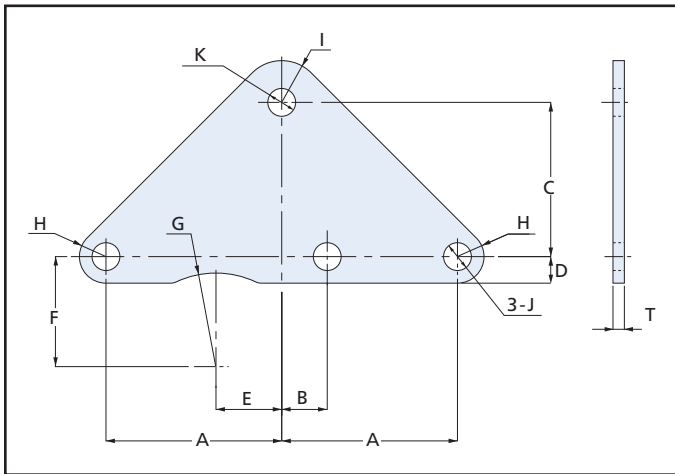


Fig 3.4: Mounting Hole Detail



Frame	Ratio	Hp	Figure	A	B	C	D	E	F	G	H
20	5:1~60:1	1/8 Hp	Fig.3.4: Figure 1	10.5	M10xP1.5	12	25	8.6	37	n/a	n/a
25	5:1~60:1	1/4 Hp				14.5			39.5		
	80:1~240:1	1/8 Hp				14.5			39.4		
30	5:1~60:1	1/2 Hp				15.5			40.5		
	80:1~240:1	1/4 Hp		15.5	45.5						
	300:1~375:1	1/8 Hp		15.8	45.5						
35	5:1~60:1	1 Hp		18	48						
	80:1~240:1	1/2 Hp		18	58						
	300:1~375:1	1/4 Hp		18	58						
	450:1~750:1	1/8 Hp		18	58						
45	5:1~60:1	2 Hp		20.5	M20xP2.5	23	50	17.5	63		
	5:1~30:1	3 Hp				23			63		
	80:1~240:1	1 Hp									
	300:1~375:1	1/2 Hp									
	450:1~750:1	1/4 Hp									
900:1~1200:1	1/8 Hp										
50	40:1~60:1	3 Hp	16.6	M16xP2	19	40	14	59	19	40	
55	80:1~240:1	2 Hp	Fig.3.4: Figure 2	20.5	M20xP2.5	21.5	50	17.5	71.5	21.5	50
	80:1~120:1	3 Hp									
	300:1	1 Hp									
	450:1~600:1	1/2 Hp									
	900:1~1200:1	1/4 Hp									
1500:1	1/8 Hp										

Fig 3.5: Optional Torque Arm



Frame	Part Number	Hp	Reduction Ratio	A	B	C	D	E	F	G	H	I	J	K	T	Wt (lb)
F3S20	TAF3S-20-2	1/8 Hp	5:1~60:1	53.5	23.5	52	10.5	n/a	n/a	n/a	10.5	11	11	9	3.2	0.1
F3S25	TAF3S-25-2	1/4 Hp	5:1~60:1	60	27	61	10.5	16.5	43.5	37	10.5	15	11	9	3.2	0.2
	TAF3S-25-3	1/8 Hp	80:1~240:1	69.5	17.5	61	10.5	26	43.5	37	10.5	6.5	11	11	4.5	0.2
F3S30	TAF3S-30-2	1/2 Hp	5:1~60:1	69.5	26.5	70	10.5	21.5	48	41.5	10.5	15	11	11	4.5	0.3
	TAF3S-30-3	1/8 Hp	300:1~375:1	78	14	70	12	32	46	41.5	12	16.5	13.5	13.5	6	0.4
		1/4 Hp	80:1~240:1													
F3S35	TAF3S-35-2	1 Hp	5:1~60:1	80.5	31.5	94	12	24.5	56	46.5	12	18	13.5	13.5	6	0.6
	TAF3S-35-3	1/8 Hp	450:1~750:1	97	11	94	15	43	54	46.5	15	22.5	17.5	17.5	9	1.2
		1/4 Hp	300:1~375:1													
		1/2 Hp	80:1~240:1													
F3S45	TAF3S-45-2	2 Hp	5:1~60:1	13.5	42.5	110	15	n/a	n/a	n/a	16	20	17.5	17.5	9	1.4
		3 Hp	5:1~30:1													
	TAF3S-45-3	1/8 Hp	900:1~1200:1	118	20	110	18.5	49	69	54	18.5	28.5	22	22	9	1.7
		1/4 Hp	450:1~750:1													
		1/2 Hp	300:1~375:1													
		1 Hp	80:1~240:1													
F3S50	TAF3S-50-2	3 Hp	40:1~60:1	136	44	140	15	n/a	n/a	n/a	15	20	17.5	17.5	9	2.1
F3S55	TAF3S-55-3	1/8 Hp	1500:1	146	70	160	18.5	n/a	n/a	n/a	18.5	28.5	20.5	20.5	12	3.6
		1/4 Hp	900:1~1200:1													
		1/2 Hp	450:1~600:1													
		1 Hp	300:1													
		2 Hp	80:1~240:1													
		3 Hp	80:1~120:1													

Material: SS400, Surface treatment: uni-chrome, Color: white

## Tightening Torque

A torque arm is subjected to a rotation reaction torque. They must use materials and fasteners strong enough to endure extended normal operation as well as a starting/braking and/or potential shock loading. Our standard parts are sized appropriately given the mating gearmotor or reducer.

When installing a reducer with a torque arm, tighten the bolt using a helical spring lock washer and plain washer. Proper tightening torques, are shown in the table.

Fig 3.2: Tightening Torque

Part Number	Bolt Size		Tightening Torque	
	Metric	Inch	N-m (kgf-m)	in-lb
TAF3S-20-2	M8	5/16-18	13 (1.3)	115
TAF3S-25-2	M8	5/16-18	13 (1.3)	115
TAF3S-25-3	M10	3/8-16	25 (2.6)	220
TAF3S-30-2	M10	3/8-16	25 (2.6)	220
TAF3S-30-3	M12	7/16-14	44 (4.5)	390
TAF3S-35-2	M12	7/16-14	44 (4.5)	390
TAF3S-35-3	M16	5/8-11	108 (11)	955
TAF3S-45-2	M16	5/8-11	108 (11)	955
TAF3S-45-3	M20	3/4-10	294 (30)	2600
TAF3S-50-2	M20	3/4-10	294 (30)	2600
TAF3S-55-3	M20	3/4-10	294 (30)	2600

Fig 3.7: How to Apply the Torque Arm Fixing Element

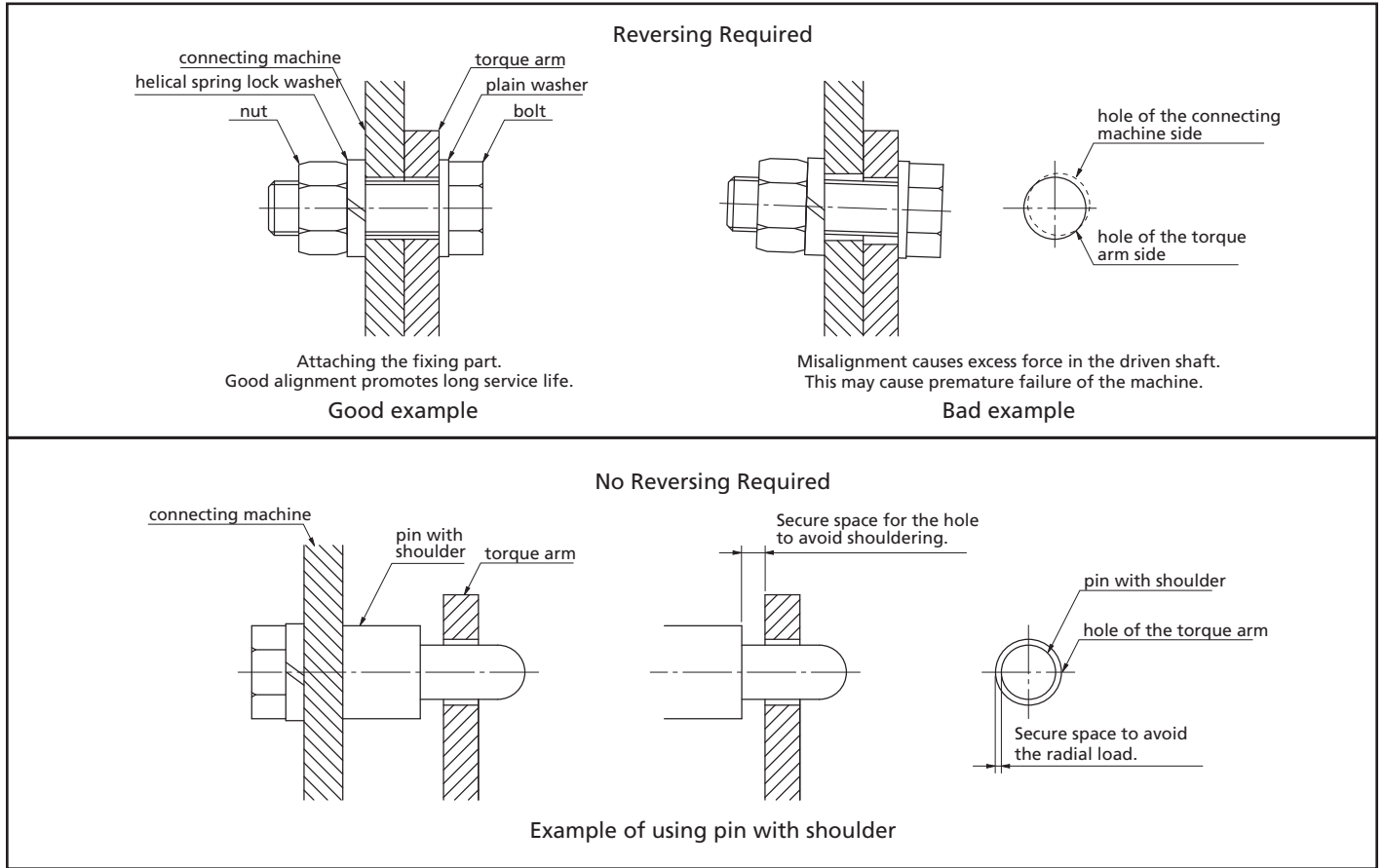
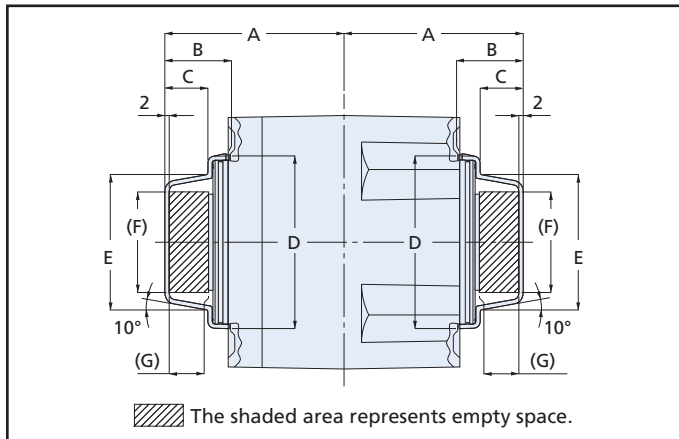


Fig 3.8: Safety Cap Dimensions



F3 S Safety Cap Dimensions

Frame	A	B	C	D	E	F	G
F3S20	64	25.5	15.7	57	40	26	14
F3S25	79	29.5	19.7	70	53	37.5	18
F3S30	82	19.5	19.7	79	62	46.5	18
F3S35	95	33.5	23.7	89	72	55	22
F3S45	108	33.5	23.7	104	87	70	22
F3S50	120	43	41	141	127.5	104	32
F3S55	143	43	41	141	127.5	104	32



Fig 3.9: Inserting the Shaft

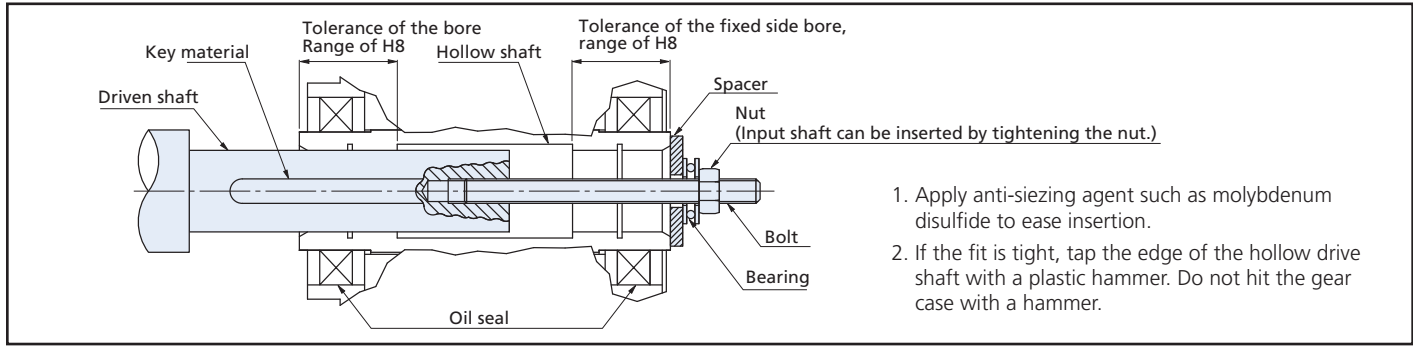
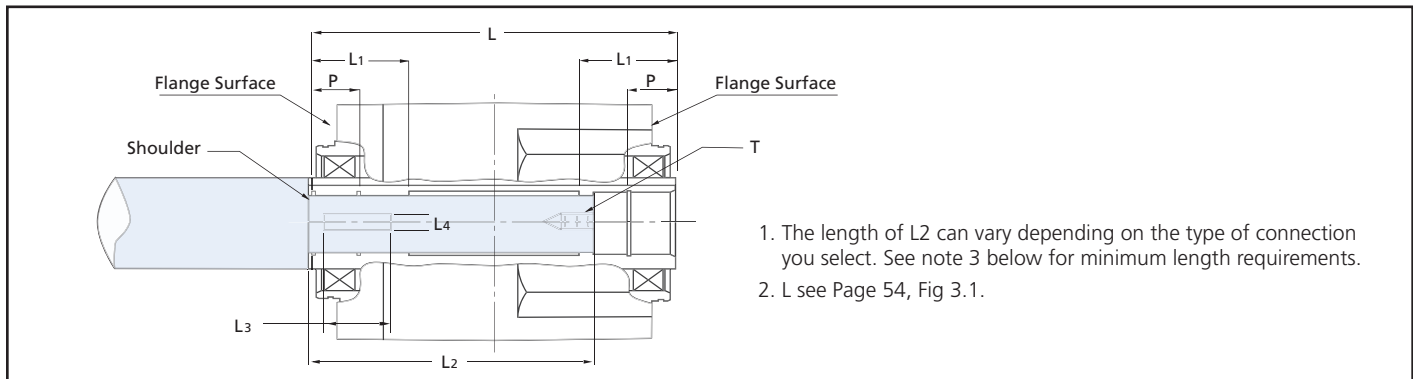


Fig 3.10: Recommended Dimensions of Shaft from the Shoulder



Note: The shaft is supplied by the OEM or User.

Bore Diameter (Inch)	O.D. (in)	Shaft (Inch Dimension)					
		L1 (in)	L2 (in)	L3 (in)	L4 (in)	Key (in)	Tap T
F3-20 0.7500	0.7500 in +0.0/-0.0008	0.945	3.125	1.500	0.1875	0.1875	1/4-20X0.50
F3-25 1.0000	1.0000 in +0.0/-0.0008	1.063	3.938	2.000	0.2500	0.2500	1/4-20X0.50
F3-30 1.2500	1.2500 in +0.0/-0.0008	1.063	4.000	3.375	0.2500	0.2500	5/16-18X0.63
F3-35 1.4375	1.4375 in +0.0/-0.0010	1.496	4.500	2.938	0.3750	0.3750	3/8-16X0.75
F3-45 1.6875	1.6875 in +0.0/-0.0010	1.969	5.375	3.375	0.3750	0.3750	3/8-16X0.75
F3-50 1.9375	1.9375 in +0.0/-0.0010	2.165	5.375	3.938	0.5000	0.5000	7/16-14X1.0
F3-55 2.0000	1.9375 in +0.0/-0.0010	1.063	7.125	4.000	0.5000	0.5000	7/16-14X1.0

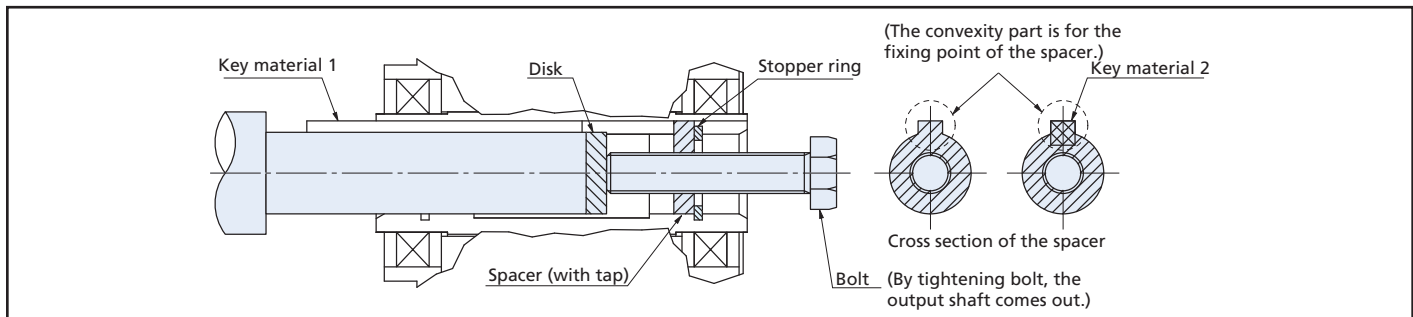
Bore Diameter (Inch)	O.D. (in)	Shaft (Inch Dimension)					
		L1 (in)	L2 (in)	L3 (in)	L4 (in)	Key (in)	Tap T
F3-20 20	20 h7	0.945	80	30	6	6	M6X12
F3-25 25	25 h7	1.063	100	37.5	8	8	M6X12
F3-30 30	30 h7	1.063	102	45	8	8	M8X16
F3-35 35	35 h7	1.496	117	52.5	10	10	M10X20
F3-45 45	45 h7	1.969	137	67.5	14	14	M10X20
F3-50 50	50 h7	2.165	138	75	14	14	M12X24
F3-55 55	55 h7	1.063	182	82.5	16	16	M12X24

Tolerances are for low impact or uniform loading. For high impact loading or high radial loading, use tighter tolerances.

Designing your Own Shaft

1. The usable key length should be greater than 1.5X the diameter of the driven shaft.
2. The Key should be engaged with at least half of the length L1. See Fig 3.1 for the dimension L.
3. The minimum length of shaft engaged inside the bore is approximately  $(L - L1) + ((L1-P)/2)$ . See Fig 3.1 for details.

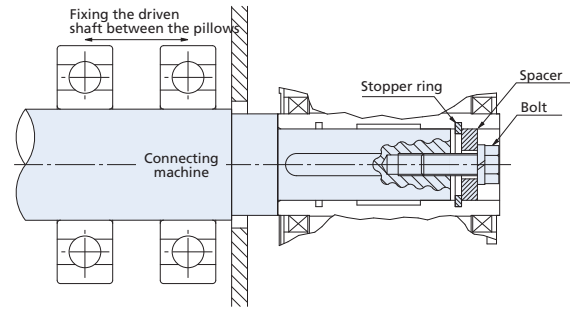
Fig 3.11: How to Remove the Shaft



\* The spacer, disk, belt, stopper ring are not supplied by Brother.

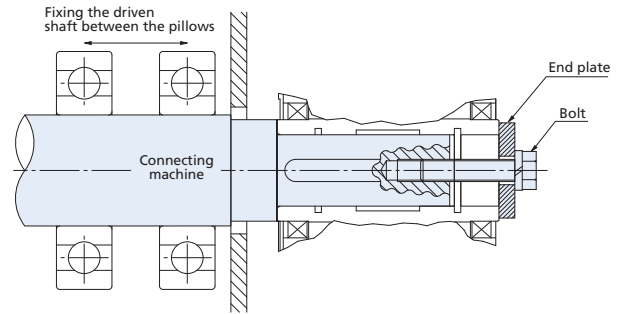
**Fig 3.12A Securing the Shaft with a Shoulder**

Fixing by Spacer and Stopper Ring



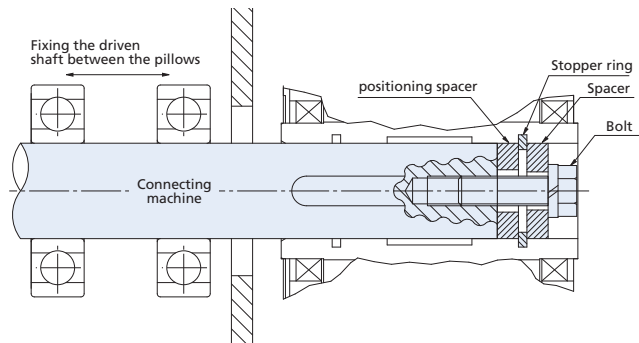
**Fig 3.12B Securing the Shaft with a Shoulder**

Fixing by End Plate



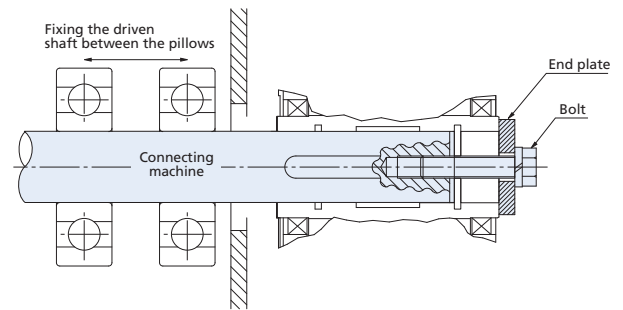
**Fig 3.13A Securing the Shaft without a Shoulder**

Fixing by Spacer and Stopper Ring



**Fig 3.13B Securing the Shaft without a Shoulder**

Fixing by End Plate



**Fig 3.14A: Fixing Element Parts; Inch**

Bore (mm)	Bolt		O.D. (in)	I.D. (in)	T (in)
	Internal	External			
0.7500	1/4-20X0.75	1/4-20x1.25	0.73	0.28	0.125
1.0000	1/4-20X0.75	1/4-20x1.25	0.98	0.28	0.125
1.2500	5/16-18X0.75	5/16-18x1.5	1.23	0.35	0.188
1.4375	3/8-16X1.25	3/8-16X1.75	1.42	0.43	0.188
1.6875	3/8-16X1.25	3/8-16X2	1.67	0.43	0.250
1.9375	7/16-14X1.25	7/16-14X2.5	1.92	0.51	0.250
2.0000	7/16-14X1.25	7/16-14X2.5	1.98	0.51	0.250

**Fig 3.14B: Fixing Element Parts; Metric**

Bore (mm)	Bolt		O.D. (in)	I.D. (in)	T (in)
	Internal	External			
20	M6X16	M6X30	19.5	7	3
25	M6X16	M6X30	24.5	7	4
30	M8X20	M8X40	29.5	9	5
35	M10X25	M10X40	34.5	11	5
45	M10X25	M10X50	44.5	11	5
50	M12X30	M12X60	49.5	13	6
55	M12X30	M12X60	54.5	13	6

## Why Use A Hypoid/Helical Hollow Bore

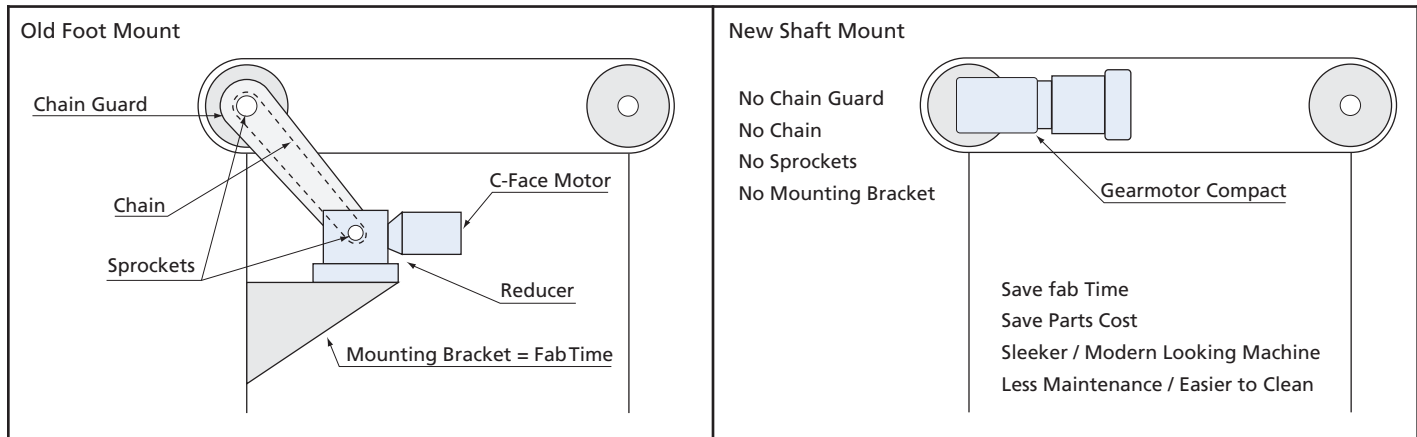
### Flange Mounted

#### Positive Aspects

- Direct attachment to the machine is possible.
- Space is saved.
- Few parts are required.
- Base mounts, chains, sprockets, and chain guarding are not required.
- Easy to sanitize in food service environment (IP-65 Type).

#### Negative Aspects

- Alignment of the reducer bearings with the machine bearing is required.
- (4) bolts are needed to securing the reducer flange to the mounting surface.
- Changing the reducer may be more difficult.



### Torque Arm Mounted

#### Positive Aspects

- Easy alignment with the connecting machine.
- Only one fixing point is needed to transmit the torque.
- Changing the reducer is simpler.
- Easy to sanitize in food service environment (IP-65 Type).

#### Negative Aspects

- Torque arm is needed.
- Space for attaching torque arm is needed.

### Compared to a Worm

#### Positive Aspects

- Service Life is greater than 2X longer = superior cost of ownership.
- HRH/H is more energy efficient = lower operating cost.
- HRH/H is lighter and more compact = easier to mount.
- HRH/H is symetric = mounting is simple and flexible.
- HRH/H operating temperature is lower = longer life.
- No breather hole is required = easier to mount, no external ingress point.
- Mounting is 100% flexible, any angle any direction = easier to apply.

#### Negative Aspects

- HRH/H is not self locking. If backdrive is not acceptable, a brake is required.