



Spec Table 3.0

Specifications						Dimensional Drawing							
Hp	Frame	Ratio X:1 GR	Nominal RPM n	Torque (in-lbs) TR	O.H.L. (lbs) OHL	Motor		Brakemotor		Motor IP-65		Brakemotor IP-65	
						Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase
1/50	12	10	180	6	77	Dwg 3.0 A	Dwg 3.0 A	Dwg 3.0 A2	Dwg 3.0 A2	Dwg 3.2 A	Dwg 3.2 A	Dwg 3.2 A2	Dwg 3.2 A2
		15	120	9	99								
		20	90	12	121								
		25	72	14	132								
		30	60	17	154								
		40	45	23	176								
		50	36	29	198								
		60	30	35	220								
		80	23	44	220								
		100	18	55	243								
		120	15	66	243								
		160	11	88	243								
		200	9	110	243								
240	7.5	132	243										

Notes:

1. Motor and brakemotor electrical data shown on Pages 10~13.
2. The gearmotor length dimension that applies is noted as A or A2 in the "Motor" and "Brakemotor" columns.
3. Brother 3 phase gearmotors are suitable for use with a VFD. See Fig 1.18, Page 15 for details.
4. Bore dimension details and options shown on Page 48 Fig 3.1.
5. Hollow bore mounting details and options shown on Pages 48~52.

Model Number for Ordering

F2	S	12	N	010	-	B	M	LC	1	A	X
Type	Mount Form	Frame	Shaft/Bore Arrangement	Gear Ratio		UL/CSA	Motor Type	Motor Power	Supply Voltage	Terminal Box/Leads	Special Spec
F2: F2 Series	S: Hollow Bore	12	N: Common Code	005 : 5:1 030 : 30:1 120 : 120:1		B: UL/CSA	M: Motor B: Brakemotor WM: IP-65 Motor WB: IP-65 Brakemotor	LC: 1/50 Hp (15w)	Single Phase 1: 115V, 60Hz 5: 220V, 60Hz 6: 230V, 60Hz 7: OEM Spec (Fig 1.6, Pg 11) Three Phase 2: 208/230V, 60Hz 3: 460V, 60Hz* 8: OEM Spec (Fig 1.5, Pg 11) *No 460V for IP-65	Standard Type A: Die Cast Box (IP-44) C: Plastic Box (IP-20) N: Leads 11.8 in, IP-20 IP-65 Motor N: Cord, 6 ft IP-65 Brakemotor N: Cord, 6 ft	Blank: Standard Type X: Special Spec

CAD Drawings

Go to www.BrotherGearmotors.com and enter the desired model number in the configurator. DXF, 3D, and PDF files are available to view or download.

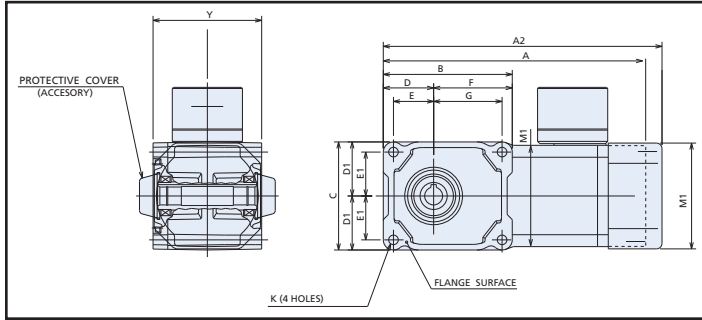
Special Specs

Notes:

1. Special Voltage: specify the Voltage/Frequency from Page 11, Fig 1.5.(3 phase) or Fig 1.6 (1 phase) on your purchase order.
2. Special bore options, see Page 48, Fig 3.1.
3. For any other special OEM requirement, please consult Brother.

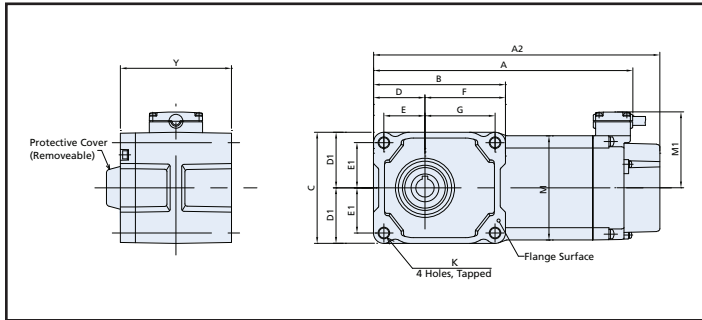
Frame	Drawing	A	A2	B	C	D	D1	E	E1	F	G	K	M	M1	Y	Wt (lb)
12	3.0	7.64	9.13	3.94	3.19	1.54	1.59	1.26	1.32	2.4	2.13	0.26	2.99	3.15	3.2	7.5

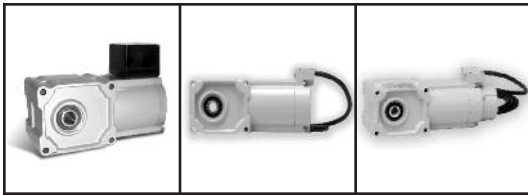
Dwg 3.0



Frame	Drawing	A	A2	B	C	D	D1	E	E1	F	G	K	M	M1	Y	Wt (lb)
12	3.1	8.19	9.06	3.94	3.19	1.54	1.59	1.26	1.32	2.4	2.13	0.26	2.99	2.32	3.2	9

Dwg 3.1





Spec Table 3.2

Specifications						Dimensional Drawing							
Hp	Frame	Ratio X:1 GR	Nominal RPM n	Torque (in-lbs) TR	O.H.L. (lbs) OHL	Motor		Brakemotor		Motor IP-65		Brakemotor IP-65	
						Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase
1/30	12	10	180	10	77	Dwg 3.2 A	Dwg 3.2 A	Dwg 3.2 A2	Dwg 3.2 A2	Dwg 3.3 A	Dwg 3.3 A	Dwg 3.3 A2	Dwg 3.3 A2
		15	120	14	99								
		20	90	19	121								
		25	72	24	132								
		30	60	29	154								
		40	45	39	176								
		50	36	48	198								
		60	30	58	220								
		80	23	73	220								
		100	18	91	243								
		120	15	110	243								
		160	11	146	243								
		200	9	183	243								
240	7.5	220	243										

Notes:

1. Motor and brakemotor electrical data shown on Pages 10~13.
2. The gearmotor length dimension that applies is noted as A or A2 in the "Motor" and "Brakemotor" columns.
3. Brother 3 phase gearmotors are suitable for use with a VFD. See Fig 1.18, Page 15 for details.
4. Bore dimension details and options shown on Page 48 Fig 3.1.
5. Hollow bore mounting details and options shown on Pages 48~52.

Model Number for Ordering

F2	S	12	N	010	-	B	M	LD	1	A	X
Type	Mount Form	Frame	Shaft/Bore Arrangement	Gear Ratio		UL/CSA	Motor Type	Motor Power	Supply Voltage	Terminal Box/Leads	Special Spec
F2: F2 Series	S: Hollow Bore	12	N: Common Code	005 : 5:1 030 : 30:1 120 : 120:1		B: UL/CSA	M: Motor B: Brakemotor WM: IP-65 Motor WB: IP-65 Brakemotor	LD: 1/30 Hp (25w)	Single Phase 1: 115V, 60Hz 5: 220V, 60Hz 6: 230V, 60Hz 7: OEM Spec (Fig 1.6, Pg 11) Three Phase 2: 208/230V, 60Hz 3: 460V, 60Hz* 8: OEM Spec (Fig 1.5, Pg 11) *No 460V for IP-65	Standard Type A: Die Cast Box (IP-44) C: Plastic Box (IP-20) N: Leads 11.8 in, IP-20 IP-65 Motor N: Cord, 6 ft IP-65 Brakemotor N: Cord, 6 ft	Blank: Standard Type X: Special Spec

CAD Drawings

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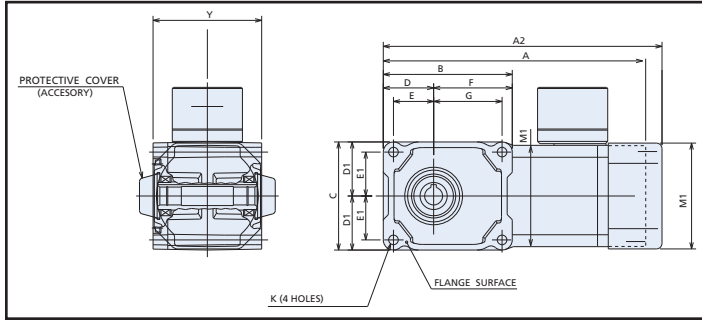
Special Specs

Notes:

1. Special Voltage: specify the Voltage/Frequency from Page 11, Fig 1.5.(3 phase) or Fig 1.6 (1 phase) on your purchase order.
2. Special bore options, see Page 48, Fig 3.1.
3. For any other special OEM requirement, please consult Brother.

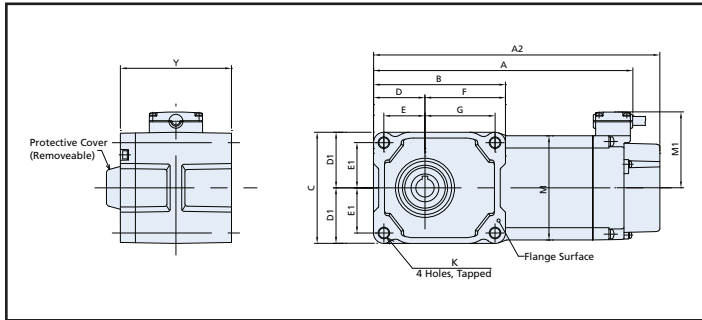
Frame	Drawing	A	A2	B	C	D	D1	E	E1	F	G	K	M	M1	Y	Wt (lb)
12	3.2	7.64	9.13	3.94	3.19	1.54	1.59	1.26	1.32	2.4	2.13	0.26	2.99	3.15	3.2	7.5

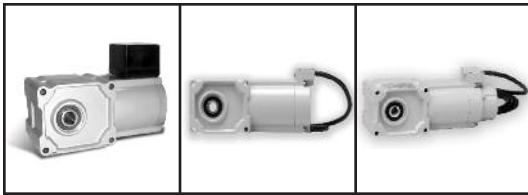
Dwg 3.2



Frame	Drawing	A	A2	B	C	D	D1	E	E1	F	G	K	M	M1	Y	Wt (lb)
12	3.3	8.19	9.06	3.94	3.19	1.54	1.59	1.26	1.32	2.4	2.13	0.26	2.99	2.32	3.2	9

Dwg 3.3





Spec Table 3.2

Specifications						Dimensional Drawing							
Hp	Frame	Ratio X:1 GR	Nominal RPM n	Torque (in-lbs) TR	O.H.L. (lbs) OHL	Motor		Brakemotor		Motor IP-65		Brakemotor IP-65	
						Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase
1/20	15	10	180	16	77	Dwg 3.4 A	Dwg 3.4 A	Dwg 3.4 A2	Dwg 3.4 A2	Dwg 3.5 A	Dwg 3.5 A	Dwg 3.5 A2	Dwg 3.5 A2
		15	120	23	99								
		20	90	31	121								
		25	72	39	132								
		30	60	47	154								
		40	45	62	176								
		50	36	78	198								
		60	30	94	220								
		80	23	119	220								
		100	18	148	243								
		120	15	178	243								
		160	11	237	309								
		200	9	296	309								
240	7.5	356	309										

Notes:

1. Motor and brakemotor electrical data shown on Pages 10~13.
2. The gearmotor length dimension that applies is noted as A or A2 in the "Motor" and "Brakemotor" columns.
3. Brother 3 phase gearmotors are suitable for use with a VFD. See Fig 1.18, Page 15 for details.
4. Bore dimension details and options shown on Page 48 Fig 3.1.
5. Hollow bore mounting details and options shown on Pages 48~52.

Model Number for Ordering

F2	S	15	N	030	-	B	B	RE	1	A	X
Type	Mount Form	Frame	Shaft/Bore Arrangement	Gear Ratio		UL/CSA	Motor Type	Motor Power	Supply Voltage	Terminal Box/Leads	Special Spec
F2: F2 Series	S: Hollow Bore	15	N: Common Code	005 : 5:1 030 : 30:1 120 : 120:1		B: UL/CSA	M: Motor B: Brakemotor WM: IP-65 Motor WB: IP-65 Brakemotor	RE: 1/20 Hp (40w)	Single Phase 1: 115V, 60Hz 5: 220V, 60Hz 6: 230V, 60Hz 7: OEM Spec (Fig 1.6, Pg 11) Three Phase 2: 208/230V, 60Hz 3: 460V, 60Hz* 8: OEM Spec (Fig 1.5, Pg 11) *No 460V for IP-65	Standard Type A: Die Cast Box (IP-44) C: Plastic Box (IP-20) N: Leads 11.8 in, IP-20 IP-65 Motor N: Cord, 6 ft IP-65 Brakemotor N: Cord, 6 ft	Blank: Standard Type X: Special Spec

CAD Drawings

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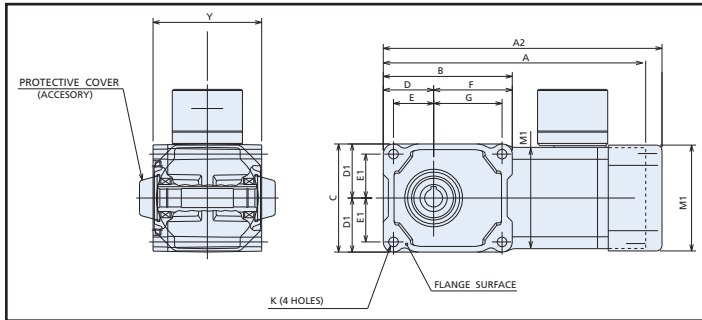
Special Specs

Notes:

1. Special Voltage: specify the Voltage/Frequency from Page 11, Fig 1.5.(3 phase) or Fig 1.6 (1 phase) on your purchase order.
2. Special bore options, see Page 48, Fig 3.1.
3. For any other special OEM requirement, please consult Brother.

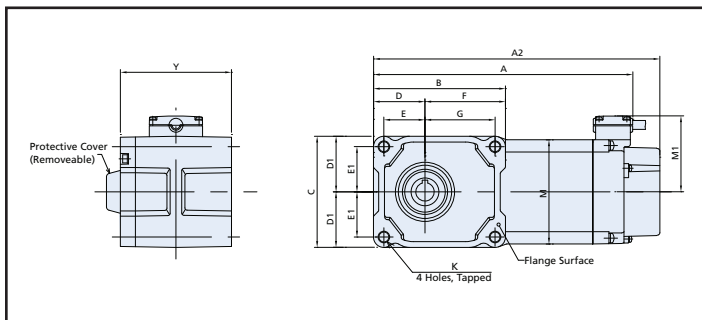
Frame	Drawing	A	A2	B	C	D	D1	E	E1	F	G	K	M	M1	Y	Wt (lb)
15	3.4	8.27	9.7	4.49	3.78	1.75	1.89	1.4	1.54	2.74	2.38	0.33	3.54	3.7	3.78	9

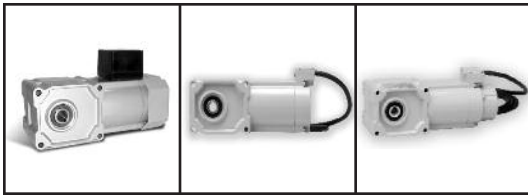
Dwg 3.4



Frame	Drawing	A	A2	B	C	D	D1	E	E1	F	G	K	M	M1	Y	Wt (lb)
15	3.5	8.82	9.75	4.49	3.78	1.75	1.89	1.4	1.54	2.74	2.38	0.33	3.54	2.58	3.78	11

Dwg 3.5





Spec Table 3.3

Specifications						Dimensional Drawing							
Hp	Frame	Ratio X:1 GR	Nominal RPM n	Torque (in-lbs) TR	O.H.L. (lbs) OHL	Motor		Brakemotor		Motor IP-65		Brakemotor IP-65	
						Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase
1/15	15	10	180	25	77	Dwg 3.6 A2	Dwg 3.6 A	Dwg 3.6 A2	Dwg 3.6 A2	n/a	Dwg 3.7 A	n/a	Dwg 3.7 A2
		15	120	37	99								
		20	90	49	121								
		25	72	61	132								
		30	60	74	154								
		40	45	98	176								
		50	36	123	198								
		60	30	147	286								
		80	23	186	286								
		100	18	233	308								
		120	15	279	308								
		160	11	373	308								
		200	9	466	308								
240	7.5	477	308										

Notes:

1. Motor and brakemotor electrical data shown on Pages 10~13.
2. The gearmotor length dimension that applies is noted as A or A2 in the "Motor" and "Brakemotor" columns.
3. Brother 3 phase gearmotors are suitable for use with a VFD. See Fig 1.18, Page 15 for details.
4. Bore dimension details and options shown on Page 48 Fig 3.1.
5. Hollow bore mounting details and options shown on Pages 48~52.

Model Number for Ordering

F2	S	15	N	030	-	B	M	RF	2	A	X
Type	Mount Form	Frame	Shaft/Bore Arrangement	Gear Ratio		UL/CSA	Motor Type	Motor Power	Supply Voltage	Terminal Box/Leads	Special Spec
F2: F2 Series	S: Hollow Bore	15	N: Common Code	005 : 5:1 030 : 30:1 120 : 120:1		B: UL/CSA	M: Motor B: Brakemotor WM: IP-65 Motor WB: IP-65 Brakemotor	RF: 1/15 Hp (60w)	Single Phase 1: 115V, 60Hz 5: 220V, 60Hz 6: 230V, 60Hz 7: OEM Spec (Fig 1.6, Pg 11) Three Phase 2: 208/230V, 60Hz 3: 460V, 60Hz* 8: OEM Spec (Fig 1.5, Pg 11) *No 460V for IP-65	Standard Type A: Die Cast Box (IP-44) C: Plastic Box (IP-20) N: Leads 11.8 in, IP-20 IP-65 Motor N: Cord, 6 ft IP-65 Brakemotor N: Cord, 6 ft	Blank: Standard Type X: Special Spec

CAD Drawings

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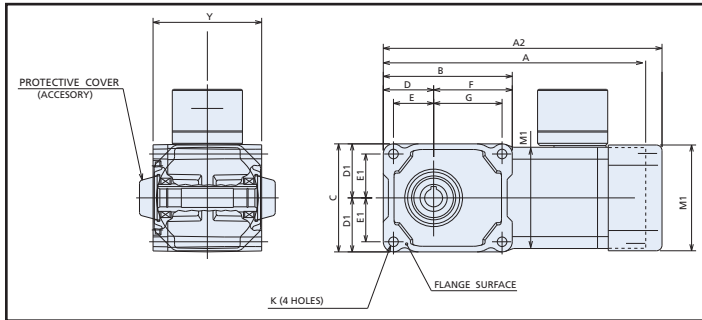
Special Specs

Notes:

1. Special Voltage: specify the Voltage/Frequency from Page 11, Fig 1.5.(3 phase) or Fig 1.6 (1 phase) on your purchase order.
2. Special bore options, see Page 48, Fig 3.1.
3. For any other special OEM requirement, please consult Brother.

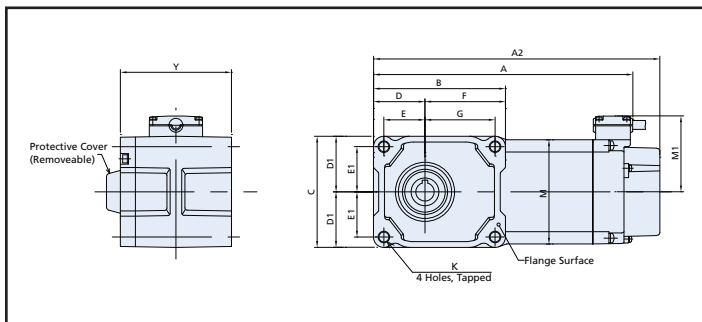
Frame	Drawing	A	A2	B	C	D	D1	E	E1	F	G	K	M	M1	Y	Wt (lb)
15	3.6	8.27	9.7	4.49	3.78	1.75	1.89	1.4	1.54	2.74	2.38	0.33	3.54	3.7	3.78	9

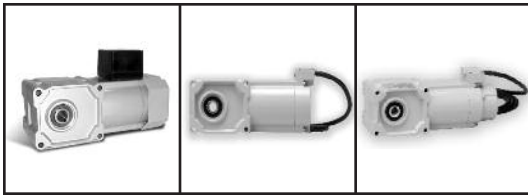
Dwg 3.6



Frame	Drawing	A	A2	B	C	D	D1	E	E1	F	G	K	M	M1	Y	Wt (lb)
15	3.7	8.82	9.75	4.49	3.78	1.75	1.89	1.4	1.54	2.74	2.38	0.33	3.54	2.58	3.78	11

Dwg 3.7





Spec Table 3.4

Specifications						Dimensional Drawing							
Hp	Frame	Ratio X:1 GR	Nominal RPM n	Torque (in-lbs) TR	O.H.L. (lbs) OHL	Motor		Brakemotor		Motor IP-65		Brakemotor IP-65	
						Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase
1/10	15	10	180	37	99	Dwg 3.8 A2	Dwg 3.8 A2	Dwg 3.8 A2	Dwg 3.8 A2	n/a	Dwg 3.9 A	n/a	Dwg 3.9 A2
		15	120	55	132								
		20	90	74	165								
		25	72	92	198								
		30	60	110	220								
		40	45	147	242								
		50	36	184	264								
		60	30	221	264								
		80	23	279	396								
		100	18	349	396								
		120	15	419	396								
		160	11	477	396								
		200	9	477	396								
240	7.5	477	396										

Notes:

1. Motor and brakemotor electrical data shown on Pages 10~13.
2. The gearmotor length dimension that applies is noted as A or A2 in the "Motor" and "Brakemotor" columns.
3. Brother 3 phase gearmotors are suitable for use with a VFD. See Fig 1.18, Page 15 for details.
4. Bore dimension details and options shown on Page 48 Fig 3.1.
5. Hollow bore mounting details and options shown on Pages 48~52.

Model Number for Ordering

F2	S	15	N	030	-	B	M	RG	2	A	X
Type	Mount Form	Frame	Shaft/Bore Arrangement	Gear Ratio		UL/CSA	Motor Type	Motor Power	Supply Voltage	Terminal Box/Leads	Special Spec
F2: F2 Series	S: Hollow Bore	15	N: Common Code	005 : 5:1 030 : 30:1 120 : 120:1		B: UL/CSA	M: Motor B: Brakemotor WM: IP-65 Motor WB: IP-65 Brakemotor	RF: 1/15 Hp (60w)	Single Phase 1: 115V, 60Hz 5: 220V, 60Hz 6: 230V, 60Hz 7: OEM Spec (Fig 1.6, Pg 11) Three Phase 2: 208/230V, 60Hz 3: 460V, 60Hz* 8: OEM Spec (Fig 1.5, Pg 11) *No 460V for IP-65	Standard Type A: Die Cast Box (IP-44) C: Plastic Box (IP-20) N: Leads 11.8 in, IP-20 IP-65 Motor N: Cord, 6 ft IP-65 Brakemotor N: Cord, 6 ft	Blank: Standard Type X: Special Spec

CAD Drawings

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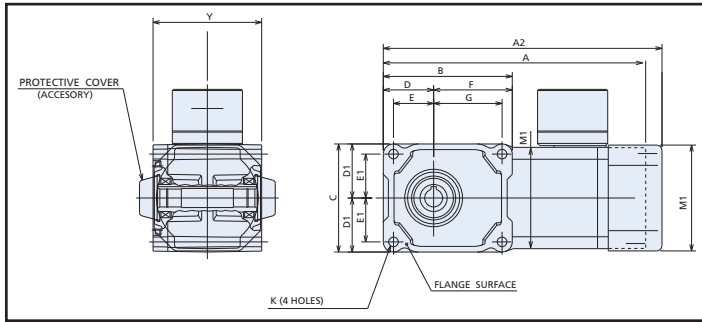
Special Specs

Notes:

1. Special Voltage: specify the Voltage/Frequency from Page 11, Fig 1.5.(3 phase) or Fig 1.6 (1 phase) on your purchase order.
2. Special bore options, see Page 48, Fig 3.1.
3. For any other special OEM requirement, please consult Brother.

Frame	Drawing	A	A2	B	C	D	D1	E	E1	F	G	K	M	M1	Y	Wt (lb)
15	3.8	8.27	9.7	4.49	3.78	1.75	1.89	1.4	1.54	2.74	2.38	0.33	3.54	3.7	3.78	9

Dwg 3.8



Frame	Drawing	A	A2	B	C	D	D1	E	E1	F	G	K	M	M1	Y	Wt (lb)
15	3.9	8.82	9.75	4.49	3.78	1.75	1.89	1.4	1.54	2.74	2.38	0.33	3.54	2.58	3.78	11

Dwg 3.9

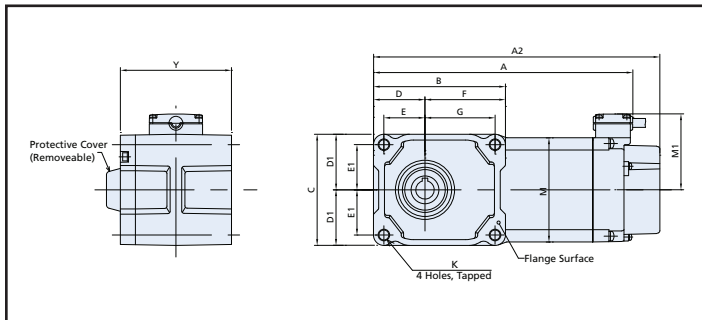
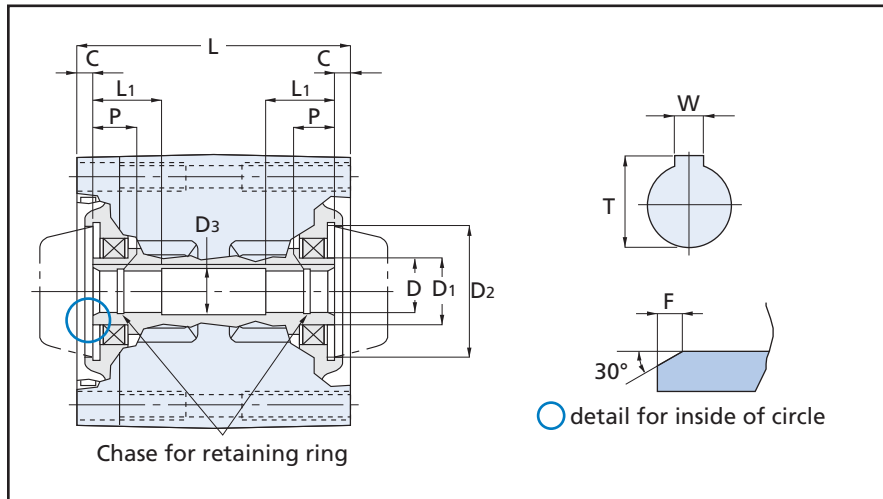


Fig 3.1: Standard Bore and Optional Bore Dimensions



Frame	Standard or Option	Special Code (Note)	D	D1	D2	D3	W	T	L	L1	P	C	F
F2S12	Standard	B05I	0.5000~0.5011 inch	0.79 in	1.54 in	0.51 in	0.125 in	0.56 in	3.19 in	0.79 in	0.31 in	0.22 in	0.08 in
	Option	B12M	12 mm H8	20 mm	39 mm H8	13 mm	4 mm	13.8 mm	81 mm	20 mm	8 mm	5.5 mm	2 mm
F2S15	Standard	B06I	0.6250~0.6261 inch	0.94 in	1.54 in	0.63 in	0.1875 in	0.71 in	3.78 in	0.83 in	0.35 in	0.16 in	0.08 in
	Option	B15M	15 mm (H8)	24 mm	39 mm H8	16 mm	5 mm	17.3 mm	96 mm	21 mm	9 mm	4 mm	2 mm

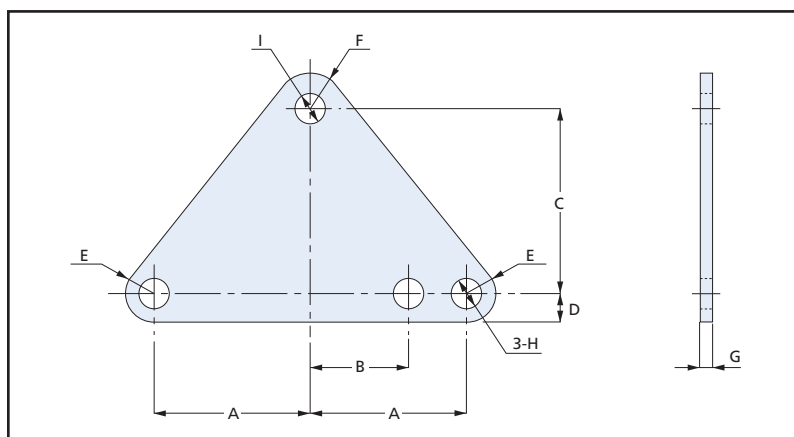
Note:

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. There is no need to add the "X" or specify the bore code when ordering the standard designated bore.

Fig 3.2: Metric Tolerances (mm)

Dimension	Bore: H8 (Ref D)	Shaft/Pilot: H7 (Ref D2)
Over 10~18 mm	+0.027/-0.000	+0.000/-0.018
Over 18~30 mm	+0.033/-0.000	+0.000/-0.021

Fig 3.3: Optional Torque Arm



Frame	Part Number	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)	G in (mm)	H in (mm)	I in (mm)
F2S12	TAF2S-12	1.69	0.94	1.48	0.28	0.28	0.35	0.13	0.33	0.28
		(43)	(24)	(37.5)	(7)	(7)	(9)	(3.2)	(8.4)	(7)
F2S15	TAF2S-15	1.89	1.18	2.22	0.35	0.35	0.43	0.13	0.41	0.35
		(48)	(30)	(56.5)	(9)	(9)	(11)	(3.2)	(10.5)	(9)

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

Tightening Torque

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 3.4: 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-55-3	M20	3/4-10	294 (30)	2600

Fig 3.5: How to Apply the Torque Arm Fixing Element

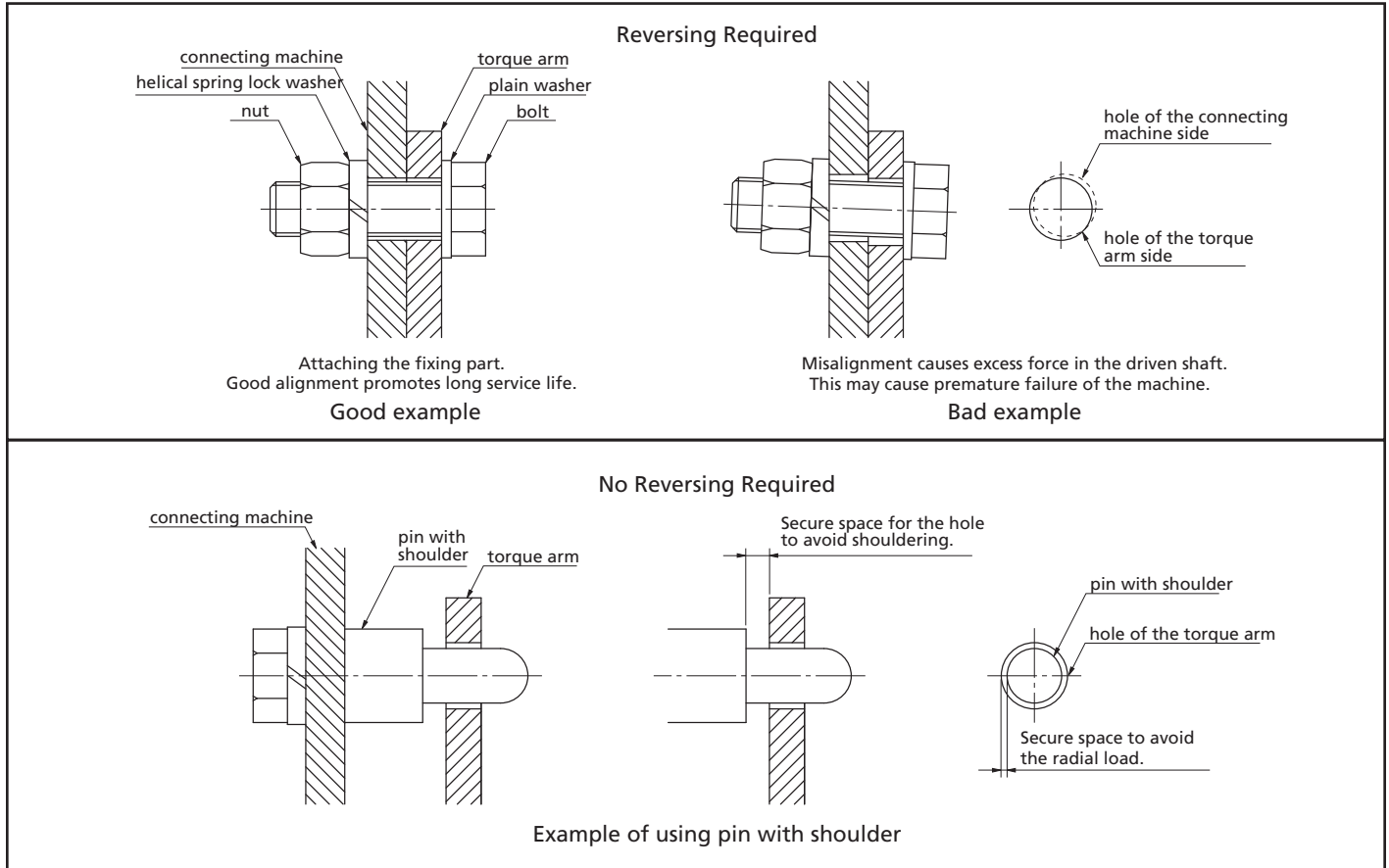
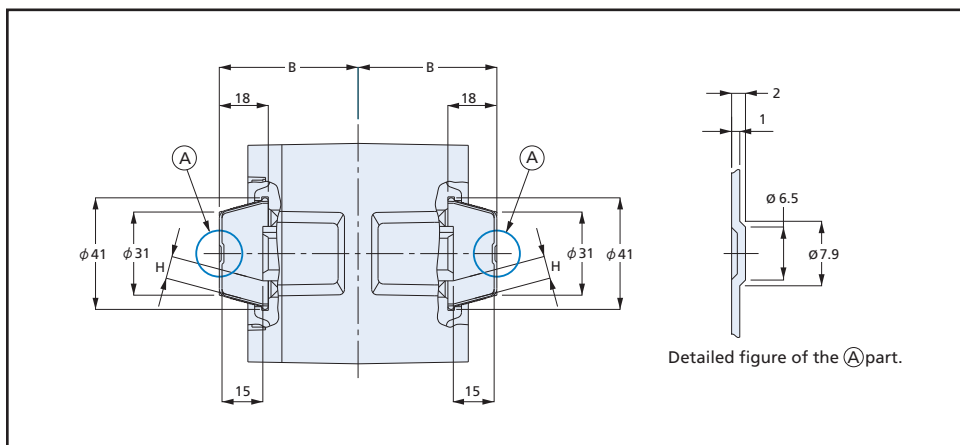


Fig 3.6: Safety Cap Dimensions



F2S Safety Cap Dimensions

Frame	A in (mm)	H in (mm)
F2S12	2.01 (51)	0.32 (8.2)
F2S15	2.36 (60)	0.25 (6.3)

Fig 3.7: Inserting the Shaft

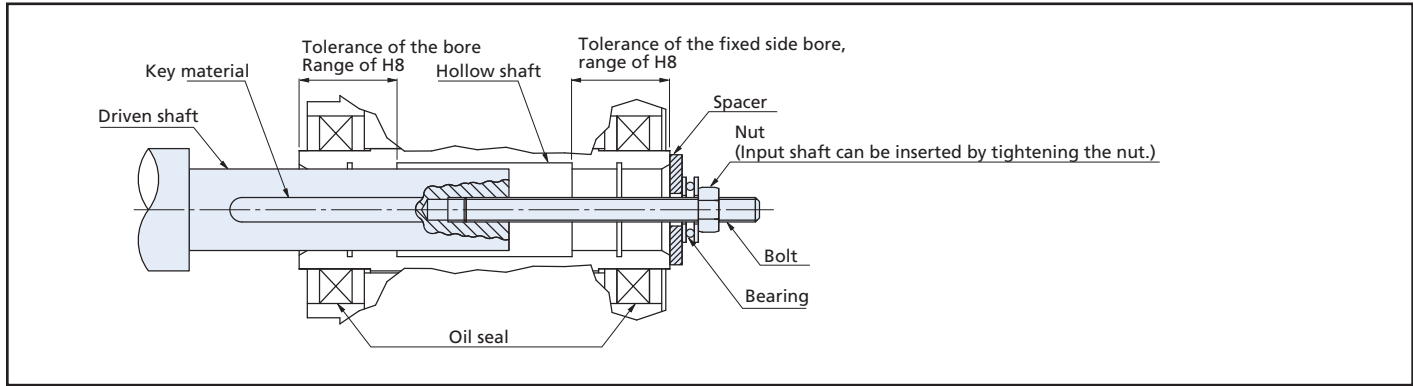
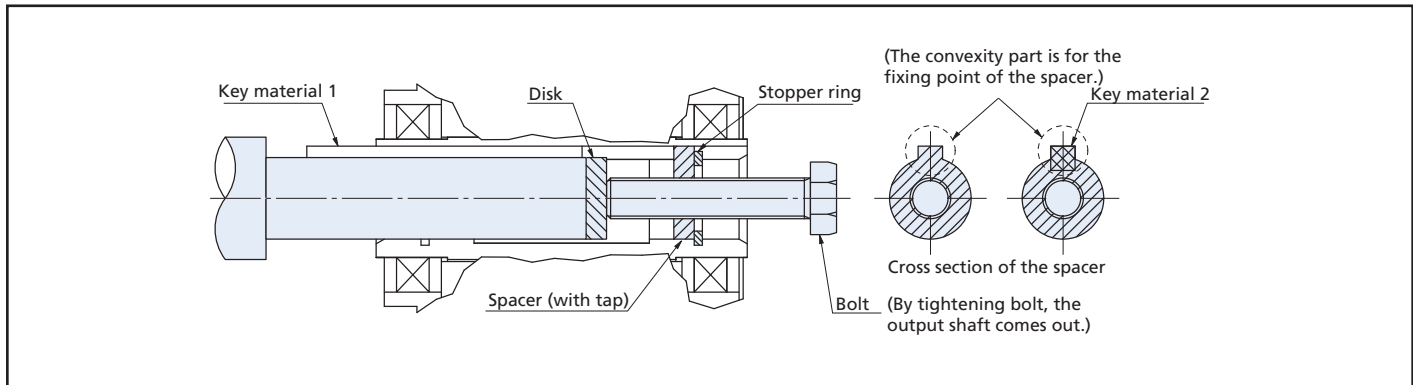
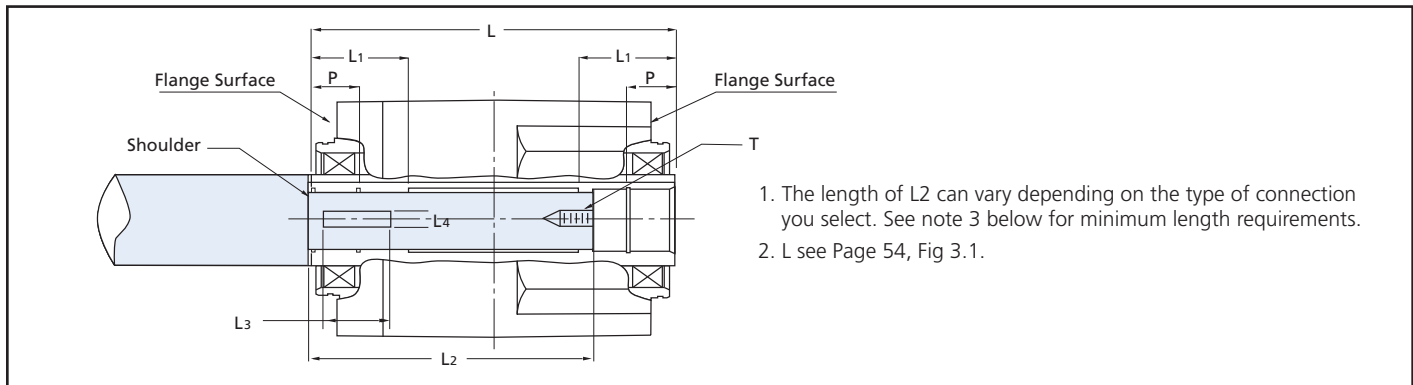


Fig 3.8: How to Remove the Shaft



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

Fig 3.9: Recommended Dimensions of Shaft from the Shoulder



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

Frame Bore (Inch)	O.D. (in)	Shaft (Inch Dimension)						Tap T
		L1 (in)	L2 (in)	L3 (in)	L4 (in)	Key (in)		
F2S-12 0.5000	0.5000	3.19	0.79	2.50	0.750	0.1250	1/4-20X0.50	
F2S-15 0.6250	0.6250	3.78	0.83	3.15	0.938	0.1875	1/4-20X0.50	

Frame Bore (mm)	O.D. (in)	Shaft (Inch Dimension)						Tap T
		L1 (in)	L2 (in)	L3 (in)	L4 (in)	Key (in)		
F2S-12 12 mm	12 h ₇	81	20	65	18	4	M6X12	
F2S-15 15 mm	15 h ₇	96	21	80	22.5	5	M6X12	

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 3.10A Securing the Shaft with a Shoulder

Fixing by Spacer and Stopper Ring

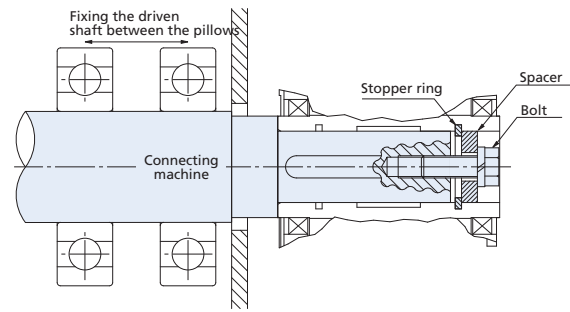


Fig 3.10B Securing the Shaft with a Shoulder

Fixing by End Plate

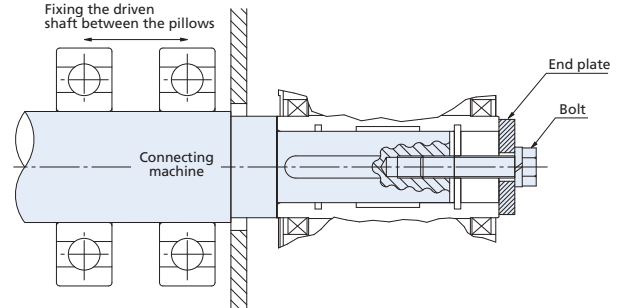


Fig 3.11A Securing the Shaft without a Shoulder

Fixing by Spacer and Stopper Ring

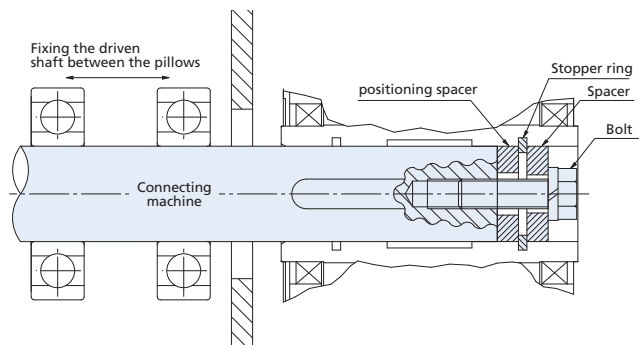


Fig 3.11B Securing the Shaft without a Shoulder

Fixing by End Plate

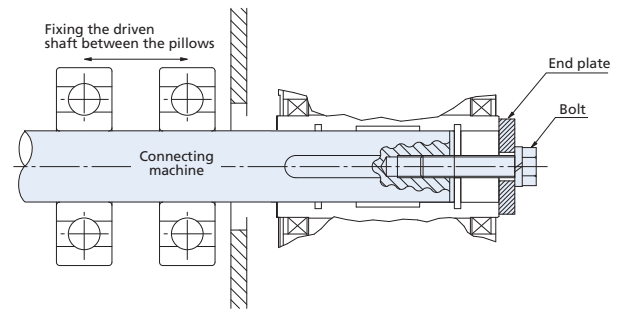


Fig 3.12A: Fixing Element Parts; Inch

Bore (mm)	Bolt		O.D. (in)	I.D. (in)	T (in)
	Internal	External			
0.5000	1/4-20X0.50	1/4-20x1.75	0.48	0.28	0.125
0.6250	1/4-20X0.50	1/4-20x1.75	0.61	0.28	0.125

Note: Fixing element parts not supplied by Brother.

Fig 3.12B: Fixing Element Parts; Metric

Bore (mm)	Bolt		O.D. (in)	I.D. (in)	T (in)
	Internal	External			
12	M6X16	M6X30	11.5	6	3
15	M6X16	M6X30	14.5	7	3

Note: Fixing element parts not supplied by Brother.

Why Use A Hypoid/Helical Hollow Bore

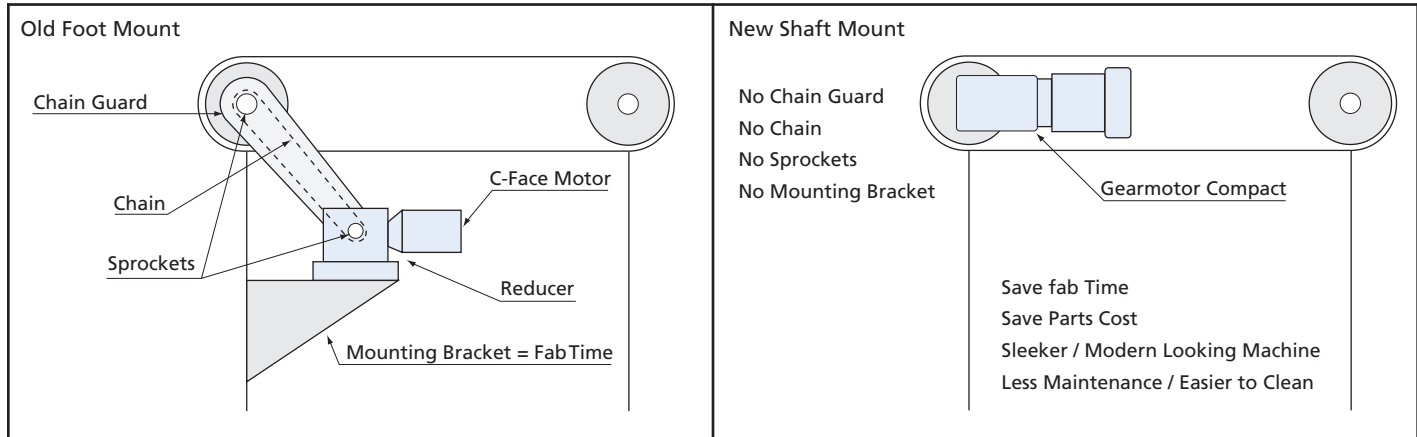
Flange Mounted

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 symmetric = 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.