VF3S/ VF3F Type

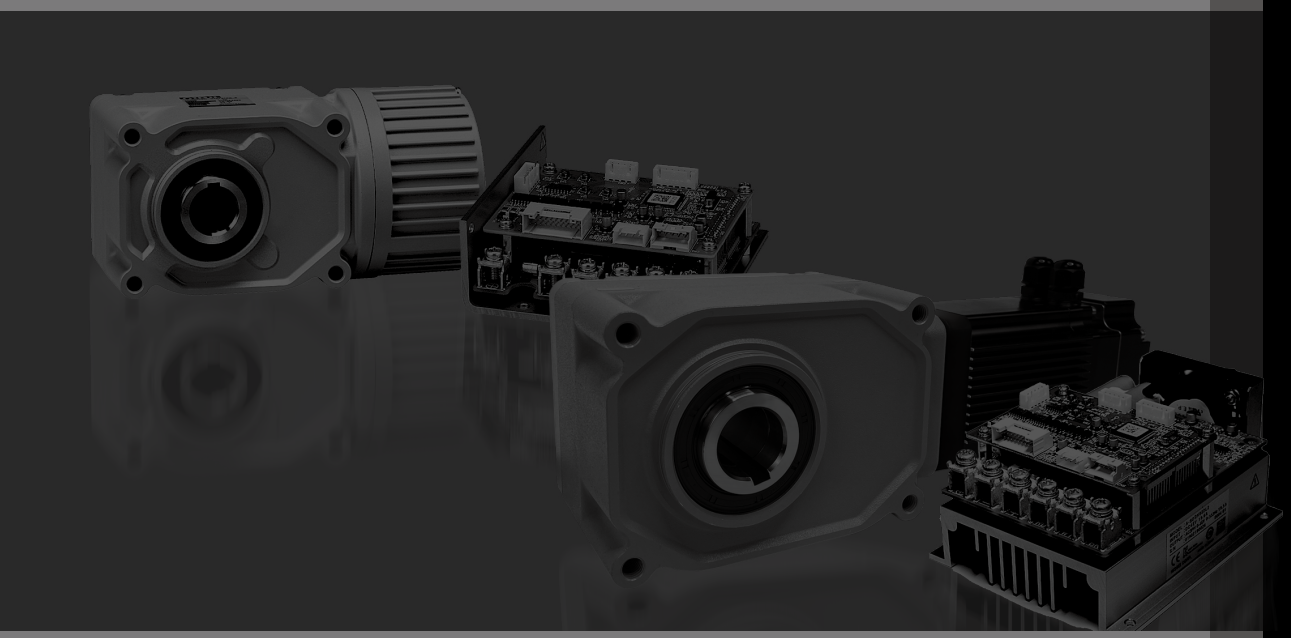
Concentric Right Angle Hollow Bore/ Concentric Right Angle Shaft

F3S Type

Right Angle Shaft

Model and Type Codes
Standard Model Lineup

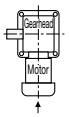
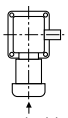
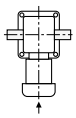
P.614



Model and Type Codes

VF Type Battery Powered Gearmotors

Mounting Type	Brake Type	Frame Size	Shaft Arrangement		Reduction Ratio	Common Code	Motor Power	Supply Voltage	Option
VF3S	C	25		–	30	N	200	L2A	
VF3F	D	32	T	–	240	N	400	L4A	
①	②	③	④		⑤	⑥	⑦	⑧	⑨

①Mounting Type	VF3S : Concentric Right Angle Hollow Bore			
	VF3F : Concentric Right Angle Shaft			
②Brake Type	C : No Brake			
	D : Brakemotor			
③Frame Size and Output Shaft Diameter	Output Shaft Diameter (internal diameter for right angle hollow bore types, and outer diameter for other types)			
④Shaft Arrangement	Concentric Right Angle Hollow Bore	Concentric Right Angle Shaft		
	Blank	 Output shaft on the left side when viewed from the input shaft side (↑)	 Output shaft on the right side when viewed from the input shaft side (↑)	 Output shaft on both sides when viewed from the input shaft side (↑)
		L	R	T
⑤Reduction Ratio	5:1/5 to 240:1/240			
⑥Common Code	N : Common Code			
⑦Motor Power	100 : 0.1 kW			
	200 : 0.2 kW			
	400 : 0.4 kW			
⑧Supply Voltage (Note 1)	L1A : 12 VDC			
	L2A : 24 VDC			
	L4A : 48 VDC			
⑨Option	Blank : Standard Specification			
	X : Special Specification Code			

Note 1: 48 VDC is CCC-certified Product.

F3 Type Battery Powered Gearmotors

Mounting Type	Frame Size	Shaft Arrangement	Reduction Ratio		Motor Type	Motor Specifications	Motor Power	Supply Voltage	Standard	Brake Type	Option
F3S	30	N	20	–	SD	M	080	L4	A	N	
①	②	③	④		⑤	⑥	⑦	⑧	⑨	⑩	⑪

①Mounting Type	F3S : Right Angle Shaft Flange mount on both sides		
②Frame Size	Output Shaft Diameter		
③Shaft Arrangement	Material		Shaft Arrangement
			Right Angle Hollow Bore
	Carbon Steel		N
	Stainless Steel		S
④Reduction Ratio	10:1/10 to 60:1/60		
⑤Motor Type	SD : Brushless Motor SD Series		
⑥Motor Specifications	M : IP44		
	W : IP65		
⑦Motor Power	080 : 0.75 kW		
⑧Supply Voltage	L4 : 48 VDC		
⑨Standard	A : No Standards		
⑩Brake Type	N : No Brake		
	B : Brakemotor		
⑪Option	Blank : Standard Specification		
	X : Special Specification Code		

Standard Model Lineup

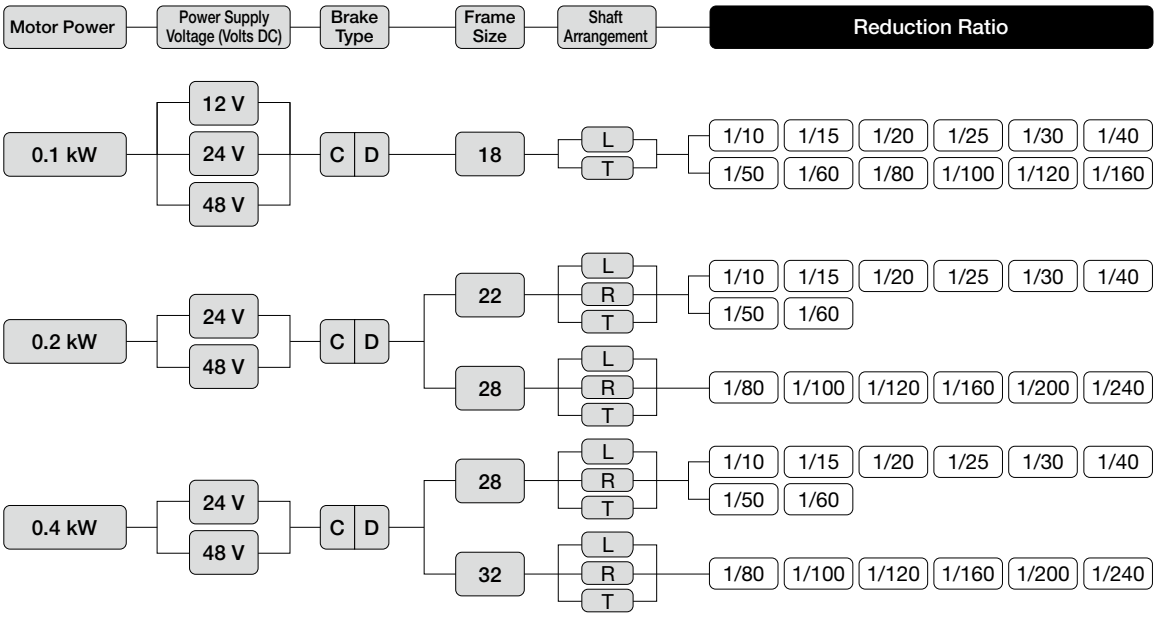
Concentric Right Angle Hollow Bore/VF3S Type Battery Powered Gearmotors

Motor Power	Power Supply Voltage (Volts DC)	Brake Type	Frame Size	Reduction Ratio
0.1 kW	12 V / 24 V / 48 V	C / D	15	1/10, 1/15, 1/20, 1/25, 1/30, 1/40, 1/50, 1/60, 1/80, 1/100, 1/120, 1/160
0.2 kW	24 V / 48 V	C / D	25	1/10, 1/15, 1/20, 1/25, 1/30, 1/40, 1/50, 1/60
			30	1/80, 1/100, 1/120, 1/160, 1/200, 1/240
0.4 kW	24 V / 48 V	C / D	30	1/10, 1/15, 1/20, 1/25, 1/30, 1/40, 1/50, 1/60
			35	1/80, 1/100, 1/120, 1/160, 1/200, 1/240

Right Angle Shaft/F3 Type Battery Powered Gearmotors

Motor Power	Power Supply Voltage (Volts DC)	Brake Type	Motor Specifications	Frame Size	Reduction Ratio
0.75 kW	48 V	N / B	M / W	30	1/10, 1/15, 1/20, 1/25, 1/30, 1/40, 1/50, 1/60

Concentric Right Angle Shaft/VF3F Type Battery Powered Gearmotors



Note 1: Shaft arrangement code “R” is not set for frame size 18.
A gearmotor of shaft arrangement code “L” with the same frame size can be used as an R type by rotating the gearmotor 180 °.

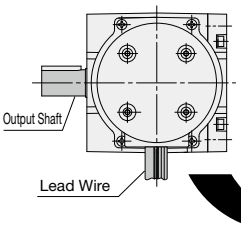
■ Shaft Arrangement of VF3F (Concentric Right Angle Shaft) Frame Size 18

Shaft arrangement code “R shaft” is not available for VF3F (concentric right angle shaft) frame size 18.
The L shaft is the standard shaft for single shaft types.
[Figure-1] The VF3F type is designed for concentric flange mount on both sides, and the output shaft can therefore be positioned on the right side by rotating the gearmotor to 180 °. [Figure-2] In this case, however, the lead wires will be on the upper side.
If you want to set the lead wires on the lower side for convenience of use, it is necessary to change the lead wires to the upper side with the L shaft in the state as shown in [Figure-1]. In this case, use option “TZ” when placing an order.

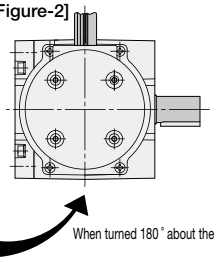
<Figure when viewed from the motor side>

When the output shaft is an L shaft, it is on the left side when viewed from the motor side with the lead wires on the lower side.

[Figure-1]



[Figure-2]



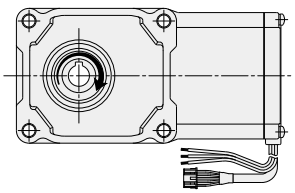
1. Battery Powered Gearmotors

1-1. Performance Tables

Concentric Right Angle Hollow Bore/VF3S Type Battery Powered Gearmotors

[Notes]

- ▭ in the performance table indicates that the shaft rotates clockwise with a drive CW command when viewed from the output shaft side under the conditions shown in the figure on the right.
- Change the signal from the drive to CCW in order to change the rotational direction.
- The performance table shows two reduction ratios: reduction ratio and actual reduction ratio.
- The key dimensions and tolerances for output shafts conform to the normal type specified in JIS B 1301-1996.
- The output shaft key is not included.
- Allowable output shaft O.H.L. is the value at the middle of the output shaft. For other cases, see page 667.
- The output shaft speed is the variable speed range shown on page 637 calculated from the actual reduction ratio.

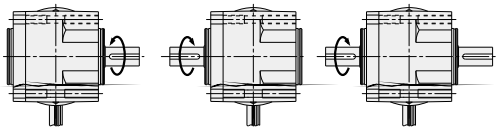


Series	Motor Power	Power Supply	Frame Size	Nominal Reduction Ratio	Actual Reduction Ratio	Output Shaft Speed	Allowable Output Shaft Torque (Continuous)	Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings
		V				r/min	N·m	N	N	
V	0.1 kW	12 VDC 24 VDC 48 VDC	15	1/10	4/41	9.8 to 292	2.45	340	108	P.617
				1/15	8/123	6.6 to 195	4.51	440	147	
				1/20	2/41	4.9 to 146	6.37	540	186	
				1/25	8/205	4.0 to 117	8.33	640	226	
				1/30	4/123	3.3 to 97	9.80	740	245	
				1/40	1/41	2.5 to 73	12.7	830	275	
				1/50	4/205	2.0 to 58	16.7	930	294	
				1/60	2/123	1.7 to 48	19.6	930	294	
				1/80	1/82	1.3 to 36	25.5	1030	324	
				1/100	2/205	1.0 to 29	32.3	1030	324	
				1/120	1/123	0.9 to 24	39.2	1030	343	
				1/160	1/164	0.7 to 18	51.9	1030	343	
	0.2 kW	24 VDC 48 VDC	25	1/10	1/10	10.0 to 300	4.90	1520	380	P.617
				1/15	1/15	6.7 to 200	8.33	1720	429	
				1/20	1/20	5.0 to 150	11.8	1860	466	
				1/25	19/470	4.1 to 121	14.7	2010	502	
				1/30	1/30	3.4 to 100	18.6	2110	527	
				1/40	1/40	2.5 to 75	24.5	2300	576	
				1/50	1/50	2.0 to 60	30.4	2450	613	
				1/60	1/60	1.7 to 50	35.3	2550	637	
			30	1/80	1/80	1.3 to 37	47.0	3090	775	P.618
				1/100	19/1880	1.1 to 30	58.8	3140	785	
				1/120	1/120	0.9 to 25	70.6	3140	785	
				1/160	1/160	0.7 to 18	94.1	3140	785	
				1/200	1/200	0.5 to 15	118	3140	785	
				1/240	1/240	0.5 to 12	137	3140	785	
	0.4 kW	24 VDC 48 VDC	30	1/10	1/10	10.0 to 300	9.40	1910	475	P.618
				1/15	1/15	6.7 to 200	15.6	2160	539	
				1/20	1/20	5.0 to 150	20.5	2400	600	
				1/25	19/470	4.1 to 121	27.4	2550	637	
				1/30	1/30	3.4 to 100	33.3	2650	662	
				1/40	1/40	2.5 to 75	44.1	2840	711	
				1/50	1/50	2.0 to 60	53.9	2990	747	
				1/60	1/60	1.7 to 50	64.6	3090	767	
			35	1/80	1/80	1.3 to 37	88.2	3480	873	P.619
				1/100	19/1880	1.1 to 30	108	3530	883	
				1/120	1/120	0.9 to 25	127	3530	883	
				1/160	1/160	0.7 to 18	176	3630	912	
				1/200	1/200	0.5 to 15	225	3630	912	
				1/240	1/240	0.5 to 12	270	3630	912	

Concentric Right Angle Shaft/VF3F Type Battery Powered Gearmotors

[Notes]

- ▭ in the performance table indicates that the L shaft rotates clockwise with a drive CW command and the R and T shafts rotate counterclockwise when viewed from the output shaft side under the conditions shown in the right figure.
- Change the signal from the drive to CCW in order to change the rotational direction.
- The performance table shows two reduction ratios: reduction ratio and actual reduction ratio.
- The key dimensions and tolerances for output shafts conform to the normal type specified in JIS B 1301-1996.
- Allowable output shaft O.H.L. is the value at the middle of the output shaft. For other cases, see page 667.
- The output shaft speed is the variable speed range shown on page 637 calculated from the actual reduction ratio.



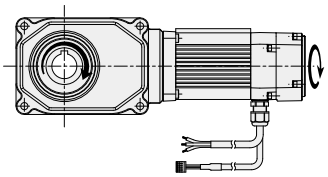
L Shaft R Shaft T Shaft

Series	Motor Power	Power Supply	Frame Size	Nominal Reduction Ratio	Actual Reduction Ratio	Output Shaft Speed	Allowable Output Shaft Torque (Continuous)	Allowable Output Shaft O.H.L.	Drawings
		V				r/min	N·m	N	
V	0.1 kW	12 VDC 24 VDC 48 VDC	18	1/10	4/41	9.8 to 292	2.45	340	P.620
				1/15	8/123	6.6 to 195	4.51	440	
				1/20	2/41	4.9 to 146	6.37	540	
				1/25	8/205	4.0 to 117	8.33	640	
				1/30	4/123	3.3 to 97	9.80	740	
				1/40	1/41	2.5 to 73	12.7	830	
				1/50	4/205	2.0 to 58	16.7	930	
				1/60	2/123	1.7 to 48	19.6	930	
				1/80	1/82	1.3 to 36	25.5	1030	
				1/100	2/205	1.0 to 29	32.3	1030	
				1/120	1/123	0.9 to 24	39.2	1030	
				1/160	1/164	0.7 to 18	51.9	1030	
	0.2 kW	24 VDC 48 VDC	22	1/10	1/10	10.0 to 300	4.90	1520	P.621
				1/15	1/15	6.7 to 200	8.33	1720	
				1/20	1/20	5.0 to 150	11.8	1910	
				1/25	19/470	4.1 to 121	14.7	2060	
				1/30	1/30	3.4 to 100	18.6	2160	
				1/40	1/40	2.5 to 75	24.5	2400	
				1/50	1/50	2.0 to 60	30.4	2550	
				1/60	1/60	1.7 to 50	35.3	2550	
			28	1/80	1/80	1.3 to 37	47.0	3090	P.622
				1/100	19/1880	1.1 to 30	58.8	3140	
				1/120	1/120	0.9 to 25	70.6	3140	
				1/160	1/160	0.7 to 18	94.1	3140	
				1/200	1/200	0.5 to 15	118	3140	
				1/240	1/240	0.5 to 12	137	3140	
	0.4 kW	24 VDC 48 VDC	28	1/10	1/10	10.0 to 300	9.4	1810	P.622
				1/15	1/15	6.7 to 200	15.6	2060	
				1/20	1/20	5.0 to 150	20.5	2300	
				1/25	19/470	4.1 to 121	27.4	2450	
				1/30	1/30	3.4 to 100	33.3	2600	
				1/40	1/40	2.5 to 75	44.1	2790	
				1/50	1/50	2.0 to 60	53.9	2990	
				1/60	1/60	1.7 to 50	64.6	3090	
			32	1/80	1/80	1.3 to 37	88.2	3330	P.623
				1/100	19/1880	1.1 to 30	108	3380	
				1/120	1/120	0.9 to 25	127	3380	
				1/160	1/160	0.7 to 18	176	3580	
				1/200	1/200	0.5 to 15	225	3630	
				1/240	1/240	0.5 to 12	270	3630	

Right Angle Shaft/F3 Type Battery Powered Gearmotors

[Notes]

- The allowable output shaft O.H.L. is the value at the load point of the O.H.L. shown on page 667.
- The output shaft rotates clockwise with a drive CW command when viewed from the output shaft side under the conditions shown in the figure on the right.
- The key dimensions and tolerances for output shafts conform to the normal type specified in JIS B 1301-1996.
- Adjust the speed control proportional gain so that the inertial load on the output shaft side does not vibrate during acceleration and deceleration.
- The output shaft key is not included.
- It is a time rated product. Refer to page 632.



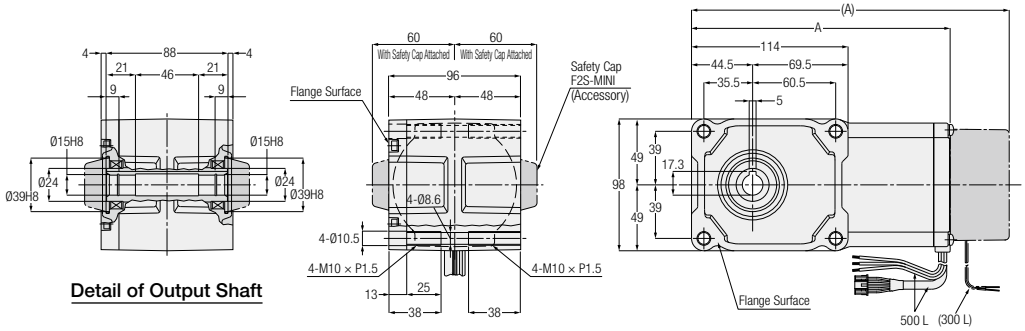
Series	Motor Power	Power Supply	Frame Size	Reduction Ratio	Output Shaft Speed	Allowable Output Shaft Torque	Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings
		V			r/min	N·m	N	N	
SD	0.75 kW	48 VDC	30	1/10	8.0 to 400	21.5	1910	475	P.624
				1/15	5.5 to 270	32.2	2160	539	
				1/20	4.0 to 200	43.0	2400	600	
				1/25	3.2 to 160	53.7	2550	637	
				1/30	2.7 to 130	64.5	2650	662	P.624
				1/40	2.0 to 100	85.9	2840	711	
				1/50	1.6 to 80	107.4	2990	747	
				1/60	1.3 to 67	128.9	3090	767	

1-2. Drawings

VF3S Type Concentric Right Angle Hollow Bore | Shaft Diameter **15** | **Flange** Mounting

The values in parenthesis are those for gearmotors with a brake.

<Figure 1>

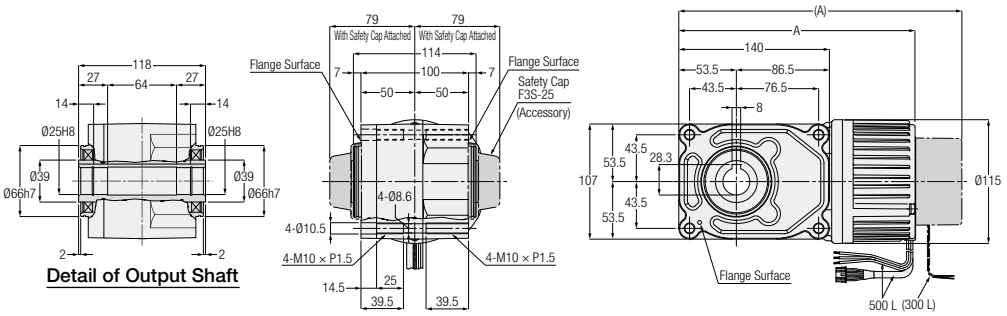


Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.1 kW	12 VDC	VF3SC15-***N100L1A	10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160	1	No	3.5	190.5
		VF3SD15-***N100L1A			Yes	4.0	231.5
0.1 kW	24 VDC	VF3SC15-***N100L2A	10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160	1	No	3.5	190.5
		VF3SD15-***N100L2A			Yes	4.0	231.5
0.1 kW	48 VDC	VF3SC15-***N100L4A	10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160	1	No	3.5	190.5
		VF3SD15-***N100L4A			Yes	4.0	231.5

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 614 for the performance table.

VF3S Type Concentric Right Angle Hollow Bore | Shaft Diameter **25** | **Flange** Mounting

<Figure 2>



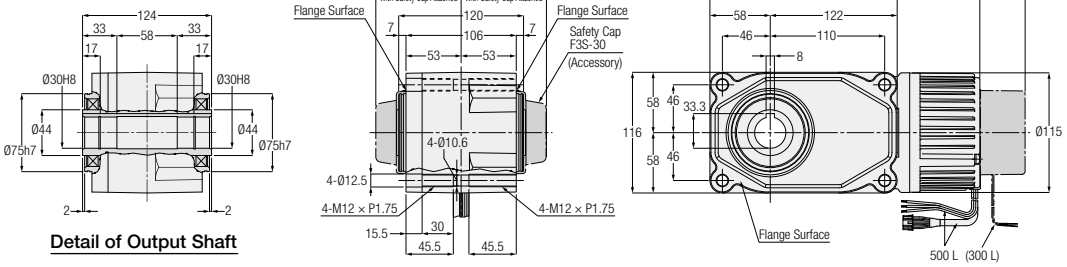
Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.2 kW	24 VDC	VF3SC25-***N200L2A	10, 15, 20, 25, 30, 40, 50, 60	2	No	6.0	222.5
		VF3SD25-***N200L2A			Yes	6.5	264
0.2 kW	48 VDC	VF3SC25-***N200L4A	10, 15, 20, 25, 30, 40, 50, 60	2	No	6.0	222.5
		VF3SD25-***N200L4A			Yes	6.5	264

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 614 for the performance table.

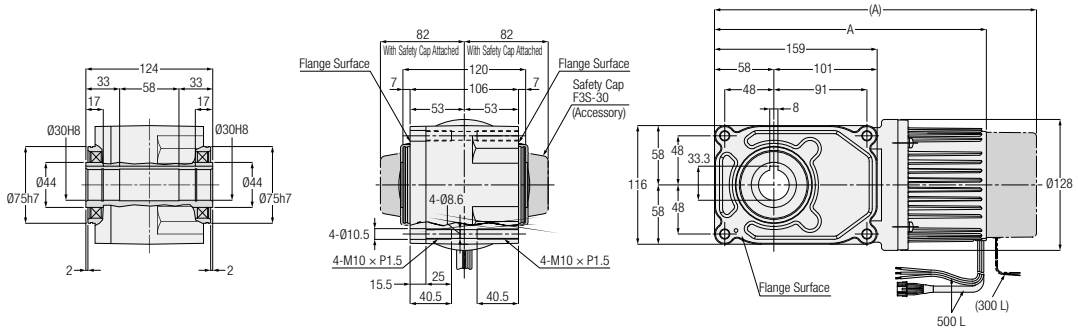
VF3S Type Concentric Right Angle Hollow Bore | Shaft Diameter **30** | **Flange** Mounting

The values in parenthesis are those for gearmotors with a brake.

<Figure 1>



<Figure 2>



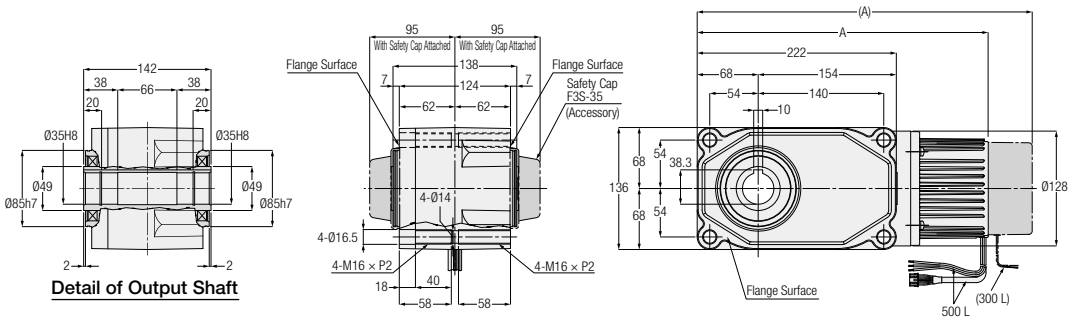
Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.2 kW	24 VDC	VF3SC30-***N200L2A	80, 100, 120, 160, 200, 240	1	No	7.5	262
		VF3SD30-***N200L2A			Yes	8.0	303.5
0.2 kW	48 VDC	VF3SC30-***N200L4A	80, 100, 120, 160, 200, 240	1	No	7.5	262
		VF3SD30-***N200L4A			Yes	8.0	303.5
0.4 kW	24 VDC	VF3SC30-***N400L2A	10, 15, 20, 25, 30, 40, 50, 60	2	No	8.5	269
		VF3SD30-***N400L2A			Yes	9.0	315
0.4 kW	48 VDC	VF3SC30-***N400L4A	10, 15, 20, 25, 30, 40, 50, 60	2	No	8.5	269
		VF3SD30-***N400L4A			Yes	9.0	315

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 614 for the performance table.

VF3S Type Concentric Right Angle Hollow Bore | Shaft Diameter 35 | **Flange** Mounting

The values in parenthesis are those for gearmotors with a brake.

<Figure 1>



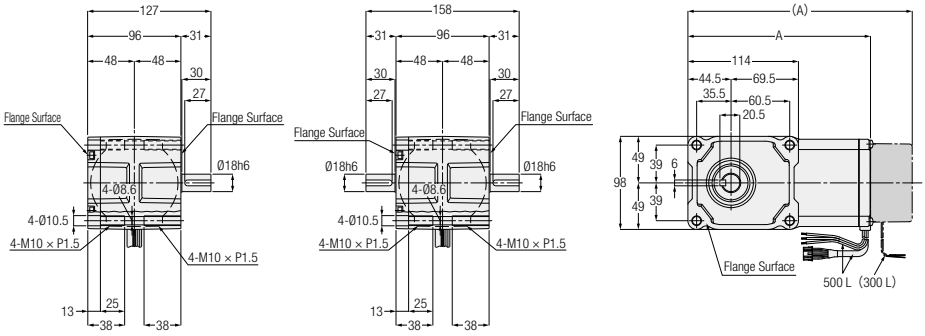
Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.4 kW	24 VDC	VF3SC35-***N400L2A	80, 100, 120, 160, 200, 240	1	No	12.0	327.5
		VF3SD35-***N400L2A			Yes	12.5	373.5
0.4 kW	48 VDC	VF3SC35-***N400L4A	80, 100, 120, 160, 200, 240	1	No	12.0	327.5
		VF3SD35-***N400L4A			Yes	12.5	373.5

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 614 for the performance table.

VF3F Type Concentric Right Angle Shaft | Shaft Diameter **18** | **Flange** Mounting

The values in parenthesis are those for gearmotors with a brake.

<Figure 1>



L Shaft T Shaft

Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.1 kW	12 VDC	VF3FC18#-***N100L1A	10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160	1	No	3.5	190.5
		VF3FD18#-***N100L1A			Yes	4.0	231.5
0.1 kW	24 VDC	VF3FC18#-***N100L2A	10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160	1	No	3.5	190.5
		VF3FD18#-***N100L2A			Yes	4.0	231.5
0.1 kW	48 VDC	VF3FC18#-***N100L4A	10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160	1	No	3.5	190.5
		VF3FD18#-***N100L4A			Yes	4.0	231.5

Note: A shaft arrangement code (L, T) will be indicated as # in the nomenclature. A reduction ratio will be indicated as ***.
Note: Please refer to page 615 for the performance table.

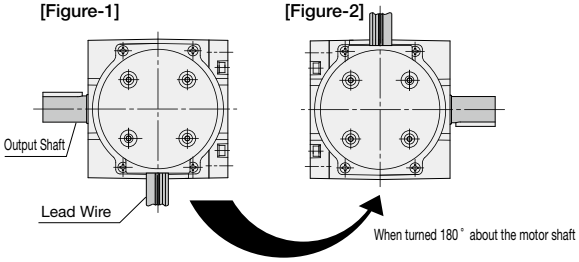
■ Shaft Arrangement of VF3F (Concentric Right Angle Shaft) Frame Size 18

Shaft arrangement code “R shaft” is not available for VF3F (concentric right angle shaft) frame size 18.
The L shaft is the standard shaft for single shaft types.
[Figure-1] The VF3F type is designed for concentric flange mount on both sides, and the output shaft can therefore be positioned on the right side by rotating the gearmotor to 180 °. [Figure-2] In this case, however, the lead wires will be on the upper side.
If you want to set the lead wires on the lower side for convenience of use, it is necessary to change the lead wires to the upper side with the L shaft in the state as shown in [Figure-1]. In this case, use option “TZ” when placing an order.

<Figure when viewed from the motor side>

When the output shaft is an L shaft, it is on the left side when viewed from the motor side with the lead wires on the lower side.

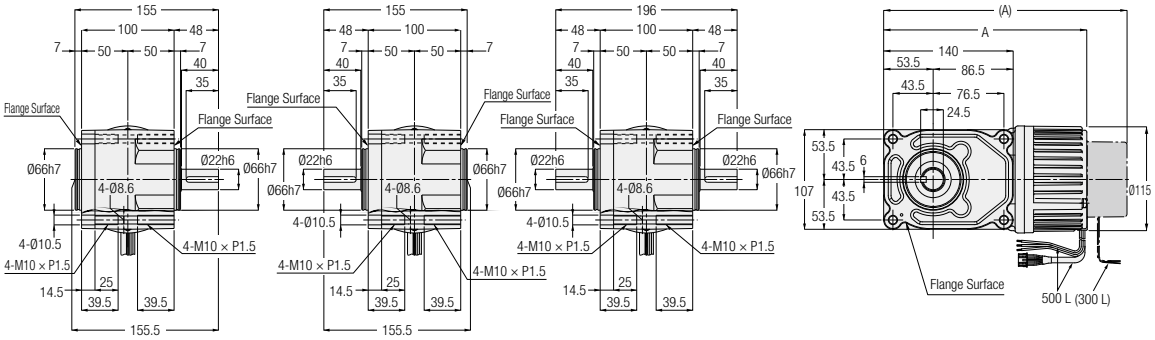
[Figure-1] [Figure-2]



VF3F Type Concentric Right Angle Shaft | Shaft Diameter **22** | **Flange** Mounting

The values in parenthesis are those for gearmotors with a brake.

<Figure 1>



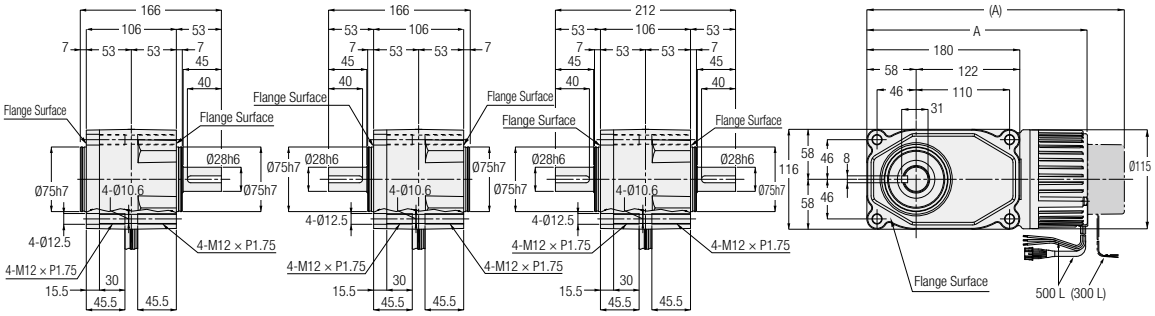
Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.2 kW	24 VDC	VF3FC22#-***N200L2A	10, 15, 20, 25, 30, 40, 50, 60	1	No	7.0	222.5
		VF3FD22#-***N200L2A			Yes	7.5	263.5
0.2 kW	48 VDC	VF3FC22#-***N200L4A	10, 15, 20, 25, 30, 40, 50, 60	1	No	7.0	222.5
		VF3FD22#-***N200L4A			Yes	7.5	263.5

Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. A reduction ratio will be indicated as ***.
Note: Please refer to page 615 for the performance table.

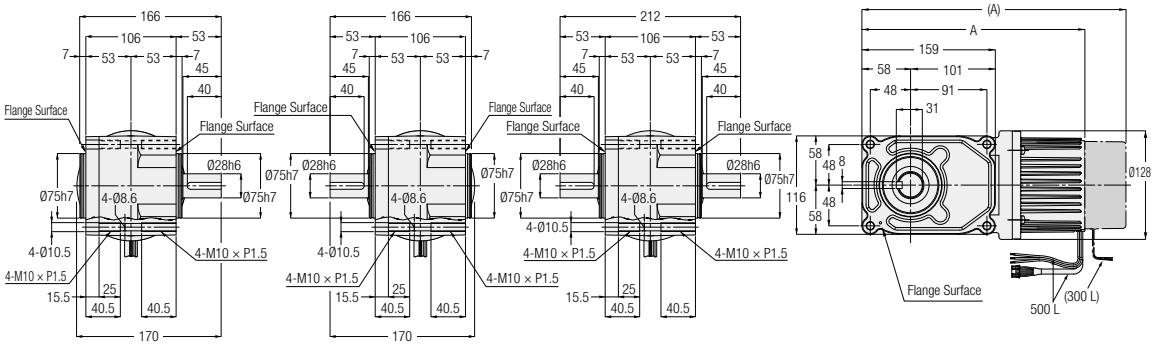
VF3F Type Concentric Right Angle Shaft | Shaft Diameter **28** | **Flange** Mounting

The values in parenthesis are those for gearmotors with a brake.

<Figure 1>



<Figure 2>



L Shaft R Shaft T Shaft

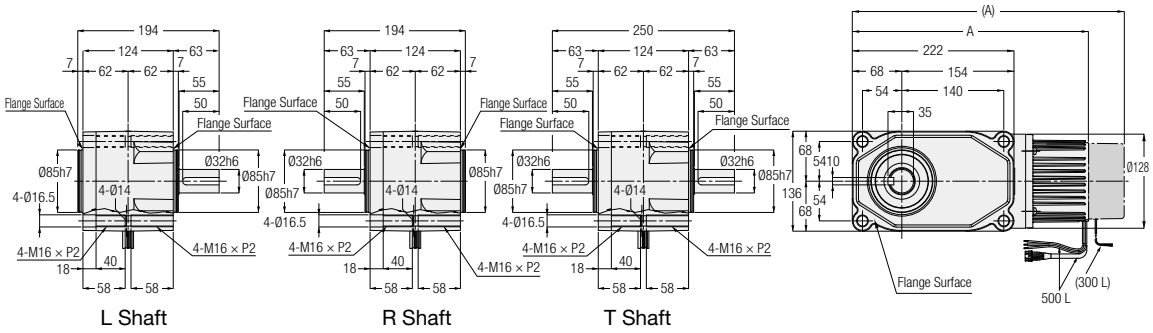
Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.2 kW	24 VDC	VF3FC28#-***N200L2A	80, 100, 120, 160, 200, 240	1	No	8.5	262
		VF3FD28#-***N200L2A			Yes	9.0	303
0.2 kW	48 VDC	VF3FC28#-***N200L4A	80, 100, 120, 160, 200, 240	1	No	8.5	262
		VF3FD28#-***N200L4A			Yes	9.0	303
0.4 kW	24 VDC	VF3FC28#-***N400L2A	10, 15, 20, 25, 30, 40, 50, 60	2	No	9.5	269
		VF3FD28#-***N400L2A			Yes	10.0	315
0.4 kW	48 VDC	VF3FC28#-***N400L4A	10, 15, 20, 25, 30, 40, 50, 60	2	No	9.5	269
		VF3FD28#-***N400L4A			Yes	10.0	315

Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. A reduction ratio will be indicated as ***.
Note: Please refer to page 615 for the performance table.

VF3F Type Concentric Right Angle Shaft | Shaft Diameter **32** | **Flange** Mounting

The values in parenthesis are those for gearmotors with a brake.

<Figure 1>

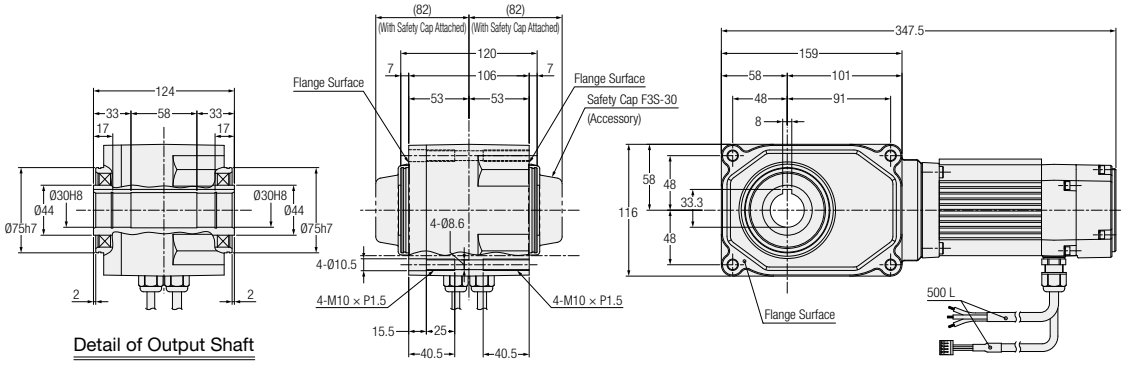


Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.4 kW	24 VDC	VF3FC32#-***N400L2A	80, 100, 120, 160, 200, 240	1	No	13.5	327.5
		VF3FD32#-***N400L2A			Yes	14.0	373.5
0.4 kW	48 VDC	VF3FC32#-***N400L4A	80, 100, 120, 160, 200, 240	1	No	13.5	327.5
		VF3FD32#-***N400L4A			Yes	14.0	373.5

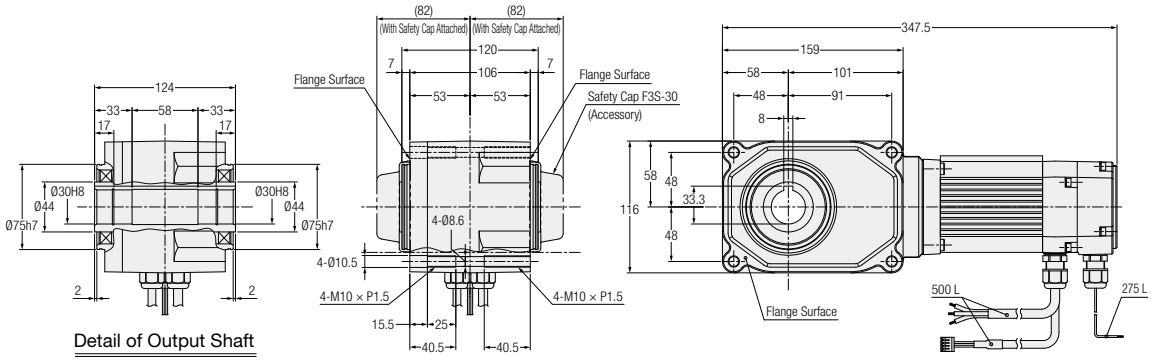
Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. A reduction ratio will be indicated as ***.
Note: Please refer to page 615 for the performance table.

F3 Type Right Angle Shaft | Shaft Diameter **30** | **Flange** Mounting

<Figure 1>



<Figure 2>



Power	Supply Voltage	Frame Size	Part Number	Reduction Ratio	Motor Specifications	Figure Number	Brake	Approx. Weight (kg)
0.75 kW	48 VDC	30	F3S30N***-SDM080L4AN	10, 15, 20, 25, 30, 40, 50, 60	IP44	1	No	8.1
			F3S30N***-SDM080L4AB			2	Yes	8.5
			F3S30S***-SDW080L4AN		IP65	1	No	8.1
			F3S30S***-SDW080L4AB			2	Yes	8.5

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 616 for the performance table.
Note: It is a time rated product. Refer to page 632.