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Gearmotors General Catalog



BATTERY POWERED GEARMOTORS

P.659 **VG/APG Type Parallel Shaft**

P.675 **VH Type/Right Angle Shaft**

P.683 **VF3S/VF3F Type Concentric Right Angle Hollow Bore/ Concentric Right Angle Shaft**
F3S Type/Right Angle Shaft

P.699 **Control Unit Specification**

P.735 **Technical Documentation**

P.747 **Option**

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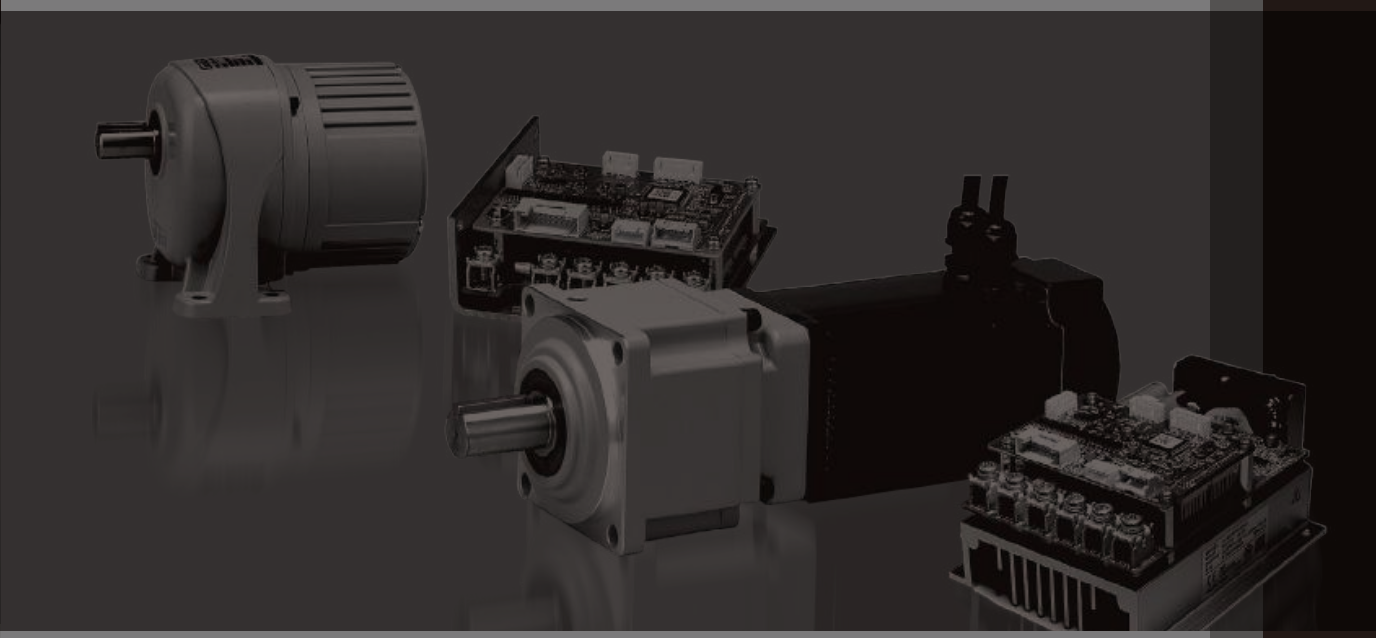
VG/APG Type

Parallel Shaft

Model and Type Codes
Standard Model Lineup

P.664

BATTERY POWERED GEARMOTORS
1. Battery Powered Gearmotors
1-1. Performance Tables
1-2. Drawings



Model and Type Codes

The drive is sold separately. Refer to Type Code on page 707.

VG Type Battery Powered Gearmotors

Mounting Type	Brake Type	Frame Size	Shaft Arrangement		Reduction Ratio	Common Code	Motor Power	Supply Voltage	Option
VGL	C	12		–	30	N	50	L1A	
VGL	D	22		–	80	N	200	L4A	X
VGK	C	28		–	160	N	200	L2A	
VGK	D	32		–	120	N	400	L2A	
①	②	③	④		⑤	⑥	⑦	⑧	⑨

①Mounting Type	VGL : Parallel Shaft Foot Mount
	VGK : Parallel Shaft Small Flange Mount
②Brake Type	C : No Brake
	D : Brakemotor
③Frame Size and Output Shaft Diameter	Output Shaft Diameter
④Shaft Arrangement	Parallel Shaft: Blank
⑤Reduction Ratio	5:1/5 to 200:1/200
⑥Common Code	N : Common Code
⑦Motor Power	50 : 50 W
	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.

The drive is sold separately. Refer to Type Code on page 707.

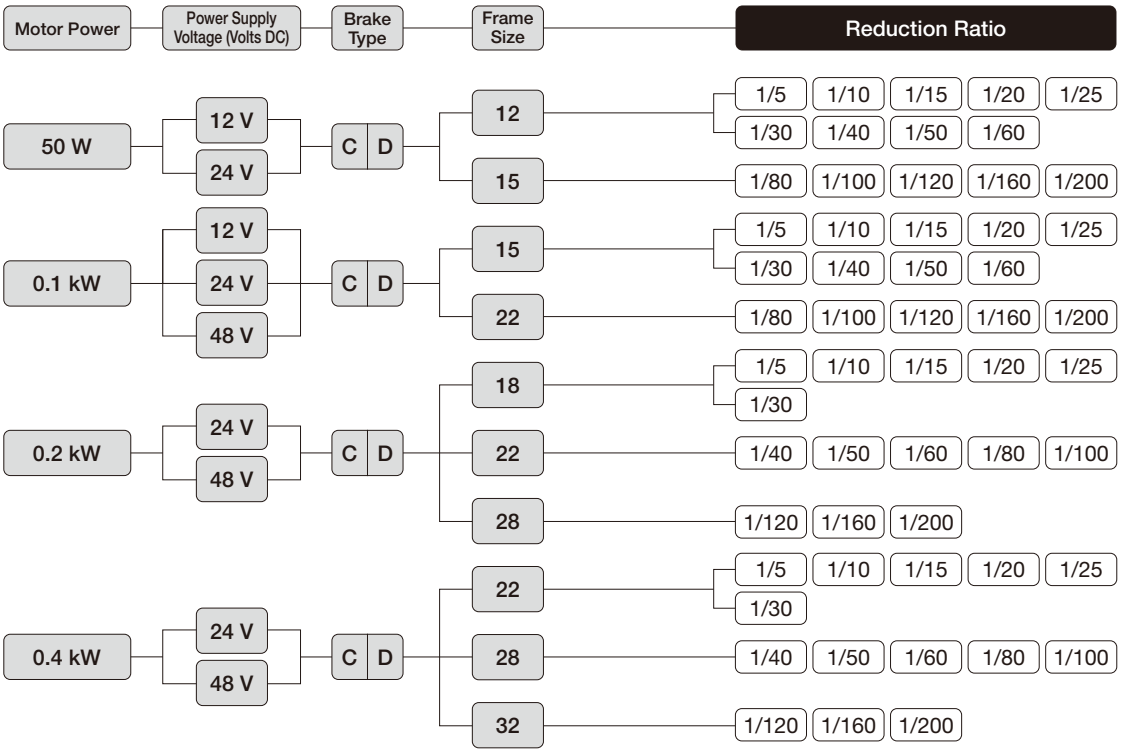
APG Type Battery Powered Gearmotors

Mounting Type	Frame Size	Shaft Arrangement	Reduction Ratio		Motor Type	Motor Specifications	Motor Power	Supply Voltage	Standard	Brake Type	Option
APG	22	N	20	–	SD	M	080	L4	A	N	
APG	28	N	60	–	SD	W	080	L4	A	B	X
APG	28	N	50	–	SD	M	080	L4	A	N	
①	②	③	④		⑤	⑥	⑦	⑧	⑨	⑩	⑪

①Mounting Type	APG	: Parallel Shaft
②Frame Size and Output Shaft Diameter	Output Shaft Diameter	
③Shaft Arrangement	N	: Parallel Shaft
④Reduction Ratio	15:1/15 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	: CCC
⑩Brake Type	N	: No Brake
	B	: Brakemotor
⑪Option	Blank	: Standard Specification
	X	: Special Specification Code

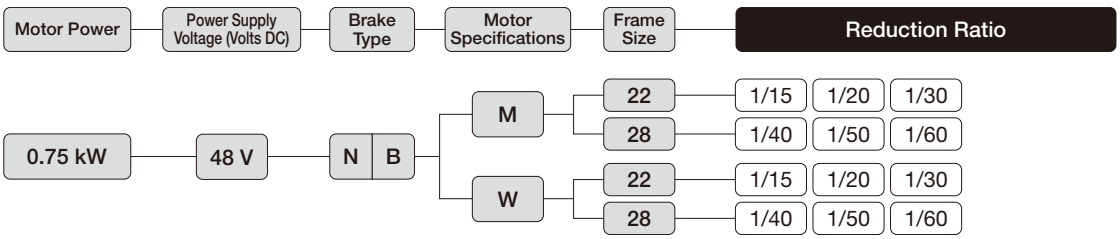
Standard Model Lineup

VG Type Battery Powered Gearmotors



Note 1: The VG Type is available in two different mounting types: Foot mount and Flange mount.

APG Type Battery Powered Gearmotors



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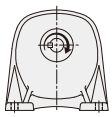
1. Battery Powered Gearmotors

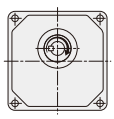
1-1. Performance Tables

VG Type Battery Powered Gearmotors

[Notes]

- The values in parentheses ( ) in the drawings are the indications for gearmotors with brake.
- ▭ 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 rotation 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 plain form.
- Allowable output shaft O.H.L. is the value at the middle of the output shaft. For other cases, see page 741.
- The output shaft speed is the variable speed range shown (100 to 3000r/min) calculated from the actual reduction ratio.


Foot Mount


Small Flange Mount

Series	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	Foot Mount	Small Flange Mount
V	50 W	12 VDC 24 VDC	12	1/5	1/5	20.0 to 600	0.76	150	P.666	P.669
				1/10	1/10	10.0 to 300	1.57	220		
				1/15	17/260	6.6 to 196	2.35	250		
				1/20	1/20	5.0 to 150	3.23	290		
				1/25	1/25	4.0 to 120	4.02	340		
				1/30	1/30	3.4 to 100	4.90	390		
				1/40	1/40	2.5 to 75	6.47	390		
				1/50	1/50	2.0 to 60	8.13	390		
				1/60	1/60	1.7 to 50	9.70	390		
			15	1/80	1/80	1.3 to 37	12.7	690	P.666	P.669
				1/100	1/100	1.0 to 30	15.7	690		
				1/120	11/1280	0.9 to 25	18.6	690		
				1/160	1/160	0.7 to 18	24.5	690		
				1/200	1/200	0.5 to 15	30.4	690		
	0.1 kW	12 VDC 24 VDC 48 VDC	15	1/5	1/5	20.0 to 600	1.67	150	P.666	P.669
				1/10	1/10	10.0 to 300	3.43	340		
				1/15	1/15	6.7 to 200	5.10	440		
				1/20	1/20	5.0 to 150	6.86	540		
				1/25	1/25	4.0 to 120	8.53	590		
				1/30	1/30	3.4 to 100	9.80	690		
				1/40	1/40	2.5 to 75	12.7	780		
				1/50	1/50	2.0 to 60	16.7	880		
				1/60	1/60	1.7 to 50	19.6	880		
			22	1/80	21/1634	1.3 to 38	25.5	1570	P.667	P.670
				1/100	7/684	1.1 to 30	32.3	1670		
				1/120	147/17974	0.9 to 24	39.2	1670		
				1/160	21/3268	0.7 to 19	51.9	1760		
				1/200	21/4085	0.6 to 15	64.7	1760		
	0.2 kW	24 VDC 48 VDC	18	1/5	231/1148	20.2 to 603	3.04	250	P.667	P.670
				1/10	77/779	9.9 to 296	6.18	540		
				1/15	119/1804	6.6 to 197	9.21	780		
				1/20	49/984	5.0 to 149	11.7	1080		
				1/25	28/697	4.1 to 120	15.7	1180		
				1/30	35/1066	3.3 to 98	18.6	1320		
			22	1/40	91/3600	2.6 to 75	24.5	1570	P.667	P.670
				1/50	11/540	2.1 to 61	30.4	1620		
				1/60	637/39600	1.7 to 48	35.3	1670		
				1/80	91/7200	1.3 to 37	47.0	1720		
				1/100	11/1080	1.1 to 30	58.8	1760		
			28	1/120	91/11000	0.9 to 24	70.6	2600	P.668	P.671
				1/160	1/165	0.7 to 18	94.1	2700		
				1/200	7/1375	0.6 to 15	118	2740		
	0.4 kW	24 VDC 48 VDC	22	1/5	7/34	20.6 to 617	5.40	390	P.667	P.670
				1/10	7/68	10.3 to 308	10.8	780		
				1/15	49/748	6.6 to 196	17.6	1080		
				1/20	7/136	5.2 to 154	23.5	1370		
				1/25	7/170	4.2 to 123	31.4	1470		
				1/30	35/1037	3.4 to 101	37.2	1670		
			28	1/40	221/8610	2.6 to 77	49.0	2250	P.668	P.671
				1/50	187/9030	2.1 to 62	60.8	2350		
				1/60	169/9840	1.8 to 51	70.6	2450		
				1/80	65/5166	1.3 to 37	94.1	2550		
				1/100	55/5418	1.1 to 30	118	2650		
			32	1/120	77/9360	0.9 to 24	137	4700	P.668	P.671
				1/160	21/3328	0.7 to 18	186	5000		
				1/200	189/38272	0.5 to 14	235	5100		

APG Type Battery Powered Gearmotors

[Notes]

- The values in parentheses ( ) in the drawings are the indications for gearmotors with brake.
- Allowable output shaft O.H.L. is the value at the middle of the output shaft. For other cases, see page 741.
- The rotational direction of the output shaft is the same as that of the motor.
- The key dimensions and tolerances for output shafts conform to the normal type specified in JIS B 1301-1996 plain form.
- Adjust the speed control proportional gain so that the load of inertia on the output shaft side does not vibrate during acceleration and deceleration.
- It is a time rated product. Refer to page 706.

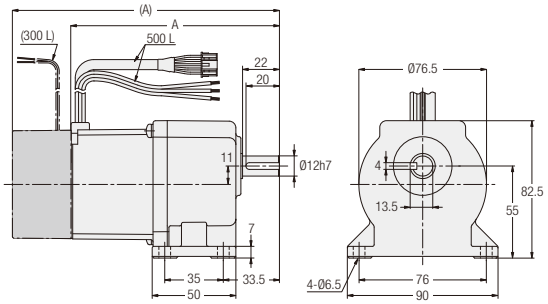
Series	Power	Power Supply	Frame Size	Reduction Ratio	Output Shaft Speed	Allowable Output Shaft Torque	Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings
		V			r/min	N·m	N	N	
SD	0.75 kW	48 VDC	22	1/15	5.3 to 270	30.4	1950	975	P.672
				1/20	4.0 to 200	40.6	2150	1075	
				1/30	2.7 to 130	60.9	2450	1225	
			28	1/40	2.0 to 100	81.2	3450	1725	P.673
				1/50	1.6 to 80	95.5	3520	1760	
				1/60	1.3 to 67	121.8	3520	1760	

1-2. Drawings

VG Type Parallel Shaft | Shaft Diameter 12 | Foot Mounting

The values in parentheses ( ) are the indications for gearmotors with brake.

<Figure 1>

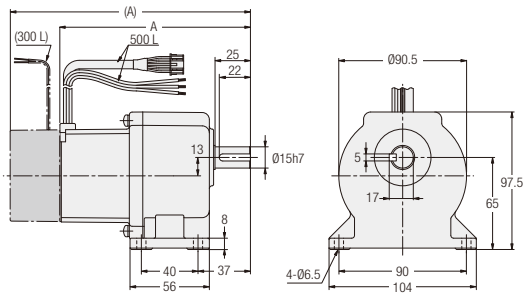


Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
50 W	12 VDC	VGLC12-***N50L1A	5, 10, 15, 20, 25, 30, 40, 50, 60	1	No	1.1	126.5
		VGLD12-***N50L1A			Yes	1.5	159.5
50 W	24 VDC	VGLC12-***N50L2A	5, 10, 15, 20, 25, 30, 40, 50, 60	1	No	1.1	126.5
		VGLD12-***N50L2A			Yes	1.5	159.5

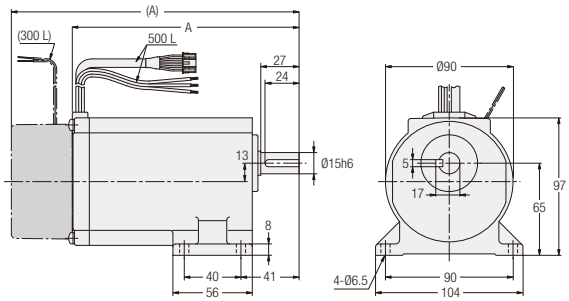
Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 664 for the performance table.

VG Type Parallel Shaft | Shaft Diameter 15 | Foot Mounting

<Figure 2>



<Figure 3>



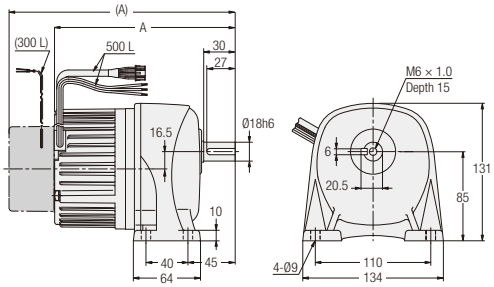
Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
50 W	12 VDC	VGLC15-***N50L1A	80, 100, 120, 160, 200	2	No	1.5	136.5
		VGLD15-***N50L1A			Yes	1.9	169.5
50 W	24 VDC	VGLC15-***N50L2A	80, 100, 120, 160, 200	2	No	1.5	136.5
		VGLD15-***N50L2A			Yes	1.9	169.5
0.1 kW	12 VDC	VGLC15-***N100L1A	5, 10, 15, 20, 25, 30, 40, 50, 60	3	No	2.3	162
		VGLD15-***N100L1A			Yes	2.8	203
0.1 kW	24 VDC	VGLC15-***N100L2A	5, 10, 15, 20, 25, 30, 40, 50, 60	3	No	2.3	162
		VGLD15-***N100L2A			Yes	2.8	203
0.1 kW	48 VDC	VGLC15-***N100L4A	5, 10, 15, 20, 25, 30, 40, 50, 60	3	No	2.3	162
		VGLD15-***N100L4A			Yes	2.8	203

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 664 for the performance table.

VG Type Parallel Shaft | Shaft Diameter 18 | Foot Mounting

The values in parentheses ( ) are the indications for gearmotors with brake.

<Figure 1>

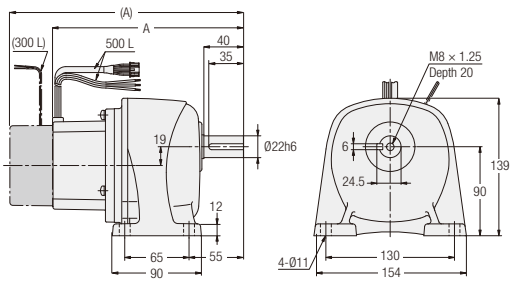


Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.2 kW	24 VDC	VGLC18-✻✻✻N200L2A	5, 10, 15, 20, 25, 30	1	No	4.5	174.5
		VGLD18-✻✻✻N200L2A			Yes	5.0	216
0.2 kW	48 VDC	VGLC18-✻✻✻N200L4A	5, 10, 15, 20, 25, 30	1	No	4.5	174.5
		VGLD18-✻✻✻N200L4A			Yes	5.0	216

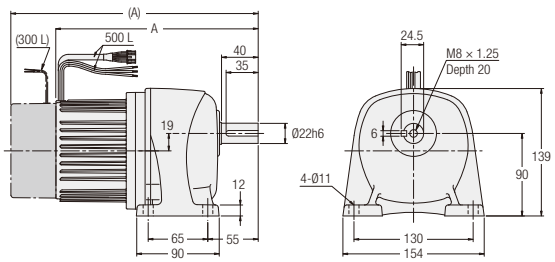
Note: A reduction ratio will be indicated as ✻✻✻ in the nomenclature.
Note: Please refer to page 664 for the performance table.

VG Type Parallel Shaft | Shaft Diameter 22 | Foot Mounting

<Figure 2>



<Figure 3>



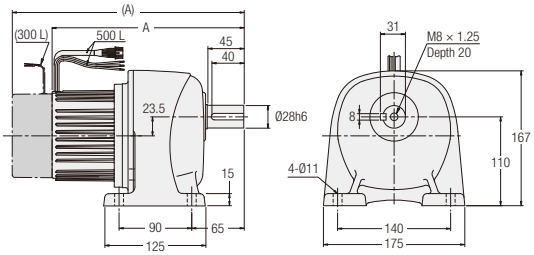
Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.1 kW	12 VDC	VGLC22-✻✻✻N100L1A	80, 100, 120, 160, 200	2	No	4.5	195
		VGLD22-✻✻✻N100L1A			Yes	5.0	236
0.1 kW	24 VDC	VGLC22-✻✻✻N100L2A	80, 100, 120, 160, 200	2	No	4.5	195
		VGLD22-✻✻✻N100L2A			Yes	5.0	236
0.1 kW	48 VDC	VGLC22-✻✻✻N100L4A	80, 100, 120, 160, 200	2	No	4.5	195
		VGLD22-✻✻✻N100L4A			Yes	5.0	236
0.2 kW	24 VDC	VGLC22-✻✻✻N200L2A	40, 50, 60, 80, 100	3	No	5.0	200.5
		VGLD22-✻✻✻N200L2A			Yes	5.5	242
0.2 kW	48 VDC	VGLC22-✻✻✻N200L4A	40, 50, 60, 80, 100	3	No	5.0	200.5
		VGLD22-✻✻✻N200L4A			Yes	5.5	242
0.4 kW	24 VDC	VGLC22-✻✻✻N400L2A	5, 10, 15, 20, 25, 30	3	No	6.0	223
		VGLD22-✻✻✻N400L2A			Yes	6.5	269
0.4 kW	48 VDC	VGLC22-✻✻✻N400L4A	5, 10, 15, 20, 25, 30	3	No	6.0	223
		VGLD22-✻✻✻N400L4A			Yes	6.5	269

Note: A reduction ratio will be indicated as ✻✻✻ in the nomenclature.
Note: Please refer to page 664 for the performance table.

VG Type Parallel Shaft | Shaft Diameter 28 | Foot Mounting

The values in parentheses ( ) are the indications for gearmotors with brake.

<Figure 1>

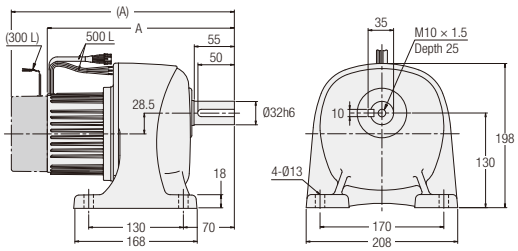


Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.2 kW	24 VDC	VGLC28-***N200L2A	120, 160, 200	1	No	7.0	213.5
		VGLD28-***N200L2A			Yes	7.5	255
0.2 kW	48 VDC	VGLC28-***N200L4A	120, 160, 200	1	No	7.0	213.5
		VGLD28-***N200L4A			Yes	7.5	255
0.4 kW	24 VDC	VGLC28-***N400L2A	40, 50, 60, 80, 100	1	No	8.0	239
		VGLD28-***N400L2A			Yes	8.5	285
0.4 kW	48 VDC	VGLC28-***N400L4A	40, 50, 60, 80, 100	1	No	8.0	239
		VGLD28-***N400L4A			Yes	8.5	285

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 664 for the performance table.

VG Type Parallel Shaft | Shaft Diameter 32 | Foot Mounting

<Figure 2>



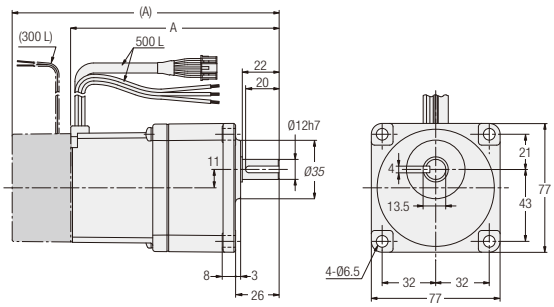
Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.4 kW	24 VDC	VGLC32-***N400L2A	120, 160, 200	2	No	11.5	258
		VGLD32-***N400L2A			Yes	12.0	304
0.4 kW	48 VDC	VGLC32-***N400L4A	120, 160, 200	2	No	11.5	258
		VGLD32-***N400L4A			Yes	12.0	304

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 664 for the performance table.

VG Type Parallel Shaft | Shaft Diameter 12 | Small Flange Mounting

The values in parentheses ( ) are the indications for gearmotors with brake.

<Figure 1>



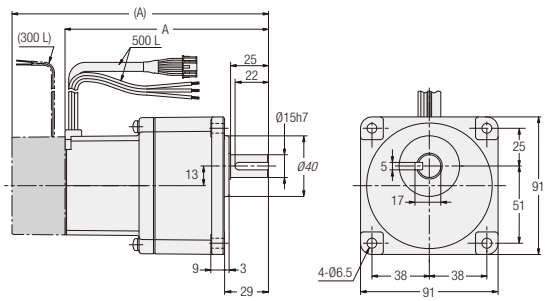
Note: The italic dimension indicates areas with remaining casting surface. Please add 0.5 mm or more to the italic dimension for the diameter of the mating hole.

Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
50 W	12 VDC	VGKC12-***N50L1A	5, 10, 15, 20, 25, 30, 40, 50, 60	1	No	1.1	126.5
		VGKD12-***N50L1A			Yes	1.5	159.5
50 W	24 VDC	VGKC12-***N50L2A	5, 10, 15, 20, 25, 30, 40, 50, 60	1	No	1.1	126.5
		VGKD12-***N50L2A			Yes	1.5	159.5

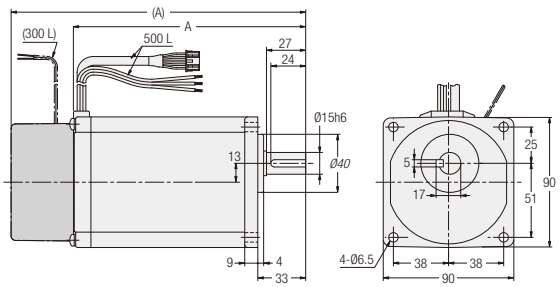
Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 664 for the performance table.

VG Type Parallel Shaft | Shaft Diameter 15 | Small Flange Mounting

<Figure 2>



<Figure 3>



Note: The italic dimension indicates areas with remaining casting surface. Please add 0.5 mm or more to the italic dimension for the diameter of the mating hole.

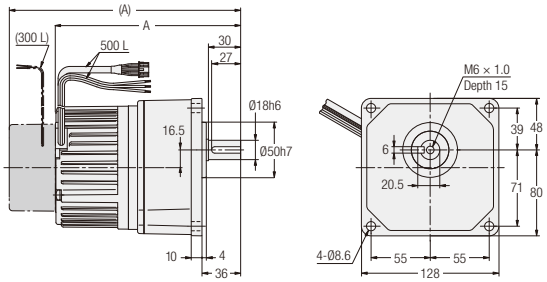
Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
50 W	12 VDC	VGKC15-***N50L1A	80, 100, 120, 160, 200	2	No	1.5	136.5
		VGKD15-***N50L1A			Yes	1.9	169.5
50 W	24 VDC	VGKC15-***N50L2A	80, 100, 120, 160, 200	2	No	1.5	136.5
		VGKD15-***N50L2A			Yes	1.9	169.5
0.1 kW	12 VDC	VGKC15-***N100L1A	5, 10, 15, 20, 25, 30, 40, 50, 60	3	No	2.3	162
		VGKD15-***N100L1A			Yes	2.8	203
0.1 kW	24 VDC	VGKC15-***N100L2A	5, 10, 15, 20, 25, 30, 40, 50, 60	3	No	2.3	162
		VGKD15-***N100L2A			Yes	2.8	203
0.1 kW	48 VDC	VGKC15-***N100L4A	5, 10, 15, 20, 25, 30, 40, 50, 60	3	No	2.3	162
		VGKD15-***N100L4A			Yes	2.8	203

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 664 for the performance table.

VG Type Parallel Shaft | Shaft Diameter 18 | Small Flange Mounting

The values in parentheses ( ) are the indications for gearmotors with brake.

<Figure 1>

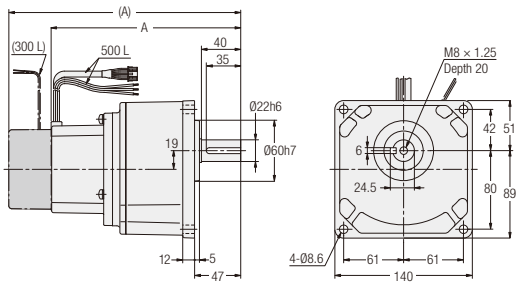


Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.2 kW	24 VDC	VGKC18-***N200L2A	5, 10, 15, 20, 25, 30	1	No	4.5	174.5
		VGKD18-***N200L2A			Yes	5.0	216
0.2 kW	48 VDC	VGKC18-***N200L4A	5, 10, 15, 20, 25, 30	1	No	4.5	174.5
		VGKD18-***N200L4A			Yes	5.0	216

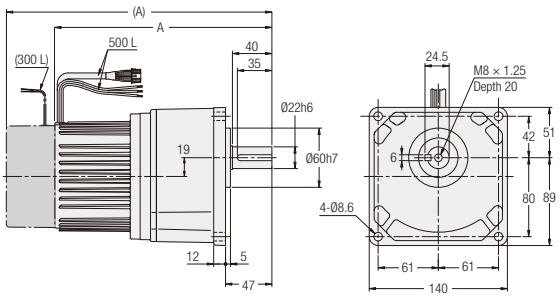
Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 664 for the performance table.

VG Type Parallel Shaft | Shaft Diameter 22 | Small Flange Mounting

<Figure 2>



<Figure 3>



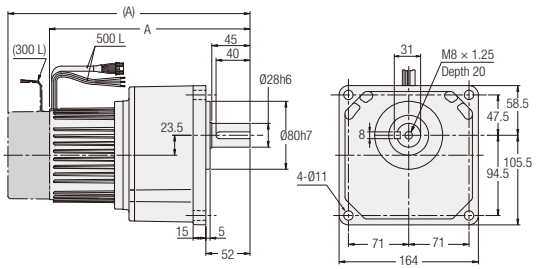
Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.1 kW	12 VDC	VGKC22-***N100L1A	80, 100, 120, 160, 200	2	No	4.5	195
		VGKD22-***N100L1A			Yes	5.0	236
0.1 kW	24 VDC	VGKC22-***N100L2A	80, 100, 120, 160, 200	2	No	4.5	195
		VGKD22-***N100L2A			Yes	5.0	236
0.1 kW	48 VDC	VGKC22-***N100L4A	80, 100, 120, 160, 200	2	No	4.5	195
		VGKD22-***N100L4A			Yes	5.0	236
0.2 kW	24 VDC	VGKC22-***N200L2A	40, 50, 60, 80, 100	3	No	5.0	200.5
		VGKD22-***N200L2A			Yes	5.5	242
0.2 kW	48 VDC	VGKC22-***N200L4A	40, 50, 60, 80, 100	3	No	5.0	200.5
		VGKD22-***N200L4A			Yes	5.5	242
0.4 kW	24 VDC	VGKC22-***N400L2A	5, 10, 15, 20, 25, 30	3	No	6.0	223
		VGKD22-***N400L2A			Yes	6.5	269
0.4 kW	48 VDC	VGKC22-***N400L4A	5, 10, 15, 20, 25, 30	3	No	6.0	223
		VGKD22-***N400L4A			Yes	6.5	269

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 664 for the performance table.

VG Type Parallel Shaft | Shaft Diameter 28 | Small Flange Mounting

The values in parentheses ( ) are the indications for gearmotors with brake.

<Figure 1>

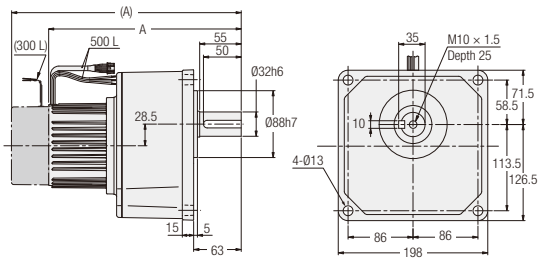


Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.2 kW	24 VDC	VGKC28-***N200L2A	120, 160, 200	1	No	7.0	213.5
		VGKD28-***N200L2A			Yes	7.5	255
0.2 kW	48 VDC	VGKC28-***N200L4A	120, 160, 200	1	No	7.0	213.5
		VGKD28-***N200L4A			Yes	7.5	255
0.4 kW	24 VDC	VGKC28-***N400L2A	40, 50, 60, 80, 100	1	No	8.0	239
		VGKD28-***N400L2A			Yes	8.5	285
0.4 kW	48 VDC	VGKC28-***N400L4A	40, 50, 60, 80, 100	1	No	8.0	239
		VGKD28-***N400L4A			Yes	8.5	285

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 664 for the performance table.

VG Type Parallel Shaft | Shaft Diameter 32 | Small Flange Mounting

<Figure 2>



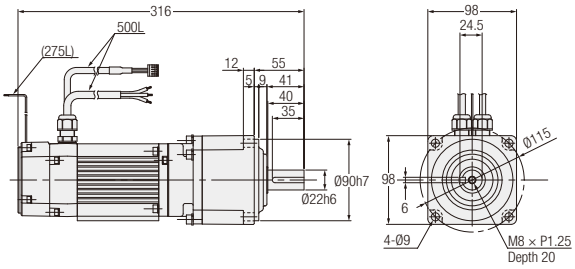
Power	Voltage	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A
0.4 kW	24 VDC	VGKC32-***N400L2A	120, 160, 200	2	No	11.5	258
		VGKD32-***N400L2A			Yes	12.0	304
0.4 kW	48 VDC	VGKC32-***N400L4A	120, 160, 200	2	No	11.5	258
		VGKD32-***N400L4A			Yes	12.0	304

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 664 for the performance table.

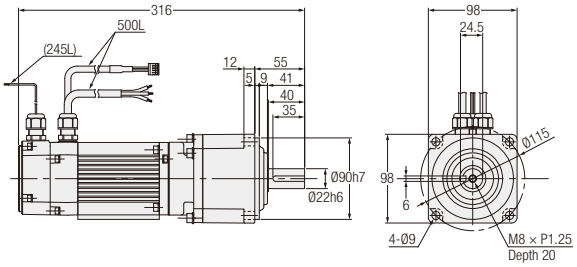
APG Type Parallel Shaft | Shaft Diameter 22 | Flange Mounting

The values in parentheses ( ) are the indications for gearmotors with brake.

<Figure 1>



<Figure 2>



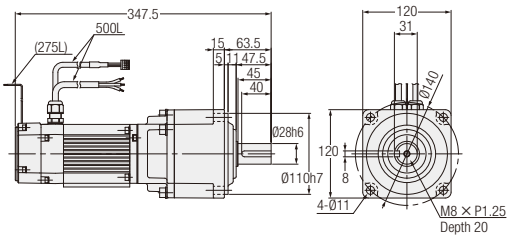
Power	Supply Voltage	Frame Size	Part Number	Motor Specifications	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
0.75 kW	48 VDC	22	APG22N***-SDM080L4AN	IP44	15, 20, 30	1	No	7.0
			APG22N***-SDM080L4AB	IP44			Yes	7.7
			APG22N***-SDW080L4AN	IP65			No	7.0
			APG22N***-SDW080L4AB	IP65		2	Yes	7.7

Note: A reduction ratio will be indicated as *** in the nomenclature.
Note: Please refer to page 665 for the performance table.
Note: It is a time rated product. Refer to page 706.

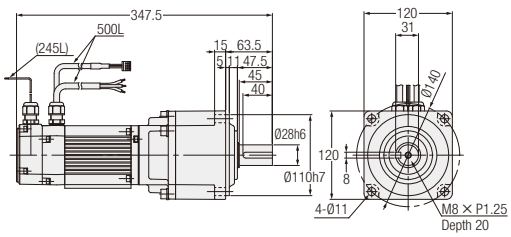
APG Type Parallel Shaft | Shaft Diameter **28** | **Flange** Mounting

The values in parentheses ( ) are the indications for gearmotors with brake.

<Figure 1>



<Figure 2>



Power	Supply Voltage	Frame Size	Part Number	Motor Specifications	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
0.75 kW	48 VDC	28	APG28N✻✻✻-SDM080L4AN	IP44	40, 50, 60	1	No	9.8
			APG28N✻✻✻-SDM080L4AB	IP44			Yes	10.5
			APG28N✻✻✻-SDW080L4AN	IP65			No	9.8
			APG28N✻✻✻-SDW080L4AB	IP65		2	Yes	10.5

Note: A reduction ratio will be indicated as ✻✻✻ in the nomenclature.
Note: Please refer to page 665 for the performance table.
Note: It is a time rated product. Refer to page 706.

MEMO

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