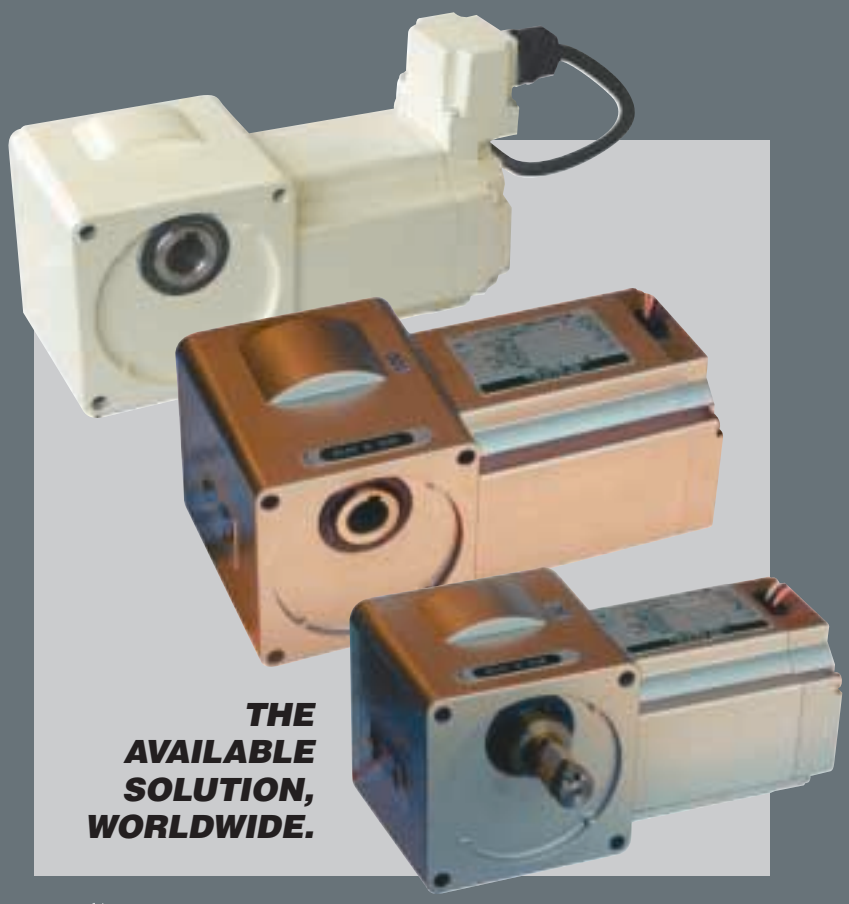
SM-HYPONIC®

Sub-fractional Hypoid Right Angle Gearmotor



THE AVAILABLE SOLUTION, WORLDWIDE.

SUMITOMO
MACHINERY CORPORATION OF AMERICA

SM-HYPONIC®

Catalog
12.002.50.001

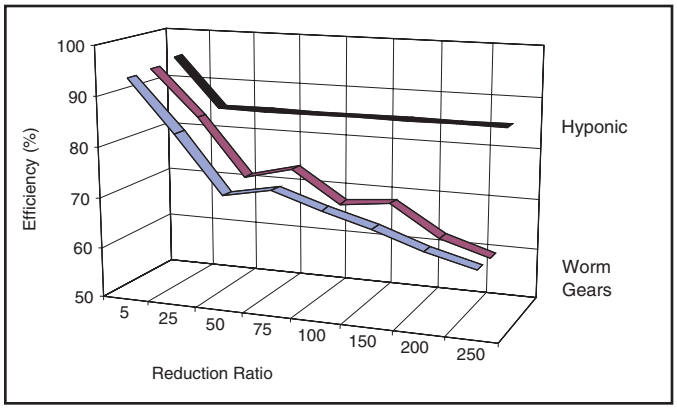
FEATURES & BENEFITS

Sumitomo's patented SM-Hyponics are high-performance reducers and gearmotors that feature all-steel hypoid gearing.

Outstanding Efficiency – Saves Money

Efficiencies far higher than worm gearing. Highly efficient across all ratios. No cooling fans are required, ever.

SM-Hyponic® hypoid gearing demonstrates efficiencies of 85-90% within the range of 10 to 1440:1.



Proven Performance in a Full Range of Ratios

Over one million Hyponic drives in service worldwide. Available in ratios from 5:1 to 1440:1.

Extremely Quiet Operation

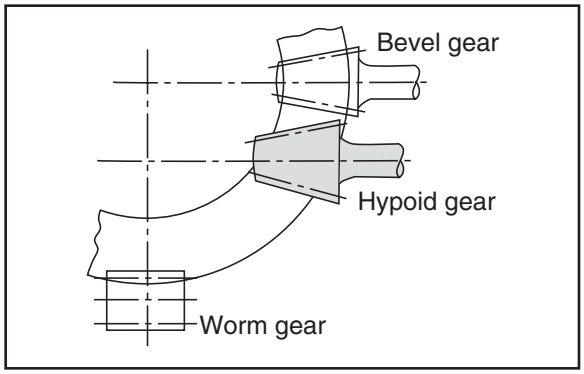
Smooth, silent operation is a benefit of hypoid gearing.

Long-Life Motors

Durable, continuous-duty rated motors maximize operational life.

Patented Compact Design – More Torque Delivered

Offset design and all-steel gearing transmit more torque than other designs.



Universal Mounting Design Maximizes Flexibility

Universal housing design accommodates floor, ceiling, wall and vertical mounting without modification.

Optional IP-65 Design

Water and dust-proof model thrives in difficult environments.

Optional Stainless Steel Hollow Shaft

Resistant to corrosion from water or chemical washdown.

Maintenance Free – Extraordinary Reliability

Trouble-free grease lubrication, no oil level to maintain, no oil changes.

High-Quality Paint

Corrosion resistant, baked-on acrylic coating or two-part epoxy paint.

Two-Year Warranty

Not limited by operational hours or duty cycle.

TABLE OF CONTENTS

SELECTION INFORMATION

Hollow Shaft Type

Reduction Ratio			5	7.5	10	12	15	20	25	30	40	50	60	80	100	120	160	200	240	300~1440[2]
Outspeed (RPM)		50 Hz	290	193	145	121	96.7	72.5	58	48.3	36.3	29	24.2	18.1	14.5	12.1	9.06	7.25	6.04	4.83 ~ 1.01
		60 Hz	350	233	175	146	117	87.5	70	58.3	43.8	35	29.2	21.9	17.5	14.6	10.9	8.75	7.29	5.83 ~ 1.22
3-Phase	200V Class	15W	Frame Size 03, Bore Diameter 15																	
		25W	Frame Size 03, Bore Diameter 15																	
		40W	Frame Size 03, Bore Diameter 15														Frame Size 17, Bore Dia. 15			
		60W	Frame Size 07, Bore Diameter 15											Frame Size 17, Bore Diameter 15						
		90W	Frame Size 17, Bore Diameter 15																	Frame Sz. 361, Bore Dia. 30
Single-Phase	100V Class	15W	Frame Size 03, Bore Diameter 15																	
		25W	Frame Size 03, Bore Diameter 15																	
		40W	Frame Size 03, Bore Diameter 15														Frame Size 17, Bore Dia. 15			N/A
		60W	Frame Size 17, Bore Diameter 15																	
		90W	Frame Size 17, Bore Diameter 15																	
IP65 3-Phase	200V Class	15W	Frame Size 03, Bore Diameter 15																	
		25W	Frame Size 03, Bore Diameter 15																	
		40W	Frame Size 07, Bore Diameter 15														Frame Size 17, Bore Dia. 15			N/A
		60W	Frame Size 07, Bore Diameter 15											Frame Size 17, Bore Dia. 15						
		90W	Frame Size 17, Bore Diameter 15																	
IP65 Single-Phase	100V Class	15W	Frame Size 03, Bore Diameter 15																	N/A
		25W	Frame Size 03, Bore Diameter 15																	

Solid Shaft Flange Mount Type

Reduction Ratio			5	7.5	10	12	15	20	25	30	40	50	60	80	100	120	160	200	240
Outspeed (RPM)		50 Hz	290	207	145	121	96.7	72.5	58	48.3	36.3	29	24.2	18.1	14.5	12.1	9.06	7.25	6.04
		60 Hz	350	250	175	146	117	87.5	70	58.3	43.8	35	29.2	21.9	17.5	14.6	10.9	8.75	7.29
3-Phase	200V Class	15W	Frame Size 01, Shaft Diameter 10													Frame Size 03, Shaft Dia. 15			
		25W	Frame Size 01, Shaft Diameter 10												Frame Size 03, Shaft Diameter 15				
		40W	Frame Size 05, Shaft Diameter 12										Frame Size 07, Shaft Dia. 15				Frame Size 17, Shaft Dia. 18		
		60W	Frame Size 07, Shaft Diameter 15												Frame Size 17, Shaft Diameter 18[1]				
		90W	Frame Size 15, Shaft Diameter 15												Frame Size 17, Shaft Diameter 18[1]				
Single-Phase	100V Class	15W	Frame Size 01, Shaft Diameter 10													Frame Size 03, Shaft Dia. 15			
		25W	Frame Size 01, Shaft Diameter 10												Frame Size 03, Shaft Diameter 15				
		40W	Frame Size 05, Shaft Diameter 12										Frame Size 07, Shaft Dia. 15				Frame Size 17, Shaft Dia. 18		
		60W	Frame Size 07, Shaft Diameter 15												Frame Size 17, Shaft Diameter 18[1]				
		90W	Frame Size 15, Shaft Diameter 15												Frame Size 17, Shaft Diameter 18[1]				
IP65 3-Phase	200V Class	15W	Frame Size 01, Shaft Diameter 10													Frame Size 03, Shaft Dia. 15			
		25W	Frame Size 01, Shaft Diameter 10												Frame Size 03, Shaft Dia. 15				
		40W	Frame Size 05, Shaft Diameter 12										Frame Size 07, Shaft Dia. 15				Frame Size 17, Shaft Dia. 18		
		60W	Frame Size 07, Shaft Diameter 15												Frame Size 17, Shaft Dia. 18[1]				
		90W	Frame Size 17, Shaft Diameter 18[1]																
IP65 Single-Phase	100V Class	15W	Frame Size 01, Shaft Diameter 10														Frame Size 03, Shaft Dia. 15		
		25W	Frame Size 01, Shaft Diameter 10												Frame Size 0, Shaft Dia. 15				

Notes: [1] This frame size has a torque limitation; please refer to the appropriate selection table for details.
[2] Available ratios within this range are 300, 360, 480, 560, 750, 900, 1200 and 1440:1.

STANDARD SPECIFICATIONS

	Type	Item	Standard Specifications[1]		Specifications for motors with brake[1]
Motor	3-phase	Capacity Range	15W-90W 4-pole		15W-90W 4-pole SB, FB Brake (Non-asbestos lining)
		Housing structure	IP44 (indoor) Totally-enclosed fan-cooled type (15W-90W models: Totally-enclosed non-ventilated type)		IP44 (indoor) Totally-enclosed fan-cooled type (15W-90W models: Totally-enclosed non-ventilated type except for 15W-60W for frame size #03 and #07)
		Power supply	15W-90W: 200V 50/60Hz, 220V 60Hz		15W-90W: 200V 50/60Hz, 220V 60Hz
		Insulation	15W-90W 4-pole: Type E		15W-90W 4-pole: Type E (Brake insulation: Type B)
		Time rating	Continuous		Continuous
		Starting method	Direct		Direct
		Lead wire (Lug type)	15W-90W 4-pole: 3-wire		15W-90W 4-pole: 5-wire
		Standard	JIS		JIS
	Single-phase		Induction	Reversible	Induction
		Capacity Range	15W-90W 4-pole	15W-90W 4-pole	15W-0.90W 4-pole, Brake: non-asbestos lining
		Housing structure	IP44 (indoor) totally-enclosed fan-cooled type (15W, 25W, and 40W for #17: Totally-enclosed non-ventilated type	IP44 (indoor) Totally-enclosed fan-cooled type (15W, 25W, and 40W for #17: Totally-enclosed non-ventilated type)	IP44 (indoor) Totally-enclosed fan-cooled type (40W for #17: Totally-enclosed non-ventilated type)
		Power supply	100V, 200V, 50/60Hz (dual voltage) 15W-90W: 100V 50/60Hz	100V 50/60Hz	100V, 200V, 50/60Hz (dual voltage) 15W-90W: 100V 50/60Hz
		Insulation	15W-90W 4-pole: Type E	15W-90W 4-pole: Type E	15W-90W 4-pole: Type E (Brake insulation: Type B)
		Time rating	Continuous	30 minutes	Continuous
		Starting method	15W-90W 4-pole: capacitor-run type	capacitor-run type	15W-90W 4-pole: capacitor-run type
		Lead wire (Lug type)	15W-90W 4 pole: 3-wire		15W-90W 4-pole: 5-wire
		Standard	JIS		JIS
Reducer		Lubrication	Grease lubrication: Filled with special high-grade grease prior to shipment		
		Reduction	Combination of hypoid gear and involute gear		
		Material	Gear: chrome-molybdenum steel		
Ambient conditions		Installation[2, 3]	Indoor (Free from dust and water), IP65 optional		
		Temperature	–10-40°C (14-104°F)		
		Humidity	85% max. no condensation		
		Altitude	1000 m (3280 ft) max.		
		Atmosphere	Free from corrosive gas, explosive gas, or steam and well ventilated.		
Installation angle			No limitation		
Painting			Acrylic Resin, “warm silver”; IP65 is epoxy paint		

Notes: [1] Refer to page C-12 and C-14 for the motor characteristics, brake specifications.
[2] Standard 15-90W models do not have a terminal box. Refer to page C-13 for optional conduit box.
[3] Refer to page C-5 for output shaft rotation.

NOMENCLATURE

R N Y M 006 – 07 ☐ – ☐ – B – 60

Product	
R	Hyponic

Output shaft direction	
N	Universal

Mounting	
Y	Shaft mount (hollow shaft)
F	Flange (solid shaft)

Input Connection	
M	Integral motor

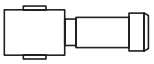
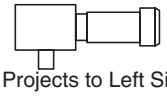
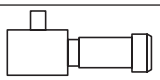
Input power		
Symbol	W	HP
0015	15	1/50
0025	25	1/30
004	40	1/18
006	60	1/12
009	90	1/9

Frame size
01
03
05
07
15
17
36
361

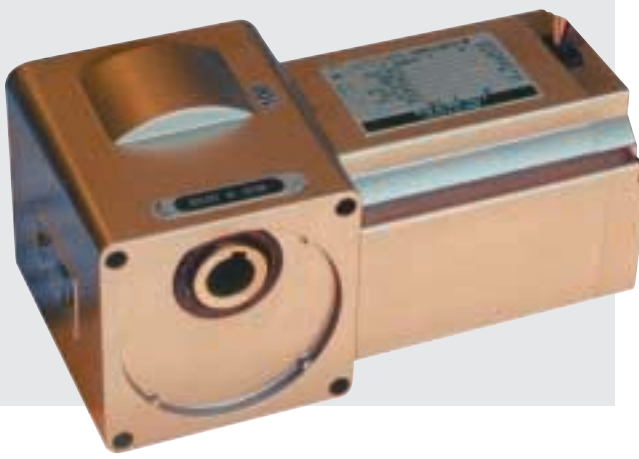
Brake	
None	Without brake
B	With brake

Reduction ratio
60

Suffix	
None	3-Phase motor
SG	Single-phase motor
SR	Single-phase reversible motor
F1	Flange mount type

Shaft direction		
Code	Viewed from motor	Viewed from above
None	–	
L	Left	 Projects to Left Side
R	Right	 Projects to Right Side

SM-HYPONIC® SUB-FRACTIONAL GEARMOTOR HOLLOW SHAFT TYPE



HOLLOW SHAFT TYPE
Selection Tables – RNYM Series

15W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.371	0.307	0.038	0.031	539	490	55	50	0015 — 03 — 5	Page A-5 Fig. A-1
193	233	0.556	0.461	0.057	0.047	588	539	60	55	0015 — 03 — 7.5	
145	175	0.742	0.615	0.076	0.063	637	588	65	60	0015 — 03 — 10	
121	146	0.890	0.738	0.091	0.075	686	637	70	65	0015 — 03 — 12	
96.7	117	1.11	0.922	0.113	0.094	735	686	75	70	0015 — 03 — 15	
72.5	87.5	1.48	1.23	0.151	0.125	785	735	80	75	0015 — 03 — 20	
58.0	70.0	1.85	1.54	0.189	0.157	834	785	85	80	0015 — 03 — 25	
48.3	58.3	2.23	1.84	0.227	0.188	883	834	90	85	0015 — 03 — 30	
36.3	43.8	2.97	2.46	0.303	0.251	981	932	100	95	0015 — 03 — 40	
29.0	35.0	3.71	3.07	0.378	0.313	1080	1030	110	105	0015 — 03 — 50	
24.2	29.2	4.45	3.69	0.454	0.376	1080	1080	110	110	0015 — 03 — 60	
18.1	21.9	5.93	4.92	0.605	0.501	1080	1080	110	110	0015 — 03 — 80	
14.5	17.5	7.42	6.15	0.756	0.627	1080	1080	110	110	0015 — 03 — 100	
12.1	14.6	8.90	7.38	0.908	0.752	1080	1080	110	110	0015 — 03 — 120	
9.06	10.9	11.9	9.83	1.21	1.00	1080	1080	110	110	0015 — 03 — 160	
7.25	8.75	14.8	12.3	1.51	1.25	1080	1080	110	110	0015 — 03 — 200	
6.04	7.29	17.8	14.8	1.82	1.50	1080	1080	110	110	0015 — 03 — 240	

25W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.618	0.512	0.063	0.052	539	490	55	50	0025 — 03 — 5	Page A-5 Fig. A-1
193	233	0.927	0.768	0.095	0.078	588	539	60	55	0025 — 03 — 7.5	
145	175	1.24	1.02	0.126	0.104	637	588	65	60	0025 — 03 — 10	
121	146	1.48	1.23	0.151	0.125	686	637	70	65	0025 — 03 — 12	
96.7	117	1.85	1.54	0.189	0.157	735	686	75	70	0025 — 03 — 15	
72.5	87.5	2.47	2.05	0.252	0.209	785	735	80	75	0025 — 03 — 20	
58.0	70.0	3.09	2.56	0.315	0.261	834	785	85	80	0025 — 03 — 25	
48.3	58.3	3.71	3.07	0.378	0.313	883	834	90	85	0025 — 03 — 30	
36.3	43.8	4.95	4.10	0.504	0.418	981	932	100	95	0025 — 03 — 40	
29.0	35.0	6.18	5.12	0.630	0.522	1080	1030	110	105	0025 — 03 — 50	
24.2	29.2	7.42	6.15	0.756	0.627	1080	1080	110	110	0025 — 03 — 60	
18.1	21.9	9.89	8.20	1.01	0.836	1080	1080	110	110	0025 — 03 — 80	
14.5	17.5	12.4	10.2	1.26	1.04	1080	1080	110	110	0025 — 03 — 100	
12.1	14.6	14.8	12.3	1.51	1.25	1080	1080	110	110	0025 — 03 — 120	
9.06	10.9	19.8	16.4	2.02	1.67	1080	1080	110	110	0025 — 03 — 160	
7.25	8.75	24.7	20.5	2.52	2.09	1080	1080	110	110	0025 — 03 — 200	
6.04	7.29	29.7	24.6	3.03	2.51	1080	1080	110	110	0025 — 03 — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.

40W 3-phase Motor

Motor Speed[1]		
50Hz	1450	RPM
60Hz	1750	RPM

Service Factor = 1.0

Output Speed RPM		Output Torque N • m		Output Torque kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.12	0.929	0.114	0.095	539	490	55	50	004 — 07 — 5	
193	233	1.68	1.39	0.171	0.142	588	539	60	55	004 — 07 — 7.5	
145	175	2.24	1.86	0.229	0.189	637	588	65	60	004 — 07 — 10	
121	146	2.69	2.23	0.274	0.227	686	637	70	65	004 — 07 — 12	
96.7	117	3.36	2.79	0.343	0.284	735	686	75	70	004 — 07 — 15	
72.5	87.5	4.48	3.72	0.457	0.379	785	735	80	75	004 — 07 — 20	
58.0	70.0	5.61	4.64	0.572	0.474	834	785	85	80	004 — 07 — 25	Page A-5 Fig. A-2
48.3	58.3	6.73	5.57	0.686	0.568	883	834	90	85	004 — 07 — 30	
36.3	43.8	8.97	7.43	0.914	0.758	981	932	100	95	004 — 07 — 40	
29.0	35.0	11.2	9.29	1.14	0.947	1080	1030	110	105	004 — 07 — 50	
24.2	29.2	13.5	11.1	1.37	1.14	1080	1080	110	110	004 — 07 — 60	
18.1	21.9	17.9	14.9	1.83	1.52	1080	1080	110	110	004 — 07 — 80	
14.5	17.5	22.4	18.6	2.29	1.89	1080	1080	110	110	004 — 07 — 100	
12.1	14.6	26.9	22.3	2.74	2.27	1080	1080	110	110	004 — 07 — 120	
9.67	11.7	33.6	27.9	3.43	2.84	1420	1420	145	145	004 — 17 — 150	Page A-5 Fig. A-3
7.25	8.75	44.8	37.2	4.57	3.79	1420	1420	145	145	004 — 17 — 200	
6.04	7.29	53.8	44.6	5.49	4.55	1420	1420	145	145	004 — 17 — 240	

60W 3-phase Motor

Motor Speed[1]		
50Hz	1450	RPM
60Hz	1750	RPM

Service Factor = 1.0

Output Speed RPM		Output Torque[3] N • m		Output Torque[3] kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.68	1.39	0.171	0.142	539	490	55	50	006 — 07 — 5	
193	233	2.52	2.09	0.257	0.213	588	539	60	55	006 — 07 — 7.5	
145	175	3.36	2.79	0.343	0.284	637	588	65	60	006 — 07 — 10	
121	146	4.04	3.34	0.412	0.341	686	637	70	65	006 — 07 — 12	
96.7	117	5.04	4.18	0.514	0.426	735	686	75	70	006 — 07 — 15	
72.5	87.5	6.73	5.57	0.686	0.568	785	735	80	75	006 — 07 — 20	Page A-5 Fig. A-2
58.0	70.0	8.41	6.97	0.857	0.710	834	785	85	80	006 — 07 — 25	
48.3	58.3	10.1	8.36	1.03	0.852	883	834	90	85	006 — 07 — 30	
36.3	43.8	13.5	11.1	1.37	1.14	981	932	100	95	006 — 07 — 40	
29.0	35.0	16.8	13.9	1.71	1.42	1080	1030	110	105	006 — 07 — 50	
24.2	29.2	20.2	16.7	2.06	1.70	1080	1080	110	110	006 — 07 — 60	
18.1	21.9	26.9	22.3	2.74	2.27	1420	1370	145	140	006 — 17 — 80	
14.5	17.5	33.6	27.9	3.43	2.84	1420	1420	145	145	006 — 17 — 100	
12.1	14.6	40.4	33.4	4.12	3.41	1420	1420	145	145	006 — 17 — 120	
9.67	11.7	50.4	41.8	5.14	4.26	1420	1420	145	145	006 — 17 — 150	Page A-5 Fig. A-3
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17 — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17 — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

HOLLOW SHAFT TYPE

Selection Tables – RNYM Series

90W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

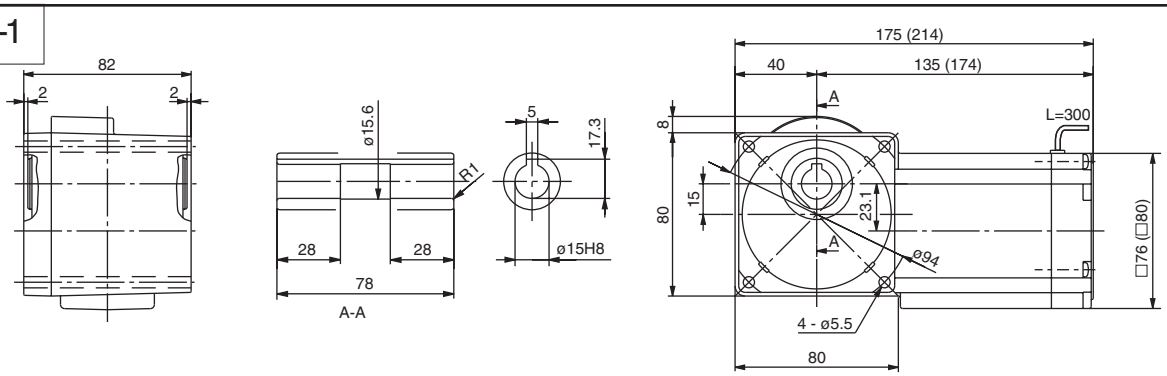
Output Speed RPM		Output Torque[3]				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	2.52	2.09	0.257	0.213	637	588	65	60	009 — 17 — 5	Page A-5 Fig. A-3
193	233	3.78	3.13	0.386	0.320	686	637	70	65	009 — 17 — 7.5	
145	175	5.04	4.18	0.514	0.426	785	735	80	75	009 — 17 — 10	
121	146	6.05	5.02	0.617	0.511	834	785	85	80	009 — 17 — 12	
96.7	117	7.57	6.27	0.772	0.639	883	834	90	85	009 — 17 — 15	
72.5	87.5	10.1	8.36	1.03	0.852	981	932	100	95	009 — 17 — 20	
58.0	70.0	12.6	10.4	1.29	1.07	1030	981	105	100	009 — 17 — 25	
48.3	58.3	15.1	12.5	1.54	1.28	1080	1030	110	105	009 — 17 — 30	
36.3	43.8	20.2	16.7	2.06	1.70	1180	1130	120	115	009 — 17 — 40	
29.0	35.0	25.2	20.9	2.57	2.13	1270	1230	130	125	009 — 17 — 50	
24.2	29.2	30.3	25.1	3.09	2.56	1320	1270	135	130	009 — 17 — 60	
18.1	21.9	40.4	33.4	4.12	3.41	1420	1370	145	140	009 — 17 — 80	
14.5	17.5	50.4	41.8	5.14	4.26	1420	1420	145	145	009 — 17 — 100	
12.1	14.6	*53.9	50.2	*5.50	5.11	1420	1420	145	145	009 — 17 — 120	
9.67	11.7	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — 150	
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — 240	
4.83	5.83	142	118	14.5	12.0	3090	3090	315	315	009 — 361 — 300	Page A-6 Fig. A-4
4.03	4.86	171	142	17.4	14.4	3090	3090	315	315	009 — 361 — 360	
3.02	3.65	*195	189	*19.9	19.3	3090	3090	315	315	009 — 361 — 480	
2.59	3.13	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 361 — 560	
1.93	2.33	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 361 — 750	
1.61	1.94	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 361 — 900	
1.21	1.46	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 361 — 1200	
1.01	1.22	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 361 — 1440	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

HOLLOW SHAFT TYPE
Dimensions – RNYM Series

3-phase Motor • Indoor Type

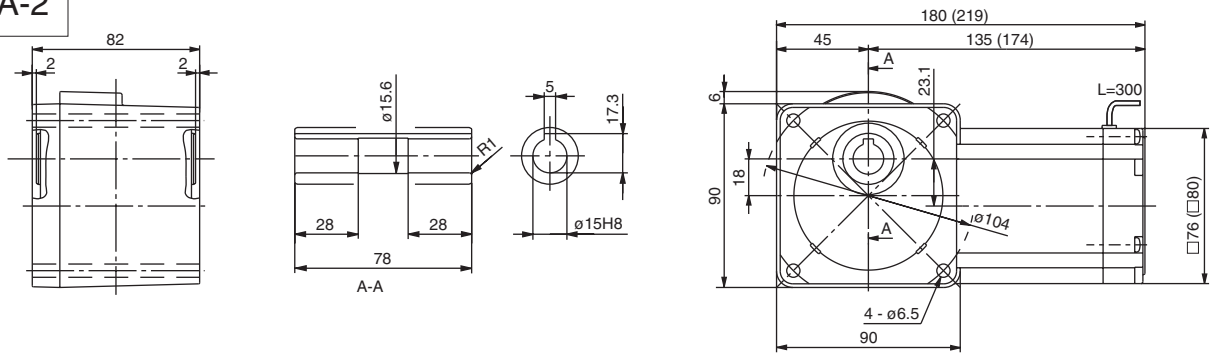
Fig. A-1



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
15W	5:1~240:1	RNYM0015-03 (-B) -5~240	2.6 (3.2)
25W	5:1~240:1	RNYM0025-03 (-B) -5~240	2.7 (3.3)

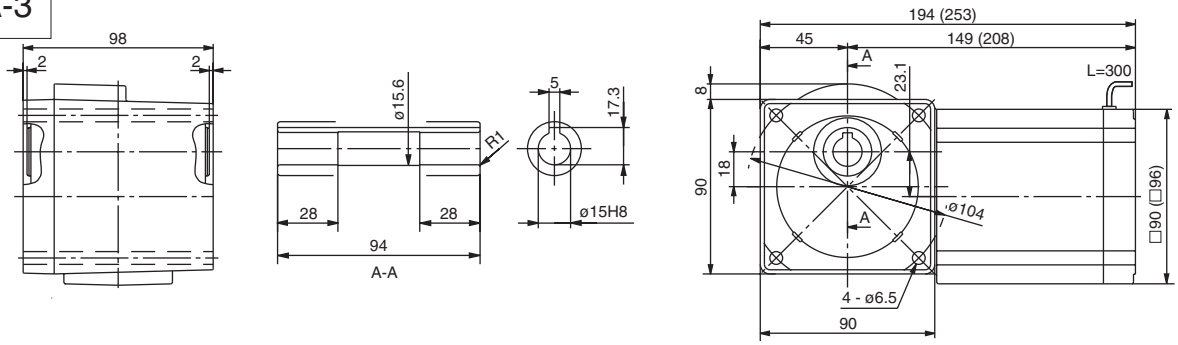
Fig. A-2



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	5:1~120:1	RNYM004-07 (-B) -5~120	2.9 (3.5)
60W	5:1~60:1	RNYM006-07 (-B) -5~60	2.9 (3.5)

Fig. A-3



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	150:1~240:1	RNYM004-17 (-B) -150~240	3.7 (4.1)
60W	80:1~240:1	RNYM006-17 (-B) -80~240	3.9 (4.3)
90W	5:1~240:1	RNYM009-17 (-B) -5~240	4.2 (4.6)

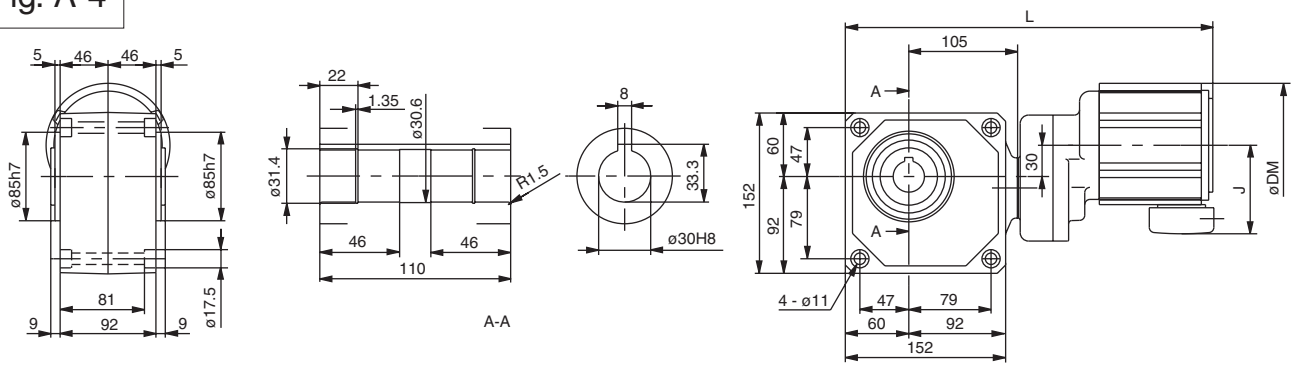
Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

HOLLOW SHAFT TYPE

Dimensions – RNYM Series

3-phase Motor • Indoor Type

Fig. A-4

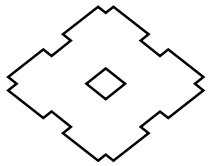


All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	L	DM	J	Weight (kg)
90W	300:1~1440:1	RNYM009-361 (-B) -300~1440	352 (387)	ø 119 (ø 124)	85	11.5 (13)

Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

HOLLOW SHAFT TYPE
Selection Tables – RNYM Series



15W Single-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size –Suffix– Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.371	0.307	0.038	0.031	539	490	55	50	0015 — 03—SG — 5	Page A-10 Fig. A-5
193	233	0.556	0.461	0.057	0.047	588	539	60	55	0015 — 03—SG — 7.5	
145	175	0.742	0.615	0.076	0.063	637	588	65	60	0015 — 03—SG — 10	
121	146	0.890	0.738	0.091	0.075	686	637	70	65	0015 — 03—SG — 12	
96.7	117	1.11	0.922	0.113	0.094	735	686	75	70	0015 — 03—SG — 15	
72.5	87.5	1.48	1.23	0.151	0.125	785	735	80	75	0015 — 03—SG — 20	
58.0	70.0	1.85	1.54	0.189	0.157	834	785	85	80	0015 — 03—SG — 25	
48.3	58.3	2.23	1.84	0.227	0.188	883	834	90	85	0015 — 03—SG — 30	
36.3	43.8	2.97	2.46	0.303	0.251	981	932	100	95	0015 — 03—SG — 40	
29.0	35.0	3.71	3.07	0.378	0.313	1080	1030	110	105	0015 — 03—SG — 50	
24.2	29.2	4.45	3.69	0.454	0.376	1080	1080	110	110	0015 — 03—SG — 60	
18.1	21.9	5.93	4.92	0.605	0.501	1080	1080	110	110	0015 — 03—SG — 80	
14.5	17.5	7.42	6.15	0.756	0.627	1080	1080	110	110	0015 — 03—SG — 100	
12.1	14.6	8.90	7.38	0.908	0.752	1080	1080	110	110	0015 — 03—SG — 120	
9.06	10.9	11.9	9.83	1.21	1.00	1080	1080	110	110	0015 — 03—SG — 160	
7.25	8.75	14.8	12.3	1.51	1.25	1080	1080	110	110	0015 — 03—SG — 200	
6.04	7.29	17.8	14.8	1.82	1.50	1080	1080	110	110	0015 — 03—SG — 240	

25W Single-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size –Suffix– Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.618	0.512	0.063	0.052	539	490	55	50	0025 — 03— SG — 5	Page A-10 Fig. A-5
193	233	0.927	0.768	0.095	0.078	588	539	60	55	0025 — 03— SG — 7.5	
145	175	1.24	1.02	0.126	0.104	637	588	65	60	0025 — 03— SG — 10	
121	146	1.48	1.23	0.151	0.125	686	637	70	65	0025 — 03— SG — 12	
96.7	117	1.85	1.54	0.189	0.157	735	686	75	70	0025 — 03— SG — 15	
72.5	87.5	2.47	2.05	0.252	0.209	785	735	80	75	0025 — 03— SG — 20	
58.0	70.0	3.09	2.56	0.315	0.261	834	785	85	80	0025 — 03— SG — 25	
48.3	58.3	3.71	3.07	0.378	0.313	883	834	90	85	0025 — 03— SG — 30	
36.3	43.8	4.95	4.10	0.504	0.418	981	932	100	95	0025 — 03— SG — 40	
29.0	35.0	6.18	5.12	0.630	0.522	1080	1030	110	105	0025 — 03— SG — 50	
24.2	29.2	7.42	6.15	0.756	0.627	1080	1080	110	110	0025 — 03— SG — 60	
18.1	21.9	9.89	8.20	1.01	0.836	1080	1080	110	110	0025 — 03— SG — 80	
14.5	17.5	12.4	10.2	1.26	1.04	1080	1080	110	110	0025 — 03— SG — 100	
12.1	14.6	14.8	12.3	1.51	1.25	1080	1080	110	110	0025 — 03— SG — 120	
9.06	10.9	19.8	16.4	2.02	1.67	1080	1080	110	110	0025 — 03— SG — 160	
7.25	8.75	24.7	20.5	2.52	2.09	1080	1080	110	110	0025 — 03— SG — 200	
6.04	7.29	29.7	24.6	3.03	2.51	1080	1080	110	110	0025 — 03— SG — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.

HOLLOW SHAFT TYPE
Selection Tables – RNYM Series

40W Single-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque N • m		Output Torque kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Suffix – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.12	0.929	0.114	0.095	539	490	55	50	004 — 07— SG — 5	
193	233	1.68	1.39	0.171	0.142	588	539	60	55	004 — 07— SG — 7.5	
145	175	2.24	1.86	0.229	0.189	637	588	65	60	004 — 07— SG — 10	
121	146	2.69	2.23	0.274	0.227	686	637	70	65	004 — 07— SG — 12	
96.7	117	3.36	2.79	0.343	0.284	735	686	75	70	004 — 07— SG — 15	
72.5	87.5	4.48	3.72	0.457	0.379	785	735	80	75	004 — 07— SG — 20	
58.0	70.0	5.61	4.64	0.572	0.474	834	785	85	80	004 — 07— SG — 25	Page A-10 Fig. A-6
48.3	58.3	6.73	5.57	0.686	0.568	883	834	90	85	004 — 07— SG — 30	
36.3	43.8	8.97	7.43	0.914	0.758	981	932	100	95	004 — 07— SG — 40	
29.0	35.0	11.2	9.29	1.14	0.947	1080	1030	110	105	004 — 07— SG — 50	
24.2	29.2	13.5	11.1	1.37	1.14	1080	1080	110	110	004 — 07— SG — 60	
18.1	21.9	17.9	14.9	1.83	1.52	1080	1080	110	110	004 — 07— SG — 80	
14.5	17.5	22.4	18.6	2.29	1.89	1080	1080	110	110	004 — 07— SG — 100	
12.1	14.6	26.9	22.3	2.74	2.27	1080	1080	110	110	004 — 07— SG — 120	
9.67	11.7	33.6	27.9	3.43	2.84	1420	1420	145	145	004 — 17— SG — 150	Page A-10 Fig. A-7
7.25	8.75	44.8	37.2	4.57	3.79	1420	1420	145	145	004 — 17— SG — 200	
6.04	7.29	53.8	44.6	5.49	4.55	1420	1420	145	145	004 — 17— SG — 240	

60W Single-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque[3] N • m		Output Torque[3] kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Suffix – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.68	1.39	0.171	0.142	637	588	65	60	006 — 17— SG — 5	
193	233	2.52	2.09	0.257	0.213	686	637	70	65	006 — 17— SG — 7.5	
145	175	3.36	2.79	0.343	0.284	785	735	80	75	006 — 17— SG — 10	
121	146	4.04	3.34	0.412	0.341	834	785	85	80	006 — 17— SG — 12	
96.7	117	5.04	4.18	0.514	0.426	883	834	90	85	006 — 17— SG — 15	
72.5	87.5	6.73	5.57	0.686	0.568	981	932	100	95	006 — 17— SG — 20	
58.0	70.0	8.41	6.97	0.857	0.710	1030	981	105	100	006 — 17— SG — 25	
48.3	58.3	10.1	8.36	1.03	0.852	1080	1030	110	105	006 — 17— SG — 30	
36.3	43.8	13.5	11.1	1.37	1.14	1180	1130	120	115	006 — 17— SG — 40	Page A-11 Fig. A-8
29.0	35.0	16.8	13.9	1.71	1.42	1270	1230	130	125	006 — 17— SG — 50	
24.2	29.2	20.2	16.7	2.06	1.70	1320	1270	135	130	006 — 17— SG — 60	
18.1	21.9	26.9	22.3	2.74	2.27	1420	1370	145	140	006 — 17— SG — 80	
14.5	17.5	33.6	27.9	3.43	2.84	1420	1420	145	145	006 — 17— SG — 100	
12.1	14.6	40.4	33.4	4.12	3.41	1420	1420	145	145	006 — 17— SG — 120	
9.67	11.7	50.4	41.8	5.14	4.26	1420	1420	145	145	006 — 17— SG — 150	
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17— SG — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17— SG — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

90W Single-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

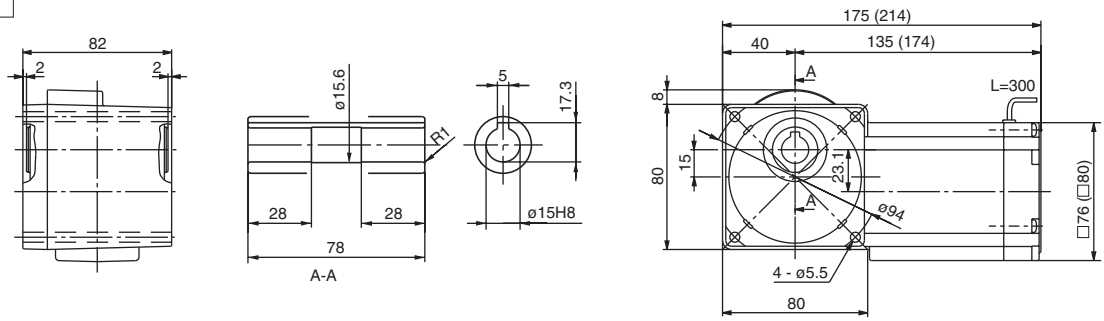
Output Speed RPM		Output Torque[3]				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Suffix – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	2.52	2.09	0.257	0.213	637	588	65	60	009 — 17— SG — 5	Page A-11 Fig. A-8
193	233	3.78	3.13	0.386	0.320	686	637	70	65	009 — 17— SG — 7.5	
145	175	5.04	4.18	0.514	0.426	785	735	80	75	009 — 17— SG — 10	
121	146	6.05	5.02	0.617	0.511	834	785	85	80	009 — 17— SG — 12	
96.7	117	7.57	6.27	0.772	0.639	883	834	90	85	009 — 17— SG — 15	
72.5	87.5	10.1	8.36	1.03	0.852	981	932	100	95	009 — 17— SG — 20	
58.0	70.0	12.6	10.4	1.29	1.07	1030	981	105	100	009 — 17— SG — 25	
48.3	58.3	15.1	12.5	1.54	1.28	1080	1030	110	105	009 — 17— SG — 30	
36.3	43.8	20.2	16.7	2.06	1.70	1180	1130	120	115	009 — 17— SG — 40	
29.0	35.0	25.2	20.9	2.57	2.13	1270	1230	130	125	009 — 17— SG — 50	
24.2	29.2	30.3	25.1	3.09	2.56	1320	1270	135	130	009 — 17— SG — 60	
18.1	21.9	40.4	33.4	4.12	3.41	1420	1370	145	140	009 — 17— SG — 80	
14.5	17.5	50.4	41.8	5.14	4.26	1420	1420	145	145	009 — 17— SG — 100	
12.1	14.6	*53.9	50.2	*5.50	5.11	1420	1420	145	145	009 — 17— SG — 120	
9.67	11.7	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17— SG — 150	
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17— SG — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17— SG — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

HOLLOW SHAFT TYPE
Dimensions – RNYM Series

Single-phase Motor • Indoor Type

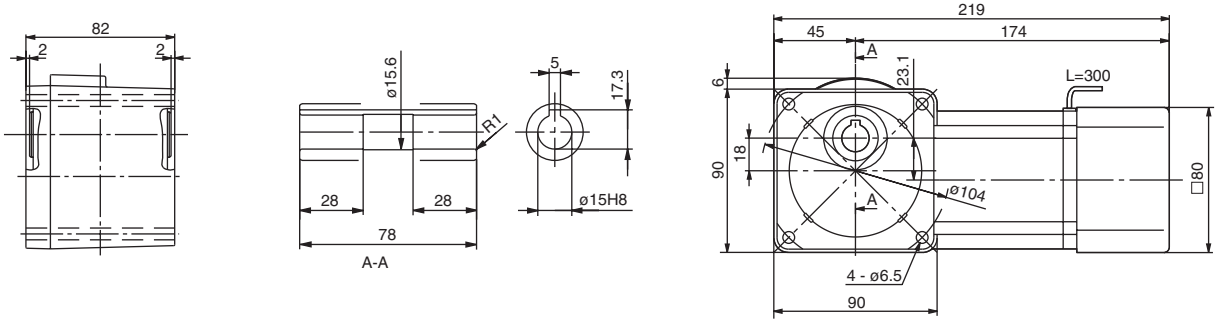
Fig. A-5



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
15W	5:1~240:1	RNYM0015-03-SG (-B) -5~240	2.6 (3.2)
25W	5:1~240:1	RNYM0025-03-SG (-B) -5~240	2.7 (3.3)

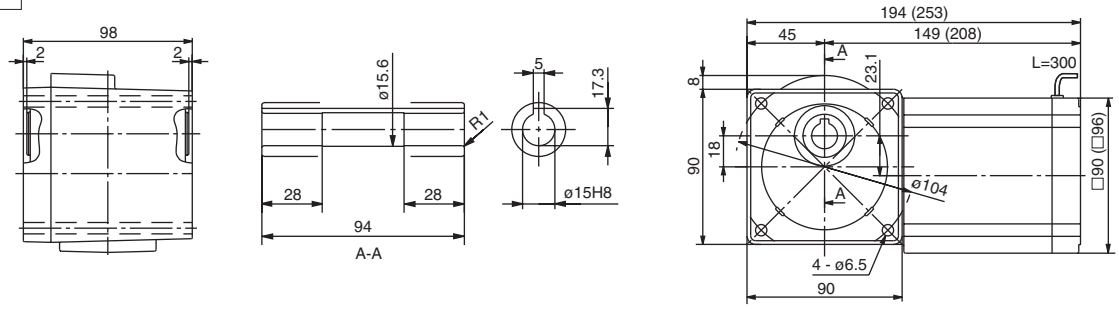
Fig. A-6



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	5:1~120:1	RNYM004-07-SG (-B) -5~120	2.9 (3.5)

Fig. A-7



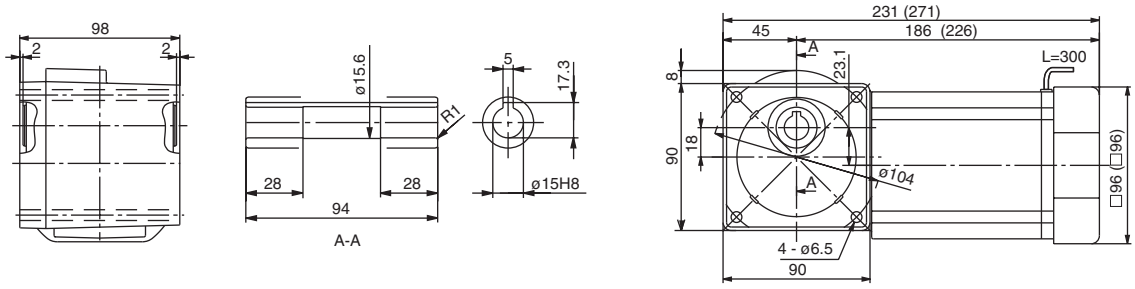
All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	150:1~240:1	RNYM004-17-SG (-B) -150~240	4.1 (4.5)

Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

Single-phase Motor • Indoor Type

Fig. A-8



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
60W	5:1~240:1	RNYM006-17-SG (-B) -5~240	4.4 (4.8)
90W	5:1~240:1	RNYM009-17-SG (-B) -5~240	4.9 (5.3)

HOLLOW SHAFT TYPE
Selection Tables – RNYM Series

15W Single-phase Reversible Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size –Suffix– Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.371	0.307	0.038	0.031	539	490	55	50	0015— 03 — SR— 5	Page A-15 Fig. A-9
193	233	0.556	0.461	0.057	0.047	588	539	60	55	0015— 03 — SR— 7.5	
145	175	0.742	0.615	0.076	0.063	637	588	65	60	0015— 03 — SR— 10	
121	146	0.890	0.738	0.091	0.075	686	637	70	65	0015— 03 — SR— 12	
96.7	117	1.11	0.922	0.113	0.094	735	686	75	70	0015— 03 — SR— 15	
72.5	87.5	1.48	1.23	0.151	0.125	785	735	80	75	0015— 03 — SR— 20	
58.0	70.0	1.85	1.54	0.189	0.157	834	785	85	80	0015— 03 — SR— 25	
48.3	58.3	2.23	1.84	0.227	0.188	883	834	90	85	0015— 03 — SR— 30	
36.3	43.8	2.97	2.46	0.303	0.251	981	932	100	95	0015— 03 — SR— 40	
29.0	35.0	3.71	3.07	0.378	0.313	1080	1030	110	105	0015— 03 — SR— 50	
24.2	29.2	4.45	3.69	0.454	0.376	1080	1080	110	110	0015— 03 — SR— 60	
18.1	21.9	5.93	4.92	0.605	0.501	1080	1080	110	110	0015— 03 — SR— 80	
14.5	17.5	7.42	6.15	0.756	0.627	1080	1080	110	110	0015— 03 — SR—100	
12.1	14.6	8.90	7.38	0.908	0.752	1080	1080	110	110	0015— 03 — SR—120	
9.06	10.9	11.9	9.83	1.21	1.00	1080	1080	110	110	0015— 03 — SR—160	
7.25	8.75	14.8	12.3	1.51	1.25	1080	1080	110	110	0015— 03 — SR—200	
6.04	7.29	17.8	14.8	1.82	1.50	1080	1080	110	110	0015— 03 — SR—240	

25W Single-phase Reversible Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size –Suffix– Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.618	0.512	0.063	0.052	539	490	55	50	0025— 03 — SR— 5	Page A-15 Fig. A-9
193	233	0.927	0.768	0.095	0.078	588	539	60	55	0025— 03 — SR— 7.5	
145	175	1.24	1.02	0.126	0.104	637	588	65	60	0025— 03 — SR— 10	
121	146	1.48	1.23	0.151	0.125	686	637	70	65	0025— 03 — SR— 12	
96.7	117	1.85	1.54	0.189	0.157	735	686	75	70	0025— 03 — SR— 15	
72.5	87.5	2.47	2.05	0.252	0.209	785	735	80	75	0025— 03 — SR— 20	
58.0	70.0	3.09	2.56	0.315	0.261	834	785	85	80	0025— 03 — SR— 25	
48.3	58.3	3.71	3.07	0.378	0.313	883	834	90	85	0025— 03 — SR— 30	
36.3	43.8	4.95	4.10	0.504	0.418	981	932	100	95	0025— 03 — SR— 40	
29.0	35.0	6.18	5.12	0.630	0.522	1080	1030	110	105	0025— 03 — SR— 50	
24.2	29.2	7.42	6.15	0.756	0.627	1080	1080	110	110	0025— 03 — SR— 60	
18.1	21.9	9.9	8.20	1.01	0.836	1080	1080	110	110	0025— 03 — SR— 80	
14.5	17.5	12.4	10.2	1.26	1.04	1080	1080	110	110	0025— 03 — SR—100	
12.1	14.6	14.8	12.3	1.51	1.25	1080	1080	110	110	0025— 03 — SR—120	
9.06	10.9	19.8	16.4	2.02	1.67	1080	1080	110	110	0025— 03 — SR—160	
7.25	8.75	24.7	20.5	2.52	2.09	1080	1080	110	110	0025— 03 — SR—200	
6.04	7.29	29.7	24.6	3.03	2.51	1080	1080	110	110	0025— 03 — SR—240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.

40W Single-phase Reversible Motor

Motor Speed[1]		
50Hz	1450	RPM
60Hz	1750	RPM

Service Factor = 1.0

Output Speed RPM		Output Torque N • m		Output Torque kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Suffix – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.12	0.929	0.114	0.095	539	490	55	50	004 — 07 — SR — 5	
193	233	1.68	1.39	0.171	0.142	588	539	60	55	004 — 07 — SR — 7.5	
145	175	2.24	1.86	0.229	0.189	637	588	65	60	004 — 07 — SR — 10	
121	146	2.69	2.23	0.274	0.227	686	637	70	65	004 — 07 — SR — 12	
96.7	117	3.36	2.79	0.343	0.284	735	686	75	70	004 — 07 — SR — 15	
72.5	87.5	4.48	3.72	0.457	0.379	785	735	80	75	004 — 07 — SR — 20	
58.0	70.0	5.61	4.64	0.572	0.474	834	785	85	80	004 — 07 — SR — 25	Page A-15
48.3	58.3	6.73	5.57	0.686	0.568	883	834	90	85	004 — 07 — SR — 30	Fig. A-10
36.3	43.8	8.97	7.43	0.914	0.758	981	932	100	95	004 — 07 — SR — 40	
29.0	35.0	11.2	9.29	1.14	0.947	1080	1030	110	105	004 — 07 — SR — 50	
24.2	29.2	13.5	11.1	1.37	1.14	1080	1080	110	110	004 — 07 — SR — 60	
18.1	21.9	17.9	14.9	1.83	1.52	1080	1080	110	110	004 — 07 — SR — 80	
14.5	17.5	22.4	18.6	2.29	1.89	1080	1080	110	110	004 — 07 — SR — 100	
12.1	14.6	26.9	22.3	2.74	2.27	1080	1080	110	110	004 — 07 — SR — 120	
9.67	11.7	33.6	27.9	3.43	2.84	1420	1420	145	145	004 — 17 — SR — 150	Page A-15
7.25	8.75	44.8	37.2	4.57	3.79	1420	1420	145	145	004 — 17 — SR — 200	Fig. A-11
6.04	7.29	53.8	44.6	5.49	4.55	1420	1420	145	145	004 — 17 — SR — 240	

60W Single-phase Reversible Motor

Motor Speed[1]		
50Hz	1450	RPM
60Hz	1750	RPM

Service Factor = 1.0

Output Speed RPM		Output Torque[3] N • m		Output Torque[3] kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Suffix – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.68	1.39	0.171	0.142	637	588	65	60	006 — 17 — SR — 5	
193	233	2.52	2.09	0.257	0.213	686	637	70	65	006 — 17 — SR — 7.5	
145	175	3.36	2.79	0.343	0.284	785	735	80	75	006 — 17 — SR — 10	
121	146	4.04	3.34	0.412	0.341	834	785	85	80	006 — 17 — SR — 12	
96.7	117	5.04	4.18	0.514	0.426	883	834	90	85	006 — 17 — SR — 15	
72.5	87.5	6.73	5.57	0.686	0.568	981	932	100	95	006 — 17 — SR — 20	
58.0	70.0	8.41	6.97	0.857	0.710	1030	981	105	100	006 — 17 — SR — 25	
48.3	58.3	10.1	8.36	1.03	0.852	1080	1030	110	105	006 — 17 — SR — 30	Page A-16
36.3	43.8	13.5	11.1	1.37	1.14	1180	1130	120	115	006 — 17 — SR — 40	Fig. A-12
29.0	35.0	16.8	13.9	1.71	1.42	1270	1230	130	125	006 — 17 — SR — 50	
24.2	29.2	20.2	16.7	2.06	1.70	1320	1270	135	130	006 — 17 — SR — 60	
18.1	21.9	26.9	22.3	2.74	2.27	1420	1370	145	140	006 — 17 — SR — 80	
14.5	17.5	33.6	27.9	3.43	2.84	1420	1420	145	145	006 — 17 — SR — 100	
12.1	14.6	40.4	33.4	4.12	3.41	1420	1420	145	145	006 — 17 — SR — 120	
9.67	11.7	50.4	41.8	5.14	4.26	1420	1420	145	145	006 — 17 — SR — 150	
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17 — SR — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17 — SR — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

HOLLOW SHAFT TYPE
Selection Tables – RNYM Series

90W Single-phase Reversible Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

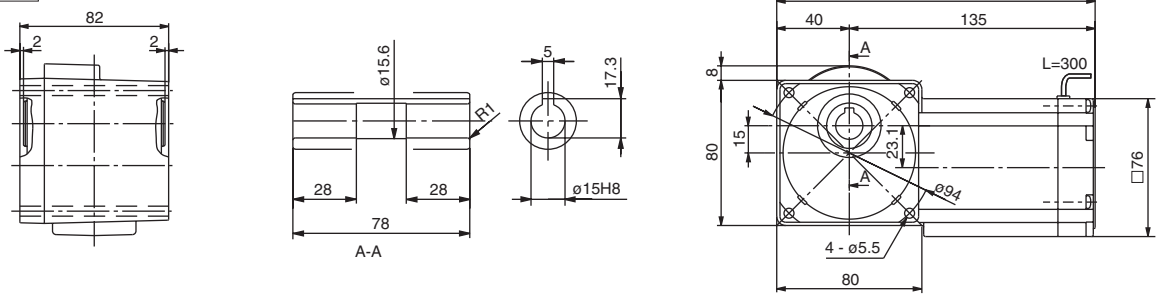
Output Speed RPM		Output Torque[3]				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Suffix – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	2.52	2.09	0.257	0.213	637	588	65	60	009 — 17 — SR — 5	Page A-16 Fig. A-12
193	233	3.78	3.13	0.386	0.320	686	637	70	65	009 — 17 — SR — 7.5	
145	175	5.04	4.18	0.514	0.426	785	735	80	75	009 — 17 — SR — 10	
121	146	6.05	5.02	0.617	0.511	834	785	85	80	009 — 17 — SR — 12	
96.7	117	7.57	6.27	0.772	0.639	883	834	90	85	009 — 17 — SR — 15	
72.5	87.5	10.1	8.36	1.03	0.852	981	932	100	95	009 — 17 — SR — 20	
58.0	70.0	12.6	10.4	1.29	1.07	1030	981	105	100	009 — 17 — SR — 25	
48.3	58.3	15.1	12.5	1.54	1.28	1080	1030	110	105	009 — 17 — SR — 30	
36.3	43.8	20.2	16.7	2.06	1.70	1180	1130	120	115	009 — 17 — SR — 40	
29.0	35.0	25.2	20.9	2.57	2.13	1270	1230	130	125	009 — 17 — SR — 50	
24.2	29.2	30.3	25.1	3.09	2.56	1320	1270	135	130	009 — 17 — SR — 60	
18.1	21.9	40.4	33.4	4.12	3.41	1420	1370	145	140	009 — 17 — SR — 80	
14.5	17.5	50.4	41.8	5.14	4.26	1420	1420	145	145	009 — 17 — SR — 100	
12.1	14.6	*53.9	50.2	*5.50	5.11	1420	1420	145	145	009 — 17 — SR — 120	
9.67	11.7	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — SR — 150	
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — SR — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — SR — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

HOLLOW SHAFT TYPE
Dimensions – RNYM Series

Single-phase Reversible Motor • Indoor Type

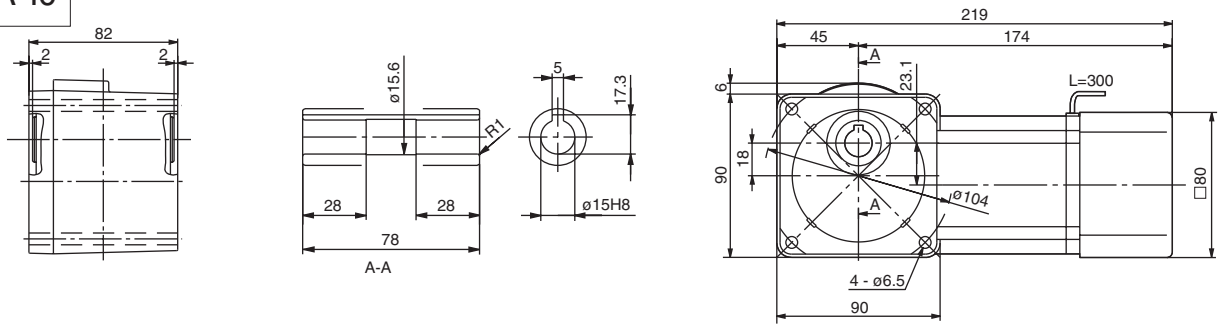
Fig. A-9



All dimensions are in millimeters.

Motor Power	Reduction Ratio	Model	Weight (kg)
15W	5:1~240:1	RNYM0015-03-SR-5~240	2.6
25W	5:1~240:1	RNYM0025-03-SR-5~240	2.7

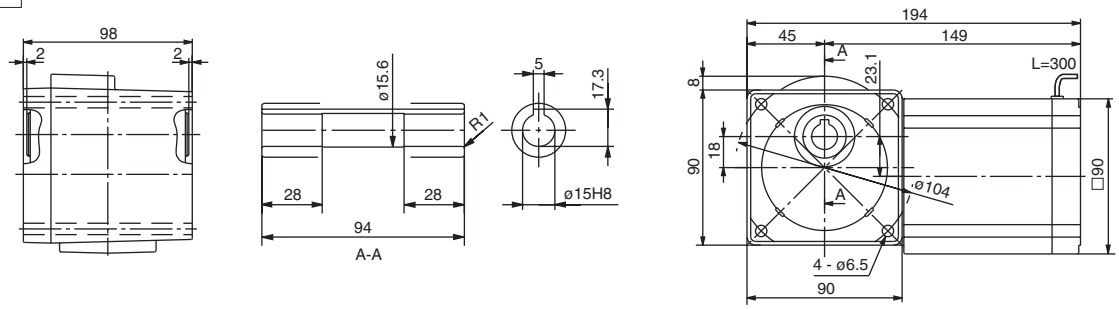
Fig. A-10



All dimensions are in millimeters.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	5:1~120:1	RNYM004-07-SR-5~120	2.9

Fig. A-11



All dimensions are in millimeters.

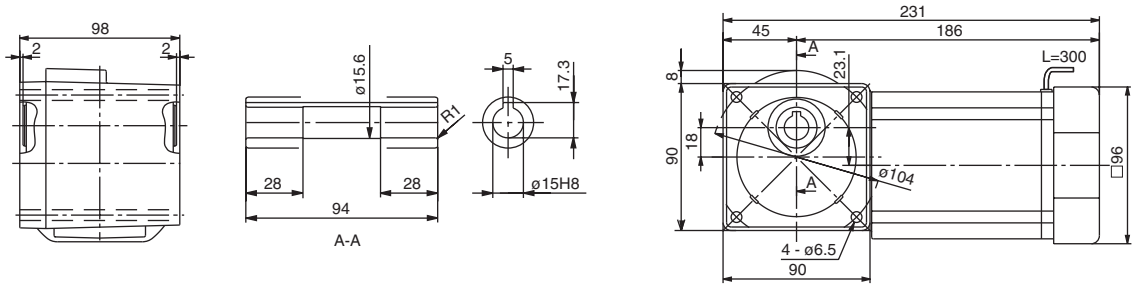
Motor Power	Reduction Ratio	Model	Weight (kg)
40W	150:1~240:1	RNYM004-17-SR-150~240	4.1

Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

HOLLOW SHAFT TYPE
Dimensions – RNYM Series

Single-phase Reversible Motor • Indoor Type

Fig. A-12



All dimensions are in millimeters.

Motor Power	Reduction Ratio	Model	Weight (kg)
60W	5:1~240:1	RNYM006-17-SR-5~240	4.4
90W	5:1~240:1	RNYM009-17-SR-5~240	4.9

Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

SM-HYPONIC® SUB-FRACTIONAL GEARMOTOR SOLID SHAFT FLANGE MOUNT TYPE

SOLID SHAFT FLANGE MOUNT TYPE
Selection Tables – RNFM Series

15W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.371	0.307	0.038	0.031	343	343	35	35	0015 — 01 — 5	
193	233	0.556	0.461	0.057	0.047	343	343	35	35	0015 — 01 — 7.5	
145	175	0.742	0.615	0.076	0.063	343	343	35	35	0015 — 01 — 10	
121	146	0.890	0.738	0.091	0.075	343	343	35	35	0015 — 01 — 12	
96.7	117	1.11	0.922	0.113	0.094	343	343	35	35	0015 — 01 — 15	
72.5	87.5	1.48	1.23	0.151	0.125	343	343	35	35	0015 — 01 — 20	Page A-21 Fig. A-13
58.0	70.0	1.85	1.54	0.189	0.157	343	343	35	35	0015 — 01 — 25	
48.3	58.3	2.23	1.84	0.227	0.188	343	343	35	35	0015 — 01 — 30	
36.3	43.8	2.97	2.46	0.303	0.251	343	343	35	35	0015 — 01 — 40	
29.0	35.0	3.71	3.07	0.378	0.313	343	343	35	35	0015 — 01 — 50	
24.2	29.2	4.45	3.69	0.454	0.376	343	343	35	35	0015 — 01 — 60	
18.1	21.9	5.93	4.92	0.605	0.501	343	343	35	35	0015 — 01 — 80	
14.5	17.5	7.42	6.15	0.756	0.627	343	343	35	35	0015 — 01 — 100	
12.1	14.6	8.90	7.38	0.908	0.752	1080	1080	110	110	0015 — 03 — 120	
9.06	10.9	11.9	9.83	1.21	1.00	1080	1080	110	110	0015 — 03 — 160	Page A-21 Fig. A-14
7.25	8.75	14.8	12.3	1.51	1.25	1080	1080	110	110	0015 — 03 — 200	
6.04	7.29	17.8	14.8	1.82	1.50	1080	1080	110	110	0015 — 03 — 240	

25W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.618	0.512	0.063	0.052	343	343	35	35	0025 — 01 — 5	
193	233	0.927	0.768	0.095	0.078	343	343	35	35	0025 — 01 — 7.5	
145	175	1.24	1.02	0.126	0.104	343	343	35	35	0025 — 01 — 10	
121	146	1.48	1.23	0.151	0.125	343	343	35	35	0025 — 01 — 12	
96.7	117	1.85	1.54	0.189	0.157	343	343	35	35	0025 — 01 — 15	
72.5	87.5	2.47	2.05	0.252	0.209	343	343	35	35	0025 — 01 — 20	Page A-21 Fig. A-13
58.0	70.0	3.09	2.56	0.315	0.261	343	343	35	35	0025 — 01 — 25	
48.3	58.3	3.71	3.07	0.378	0.313	343	343	35	35	0025 — 01 — 30	
36.3	43.8	4.95	4.10	0.504	0.418	343	343	35	35	0025 — 01 — 40	
29.0	35.0	6.18	5.12	0.630	0.522	343	343	35	35	0025 — 01 — 50	
24.2	29.2	7.42	6.15	0.756	0.627	343	343	35	35	0025 — 01 — 60	
18.1	21.9	9.9	8.20	1.01	0.836	1080	1080	110	110	0025 — 03 — 80	
14.5	17.5	12.4	10.2	1.26	1.04	1080	1080	110	110	0025 — 03 — 100	
12.1	14.6	14.8	12.3	1.51	1.25	1080	1080	110	110	0025 — 03 — 120	Page A-21 Fig. A-14
9.06	10.9	19.8	16.4	2.02	1.67	1080	1080	110	110	0025 — 03 — 160	
7.25	8.75	24.7	20.5	2.52	2.09	1080	1080	110	110	0025 — 03 — 200	
6.04	7.29	29.7	24.6	3.03	2.51	1080	1080	110	110	0025 — 03 — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.

40W 3-phase Motor

Motor Speed[1]
50Hz 1450 RPM
60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque N • m		Output Torque kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.12	0.929	0.114	0.095	441	392	45	40	004 — 05 — 5	
193	233	1.68	1.39	0.171	0.142	490	441	50	45	004 — 05 — 7.5	
145	175	2.24	1.86	0.229	0.189	539	490	55	50	004 — 05 — 10	
121	146	2.69	2.23	0.274	0.227	588	539	60	55	004 — 05 — 12	
96.7	117	3.36	2.79	0.343	0.284	588	588	60	60	004 — 05 — 15	Page A-21
72.5	87.5	4.48	3.72	0.457	0.379	588	588	60	60	004 — 05 — 20	Fig. A-15
58.0	70.0	5.61	4.64	0.572	0.474	588	588	60	60	004 — 05 — 25	
48.3	58.3	6.73	5.57	0.686	0.568	588	588	60	60	004 — 05 — 30	
36.3	43.8	8.97	7.43	0.914	0.758	588	588	60	60	004 — 05 — 40	
29.0	35.0	11.2	9.29	1.14	0.947	588	588	60	60	004 — 05 — 50	
24.2	29.2	13.5	11.1	1.37	1.14	1080	1080	110	110	004 — 07 — 60	
18.1	21.9	17.9	14.9	1.83	1.52	1080	1080	110	110	004 — 07 — 80	Page A-22
14.5	17.5	22.4	18.6	2.29	1.89	1080	1080	110	110	004 — 07 — 100	Fig. A-16
12.1	14.6	26.9	22.3	2.74	2.27	1080	1080	110	110	004 — 07 — 120	
9.67	11.7	33.6	27.9	3.43	2.84	1420	1420	145	145	004 — 17 — 150	Page A-22
7.25	8.75	44.8	37.2	4.57	3.79	1420	1420	145	145	004 — 17 — 200	Fig. A-17
6.04	7.29	53.8	44.6	5.49	4.55	1420	1420	145	145	004 — 17 — 240	

60W 3-phase Motor

Motor Speed[1]
50Hz 1450 RPM
60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque[3] N • m		Output Torque[3] kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.68	1.39	0.171	0.142	539	490	55	50	006 — 07 — 5	
193	233	2.52	2.09	0.257	0.213	588	539	60	55	006 — 07 — 7.5	
145	175	3.36	2.79	0.343	0.284	637	588	65	60	006 — 07 — 10	
121	146	4.04	3.34	0.412	0.341	686	637	70	65	006 — 07 — 12	
96.7	117	5.04	4.18	0.514	0.426	735	686	75	70	006 — 07 — 15	
72.5	87.5	6.73	5.57	0.686	0.568	785	735	80	75	006 — 07 — 20	Page A-22
58.0	70.0	8.41	6.97	0.857	0.710	834	785	85	80	006 — 07 — 25	Fig. A-16
48.3	58.3	10.1	8.36	1.03	0.852	883	834	90	85	006 — 07 — 30	
36.3	43.8	13.5	11.1	1.37	1.14	981	932	100	95	006 — 07 — 40	
29.0	35.0	16.8	13.9	1.71	1.42	1080	1030	110	105	006 — 07 — 50	
24.2	29.2	20.2	16.7	2.06	1.70	1080	1080	110	110	006 — 07 — 60	
18.1	21.9	26.9	22.3	2.74	2.27	1420	1370	145	140	006 — 17 — 80	
14.5	17.5	33.6	27.9	3.43	2.84	1420	1420	145	145	006 — 17 — 100	
12.1	14.6	40.4	33.4	4.12	3.41	1420	1420	145	145	006 — 17 — 120	Page A-22
9.67	11.7	50.4	41.8	5.14	4.26	1420	1420	145	145	006 — 17 — 150	Fig. A-17
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17 — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17 — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

SOLID SHAFT FLANGE MOUNT TYPE

Selection Tables – RNFM Series

90W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

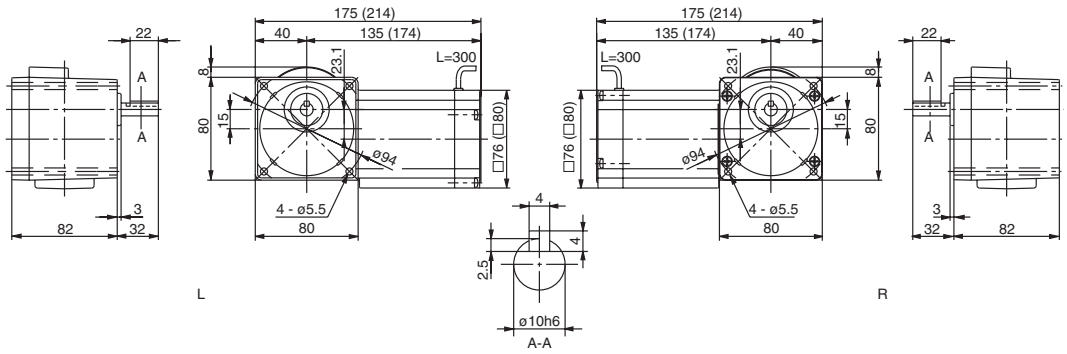
Output Speed RPM		Output Torque[3]				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	2.52	2.09	0.257	0.213	539	490	55	50	009 — 15 — 5	
193	233	3.78	3.13	0.386	0.320	588	539	60	55	009 — 15 — 7.5	
145	175	5.04	4.18	0.514	0.426	637	588	65	60	009 — 15 — 10	
121	146	6.05	5.02	0.617	0.511	686	637	70	65	009 — 15 — 12	
96.7	117	7.57	6.27	0.772	0.639	735	686	75	70	009 — 15 — 15	
72.5	87.5	10.1	8.36	1.03	0.852	785	735	80	75	009 — 15 — 20	Page A-22 Fig. A-18
58.0	70.0	12.6	10.4	1.29	1.07	834	785	85	80	009 — 15 — 25	
48.3	58.3	15.1	12.5	1.54	1.28	883	834	90	85	009 — 15 — 30	
36.3	43.8	20.2	16.7	2.06	1.70	981	932	100	95	009 — 15 — 40	
29.0	35.0	25.2	20.9	2.57	2.13	1270	1230	130	125	009 — 15 — 50	
24.2	29.2	30.3	25.1	3.09	2.56	1320	1270	135	130	009 — 15 — 60	
18.1	21.9	40.4	33.4	4.12	3.41	1420	1370	145	140	009 — 17 — 80	
14.5	17.5	50.4	41.8	5.14	4.26	1420	1420	145	145	009 — 17 — 100	
12.1	14.6	*53.9	50.2	*5.50	5.11	1420	1420	145	145	009 — 17 — 120	Page A-22
9.67	11.7	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — 150	Fig. A-17
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — 240	
4.83	5.83	142	118	14.5	12.0	3090	3090	315	315	009 — 36 — 300	
4.03	4.86	171	142	17.4	14.4	3090	3090	315	315	009 — 36 — 360	
3.02	3.65	*195	189	*19.9	19.3	3090	3090	315	315	009 — 36 — 480	
2.59	3.13	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 36 — 560	Page A-23
1.93	2.33	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 36 — 750	Fig. A-19
1.61	1.94	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 36 — 900	
1.21	1.46	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 36 — 1200	
1.01	1.22	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 36 — 1440	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

SOLID SHAFT FLANGE MOUNT TYPE
Dimensions – RNFM Series

3-phase Motor • Indoor Type

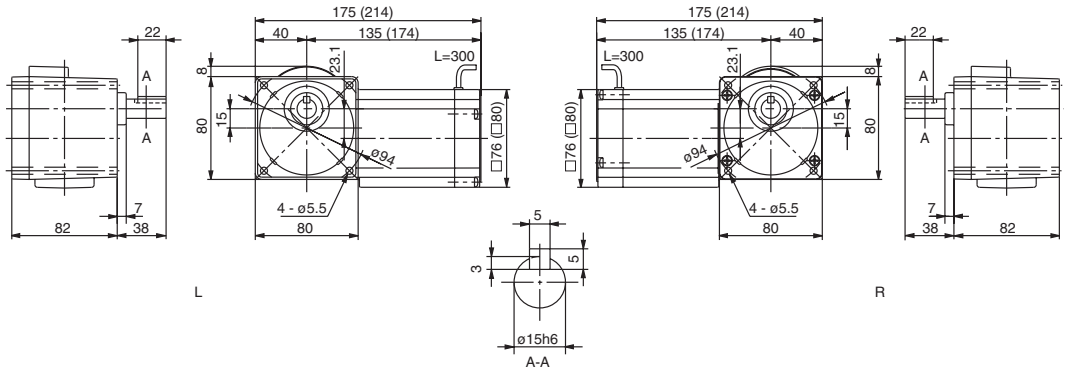
Fig. A-13



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
15W	5:1~100:1	RNFM0015-01 $^{L}_{R}$ (-B) -5~100	2.7 (3.3)
25W	5:1~60:1	RNFM0025-01 $^{L}_{R}$ (-B) -5~60	2.8 (3.4)

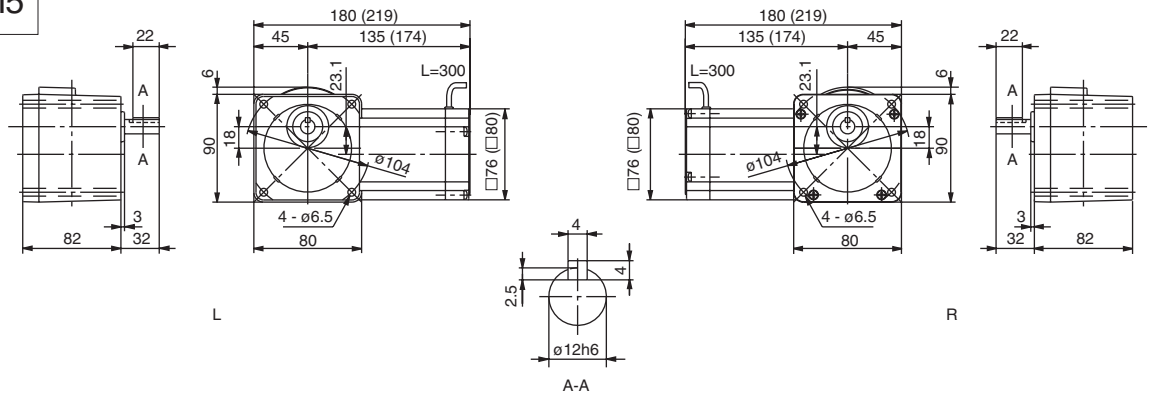
Fig. A-14



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
15W	120:1~240:1	RNFM0015-03 $^{L}_{R}$ (-B) -120~240	2.7 (3.3)
25W	80:1~240:1	RNFM0025-03 $^{L}_{R}$ (-B) -80~240	2.9 (3.5)

Fig. A-15



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	5:1~50:1	RNFM004-05 $^{L}_{R}$ (-B) -5~50	3.0 (3.6)

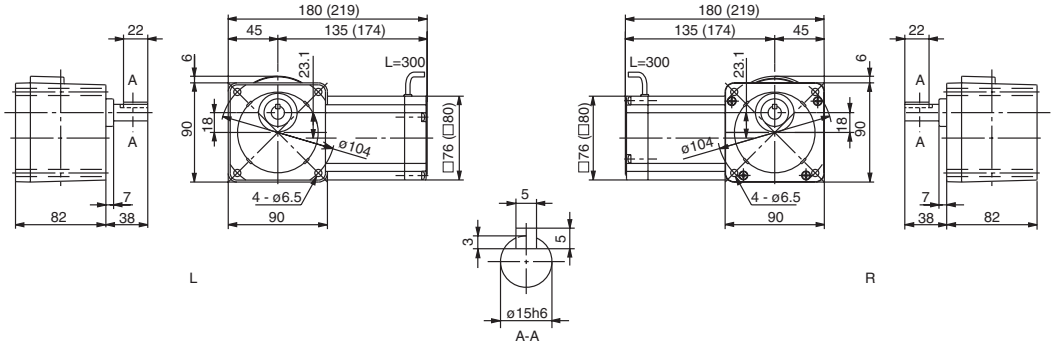
Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

SOLID SHAFT FLANGE MOUNT TYPE

Dimensions – RNFM Series

3-phase Motor • Indoor Type

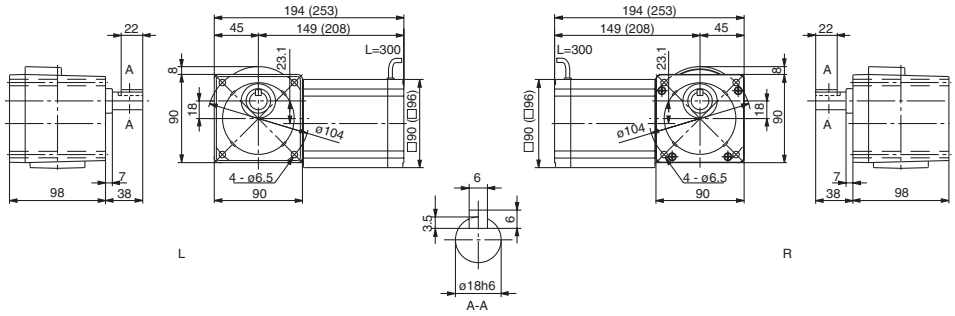
Fig. A-16



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	60:1~120:1	RNFM004-07 $\frac{L}{R}$ (-B) -60~120	3.1 (3.7)
60W	5:1~60:1	RNFM006-07 $\frac{L}{R}$ (-B) -5~60	3.1 (3.6)

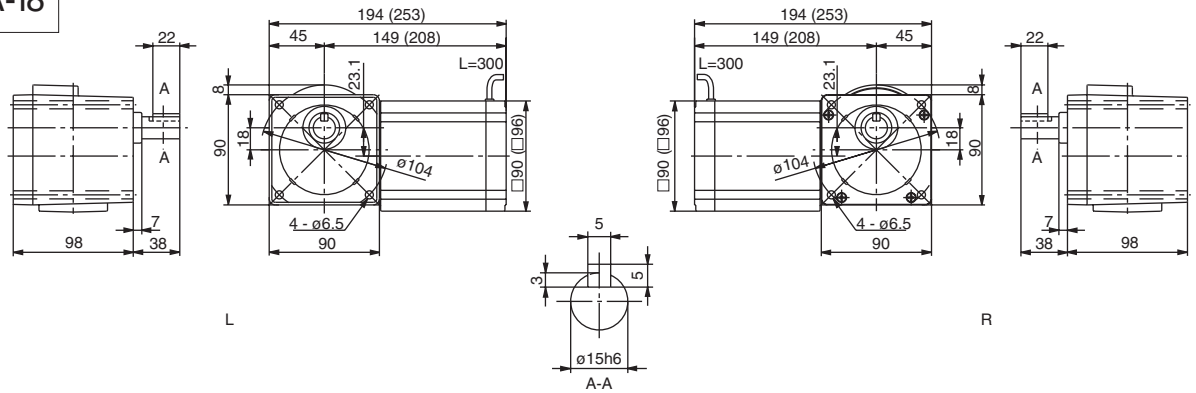
Fig. A-17



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	150:1~240:1	RNFM004-17 $\frac{L}{R}$ (-B) -150~240	3.8 (4.2)
60W	80:1~240:1	RNFM006-17 $\frac{L}{R}$ (-B) -80~240	4.0 (4.4)
90W	80:1~240:1	RNFM009-17 $\frac{L}{R}$ (-B) -80~240	4.3 (4.7)

Fig. A-18



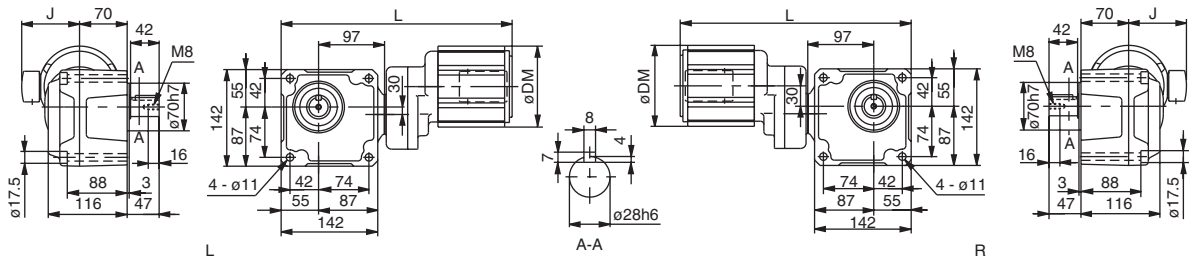
All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
90W	5:1~60:1	RNFM009-15 $\frac{L}{R}$ (-B) -5~60	4.3 (4.7)

Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

3-phase Motor • Indoor Type

Fig. A-19



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	L	DM	J	Weight (kg)
90W	300:1~1440:1	RNFM009-36 $^{L}_{R}$ (-B) -300~1440	340 (375)	ø119 (ø124)	85	12.5 (14)

SOLID SHAFT FLANGE MOUNT TYPE
Selection Tables – RNFM Series

15W Single-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size –Suffix– Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.371	0.307	0.038	0.031	343	343	35	35	0015 — 01 — SG — 5	Page A-27 Fig. A-20
193	233	0.556	0.461	0.057	0.047	343	343	35	35	0015 — 01 — SG — 7.5	
145	175	0.742	0.615	0.076	0.063	343	343	35	35	0015 — 01 — SG — 10	
121	146	0.890	0.738	0.091	0.075	343	343	35	35	0015 — 01 — SG — 12	
96.7	117	1.11	0.922	0.113	0.094	343	343	35	35	0015 — 01 — SG — 15	
72.5	87.5	1.48	1.23	0.151	0.125	343	343	35	35	0015 — 01 — SG — 20	
58.0	70.0	1.85	1.54	0.189	0.157	343	343	35	35	0015 — 01 — SG — 25	
48.3	58.3	2.23	1.84	0.227	0.188	343	343	35	35	0015 — 01 — SG — 30	
36.3	43.8	2.97	2.46	0.303	0.251	343	343	35	35	0015 — 01 — SG — 40	
29.0	35.0	3.71	3.07	0.378	0.313	343	343	35	35	0015 — 01 — SG — 50	
24.2	29.2	4.45	3.69	0.454	0.376	343	343	35	35	0015 — 01 — SG — 60	
18.1	21.9	5.93	4.92	0.605	0.501	343	343	35	35	0015 — 01 — SG — 80	
14.5	17.5	7.42	6.15	0.756	0.627	343	343	35	35	0015 — 01 — SG — 100	
12.1	14.6	8.90	7.38	0.908	0.752	1080	1080	110	110	0015 — 03 — SG — 120	Page A-27 Fig. A-21
9.06	10.9	11.9	9.83	1.21	1.00	1080	1080	110	110	0015 — 03 — SG — 160	
7.25	8.75	14.8	12.3	1.51	1.25	1080	1080	110	110	0015 — 03 — SG — 200	
6.04	7.29	17.8	14.8	1.82	1.50	1080	1080	110	110	0015 — 03 — SG — 240	

25W Single-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size –Suffix– Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.618	0.512	0.063	0.052	343	343	35	35	0025 — 01 — SG — 5	Page A-27 Fig. A-20
193	233	0.927	0.768	0.095	0.078	343	343	35	35	0025 — 01 — SG — 7.5	
145	175	1.24	1.02	0.126	0.104	343	343	35	35	0025 — 01 — SG — 10	
121	146	1.48	1.23	0.151	0.125	343	343	35	35	0025 — 01 — SG — 12	
96.7	117	1.85	1.54	0.189	0.157	343	343	35	35	0025 — 01 — SG — 15	
72.5	87.5	2.47	2.05	0.252	0.209	343	343	35	35	0025 — 01 — SG — 20	
58.0	70.0	3.09	2.56	0.315	0.261	343	343	35	35	0025 — 01 — SG — 25	
48.3	58.3	3.71	3.07	0.378	0.313	343	343	35	35	0025 — 01 — SG — 30	
36.3	43.8	4.95	4.10	0.504	0.418	343	343	35	35	0025 — 01 — SG — 40	
29.0	35.0	6.18	5.12	0.630	0.522	343	343	35	35	0025 — 01 — SG — 50	
24.2	29.2	7.42	6.15	0.756	0.627	343	343	35	35	0025 — 01 — SG — 60	
18.1	21.9	9.9	8.20	1.01	0.836	1080	1080	110	110	0025 — 03 — SG — 80	Page A-27 Fig. A-21
14.5	17.5	12.4	10.2	1.26	1.04	1080	1080	110	110	0025 — 03 — SG — 100	
12.1	14.6	14.8	12.3	1.51	1.25	1080	1080	110	110	0025 — 03 — SG — 120	
9.06	10.9	19.8	16.4	2.02	1.67	1080	1080	110	110	0025 — 03 — SG — 160	
7.25	8.75	24.7	20.5	2.52	2.09	1080	1080	110	110	0025 — 03 — SG — 200	
6.04	7.29	29.7	24.6	3.03	2.51	1080	1080	110	110	0025 — 03 — SG — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.

40W Single-phase Motor

Motor Speed[1]		
50Hz	1450	RPM
60Hz	1750	RPM

Service Factor = 1.0

Output Speed RPM		Output Torque N • m		Output Torque kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Suffix – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.12	0.929	0.114	0.095	441	392	45	40	004 — 05— SG — 5	
193	233	1.68	1.39	0.171	0.142	490	441	50	45	004 — 05— SG — 7.5	
145	175	2.24	1.86	0.229	0.189	539	490	55	50	004 — 05— SG — 10	
121	146	2.69	2.23	0.274	0.227	588	539	60	55	004 — 05— SG — 12	
96.7	117	3.36	2.79	0.343	0.284	588	588	60	60	004 — 05— SG — 15	Page A-27
72.5	87.5	4.48	3.72	0.457	0.379	588	588	60	60	004 — 05— SG — 20	Fig. A-22
58.0	70.0	5.61	4.64	0.572	0.474	588	588	60	60	004 — 05— SG — 25	
48.3	58.3	6.73	5.57	0.686	0.568	588	588	60	60	004 — 05— SG — 30	
36.3	43.8	8.97	7.43	0.914	0.758	588	588	60	60	004 — 05— SG — 40	
29.0	35.0	11.2	9.29	1.14	0.947	588	588	60	60	004 — 05— SG — 50	
24.2	29.2	13.5	11.1	1.37	1.14	1080	1080	110	110	004 — 07— SG — 60	
18.1	21.9	17.9	14.9	1.83	1.52	1080	1080	110	110	004 — 07— SG — 80	Page A-28
14.5	17.5	22.4	18.6	2.29	1.89	1080	1080	110	110	004 — 07— SG —100	Fig. A-23
12.1	14.6	26.9	22.3	2.74	2.27	1080	1080	110	110	004 — 07— SG —120	
9.67	11.7	33.6	27.9	3.43	2.84	1420	1420	145	145	004 — 17— SG —150	Page A-28
7.25	8.75	44.8	37.2	4.57	3.79	1420	1420	145	145	004 — 17— SG —200	Fig. A-24
6.04	7.29	53.8	44.6	5.49	4.55	1420	1420	145	145	004 — 17— SG —240	

60W Single-phase Motor

Motor Speed[1]		
50Hz	1450	RPM
60Hz	1750	RPM

Service Factor = 1.0

Output Speed RPM		Output Torque[3] N • m		Output Torque[3] kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Suffix – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.68	1.39	0.171	0.142	539	490	55	50	006 — 15— SG — 5	
193	233	2.52	2.09	0.257	0.213	588	539	60	55	006 — 15— SG — 7.5	
145	175	3.36	2.79	0.343	0.284	637	588	65	60	006 — 15— SG — 10	
121	146	4.04	3.34	0.412	0.341	686	637	70	65	006 — 15— SG — 12	
96.7	117	5.04	4.18	0.514	0.426	735	686	75	70	006 — 15— SG — 15	
72.5	87.5	6.73	5.57	0.686	0.568	785	735	80	75	006 — 15— SG — 20	Page A-28
58.0	70.0	8.41	6.97	0.857	0.710	834	785	85	80	006 — 15— SG — 25	Fig. A-25
48.3	58.3	10.1	8.36	1.03	0.852	883	834	90	85	006 — 15— SG — 30	
36.3	43.8	13.5	11.1	1.37	1.14	981	932	100	95	006 — 15— SG — 40	
29.0	35.0	16.8	13.9	1.71	1.42	1080	1030	110	105	006 — 15— SG — 50	
24.2	29.2	20.2	16.7	2.06	1.70	1080	1080	110	110	006 — 15— SG — 60	
18.1	21.9	26.9	22.3	2.74	2.27	1420	1370	145	140	006 — 17— SG — 80	
14.5	17.5	33.6	27.9	3.43	2.84	1420	1420	145	145	006 — 17— SG —100	
12.1	14.6	40.4	33.4	4.12	3.41	1420	1420	145	145	006 — 17— SG —120	Page A-29
9.67	11.7	50.4	41.8	5.14	4.26	1420	1420	145	145	006 — 17— SG —150	Fig. A-26
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17— SG —200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17— SG —240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

SOLID SHAFT FLANGE MOUNT TYPE
Selection Tables – RNFM Series

90W Single-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque[3]				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Suffix – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	2.52	2.09	0.257	0.213	539	490	55	50	009 — 15— SG — 5	Page A-28 Fig. A-25
193	233	3.78	3.13	0.386	0.320	588	539	60	55	009 — 15— SG — 7.5	
145	175	5.04	4.18	0.514	0.426	637	588	65	60	009 — 15— SG — 10	
121	146	6.05	5.02	0.617	0.511	686	637	70	65	009 — 15— SG — 12	
96.7	117	7.57	6.27	0.772	0.639	735	686	75	70	009 — 15— SG — 15	
72.5	87.5	10.1	8.36	1.03	0.852	785	735	80	75	009 — 15— SG — 20	
58.0	70.0	12.6	10.4	1.29	1.07	834	785	85	80	009 — 15— SG — 25	
48.3	58.3	15.1	12.5	1.54	1.28	883	834	90	85	009 — 15— SG — 30	
36.3	43.8	20.2	16.7	2.06	1.70	981	932	100	95	009 — 15— SG — 40	
29.0	35.0	25.2	20.9	2.57	2.13	1270	1230	130	125	009 — 15— SG — 50	
24.2	29.2	30.3	25.1	3.09	2.56	1320	1270	135	130	009 — 15— SG — 60	
18.1	21.9	40.4	33.4	4.12	3.41	1420	1370	145	140	009 — 17— SG — 80	Page A-29 Fig. A-26
14.5	17.5	50.4	41.8	5.14	4.26	1420	1420	145	145	009 — 17— SG — 100	
12.1	14.6	*53.9	50.2	*5.50	5.11	1420	1420	145	145	009 — 17— SG — 120	
9.67	11.7	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17— SG — 150	
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17— SG — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17— SG — 240	

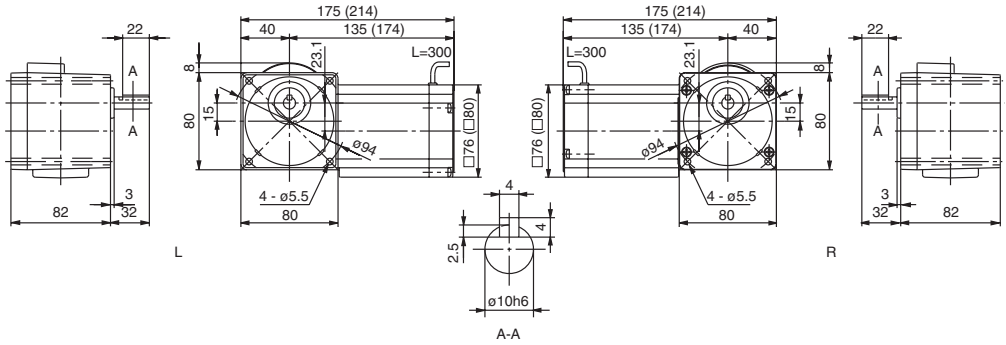
Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

SOLID SHAFT FLANGE MOUNT TYPE

Dimensions – RNFM Series

Single-phase Motor • Indoor Type

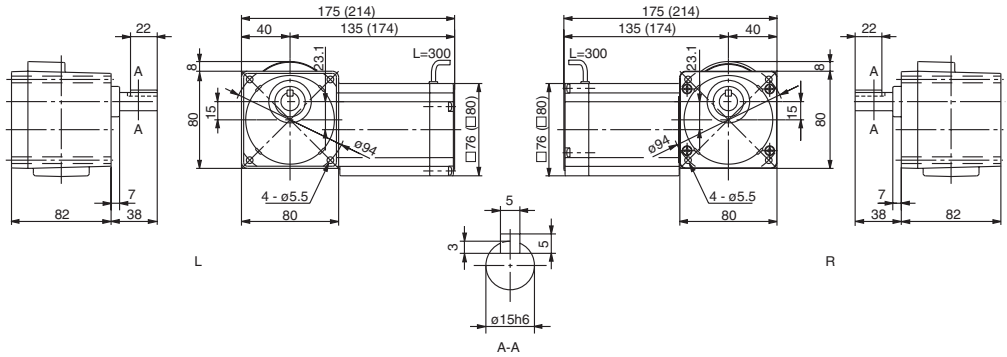
Fig. A-20



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
15W	5:1~100:1	RNFM0015-01 $\frac{L}{R}$-SG (-B) -5~100	2.7 (3.3)
25W	5:1~60:1	RNFM0025-01 $\frac{L}{R}$-SG (-B) -5~60	2.8 (3.4)

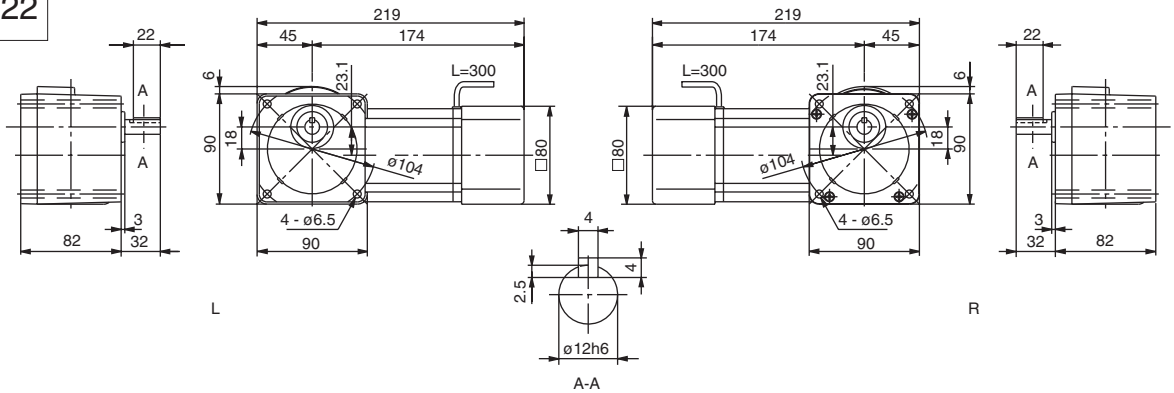
Fig. A-21



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
15W	120:1~240:1	RNFM0015-03 $\frac{L}{R}$-SG (-B) -120~240	2.7 (3.3)
25W	80:1~240:1	RNFM0025-03 $\frac{L}{R}$-SG (-B) -80~240	2.9 (3.5)

Fig. A-22



All dimensions are in millimeters and weight in ( ) is for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	5:1~50:1	RNFM004-05 $\frac{L}{R}$ -SG (-B) -5~50	3.0 (3.6)

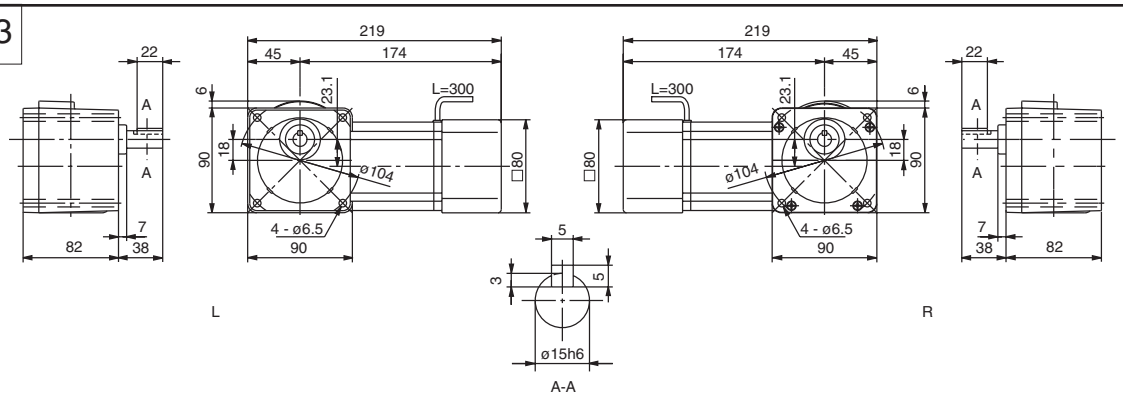
Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

SOLID SHAFT FLANGE MOUNT TYPE

Dimensions – RNFM Series

Single-phase Motor • Indoor Type

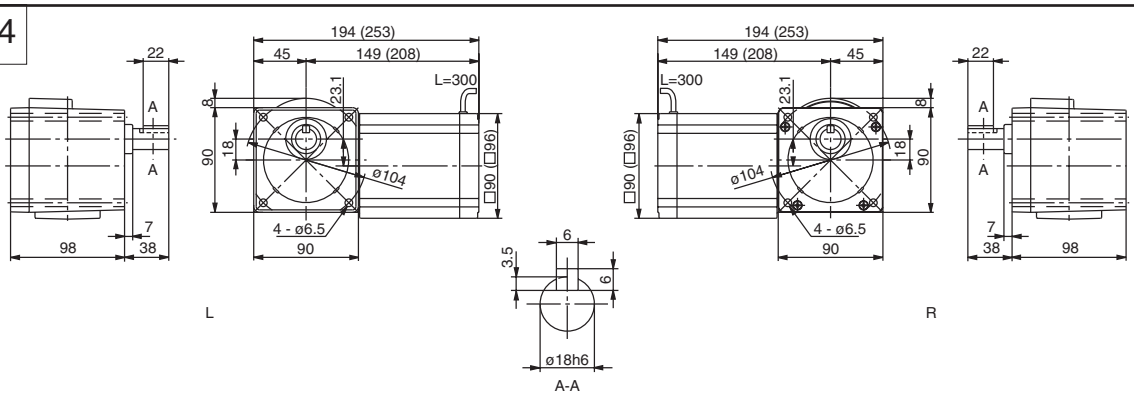
Fig. A-23



All dimensions are in millimeters and weight in ( ) is for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	60:1~120:1	RNFM004-07 $\frac{L}{R}$-SG (-B) -60~120	3.1 (3.7)

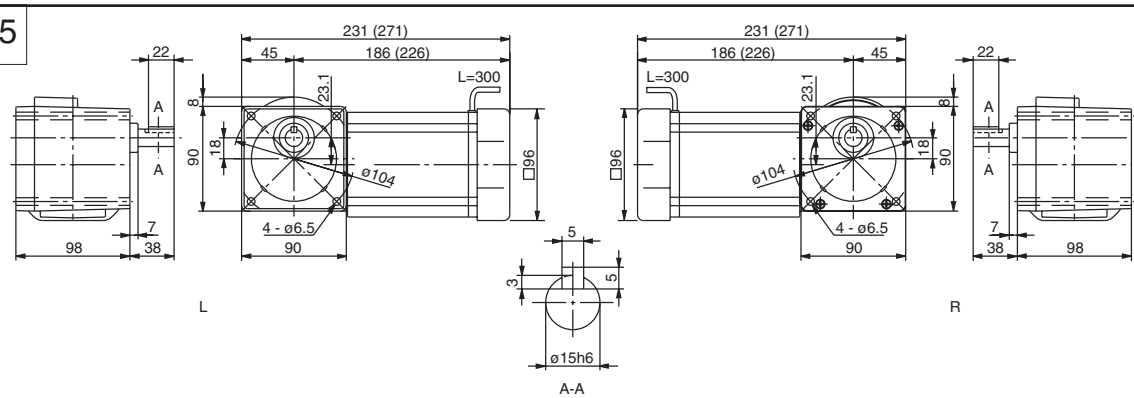
Fig. A-24



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	150:1~240:1	RNFM004-17 $\frac{L}{R}$-SG (-B) -150~240	4.3 (4.7)

Fig. A-25



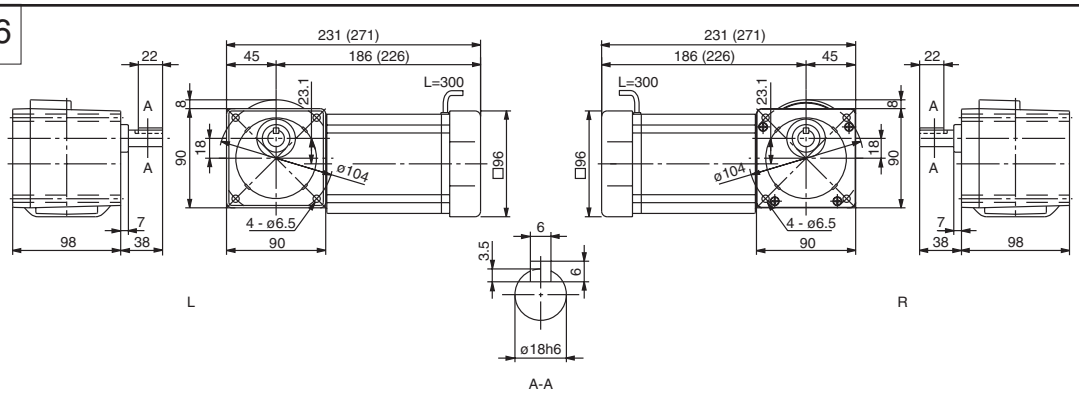
All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
60W	5:1~60:1	RNFM006-15 $\frac{L}{R}$-SG (-B) -5~60	4.3 (4.7)
90W	5:1~60:1	RNFM006-15 $\frac{L}{R}$-SG (-B) -5~60	5.0 (5.4)

Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

Single-phase Motor • Indoor Type

Fig. A-26



All dimensions are in millimeters and dimensions in ( ) are for motor with brake.

Motor Power	Reduction Ratio	Model	Weight (kg)
60W	80:1~240:1	RNFM006-17 $\frac{L}{R}$-SG (-B) -80~240	4.5 (4.9)
90W	80:1~240:1	RNFM009-17 $\frac{L}{R}$-SG (-B) -80~240	5.0 (5.4)

SOLID SHAFT FLANGE MOUNT
Selection Tables – RNFM Series

15W Single-phase Reversible Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque N • m		Output Torque kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size –Suffix– Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.371	0.307	0.038	0.031	343	343	35	35	0015— 01 — SR— 5	
193	233	0.556	0.461	0.057	0.047	343	343	35	35	0015— 01 — SR— 7.5	
145	175	0.742	0.615	0.076	0.063	343	343	35	35	0015— 01 — SR— 10	
121	146	0.890	0.738	0.091	0.075	343	343	35	35	0015— 01 — SR— 12	
96.7	117	1.11	0.922	0.113	0.094	343	343	35	35	0015— 01 — SR— 15	
72.5	87.5	1.48	1.23	0.151	0.125	343	343	35	35	0015— 01 — SR— 20	Page A-33 Fig. A-27
58.0	70.0	1.85	1.54	0.189	0.157	343	343	35	35	0015— 01 — SR— 25	
48.3	58.3	2.23	1.84	0.227	0.188	343	343	35	35	0015— 01 — SR— 30	
36.3	43.8	2.97	2.46	0.303	0.251	343	343	35	35	0015— 01 — SR— 40	
29.0	35.0	3.71	3.07	0.378	0.313	343	343	35	35	0015— 01 — SR— 50	
24.2	29.2	4.45	3.69	0.454	0.376	343	343	35	35	0015— 01 — SR— 60	
18.1	21.9	5.93	4.92	0.605	0.501	343	343	35	35	0015— 01 — SR— 80	
14.5	17.5	7.42	6.15	0.756	0.627	343	343	35	35	0015— 01 — SR—100	
12.1	14.6	8.90	7.38	0.908	0.752	1080	1080	110	110	0015— 03 — SR—120	
9.06	10.9	11.9	9.83	1.21	1.00	1080	1080	110	110	0015— 03 — SR—160	Page A-33 Fig. A-28
7.25	8.75	14.8	12.3	1.51	1.25	1080	1080	110	110	0015— 03 — SR—200	
6.04	7.29	17.8	14.8	1.82	1.50	1080	1080	110	110	0015— 03 — SR—240	

25W Single-phase Reversible Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque N • m		Output Torque kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size –Suffix– Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.618	0.512	0.063	0.052	343	343	35	35	0025— 01 — SR— 5	
193	233	0.927	0.768	0.095	0.078	343	343	35	35	0025— 01 — SR— 7.5	
145	175	1.24	1.02	0.126	0.104	343	343	35	35	0025— 01 — SR— 10	
121	146	1.48	1.23	0.151	0.125	343	343	35	35	0025— 01 — SR— 12	
96.7	117	1.85	1.54	0.189	0.157	343	343	35	35	0025— 01 — SR— 15	
72.5	87.5	2.47	2.05	0.252	0.209	343	343	35	35	0025— 01 — SR— 20	Page A-33 Fig. A-27
58.0	70.0	3.09	2.56	0.315	0.261	343	343	35	35	0025— 01 — SR— 25	
48.3	58.3	3.71	3.07	0.378	0.313	343	343	35	35	0025— 01 — SR— 30	
36.3	43.8	4.95	4.10	0.504	0.418	343	343	35	35	0025— 01 — SR— 40	
29.0	35.0	6.18	5.12	0.630	0.522	343	343	35	35	0025— 01 — SR— 50	
24.2	29.2	7.42	6.15	0.756	0.627	343	343	35	35	0025— 01 — SR— 60	
18.1	21.9	9.9	8.20	1.01	0.836	1080	1080	110	110	0025— 03 — SR— 80	
14.5	17.5	12.4	10.2	1.26	1.04	1080	1080	110	110	0025— 03 — SR—100	
12.1	14.6	14.8	12.3	1.51	1.25	1080	1080	110	110	0025— 03 — SR—120	Page A-33 Fig. A-28
9.06	10.9	19.8	16.4	2.02	1.67	1080	1080	110	110	0025— 03 — SR—160	
7.25	8.75	24.7	20.5	2.52	2.09	1080	1080	110	110	0025— 03 — SR—200	
6.04	7.29	29.7	24.6	3.03	2.51	1080	1080	110	110	0025— 03 — SR—240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.

40W Single-phase Reversible Motor

Motor Speed[1]		
50Hz	1450	RPM
60Hz	1750	RPM

Service Factor = 1.0

Output Speed RPM		Output Torque N • m		Output Torque kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Suffix – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.12	0.929	0.114	0.095	441	392	45	40	004 — 05 — SR — 5	
193	233	1.68	1.39	0.171	0.142	490	441	50	45	004 — 05 — SR — 7.5	
145	175	2.24	1.86	0.229	0.189	539	490	55	50	004 — 05 — SR — 10	
121	146	2.69	2.23	0.274	0.227	588	539	60	55	004 — 05 — SR — 12	
96.7	117	3.36	2.79	0.343	0.284	588	588	60	60	004 — 05 — SR — 15	Page A-33
72.5	87.5	4.48	3.72	0.457	0.379	588	588	60	60	004 — 05 — SR — 20	Fig. A-29
58.0	70.0	5.61	4.64	0.572	0.474	588	588	60	60	004 — 05 — SR — 25	
48.3	58.3	6.73	5.57	0.686	0.568	588	588	60	60	004 — 05 — SR — 30	
36.3	43.8	8.97	7.43	0.914	0.758	588	588	60	60	004 — 05 — SR — 40	
29.0	35.0	11.2	9.29	1.14	0.947	588	588	60	60	004 — 05 — SR — 50	
24.2	29.2	13.5	11.1	1.37	1.14	1080	1080	110	110	004 — 07 — SR — 60	
18.1	21.9	17.9	14.9	1.83	1.52	1080	1080	110	110	004 — 07 — SR — 80	Page A-34
14.5	17.5	22.4	18.6	2.29	1.89	1080	1080	110	110	004 — 07 — SR — 100	Fig. A-30
12.1	14.6	26.9	22.3	2.74	2.27	1080	1080	110	110	004 — 07 — SR — 120	
9.67	11.7	33.6	27.9	3.43	2.84	1420	1420	145	145	004 — 17 — SR — 150	Page A-34
7.25	8.75	44.8	37.2	4.57	3.79	1420	1420	145	145	004 — 17 — SR — 200	Fig. A-31
6.04	7.29	53.8	44.6	5.49	4.55	1420	1420	145	145	004 — 17 — SR — 240	

60W Single-phase Reversible Motor

Motor Speed[1]		
50Hz	1450	RPM
60Hz	1750	RPM

Service Factor = 1.0

Output Speed RPM		Output Torque[3] N • m		Output Torque[3] kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Suffix – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.68	1.39	0.171	0.142	539	490	55	50	006 — 15 — SR — 5	
193	233	2.52	2.09	0.257	0.213	588	539	60	55	006 — 15 — SR — 7.5	
145	175	3.36	2.79	0.343	0.284	637	588	65	60	006 — 15 — SR — 10	
121	146	4.04	3.34	0.412	0.341	686	637	70	65	006 — 15 — SR — 12	
96.7	117	5.04	4.18	0.514	0.426	735	686	75	70	006 — 15 — SR — 15	
72.5	87.5	6.73	5.57	0.686	0.568	785	735	80	75	006 — 15 — SR — 20	Page A-34
58.0	70.0	8.41	6.97	0.857	0.710	834	785	85	80	006 — 15 — SR — 25	Fig. A-32
48.3	58.3	10.1	8.36	1.03	0.852	883	834	90	85	006 — 15 — SR — 30	
36.3	43.8	13.5	11.1	1.37	1.14	981	932	100	95	006 — 15 — SR — 40	
29.0	35.0	16.8	13.9	1.71	1.42	1080	1030	110	105	006 — 15 — SR — 50	
24.2	29.2	20.2	16.7	2.06	1.70	1080	1080	110	110	006 — 15 — SR — 60	
18.1	21.9	26.9	22.3	2.74	2.27	1420	1370	145	140	006 — 17 — SR — 80	
14.5	17.5	33.6	27.9	3.43	2.84	1420	1420	145	145	006 — 17 — SR — 100	
12.1	14.6	40.4	33.4	4.12	3.41	1420	1420	145	145	006 — 17 — SR — 120	Page A-35
9.67	11.7	50.4	41.8	5.14	4.26	1420	1420	145	145	006 — 17 — SR — 150	Fig. A-33
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17 — SR — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17 — SR — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

SOLID SHAFT FLANGE MOUNT
Selection Tables – RNFM Series

90W Single-phase Reversible Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

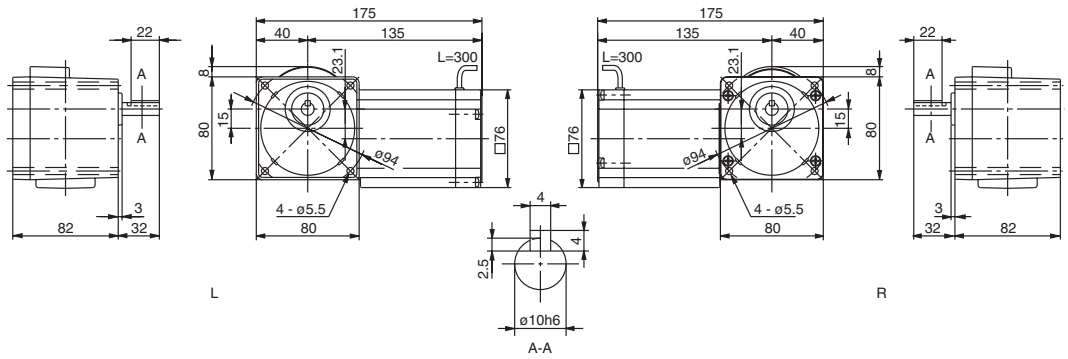
Output Speed RPM		Output Torque[3]				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Suffix – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	2.52	2.09	0.257	0.213	539	490	55	50	009 — 15 — SR — 5	Page A-34 Fig. A-32
193	233	3.78	3.13	0.386	0.320	588	539	60	55	009 — 15 — SR — 7.5	
145	175	5.04	4.18	0.514	0.426	637	588	65	60	009 — 15 — SR — 10	
121	146	6.05	5.02	0.617	0.511	686	637	70	65	009 — 15 — SR — 12	
96.7	117	7.57	6.27	0.772	0.639	735	686	75	70	009 — 15 — SR — 15	
72.5	87.5	10.1	8.36	1.03	0.852	785	735	80	75	009 — 15 — SR — 20	
58.0	70.0	12.6	10.4	1.29	1.07	834	785	85	80	009 — 15 — SR — 25	
48.3	58.3	15.1	12.5	1.54	1.28	883	834	90	85	009 — 15 — SR — 30	
36.3	43.8	20.2	16.7	2.06	1.70	981	932	100	95	009 — 15 — SR — 40	
29.0	35.0	25.2	20.9	2.57	2.13	1270	1230	130	125	009 — 15 — SR — 50	
24.2	29.2	30.3	25.1	3.09	2.56	1320	1270	135	130	009 — 15 — SR — 60	
18.1	21.9	40.4	33.4	4.12	3.41	1420	1370	145	140	009 — 17 — SR — 80	Page A-35 Fig. A-33
14.5	17.5	50.4	41.8	5.14	4.26	1420	1420	145	145	009 — 17 — SR — 100	
12.1	14.6	*53.9	50.2	*5.50	5.11	1420	1420	145	145	009 — 17 — SR — 120	
9.67	11.7	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — SR — 150	
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — SR — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — SR — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

SOLID SHAFT FLANGE MOUNT TYPE
Dimensions – RNFM Series

Single-phase Reversible Motor • Indoor Type

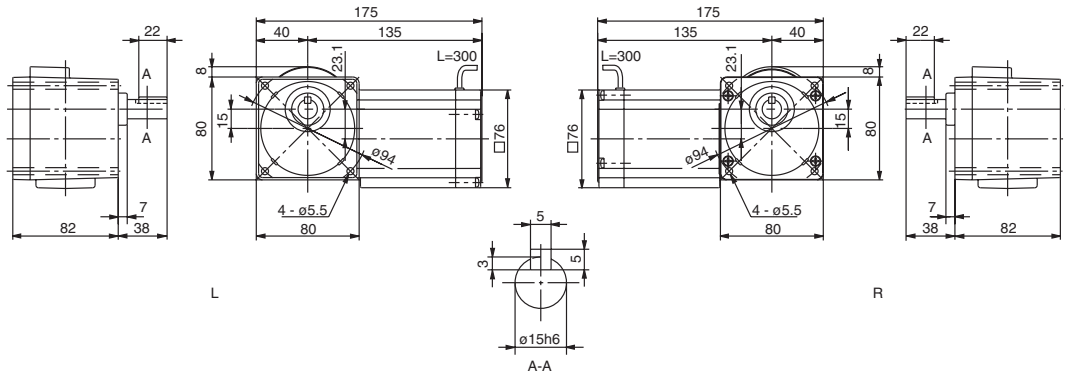
Fig. A-27



All dimensions are in millimeters.

Motor Power	Reduction Ratio	Model	Weight (kg)
15W	5:1~100:1	RNFM0015-01 $\frac{L}{R}$ (-B) -5~100	2.7
25W	5:1~60:1	RNFM0025-01 $\frac{L}{R}$ (-B) -5~60	2.8

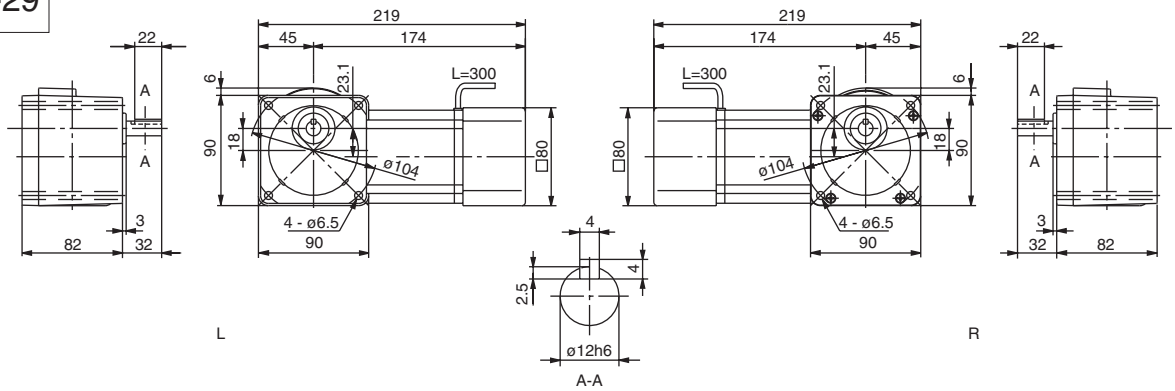
Fig. A-28



All dimensions are in millimeters.

Motor Power	Reduction Ratio	Model	Weight (kg)
15W	120:1~240:1	RNFM0015-03 $\frac{L}{R}$ - SR -120~240	2.7
25W	80:1~240:1	RNFM0025-03 $\frac{L}{R}$ - SR -80~120	2.9

Fig. A-29



All dimensions are in millimeters.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	5:1~50:1	RNFM004-05 $\frac{L}{R}$ - SR -5~50	3.0

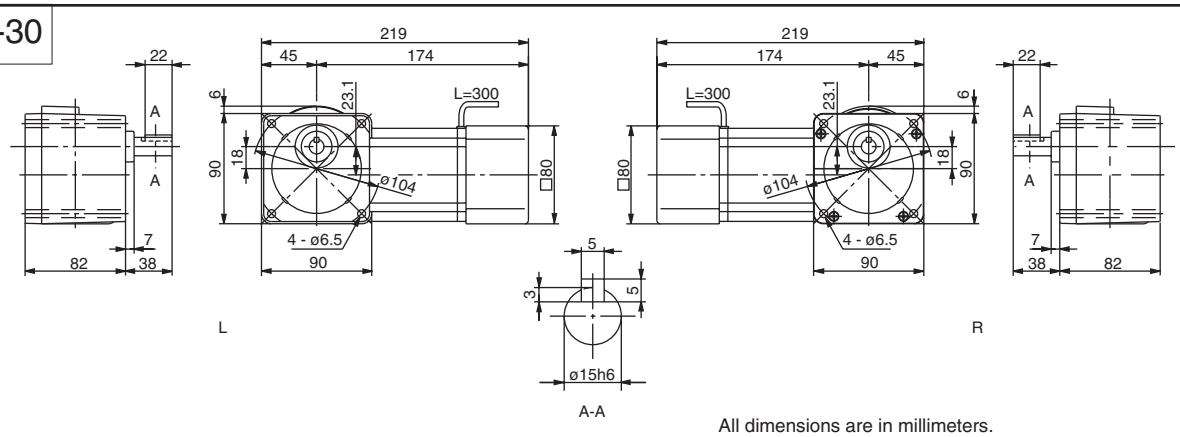
Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

SOLID SHAFT FLANGE MOUNT TYPE

Dimensions – RNFM Series

Single-phase Reversible Motor • Indoor Type

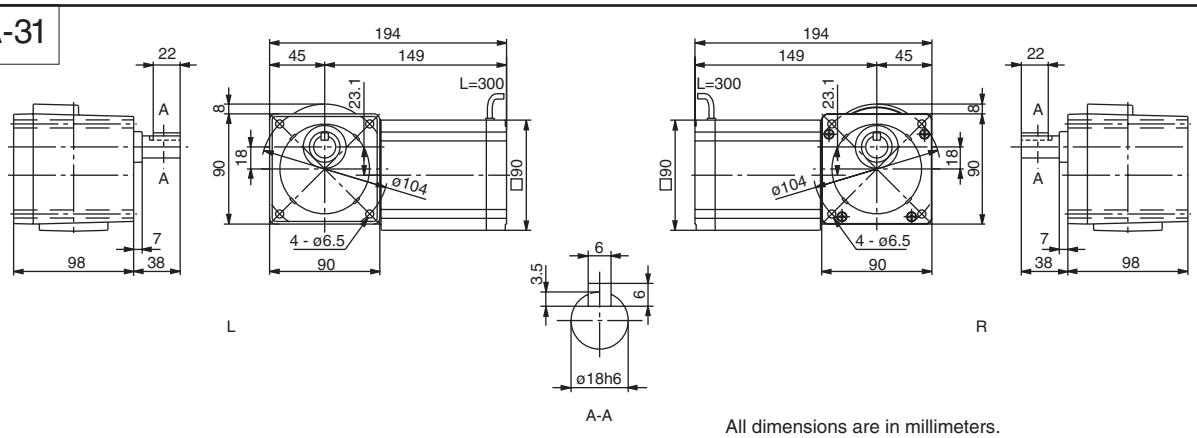
Fig. A-30



All dimensions are in millimeters.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	60:1~120:1	RNFM004-07 $\frac{L}{R}$-SR-60~120	3.1

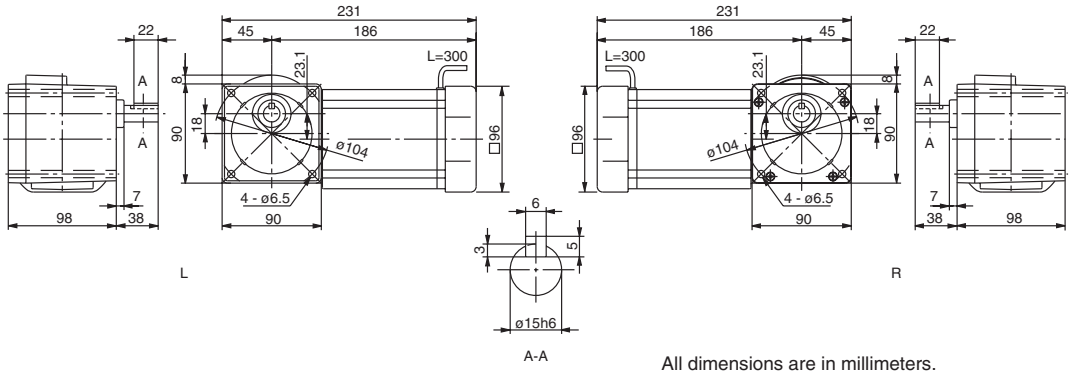
Fig. A-31



All dimensions are in millimeters.

Motor Power	Reduction Ratio	Model	Weight (kg)
40W	150:1~240:1	RNFM004-17 $\frac{L}{R}$-SR-150~240	4.3

Fig. A-32



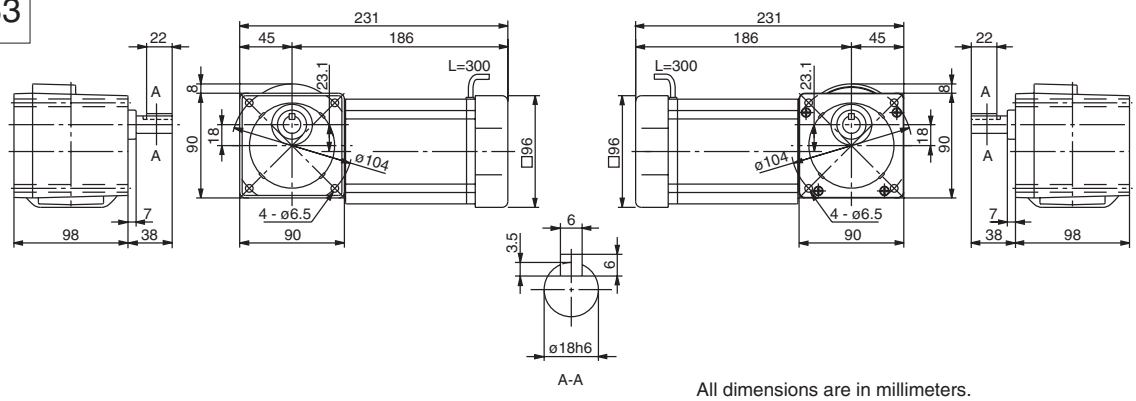
All dimensions are in millimeters.

Motor Power	Reduction Ratio	Model	Weight (kg)
60W	5:1~60:1	RNFM006-15 $\frac{L}{R}$-SR-5~60	4.5
90W	5:1~60:1	RNFM009-15 $\frac{L}{R}$-SR-5~60	5.0

Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

Single-phase Reversible Motor • Indoor Type

Fig. A-33



All dimensions are in millimeters.

Motor Power	Reduction Ratio	Model	Weight (kg)
60W	80:1~240:1	RNFM006-17 $\frac{L}{R}$-SR-80~240	4.9
90W	80:1~240:1	RNFM009-17 $\frac{L}{R}$-SR-80~240	5.4

NOTES

SM-HYPONIC® SUB-FRACTIONAL GEARMOTOR WATERPROOF TYPE (IP65) HOLLOW SHAFT

WATERPROOF/DUSTPROOF IP65

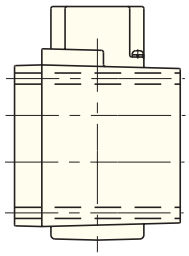
IEC Standard IP65 Waterproof/dustproof. It is ideal for places exposed to water splashes or places that are washed periodically.

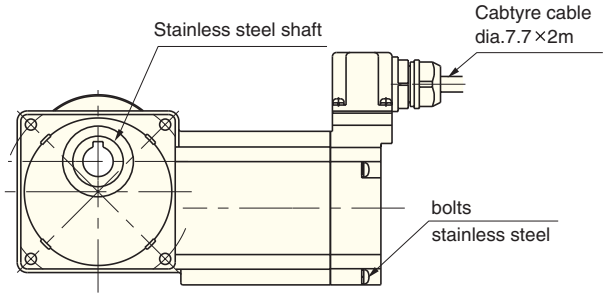
IP65: The IP indication that represents dustproofing and waterproofing grades is prescribed by IEC529 and IEC34-5. “6” of IP65 represents a “perfect dustproofing structure” that is the highest-grade protection from contact or entry of solids, while “5” represents protection from water, ensuring protection from water jets in all directions.

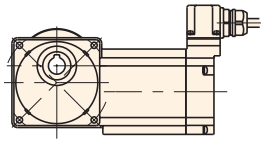
The motor has a structure that permits motor operation without any trouble even if it is exposed to water jets in all directions from a nozzle.

Test conditions: A nozzle of 6.3 mm in I.D. is placed at a distance of 3 m from the test piece and water jetted out of the nozzle under pressure of 30 kPa at the flow rate of 12.5 l/min is directed at the test piece in all directions for three minutes. Following this test, the motor should still operate normally. The motor cannot be used underwater or in places exposed to high-pressure water jets.

Hollow shaft type





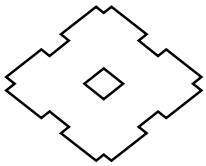


Product range Waterproof (IP65)

Hollow shaft type 15W-90W

Reduction ratio		1/5	1/7.5	1/10	1/12	1/15	1/20	1/25	1/30	1/40	1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240
Output speed (r/min)	50Hz	290	193	145	121	96.7	72.5	58.0	48.3	36.3	29.0	24.2	18.1	14.5	12.1	9.06	7.25	6.04
	60Hz	350	233	175	146	117	87.5	70.0	58.3	43.8	35.0	29.2	21.9	17.5	14.6	10.9	8.75	7.29
3-phase motor without brake	15W	frame size 03 bore diameter 15 mounting face 80×80																
	25W	frame size 03 bore diameter 15 mounting face 80×80																
	40W	frame size 07 bore diameter 15 mounting face 90×90														frame size 17 bore dia.15 mounting face 90×90		
	60W	frame size 07 bore diameter 15 mounting face 90×90											frame size 17 bore dia. 15 mounting face 90×90					
	90W	frame size 17 bore diameter 15 mounting face 90×90																
3-phase motor with brake	15W	frame size 03 bore diameter 15 mounting face 80×80																
	25W	frame size 03 bore diameter 15 mounting face 80×80																
	40W	frame size 07 bore diameter 15 mounting face 90×90														frame size 17 bore dia.15 mounting face 90×90		
	60W	frame size 07 bore diameter 15 mounting face 90×90											frame size 17 bore dia.15 mounting face 90×90					
	90W	frame size 17 bore diameter 15 mounting face 90×90																
single-phase motor without brake	15W	frame size 03 bore diameter 15 mounting face 80×80																
	25W	frame size 03 bore diameter 15 mounting face 80×80																
single-phase motor with brake	15W	frame size 03 bore diameter 15 mounting face 80×80																
	25W	frame size 03 bore diameter 15 mounting face 80×80																

WATERPROOF (IP65) HOLLOW SHAFT
Selection Tables – RNYM Series



15W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.371	0.307	0.038	0.031	539	490	55	50	0015 — 03 — 5	
193	233	0.556	0.461	0.057	0.047	588	539	60	55	0015 — 03 — 7.5	
145	175	0.742	0.615	0.076	0.063	637	588	65	60	0015 — 03 — 10	
121	146	0.890	0.738	0.091	0.075	686	637	70	65	0015 — 03 — 12	
96.7	117	1.11	0.922	0.113	0.094	735	686	75	70	0015 — 03 — 15	
72.5	87.5	1.48	1.23	0.151	0.125	785	735	80	75	0015 — 03 — 20	
58.0	70.0	1.85	1.54	0.189	0.157	834	785	85	80	0015 — 03 — 25	
48.3	58.3	2.23	1.84	0.227	0.188	883	834	90	85	0015 — 03 — 30	
36.3	43.8	2.97	2.46	0.303	0.251	981	932	100	95	0015 — 03 — 40	Page B-7
29.0	35.0	3.71	3.07	0.378	0.313	1080	1030	110	105	0015 — 03 — 50	
24.2	29.2	4.45	3.69	0.454	0.376	1080	1080	110	110	0015 — 03 — 60	
18.1	21.9	5.93	4.92	0.605	0.501	1080	1080	110	110	0015 — 03 — 80	
14.5	17.5	7.42	6.15	0.756	0.627	1080	1080	110	110	0015 — 03 — 100	
12.1	14.6	8.90	7.38	0.908	0.752	1080	1080	110	110	0015 — 03 — 120	
9.06	10.9	11.9	9.83	1.21	1.00	1080	1080	110	110	0015 — 03 — 160	
7.25	8.75	14.8	12.3	1.51	1.25	1080	1080	110	110	0015 — 03 — 200	
6.04	7.29	17.8	14.8	1.82	1.50	1080	1080	110	110	0015 — 03 — 240	

25W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.618	0.512	0.063	0.052	539	490	55	50	0025 — 03 — 5	
193	233	0.927	0.768	0.095	0.078	588	539	60	55	0025 — 03 — 7.5	
145	175	1.24	1.02	0.126	0.104	637	588	65	60	0025 — 03 — 10	
121	146	1.48	1.23	0.151	0.125	686	637	70	65	0025 — 03 — 12	
96.7	117	1.85	1.54	0.189	0.157	735	686	75	70	0025 — 03 — 15	
72.5	87.5	2.47	2.05	0.252	0.209	785	735	80	75	0025 — 03 — 20	
58.0	70.0	3.09	2.56	0.315	0.261	834	785	85	80	0025 — 03 — 25	
48.3	58.3	3.71	3.07	0.378	0.313	883	834	90	85	0025 — 03 — 30	
36.3	43.8	4.95	4.10	0.504	0.418	981	932	100	95	0025 — 03 — 40	Page B-7
29.0	35.0	6.18	5.12	0.630	0.522	1080	1030	110	105	0025 — 03 — 50	
24.2	29.2	7.42	6.15	0.756	0.627	1080	1080	110	110	0025 — 03 — 60	
18.1	21.9	9.89	8.20	1.01	0.836	1080	1080	110	110	0025 — 03 — 80	
14.5	17.5	12.4	10.2	1.26	1.04	1080	1080	110	110	0025 — 03 — 100	
12.1	14.6	14.8	12.3	1.51	1.25	1080	1080	110	110	0025 — 03 — 120	
9.06	10.9	19.8	16.4	2.02	1.67	1080	1080	110	110	0025 — 03 — 160	
7.25	8.75	24.7	20.5	2.52	2.09	1080	1080	110	110	0025 — 03 — 200	
6.04	7.29	29.7	24.6	3.03	2.51	1080	1080	110	110	0025 — 03 — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.

WATERPROOF (IP65) HOLLOW SHAFT
Selection Tables – RNYM Series

40W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Output Speed RPM		Output Torque N • m		Output Torque kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.12	0.929	0.114	0.095	539	490	55	50	004 — 07 — 5	
193	233	1.68	1.39	0.171	0.142	588	539	60	55	004 — 07 — 7.5	
145	175	2.24	1.86	0.229	0.189	637	588	65	60	004 — 07 — 10	
121	146	2.69	2.23	0.274	0.227	686	637	70	65	004 — 07 — 12	
96.7	117	3.36	2.79	0.343	0.284	735	686	75	70	004 — 07 — 15	
72.5	87.5	4.48	3.72	0.457	0.379	785	735	80	75	004 — 07 — 20	
58.0	70.0	5.61	4.64	0.572	0.474	834	785	85	80	004 — 07 — 25	
48.3	58.3	6.73	5.57	0.686	0.568	883	834	90	85	004 — 07 — 30	
36.3	43.8	8.97	7.43	0.914	0.758	981	932	100	95	004 — 07 — 40	Page B-7
29.0	35.0	11.2	9.29	1.14	0.947	1080	1030	110	105	004 — 07 — 50	
24.2	29.2	13.5	11.1	1.37	1.14	1080	1080	110	110	004 — 07 — 60	
18.1	21.9	17.9	14.9	1.83	1.52	1080	1080	110	110	004 — 07 — 80	
14.5	17.5	22.4	18.6	2.29	1.89	1080	1080	110	110	004 — 07 — 100	
12.1	14.6	26.9	22.3	2.74	2.27	1080	1080	110	110	004 — 07 — 120	
9.67	11.7	33.6	27.9	3.43	2.84	1420	1420	145	145	004 — 17 — 150	
7.25	8.75	44.8	37.2	4.57	3.79	1420	1420	145	145	004 — 17 — 200	
6.04	7.29	53.8	44.6	5.49	4.55	1420	1420	145	145	004 — 17 — 240	

60W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Output Speed RPM		Output Torque[3] N • m		Output Torque[3] kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.68	1.39	0.171	0.142	539	490	55	50	006 — 07 — 5	
193	233	2.52	2.09	0.257	0.213	588	539	60	55	006 — 07 — 7.5	
145	175	3.36	2.79	0.343	0.284	637	588	65	60	006 — 07 — 10	
121	146	4.04	3.34	0.412	0.341	686	637	70	65	006 — 07 — 12	
96.7	117	5.04	4.18	0.514	0.426	735	686	75	70	006 — 07 — 15	
72.5	87.5	6.73	5.57	0.686	0.568	785	735	80	75	006 — 07 — 20	
58.0	70.0	8.41	6.97	0.857	0.710	834	785	85	80	006 — 07 — 25	
48.3	58.3	10.1	8.36	1.03	0.852	883	834	90	85	006 — 07 — 30	
36.3	43.8	13.5	11.1	1.37	1.14	981	932	100	95	006 — 07 — 40	Page B-7
29.0	35.0	16.8	13.9	1.71	1.42	1080	1030	110	105	006 — 07 — 50	
24.2	29.2	20.2	16.7	2.06	1.70	1080	1080	110	110	006 — 07 — 60	
18.1	21.9	26.9	22.3	2.74	2.27	1420	1370	145	140	006 — 17 — 80	
14.5	17.5	33.6	27.9	3.43	2.84	1420	1420	145	145	006 — 17 — 100	
12.1	14.6	40.4	33.4	4.12	3.41	1420	1420	145	145	006 — 17 — 120	
9.67	11.7	50.4	41.8	5.14	4.26	1420	1420	145	145	006 — 17 — 150	
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17 — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17 — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

90W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Output Speed RPM		Output Torque[3]				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	2.52	2.09	0.257	0.213	637	588	65	60	009 — 17 — 5	
193	233	3.78	3.13	0.386	0.320	686	637	70	65	009 — 17 — 7.5	
145	175	5.04	4.18	0.514	0.426	785	735	80	75	009 — 17 — 10	
121	146	6.05	5.02	0.617	0.511	834	785	85	80	009 — 17 — 12	
96.7	117	7.57	6.27	0.772	0.639	883	834	90	85	009 — 17 — 15	
72.5	87.5	10.1	8.36	1.03	0.852	981	932	100	95	009 — 17 — 20	
58.0	70.0	12.6	10.4	1.29	1.07	1030	981	105	100	009 — 17 — 25	
48.3	58.3	15.1	12.5	1.54	1.28	1080	1030	110	105	009 — 17 — 30	
36.3	43.8	20.2	16.7	2.06	1.70	1180	1130	120	115	009 — 17 — 40	
29.0	35.0	25.2	20.9	2.57	2.13	1270	1230	130	125	009 — 17 — 50	
24.2	29.2	30.3	25.1	3.09	2.56	1320	1270	135	130	009 — 17 — 60	
18.1	21.9	40.4	33.4	4.12	3.41	1420	1370	145	140	009 — 17 — 80	
14.5	17.5	50.4	41.8	5.14	4.26	1420	1420	145	145	009 — 17 — 100	Page B-7
12.1	14.6	*53.9	50.2	*5.50	5.11	1420	1420	145	145	009 — 17 — 120	
9.67	11.7	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — 150	
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — 240	
4.83	5.83	142	118	14.5	12.0	3090	3090	315	315	009 — 361 — 300	
4.03	4.86	171	142	17.4	14.4	3090	3090	315	315	009 — 361 — 360	
3.02	3.65	*195	189	*19.9	19.3	3090	3090	315	315	009 — 361 — 480	
2.59	3.13	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 361 — 560	
1.93	2.33	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 361 — 750	
1.61	1.94	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 361 — 900	
1.21	1.46	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 361 — 1200	
1.01	1.22	*195	*195	*19.9	*19.9	3090	3090	315	315	009 — 361 — 1440	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

WATERPROOF (IP65) HOLLOW SHAFT
Selection Tables – RNYM Series

15W Single-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size –Suffix– Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.371	0.307	0.038	0.031	539	490	55	50	0015 — 03—SG — 5	
193	233	0.556	0.461	0.057	0.047	588	539	60	55	0015 — 03—SG — 7.5	
145	175	0.742	0.615	0.076	0.063	637	588	65	60	0015 — 03—SG — 10	
121	146	0.890	0.738	0.091	0.075	686	637	70	65	0015 — 03—SG — 12	
96.7	117	1.11	0.922	0.113	0.094	735	686	75	70	0015 — 03—SG — 15	
72.5	87.5	1.48	1.23	0.151	0.125	785	735	80	75	0015 — 03—SG — 20	
58.0	70.0	1.85	1.54	0.189	0.157	834	785	85	80	0015 — 03—SG — 25	
48.3	58.3	2.23	1.84	0.227	0.188	883	834	90	85	0015 — 03—SG — 30	
36.3	43.8	2.97	2.46	0.303	0.251	981	932	100	95	0015 — 03—SG — 40	Page B-7
29.0	35.0	3.71	3.07	0.378	0.313	1080	1030	110	105	0015 — 03—SG — 50	
24.2	29.2	4.45	3.69	0.454	0.376	1080	1080	110	110	0015 — 03—SG — 60	
18.1	21.9	5.93	4.92	0.605	0.501	1080	1080	110	110	0015 — 03—SG — 80	
14.5	17.5	7.42	6.15	0.756	0.627	1080	1080	110	110	0015 — 03—SG — 100	
12.1	14.6	8.90	7.38	0.908	0.752	1080	1080	110	110	0015 — 03—SG — 120	
9.06	10.9	11.9	9.83	1.21	1.00	1080	1080	110	110	0015 — 03—SG — 160	
7.25	8.75	14.8	12.3	1.51	1.25	1080	1080	110	110	0015 — 03—SG — 200	
6.04	7.29	17.8	14.8	1.82	1.50	1080	1080	110	110	0015 — 03—SG — 240	

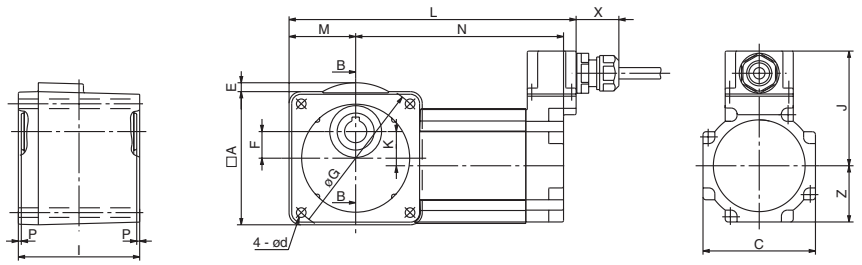
25W Single-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size –Suffix– Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.618	0.512	0.063	0.052	539	490	55	50	0025 — 03— SG — 5	
193	233	0.927	0.768	0.095	0.078	588	539	60	55	0025 — 03— SG — 7.5	
145	175	1.24	1.02	0.126	0.104	637	588	65	60	0025 — 03— SG — 10	
121	146	1.48	1.23	0.151	0.125	686	637	70	65	0025 — 03— SG — 12	
96.7	117	1.85	1.54	0.189	0.157	735	686	75	70	0025 — 03— SG — 15	
72.5	87.5	2.47	2.05	0.252	0.209	785	735	80	75	0025 — 03— SG — 20	
58.0	70.0	3.09	2.56	0.315	0.261	834	785	85	80	0025 — 03— SG — 25	
48.3	58.3	3.71	3.07	0.378	0.313	883	834	90	85	0025 — 03— SG — 30	
36.3	43.8	4.95	4.10	0.504	0.418	981	932	100	95	0025 — 03— SG — 40	Page B-7
29.0	35.0	6.18	5.12	0.630	0.522	1080	1030	110	105	0025 — 03— SG — 50	
24.2	29.2	7.42	6.15	0.756	0.627	1080	1080	110	110	0025 — 03— SG — 60	
18.1	21.9	9.89	8.20	1.01	0.836	1080	1080	110	110	0025 — 03— SG — 80	
14.5	17.5	12.4	10.2	1.26	1.04	1080	1080	110	110	0025 — 03— SG — 100	
12.1	14.6	14.8	12.3	1.51	1.25	1080	1080	110	110	0025 — 03— SG — 120	
9.06	10.9	19.8	16.4	2.02	1.67	1080	1080	110	110	0025 — 03— SG — 160	
7.25	8.75	24.7	20.5	2.52	2.09	1080	1080	110	110	0025 — 03— SG — 200	
6.04	7.29	29.7	24.6	3.03	2.51	1080	1080	110	110	0025 — 03— SG — 240	

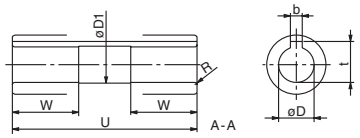
Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.

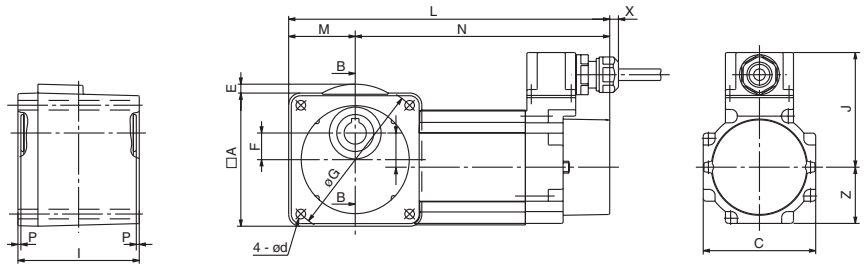
WATERPROOF (IP65) HOLLOW SHAFT

Dimensions – RNYM Series



Without Brake





With Brake

3-phase motor

All dimensions are in millimeters.

Motor Power	Model	A	C	E	F	G	I	J	K	M	P	Z	d
15W	RNYM0015-03-5~240	80	76	8	15	94	82	78	23	40	2	38	5.5
25W	RNYM0025-03-5~240	80	76	8	15	94	82	78	23	40	2	38	5.5
40W	RNYM004-07-5~120	90	76	6	18	104	82	78	23	45	2	38	6.5
	RNYM004-17-150~240	90	90	8	18	104	98	86	23	45	2	45	6.5
60W	RNYM006-07-5~60	90	76	6	18	104	82	78	23	45	2	38	6.5
	RNYM006-17-80~240	90	90	8	18	104	98	86	23	45	2	45	6.5
90W	RNYM009-17-5~240	90	90	8	18	104	98	86	23	45	2	45	6.5

Motor Power	Model	Hollow Output Shaft							Without Brake			With Brake			Weight
		D	b	t	D1	U	W	R	L	N	X	L	N	X	(kg)
15W	RNYM0015-03-5~240	15H8	5	17.3	15.6	78	28	1	189	141	29	212	172	6	2.8 (3.1)
25W	RNYM0025-03-5~240	15H8	5	17.3	15.6	78	28	1	189	141	29	212	172	6	2.9 (3.2)
40W	RNYM004-07-5~120	15H8	5	17.3	15.6	78	28	1	194	141	29	217	172	6	3.1 (3.4)
	RNYM004-17-150~240	15H8	5	17.3	15.6	94	28	1	229	176	29	255	210	3	4.7 (5.1)
60W	RNYM006-07-5~60	15H8	5	17.3	15.6	78	28	1	194	141	29	217	172	6	3.1 (3.4)
	RNYM006-17-80~240	15H8	5	17.3	15.6	94	28	1	229	176	29	255	210	3	4.7 (5.1)
90W	RNYM009-17-5~240	15H8	5	17.3	15.6	94	28	1	229	176	29	255	210	3	4.7 (5.1)

Values in ( ) are for motors with brake.

Single-phase motor

Motor Power	Model	A	C	E	F	G	I	J	K	M	P	Z	d
15W	RNYM0015-03-SG-5~240	80	76	8	15	94	82	78	23	40	2	38	5.5
25W	RNYM0025-03-SG-5~240	80	76	8	15	94	82	78	23	40	2	38	5.5

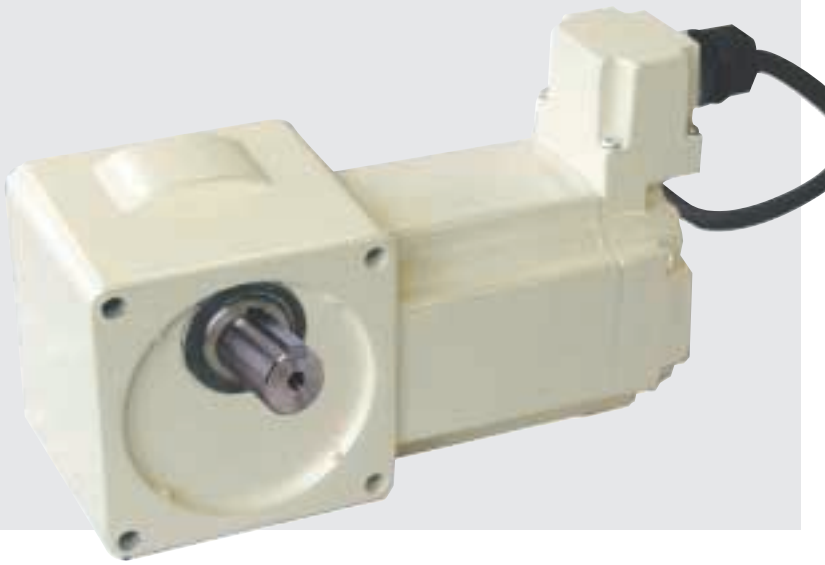
Motor Power	Model	Output Hollow Shaft							Without Brake			With Brake			Weight
		D	b	t	D1	U	W	R	L	N	X	L	N	X	(kg)
15W	RNYM0015-03-SG-5~240	15H8	5	17.3	15.6	78	28	1	189	141	29	212	172	6	2.8 (3.1)
25W	RNYM0025-03-SG-5~240	15H8	5	17.3	15.6	78	28	1	189	141	29	212	172	6	2.9 (3.2)

Values in ( ) are for motors with brake.

Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

NOTES

SM-HYPONIC® SUB-FRACTIONAL GEARMOTOR WATERPROOF TYPE (IP65) SOLID SHAFT



WATERPROOF (IP65) SOLID SHAFT FLANGE MOUNT TYPE Selection Tables – RNFM Series

15W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.371	0.307	0.038	0.031	343	343	35	35	0015 — 01 — 5	Pages B-14~15
193	233	0.556	0.461	0.057	0.047	343	343	35	35	0015 — 01 — 7.5	
145	175	0.742	0.615	0.076	0.063	343	343	35	35	0015 — 01 — 10	
121	146	0.890	0.738	0.091	0.075	343	343	35	35	0015 — 01 — 12	
96.7	117	1.11	0.922	0.113	0.094	343	343	35	35	0015 — 01 — 15	
72.5	87.5	1.48	1.23	0.151	0.125	343	343	35	35	0015 — 01 — 20	
58.0	70.0	1.85	1.54	0.189	0.157	343	343	35	35	0015 — 01 — 25	
48.3	58.3	2.23	1.84	0.227	0.188	343	343	35	35	0015 — 01 — 30	
36.3	43.8	2.97	2.46	0.303	0.251	343	343	35	35	0015 — 01 — 40	
29.0	35.0	3.71	3.07	0.378	0.313	343	343	35	35	0015 — 01 — 50	
24.2	29.2	4.45	3.69	0.454	0.376	343	343	35	35	0015 — 01 — 60	
18.1	21.9	5.93	4.92	0.605	0.501	343	343	35	35	0015 — 01 — 80	
14.5	17.5	7.42	6.15	0.756	0.627	343	343	35	35	0015 — 01 — 100	
12.1	14.6	8.90	7.38	0.908	0.752	1080	1080	110	110	0015 — 03 — 120	
9.06	10.9	11.9	9.83	1.21	1.00	1080	1080	110	110	0015 — 03 — 160	
7.25	8.75	14.8	12.3	1.51	1.25	1080	1080	110	110	0015 — 03 — 200	
6.04	7.29	17.8	14.8	1.82	1.50	1080	1080	110	110	0015 — 03 — 240	

25W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.618	0.512	0.063	0.052	343	343	35	35	0025 — 01 — 5	Pages B-14~15
193	233	0.927	0.768	0.095	0.078	343	343	35	35	0025 — 01 — 7.5	
145	175	1.24	1.02	0.126	0.104	343	343	35	35	0025 — 01 — 10	
121	146	1.48	1.23	0.151	0.125	343	343	35	35	0025 — 01 — 12	
96.7	117	1.85	1.54	0.189	0.157	343	343	35	35	0025 — 01 — 15	
72.5	87.5	2.47	2.05	0.252	0.209	343	343	35	35	0025 — 01 — 20	
58.0	70.0	3.09	2.56	0.315	0.261	343	343	35	35	0025 — 01 — 25	
48.3	58.3	3.71	3.07	0.378	0.313	343	343	35	35	0025 — 01 — 30	
36.3	43.8	4.95	4.10	0.504	0.418	343	343	35	35	0025 — 01 — 40	
29.0	35.0	6.18	5.12	0.630	0.522	343	343	35	35	0025 — 01 — 50	
24.2	29.2	7.42	6.15	0.756	0.627	343	343	35	35	0025 — 01 — 60	
18.1	21.9	9.9	8.20	1.01	0.836	1080	1080	110	110	0025 — 03 — 80	
14.5	17.5	12.4	10.2	1.26	1.04	1080	1080	110	110	0025 — 03 — 100	
12.1	14.6	14.8	12.3	1.51	1.25	1080	1080	110	110	0025 — 03 — 120	
9.06	10.9	19.8	16.4	2.02	1.67	1080	1080	110	110	0025 — 03 — 160	
7.25	8.75	24.7	20.5	2.52	2.09	1080	1080	110	110	0025 — 03 — 200	
6.04	7.29	29.7	24.6	3.03	2.51	1080	1080	110	110	0025 — 03 — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.

40W 3-phase Motor

Motor Speed[1]
50Hz 1450 RPM 60Hz 1750 RPM

Output Speed RPM		Output Torque N • m		Output Torque kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.12	0.929	0.114	0.095	441	392	45	40	004 — 05 — 5	Pages B-14~15
193	233	1.68	1.39	0.171	0.142	490	441	50	45	004 — 05 — 7.5	
145	175	2.24	1.86	0.229	0.189	539	490	55	50	004 — 05 — 10	
121	146	2.69	2.23	0.274	0.227	588	539	60	55	004 — 05 — 12	
96.7	117	3.36	2.79	0.343	0.284	588	588	60	60	004 — 05 — 15	
72.5	87.5	4.48	3.72	0.457	0.379	588	588	60	60	004 — 05 — 20	
58.0	70.0	5.61	4.64	0.572	0.474	588	588	60	60	004 — 05 — 25	
48.3	58.3	6.73	5.57	0.686	0.568	588	588	60	60	004 — 05 — 30	
36.3	43.8	8.97	7.43	0.914	0.758	588	588	60	60	004 — 05 — 40	
29.0	35.0	11.2	9.29	1.14	0.947	588	588	60	60	004 — 05 — 50	
24.2	29.2	13.5	11.1	1.37	1.14	1080	1080	110	110	004 — 07 — 60	
18.1	21.9	17.9	14.9	1.83	1.52	1080	1080	110	110	004 — 07 — 80	
14.5	17.5	22.4	18.6	2.29	1.89	1080	1080	110	110	004 — 07 — 100	
12.1	14.6	26.9	22.3	2.74	2.27	1080	1080	110	110	004 — 07 — 120	
9.67	11.7	33.6	27.9	3.43	2.84	1420	1420	145	145	004 — 17 — 150	
7.25	8.75	44.8	37.2	4.57	3.79	1420	1420	145	145	004 — 17 — 200	
6.04	7.29	53.8	44.6	5.49	4.55	1420	1420	145	145	004 — 17 — 240	

60W 3-phase Motor

Motor Speed[1]
50Hz 1450 RPM 60Hz 1750 RPM

Output Speed RPM		Output Torque[3] N • m		Output Torque[3] kgf • m		Allowable Overhung Load[2] N		Allowable Overhung Load[2] kgf		Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	1.68	1.39	0.171	0.142	539	490	55	50	006 — 07 — 5	Pages B-14~15
193	233	2.52	2.09	0.257	0.213	588	539	60	55	006 — 07 — 7.5	
145	175	3.36	2.79	0.343	0.284	637	588	65	60	006 — 07 — 10	
121	146	4.04	3.34	0.412	0.341	686	637	70	65	006 — 07 — 12	
96.7	117	5.04	4.18	0.514	0.426	735	686	75	70	006 — 07 — 15	
72.5	87.5	6.73	5.57	0.686	0.568	785	735	80	75	006 — 07 — 20	
58.0	70.0	8.41	6.97	0.857	0.710	834	785	85	80	006 — 07 — 25	
48.3	58.3	10.1	8.36	1.03	0.852	883	834	90	85	006 — 07 — 30	
36.3	43.8	13.5	11.1	1.37	1.14	981	932	100	95	006 — 07 — 40	
29.0	35.0	16.8	13.9	1.71	1.42	1080	1030	110	105	006 — 07 — 50	
24.2	29.2	20.2	16.7	2.06	1.70	1080	1080	110	110	006 — 07 — 60	
18.1	21.9	26.9	22.3	2.74	2.27	1420	1370	145	140	006 — 17 — 80	
14.5	17.5	33.6	27.9	3.43	2.84	1420	1420	145	145	006 — 17 — 100	
12.1	14.6	40.4	33.4	4.12	3.41	1420	1420	145	145	006 — 17 — 120	
9.67	11.7	50.4	41.8	5.14	4.26	1420	1420	145	145	006 — 17 — 150	
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17 — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	006 — 17 — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

WATERPROOF (IP65) SOLID SHAFT FLANGE MOUNT TYPE Selection Tables – RNFM Series

90W 3-phase Motor	Motor Speed[1]
	50Hz 1450 RPM 60Hz 1750 RPM

Service Factor = 1.0

Output Speed RPM		Output Torque[3]				Allowable Overhung Load[2]				Capacity Symbol – Frame Size – Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	2.52	2.09	0.257	0.213	539	490	55	50	009 — 15 — 5	
193	233	3.78	3.13	0.386	0.320	588	539	60	55	009 — 15 — 7.5	
145	175	5.04	4.18	0.514	0.426	637	588	65	60	009 — 15 — 10	
121	146	6.05	5.02	0.617	0.511	686	637	70	65	009 — 15 — 12	
96.7	117	7.57	6.27	0.772	0.639	735	686	75	70	009 — 15 — 15	
72.5	87.5	10.1	8.36	1.03	0.852	785	735	80	75	009 — 15 — 20	
58.0	70.0	12.6	10.4	1.29	1.07	834	785	85	80	009 — 15 — 25	
48.3	58.3	15.1	12.5	1.54	1.28	883	834	90	85	009 — 15 — 30	
36.3	43.8	20.2	16.7	2.06	1.70	981	932	100	95	009 — 15 — 40	Pages B-14~15
29.0	35.0	25.2	20.9	2.57	2.13	1270	1230	130	125	009 — 15 — 50	
24.2	29.2	30.3	25.1	3.09	2.56	1320	1270	135	130	009 — 15 — 60	
18.1	21.9	40.4	33.4	4.12	3.41	1420	1370	145	140	009 — 17 — 80	
14.5	17.5	50.4	41.8	5.14	4.26	1420	1420	145	145	009 — 17 — 100	
12.1	14.6	*53.9	50.2	*5.50	5.11	1420	1420	145	145	009 — 17 — 120	
9.67	11.7	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — 150	
7.25	8.75	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — 200	
6.04	7.29	*53.9	*53.9	*5.50	*5.50	1420	1420	145	145	009 — 17 — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.
[3] Output torque marked with * is limited. It must be used within the value stipulated in the table; otherwise, overload may occur if the motor is loaded to its full capacity.

15W Single-phase Motor

Motor Speed[1]
50Hz 1450 RPM 60Hz 1750 RPM

Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size –Suffix– Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.371	0.307	0.038	0.031	343	343	35	35	0015 — 01 — SG — 5	Pages B-14~15
193	233	0.556	0.461	0.057	0.047	343	343	35	35	0015 — 01 — SG — 7.5	
145	175	0.742	0.615	0.076	0.063	343	343	35	35	0015 — 01 — SG — 10	
121	146	0.890	0.738	0.091	0.075	343	343	35	35	0015 — 01 — SG — 12	
96.7	117	1.11	0.922	0.113	0.094	343	343	35	35	0015 — 01 — SG — 15	
72.5	87.5	1.48	1.23	0.151	0.125	343	343	35	35	0015 — 01 — SG — 20	
58.0	70.0	1.85	1.54	0.189	0.157	343	343	35	35	0015 — 01 — SG — 25	
48.3	58.3	2.23	1.84	0.227	0.188	343	343	35	35	0015 — 01 — SG — 30	
36.3	43.8	2.97	2.46	0.303	0.251	343	343	35	35	0015 — 01 — SG — 40	
29.0	35.0	3.71	3.07	0.378	0.313	343	343	35	35	0015 — 01 — SG — 50	
24.2	29.2	4.45	3.69	0.454	0.376	343	343	35	35	0015 — 01 — SG — 60	
18.1	21.9	5.93	4.92	0.605	0.501	343	343	35	35	0015 — 01 — SG — 80	
14.5	17.5	7.42	6.15	0.756	0.627	343	343	35	35	0015 — 01 — SG — 100	
12.1	14.6	8.90	7.38	0.908	0.752	1080	1080	110	110	0015 — 03 — SG — 120	
9.06	10.9	11.9	9.83	1.21	1.00	1080	1080	110	110	0015 — 03 — SG — 160	
7.25	8.75	14.8	12.3	1.51	1.25	1080	1080	110	110	0015 — 03 — SG — 200	
6.04	7.29	17.8	14.8	1.82	1.50	1080	1080	110	110	0015 — 03 — SG — 240	

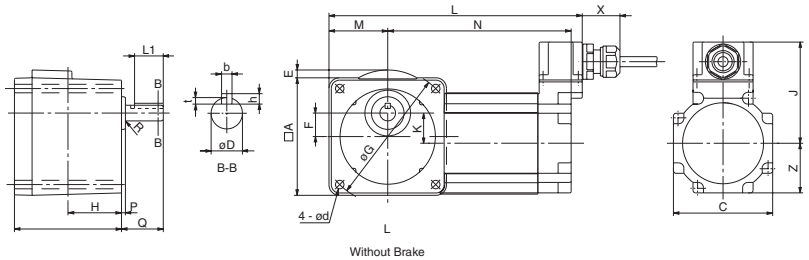
25W Single-phase Motor

Motor Speed[1]
50Hz 1450 RPM 60Hz 1750 RPM

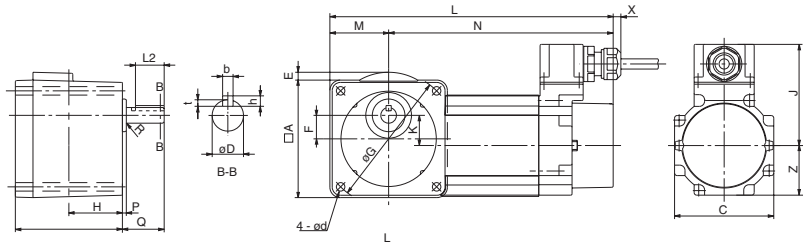
Output Speed RPM		Output Torque				Allowable Overhung Load[2]				Capacity Symbol – Frame Size –Suffix– Reduction Ratio	Dimension Drawing
		N • m		kgf • m		N		kgf			
50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
290	350	0.618	0.512	0.063	0.052	343	343	35	35	0025 — 01 — SG — 5	Pages B-14~15
193	233	0.927	0.768	0.095	0.078	343	343	35	35	0025 — 01 — SG — 7.5	
145	175	1.24	1.02	0.126	0.104	343	343	35	35	0025 — 01 — SG — 10	
121	146	1.48	1.23	0.151	0.125	343	343	35	35	0025 — 01 — SG — 12	
96.7	117	1.85	1.54	0.189	0.157	343	343	35	35	0025 — 01 — SG — 15	
72.5	87.5	2.47	2.05	0.252	0.209	343	343	35	35	0025 — 01 — SG — 20	
58.0	70.0	3.09	2.56	0.315	0.261	343	343	35	35	0025 — 01 — SG — 25	
48.3	58.3	3.71	3.07	0.378	0.313	343	343	35	35	0025 — 01 — SG — 30	
36.3	43.8	4.95	4.10	0.504	0.418	343	343	35	35	0025 — 01 — SG — 40	
29.0	35.0	6.18	5.12	0.630	0.522	343	343	35	35	0025 — 01 — SG — 50	
24.2	29.2	7.42	6.15	0.756	0.627	343	343	35	35	0025 — 01 — SG — 60	
18.1	21.9	9.9	8.20	1.01	0.836	1080	1080	110	110	0025 — 03 — SG — 80	
14.5	17.5	12.4	10.2	1.26	1.04	1080	1080	110	110	0025 — 03 — SG — 100	
12.1	14.6	14.8	12.3	1.51	1.25	1080	1080	110	110	0025 — 03 — SG — 120	
9.06	10.9	19.8	16.4	2.02	1.67	1080	1080	110	110	0025 — 03 — SG — 160	
7.25	8.75	24.7	20.5	2.52	2.09	1080	1080	110	110	0025 — 03 — SG — 200	
6.04	7.29	29.7	24.6	3.03	2.51	1080	1080	110	110	0025 — 03 — SG — 240	

Notes: [1] Motor slippage may affect motor speed and output speed.
[2] Allowable overhung load shows the value when the distance from hollow shaft end to the point of overhung load is 20 mm.

WATERPROOF (IP65) SOLID SHAFT FLANGE MOUNT TYPE Dimensions – RNFM Series Left Shaft Direction



Without Brake



With Brake

3-phase motor

All dimensions are in millimeters.

Motor Power	Model	A	C	E	F	G	H	I	J	K	M	P	Q	Z	d
15W	RNFM0015-01L-5~100	80	76	8	15	94	41	82	78	23	40	3	32	38	5.5
	RNFM0015-03L-120~240	80	76	8	15	94	41	82	78	23	40	7	38	38	5.5
25W	RNFM0025-01L-5~60	80	76	8	15	94	41	82	78	23	40	3	32	38	5.5
	RNFM0025-03L-80~240	80	76	8	15	94	41	82	78	23	40	7	38	38	5.5
40W	RNFM004-05L-5~50	90	76	6	18	104	41	82	78	23	45	3	32	38	6.5
	RNFM004-07L-60~120	90	76	6	18	104	41	82	78	23	45	7	38	38	6.5
	RNFM004-17L-150~240	90	90	8	18	104	49	98	86	23	45	7	38	45	6.5
60W	RNFM006-07L-5~60	90	76	6	18	104	41	82	78	23	45	7	38	38	6.5
	RNFM006-17L-80~240	90	90	8	18	104	49	98	86	23	45	7	38	45	6.5
90W	RNFM009-17L-5~240	90	90	8	18	104	49	98	86	23	45	7	38	45	6.5

Motor Power	Model	Solid Output Shaft						Without Brake			With Brake			Weight (kg)
		D	b	t	h	R	L1	L	N	X	L	N	X	
15W	RNFM0015-01L-5~100	10h6	4	2.5	4	0.4	22	189	141	29	212	172	6	2.9 (3.2)
	RNFM0015-03L-120~240	15h6	5	3	5	0.4	22	189	141	29	212	172	6	2.9 (3.2)
25W	RNFM0025-01L-5~60	10h6	4	2.5	4	0.4	22	189	141	29	212	172	6	3.0 (3.3)
	RNFM0025-03L-80~240	15h6	5	3	5	0.4	22	189	141	29	212	172	6	3.1 (3.4)
40W	RNFM004-05L-5~50	12h6	4	2.5	4	0.4	22	194	141	29	217	172	6	3.2 (3.5)
	RNFM004-07-60~120	15h6	5	3	5	0.4	22	194	141	29	217	172	6	3.3 (3.6)
	RNFM004-17L-150~240	18h6	6	3.5	6	0.4	22	229	176	29	255	210	3	4.8 (5.2)
60W	RNFM006-07L-5~60	15h6	5	3	5	0.4	22	194	141	29	217	172	6	3.3 (3.6)
	RNFM006-17L-80~240	18h6	6	3.5	6	0.4	22	229	176	29	255	210	3	4.8 (5.2)
90W	RNFM009-17L-5~240	18h6	6	3.5	6	0.4	22	229	176	29	255	210	3	4.8 (5.2)

Values in ( ) are for motors with brake.

Single-phase motor

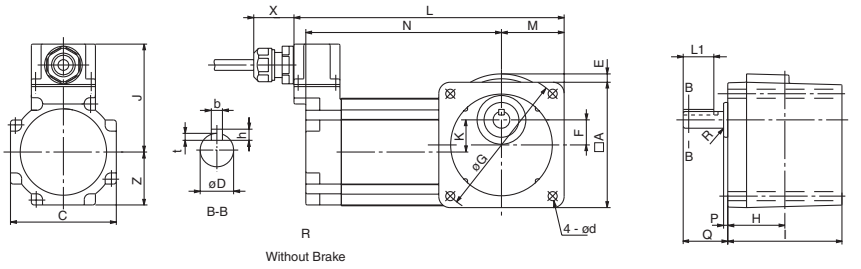
Motor Power	Model	A	C	E	F	G	H	I	J	K	M	P	Q	Z	d
15W	RNFM0015-01L-5~100	80	76	8	15	94	41	82	78	23	40	3	32	38	5.5
	RNFM0015-03L-120~240	80	76	8	15	94	41	82	78	23	40	7	32	38	5.5
25W	RNFM0025-01L-5~60	80	76	8	15	94	41	82	78	23	40	3	32	38	5.5
	RNFM0025-03L-80~240	80	76	8	15	94	41	82	78	23	40	7	32	38	5.5

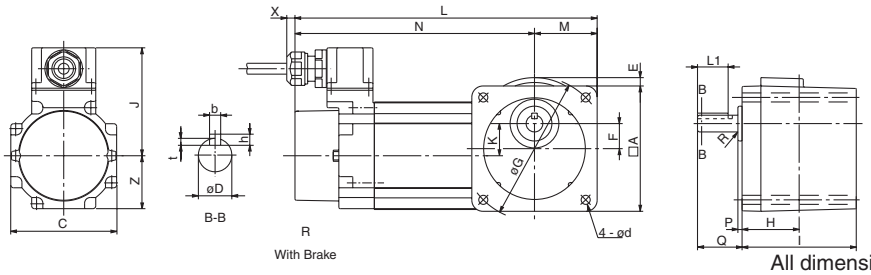
Motor Power	Model	Solid Output Shaft						Without Brake			With Brake			Weight (kg)
		D	b	t	h	R	L1	L	N	X	L	N	X	
15W	RNFM0015-01L-5~100	10h6	4	2.5	4	0.4	22	189	141	29	212	172	6	2.9 (3.2)
	RNFM0015-03L-120~240	15h6	4	2.5	4	0.4	22	189	141	29	212	172	6	2.9 (3.2)
25W	RNFM0025-01L-5~60	10h6	4	2.5	4	0.4	22	189	141	29	212	172	6	3.0 (3.3)
	RNFM0025-03L-80~240	15h6	4	2.5	4	0.4	22	189	141	29	212	172	6	3.1 (3.4)

Values in ( ) are for motors with brake.

Dimensions and Weights are for reference only and subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

WATERPROOF (IP65) SOLID SHAFT FLANGE MOUNT TYPE Dimensions – RNFM Series Right Shaft Direction





3-phase motor

All dimensions are in millimeters.

Motor Power	Model	A	C	E	F	G	H	I	J	K	M	P	Q	Z	d
15W	RNFM0015-01R-5~100	80	76	8	15	94	41	82	78	23	40	3	32	38	5.5
	RNFM0015-03R-120~240	80	76	8	15	94	41	82	78	23	40	7	38	38	5.5
25W	RNFM0025-01R-5~60	80	76	8	15	94	41	82	78	23	40	3	32	38	5.5
	RNFM0025-03R-80~240	80	76	8	15	94	41	82	78	23	40	7	38	38	5.5
40W	RNFM004-05R-5~50	90	76	6	18	104	41	82	78	23	45	3	32	38	6.5
	RNFM004-07R-60~120	90	76	6	18	104	41	82	78	23	45	7	38	38	6.5
	RNFM004-17R-150~240	90	90	8	18	104	49	98	86	23	45	7	38	45	6.5
60W	RNFM006-07R-5~60	90	76	6	18	104	41	82	78	23	45	7	38	38	6.5
	RNFM006-17R-80~240	90	90	8	18	104	49	98	86	23	45	7	38	45	6.5
90W	RNFM009-17R-5~240	90	90	8	18	104	49	98	86	23	45	7	38	45	6.5

Motor Power	Model	Solid Output Shaft						Without Brake			With Brake			Weight (kg)
		D	b	t	h	R	L1	L	N	X	L	N	X	
15W	RNFM0015-01R-5~100	10h6	4	2.5	4	0.4	22	189	141	29	212	172	6	2.9 (3.2)
	RNFM0015-03R-120~240	15h6	5	3	5	0.4	22	189	141	29	212	172	6	2.9 (3.2)
25W	RNFM0025-01R-5~60	10h6	4	2.5	4	0.4	22	189	141	29	212	172	6	3.0 (3.3)
	RNFM0025-03R-80~240	15h6	5	3	5	0.4	22	189	141	29	212	172	6	3.1 (3.4)
40W	RNFM004-05R-5~50	12h6	4	2.5	4	0.4	22	194	141	29	217	172	6	3.2 (3.5)
	RNFM004-07R-60~120	15h6	5	3	5	0.4	22	194	141	29	217	172	6	3.3 (3.6)
	RNFM004-17R-150~240	18h6	6	3.5	6	0.4	22	229	176	29	255	210	3	4.8 (5.2)
60W	RNFM006-07R-5~60	15h6	5	3	5	0.4	22	194	141	29	217	172	6	3.3 (3.6)
	RNFM006-17R-80~240	18h6	6	3.5	6	0.4	22	229	176	29	255	210	3	4.8 (5.2)
90W	RNFM009-17R-5~240	18h6	6	3.5	6	0.4	22	229	176	29	255	210	3	4.8 (5.2)

Values in ( ) are for motors with brake.

Single-phase motor

Motor Power	Model	A	C	E	F	G	H	I	J	K	M	P	Q	Z	d
15W	RNFM0015-01R-5~100	80	76	8	15	94	41	82	78	23	40	3	32	38	5.5
	RNFM0015-03R-120~240	80	76	8	15	94	41	82	78	23	40	7	32	38	5.5
25W	RNFM0025-01R-5~60	80	76	8	15	94	41	82	78	23	40	3	32	38	5.5
	RNFM0025-03R-80~240	80	76	8	15	94	41	82	78	23	40	7	32	38	5.5

Motor Power	Model	Solid Output Shaft						Without Brake			With Brake			Weight (kg)
		D	b	t	h	R	L1	L	N	X	L	N	X	
15W	RNFM0015-01R-5~100	10h6	4	2.5	4	0.4	22	189	141	29	212	172	6	2.9 (3.2)
	RNFM0015-03R-120~240	15h6	4	2.5	4	0.4	22	189	141	29	212	172	6	2.9 (3.2)
25W	RNFM0025-01R-5~60	10h6	4	2.5	4	0.4	22	189	141	29	212	172	6	3.0 (3.3)
	RNFM0025-03R-80~240	15h6	4	2.5	4	0.4	22	189	141	29	212	172	6	3.1 (3.4)

Values in ( ) are for motors with brake.

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NOTES

SM-HYPONIC® SUB-FRACTIONAL GEARMOTOR TECHNICAL INFORMATION

SELECTION PROCEDURE

The following information is required to properly select a Sub-Fractional SM-Hyponic® Gearmotor:

1.	Application – Type of Driven Machine	Example: Belt Conveyor – Uniformly Fed
2.	Hours of Operation per Day	8 Hours of Operation per Day
3.	Motor Power and Speed	1/20 HP, 1750 RPM Motor
4.	Desired Output Speed	30 RPM
5.	Mounting Position and Style	Horizontal Shaft Mounted
6.	Environmental Conditions	Inside Industrial Plant
7.	Required Options	None
8.	Electrical Specifications	208 Volts, 60 Hertz, 3 phase
9.	Overhung or Thrust Loads	None – Hollow Shaft Output
10.	Shaft Dimensions – Inch or Metric	To be determined.

Selection Example 1

Step 1
Using the information above, go to page C-4 to determine a service factor. Based on the application and the hours of operation, choose an appropriate service factor from Table C-6. Refer to Table C-7 for high inertia applications or frequent start-stop requirements.

Step 2
Multiply the required horsepower by the service factor. Convert the power requirements to Watts by multiplying the horsepower by 746.

1/20 hp X 1.0 SF X 746 Watts/hp =37.3 Watts Round upward to, in this example, 40 Watts.

Step 3
Go to the selection tables for the desired configuration and input power. Find the ratio providing the output speed closest to the desired output speed. For 60 hertz, the closest speed to 30 rpm is 35 rpm. Make a selection. The selection is 004 – 007 – 50.

Step 4
Are there any overhung or thrust loads present? If not, then proceed to Step 5. Otherwise, any overhung or thrust loads must be checked against the capability of the selection.

To check overhung load use this formula:

$$\text{Overhung Load (OHL)} = \frac{126{,}000 \times HP \times Cf \times Lf \times Fs}{D \times N}$$

HP: Transmitted or Motor HP
Cf: Load Connection Factor
Lf: Load Location Factor
D: Pitch Diameter (in)
N: Shaft RPM
Fs: Shock factor

The specific values for the overhung load factors are shown on page C-3.

Step 5
Check environmental conditions against the Standard Specifications on page 3. Since this application is located inside an industrial plant, no environmental modifications are required.

Step 6
Go to the Nomenclature section on page 4 to select the desired mounting position and housing style. The horizontal, shaft mounted Hyponic designation is RNYM. The unit nomenclature for a shaft-mounted unit is RNYM004-007-50. Complete the electrical and optional specifications. The dimensions are on page A-5.

ALLOWABLE AXIAL LOAD

Allowable axial load on output shaft (Pao) [N/kgf]

When overhung and axial loads are posed simultaneously:

$$\left(\frac{Pr \cdot Lf}{Pro} + \frac{Pa}{Pao}\right) \cdot Cf \cdot Fs \leqq 1$$

Check your selection to be within the formula.[1]

Pr : Actual overhung load
Pro : Allowable overhung load (refer to selection tables)
Pa : Actual axial load
Pao : Allowable axial load
Lf : Load location factor (refer to Table C-1)
Cf : Coupling factor (refer to Table C-2)
Fs : Shock factor (refer to Table C-3)

Table C-1 Location Factor [Lf]

Frame size	L (mm)[2]								
	10	20	30	40	50	60	70	80	90
#03, #07	1.0	1.0	1.2	1.3	1.4	1.5	1.7	1.8	1.9
#17	1.0	1.0	1.2	1.3	1.4	1.5	1.6	1.7	1.8
#361	1.0	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7

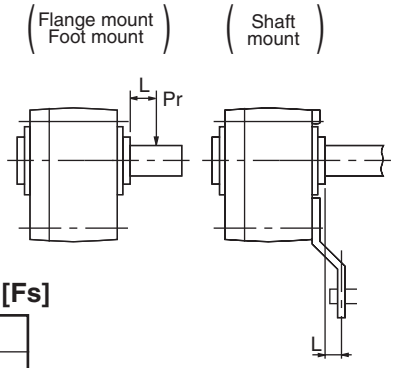


Table C-2 Coupling Factor [Cf]

Coupling method	Cf
Chain	1
Gear	1.25
V-belt	1.5

Table C-3 Shock Factor [Fs]

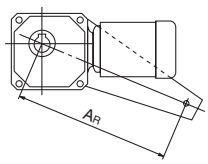
Degree of shock	Fs
Negligible shock	1
Moderate shock	1~1.2
Heavy shock	1.4~1.6

Table C-4 Allowable Axial Load on Output Shaft (3/Single-phase)

Frame size	N/kgf
01, 03, 05, 07	294N/30kgf
15, 17	294N/30kgf

Table C-5 Standard Torque Arm Length [A_{RO}]

Frame size	A_{R0}
03,07,17	50
361	130



LUBRICATION

- Because Hyponic Drives are sealed with long-life grease, replenishment is practically unnecessary, but overhaul in approximately 20,000 hours or 3 to 5 years of operation will provide longer service life.
- The durability of oil seals is subject to operating conditions. It may be required to change them in less than 20,000 hours or three years of operation under severe conditions.
- Overhaul of gearmotors must be performed at factory authorized sites.

Notes: [1] Overhung load on output shaft not accounted for in the calculation above.
[2] "L" indicates the distance from hollow shaft end to the point of radial load.

Dimensions are for reference only and subject to change without notice.

SERVICE FACTOR

SELECTION OF SERVICE FACTOR

The Service Factor is rated for the characteristics of the driven machine.
The tabulated ratings are based on a running time of 10 hours per day with uniform load.
For your reference, please see method A and B shown below.

A. Recommended Service Factor by the Driven Application

Table C-6 Service Factor (S.F.)[1]

Operation time / Load conditions	10 hrs/ day max.	10-24 hrs/ day max.	Applications
Uniform	1	1.25	Conveyors (uniform load), Pumps (centrifugal), Food processing machine (rice polishers, canning machines), Elevators (uniform load), Plastic extruders, Agitators (pure liquid), Bar screens
Moderate shock	1.25	1.5	Conveyors (variable speed and heavy duty), Food processing machine (peat slicer, dough mixer, meat grinder), Elevators (heavy duty), Agitators (liquid and solid, variable-density liquid), Feeders (belts, aprons, screws), Thickeners, Flocculators, Machine tools
Heavy shock	1.75	2.0	Punching presses, Tapping machine, Crushers (crusher mills), Hoists (heavy duty), Drum barkers, Log hauls, Cutters, Platers

B. Recommended Service Factor Modifications for Frequent Start-Stop Operation.

Please select a model using Table C-7

Table C-7 Number of Starts-Stops and Service Factor[2, 3]

Number of starts-stops (Times/hour)	~10 hours/day			24 hours/day		
	1	2	3	1	2	3
~10	1.00	1.15	1.50	1.20	1.30	1.65
~200	1.10	1.35	1.65	1.30	1.50	1.85
~500	1.15	1.50	1.80	1.40	1.65	2.00

$$\text{The ratio of Moment of Inertia (The ratio of } GD^2) = \frac{\text{Total Moment of Inertia } (GD^2) \text{ as seen from the motor shaft}}{\text{Moment of Inertia } (GD^2) \text{ of motor}}$$

1 : Allowable ratio of Moment of Inertia (GD^2) ≦ 0.3
2 : Allowable ratio of Moment of Inertia (GD^2) ≦ 3
3 : Allowable ratio of Moment of Inertia (GD^2) ≦ 10

Notes: [1] The service factors and applications in Table C-6 are for reference only.
Actual applications and their characteristics may vary.
[2] The number of starts-stops includes brake or clutch operation times.
[3] Consult factory when starting under loaded conditions.

GEARMOTOR MOMENT OF INERTIA AND GD²

Table C-8[1, 2]

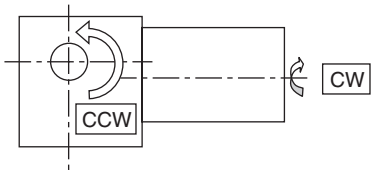
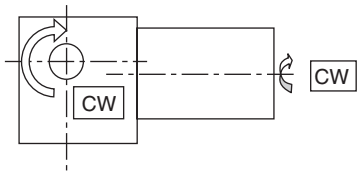
Motor type			15W		25W		40W			
			Moment of inertia	GD²	Moment of inertia	GD²	Moment of inertia	GD²	Moment of inertia	GD²
			kg · m²	kg · m²	kg · m²	kg · m²	kg · m²	kg · m²	kg · m²	kg · m²
			01#,03#		01#,03#		05#,07#		17#	
In door	3-phase	Without brake	0.000050	0.00020	0.000058	0.00023	0.000070	0.00028	0.00011	0.00043
		With brake	0.000070	0.00028	0.000078	0.00031	0.000090	0.00036	0.00012	0.00047
	Single-phase Single-phase reversible	Without brake	0.000050	0.00020	0.000058	0.00023	0.000070	0.00028	0.00015	0.00058
		With brake	0.000070	0.00028	0.000078	0.00031	0.000090	0.00036	0.00015	0.00061
Water proof	3-phase	Without brake	0.000050	0.00020	0.000058	0.00023	0.000070	0.00028	–	–
		With brake	0.000070	0.00028	0.000078	0.00031	0.000090	0.00036	–	–
	Single-phase Single-phase reversible	Without brake	0.000050	0.00020	0.000058	0.00023	0.000070	0.00028	–	–
		With brake	0.000070	0.00028	0.000078	0.00031	0.000090	0.00036	–	–

Motor type			60W				90W	
			Moment of inertia	GD²	Moment of inertia	GD²	Moment of inertia	GD²
			kg · m²	kg · m²	kg · m²	kg · m²	kg · m²	kg · m²
			07#		17#		15#,17#	
In door	3-phase	Without brake	0.000070	0.00028	0.00012	0.00049	0.00015	0.00058
		With brake	0.000090	0.00036	0.00013	0.00052	0.00016	0.00062
	Single-phase Single-phase reversible	Without brake	0.000070	0.00028	0.00016	0.00065	0.00021	0.00083
		With brake	0.000090	0.00036	0.00017	0.00068	0.00022	0.00086
Water proof	3-phase	Without brake	0.000070	0.00028	–	–	–	–
		With brake	0.000090	0.00036	–	–	–	–
	Single-phase Single-phase reversible	Without brake	0.000070	0.00028	–	–	–	–
		With brake	0.000090	0.00036	–	–	–	–

ROTATING DIRECTION & REDUCTION RATIO

Rotating Direction

Table C-9 Output Shaft Rotating Direction[2]

Frame size	Reduction ratio	Frame size	Reduction ratio
01, 03, 05, 07	5, 80, 100, 120, 160, 200, 240	01, 03, 05, 07	7.5, 10, 12, 15, 20, 25, 30, 40, 50, 60
15, 17	5, 7.5, 10, 12, 80, 100, 120, 150, 200, 240	15, 17	15, 20, 25, 30, 40, 50, 60
361	300, 360, 480, 560, 750, 900, 1200, 1440	361	–
			

Actual Reduction Ratio

Table C-10 Actual Reduction Ratio[2]

Frame size	Reduction ratio																			
	5	7	7.5	10	12	15	20	25	30	40	50	60	80	100	120	150	160	200	240
01, 03, 05, 07	5.01		7.50	10.00	12.27	15.00	20.00	24.55	30.00	40.00	50.00	60.91	80.00	100.00	121.82		160.00	200.00	243.64
15, 17	5.00		7.50	10.18	12.00	15.00	20.36	25.42	30.48	40.00	50.71	60.83	80.00	103.16	120.00	152.14		195.61	243.64

Frame size	Reduction ratio							
	300	360	480	560	750	900	1200	1440
361	306.80	367.6	465.00	564.51	732.78	855.60	1239.00	1484.60

Notes: [1] Moment of inertia/GD² on reducer and motor accounted for in the value stipulated in the tables.
[2] Values in tables are subject to change without notice.

OUTPUT SHAFT DIMENSIONS & TOLERANCES

Table C-11 Hollow Shaft Type (RNYM Series) Output Shaft Bore Size

Frame size	Bore (mm)									
	15	20	25	30	35	38	40	45	50	55
03, 07, 17	●									
361		○	○	●						

● Standard
○ Semi-standard
(Contact factory for price and delivery.)

Output Shaft Dimensions

Fig. C-1

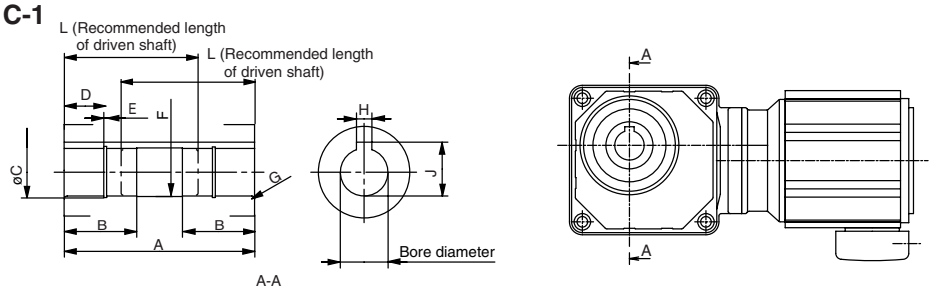


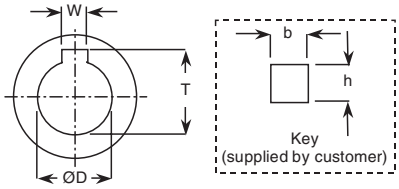
Table C-12 Output Shaft Dimensions (mm)

(mm)

Frame size	Bore	A	B	C	D	E	F	G	H	J	L	Effective length of driven shaft
03, 07	15	78	28	–	–	–	ø15.6	R1.0	5	17.3	55	20
17	15	94	28	–	–	–	ø15.6	R1.0	5	17.3	70	35
–	–	–	–	–	–	–	–	–	–	–	–	–
361	20	110	31	ø21	15	1.15	ø20.6	R1.5	6	22.8	85	75
	25	110	38	ø26.2	22	1.35	ø25.6	R1.5	8	28.3	80	55
	30	110	46	ø31.4	22	1.35	ø30.6	R1.5	8	33.3	70	45

Table C-13 Output Shaft Tolerances (mm)

Keyed Hollow Bore

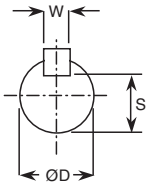


Unit Size	ØD	T	W
03	Ø15 +0.027 0	17.3 +0.1 0	5±0.015
07	Ø15 +0.027 0	17.3 +0.1 0	5±0.015
17	Ø15 +0.027 0	17.3 +0.1 0	5±0.015
361	Ø30 +0.033 0	33.3 +0.2 0	8±0.0180

Recommended Key Tolerances

Unit Size	b	h
03	5 0 -0.030	5 0 -0.030
07	5 0 -0.030	5 0 -0.030
17	5 0 -0.030	5 0 -0.030
361	8 0 -0.036	7 0 -0.090

Solid Shaft



Unit Size	ØD	S	W
01	Ø10 0 -0.009	7.5 0 -0.1	4 0 -0.030
03	Ø15 0 -0.011	12 0 -0.1	5 0 -0.030
05	Ø12 0 -0.011	9.5 0 -0.1	4 0 -0.030
07	Ø15 0 -0.011	12 0 -0.1	5 0 -0.030
15	Ø15 0 -0.011	12 0 -0.1	5 0 -0.030
17	Ø18 0 -0.011	14.5 0 -0.1	6 0 -0.030
36	Ø28 0 -0.016	24 0 -0.2	8 0 -0.036

Dimensions are for reference only and subject to change without notice.

HOLLOW SHAFT TYPE (RNYM SERIES) HANDLING PRECAUTIONS

Mounting Torque Arm

(1) Mounting on driven shaft

- Apply molybdenum disulfide to the surface of the driven shaft and the inside of the hollow shaft, and insert Hyponic Drive onto the driven shaft.
- When engagement is too tight, lightly strike on the end of the hollow output shaft with a mallet. Never strike on the casing. We recommend making a jig (Fig. C-2) for smooth insertion.

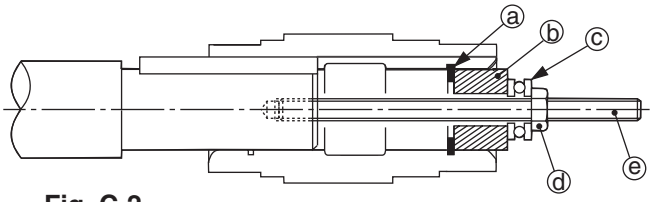


Fig. C-2

a·····Retaining ring	d·····Nut
b·····Spacer	e·····Double-end threaded bolt
c·····Thrust bearing	

- The hollow shaft dimension tolerance is in accordance with JIS “H8”. The recommended tolerance for the driven shaft is:
  uniform load without impact·····JIS h6 or js6
  shock load or large radial load·····JIS js6 or k6
- Snap ring size is in accordance with JIS B2804C.

(2) Securing the Hyponic Drive to driven shaft.

a) Positioning the Hyponic Drive to prevent movement towards the machine side (Ex.: Figs.C-3~C-5)

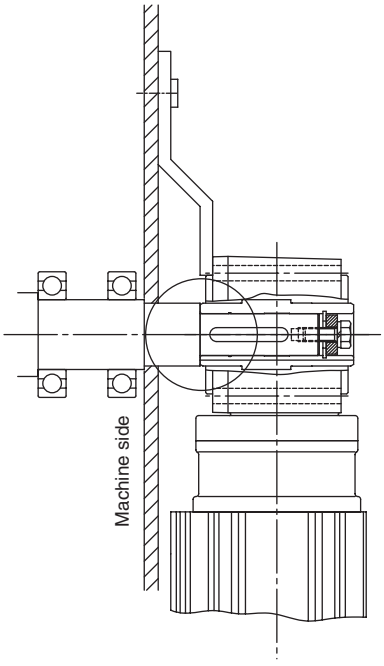


Fig. C-3 Positioned by Shaft Shoulder

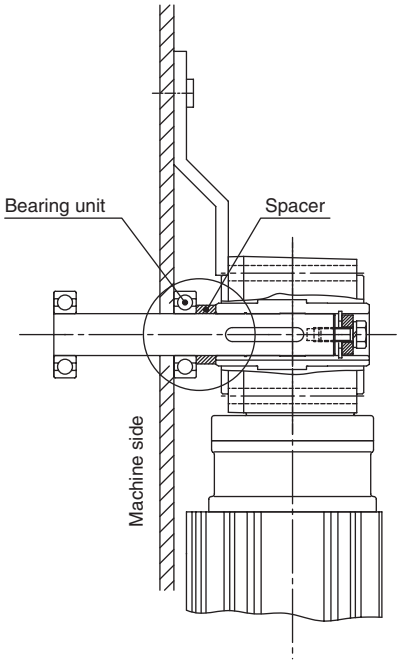


Fig.C-4 Positioned by Spacer

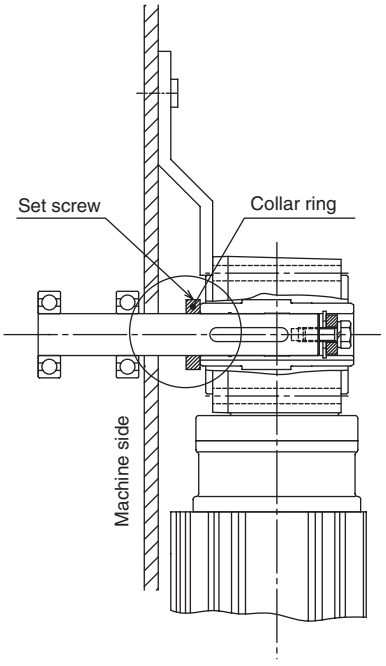


Fig. C-5 Positioned by a Set Screw and Collar

b) Securing Hyponic Drive to prevent movement away from the machine side (Figs. C-6~C-8)

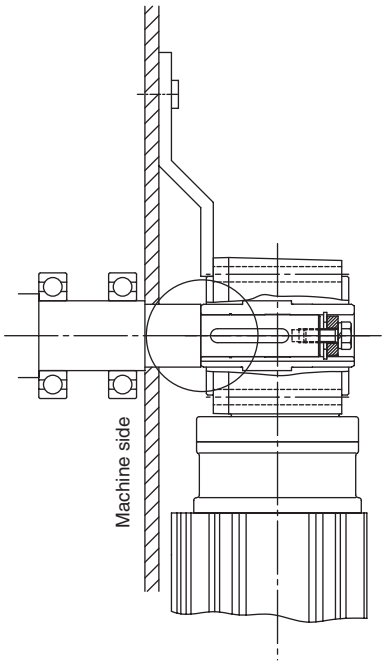


Fig. C-6 Secured by a Spacer and a Snap Ring

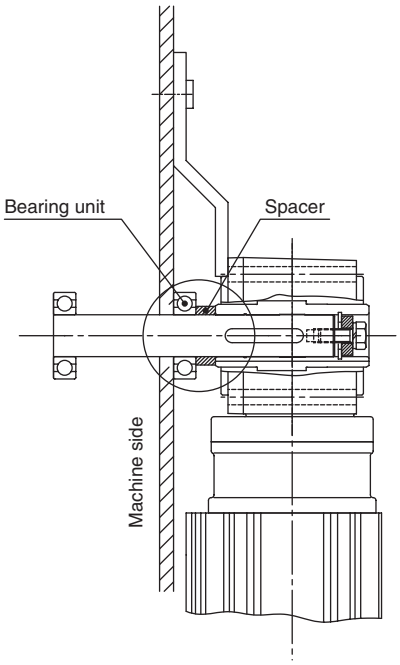


Fig. C-7 Secured by an End Plate

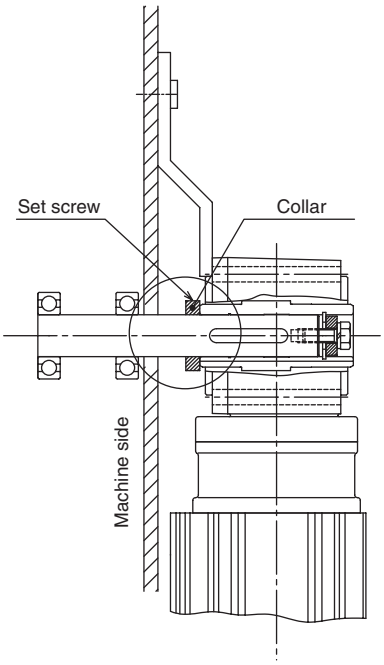


Fig. C-8 Secured by a Set Screw and Collar

(3) Torque arm

Attach the torque arm to Hyponic Drive casing on the machine side with hex socket head cap screws. (Refer to the table below for bolt sizes).
Leave some allowance in the section of the torque arm so that excessive force will not be applied between Hyponic Drive and the driven shaft. Do not secure the torque arm with the torque arm bolt; otherwise, it may damage the bolt, torque arm, Hyponic Drive, or the machine.
For frequent start/stop operations, or repeated normal/reverse operations, use a rubber bushing between the torque arm and mounting bolt (or spacer) to absorb the shock.

Frame size	Bolt
03	M5
07, 17	M6
361	M10

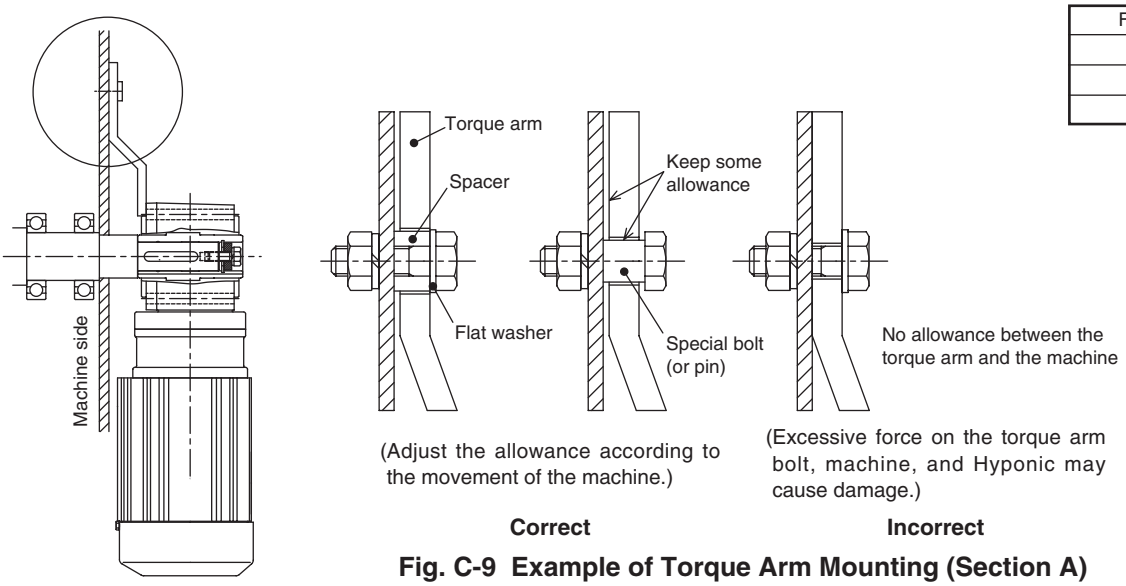
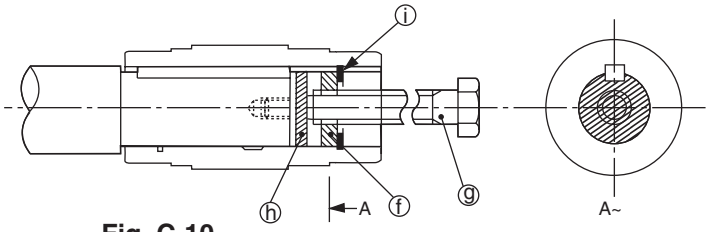


Fig. C-9 Example of Torque Arm Mounting (Section A)

HOLLOW SHAFT TYPE (RNYM SERIES) HANDLING PRECAUTIONS

(4) Removal from Driven Shaft

Handle with care so that excessive force will not be applied between the casing and the hollow shaft. Making a Jig (Fig C-10) is recommended for easy removal.[1]



ⓕ Spacer
ⓖ Upper bolt
ⓗ Disc
ⓘ Snap ring

Fig. C-10

Flange Mounting and Casing Bottom Mounting (optional)

Handle with care to avoid applying excessive force to driven shaft or hollow shaft by twisting the Hyponic casing.

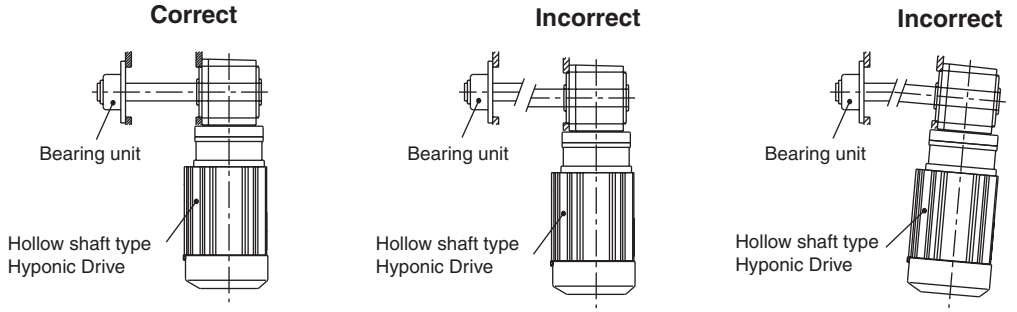


Fig. C-11 Flange Mounting Surface

(Poor concentricity of the driven shaft and mounting flange)

(Poor perpendicularity of the driven shaft center and mounting flange surface)

(Excessive force on Hyponic and the bearing unit may cause damage to internal parts.)

Note: [1] Parts for mounting, securing, and removal are provided by the customer.

TORQUE ARM DESIGNS

Fig. C-12 Torque Arm Mountings and Designs

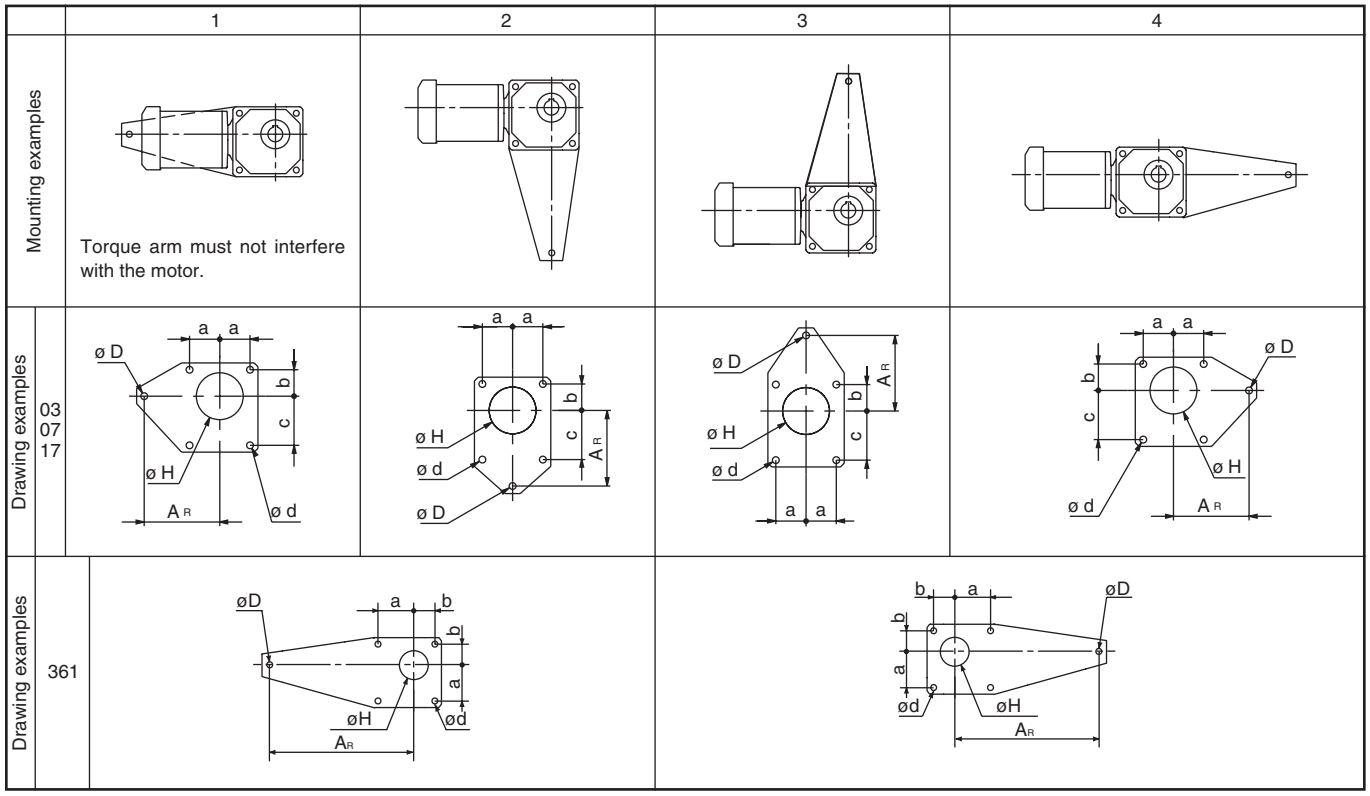
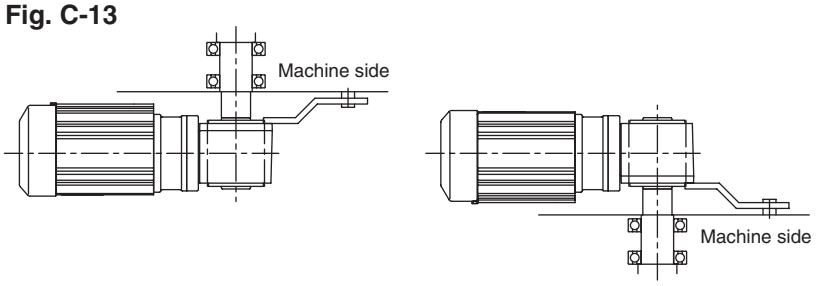


Fig. C-13



Attach the torque arm to the casing on the machine side.

Table C-14 Recommended Dimensions of Torque Arm Design

(mm)

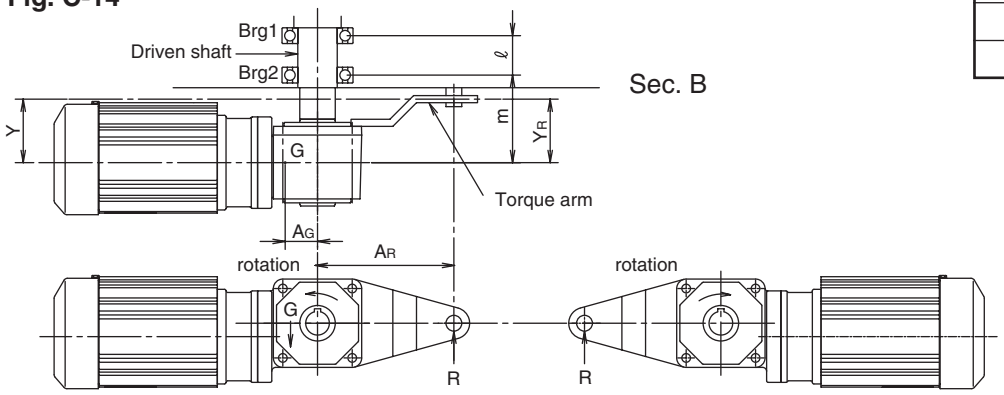
Frame size	Length	Bore	Torque Arm bore	Mounting pitches			Mounting bore	Thickness
	A_R	øH	øD	a	b	c	ød	
03	80	37	6	33	18	48	6	3.2
07	90	37	7	37	19	55	7	3.2
17	90	37	7	37	19	55	7	4.5
361	130	87	11	79	47	–	11	9

Dimensions are for reference only and subject to change without notice.

TORQUE ARM DESIGNS & SAFETY COVER

Verifying the strength of torque arm, driven shaft and expected life of the bearing.

Fig. C-14



(m)

Frame size	A_G
03, 07, 17	0.05
361	0.15

approximate values

1. Torque arm load : $R = \frac{T+A_G \bullet G}{A_R}$

2. Brg.1 load : $B1 = \frac{m\,(R-G) - Y_R \bullet R}{\ell}$

3. Brg.2 load : $B2 = \frac{(R+m)\ (R-G) - Y_R \bullet R}{\ell}$

4. Sec. B of driven shaft
: $M = Y_R \bullet R - Y\,(R-G)\ 0 < Y \leqq m$

T : Output torque [N • m][1]
G : Hyponic Drive gravity [N]
R : Torque arm load [N]
A_G : Distance between the center of the driven shaft and the center of gravity [m]
A_R : Distance from driven shaft center to torque arm [m]
Y_R : Distance from the center of Hyponic Drive to torque arm whirl stop [m]
m : Distance from the center of Hyponic Drive to Brg.2 [m]
ℓ : Distance between Brg.1 and Brg.2 [m]
Y : Distance between the center of Hyponic Drive and Sec. B [m]
M : Bending moment at specified section [N•m]

Detail Dimensions of Output Shaft Safety Cover (separate shipment)

- It may be mounted on either the left or right side.
- Made of plastic.

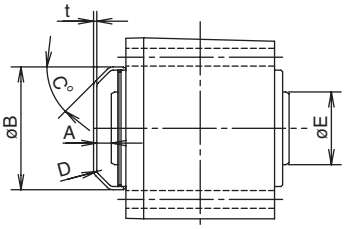


Fig. C-15

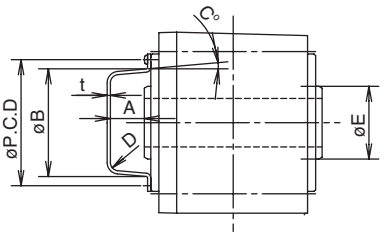


Fig. C-16

Table C-15

(mm)

Frame size \ Dimensions	Safety cover[2, 3]								Output shaft end	Fig.
	A	B	C	D	t	P.C.D	N	MXPXL	E	
03, 07, 17	10	72	28°	R5	2	–	–	–	25	Fig. C-17
361	21	63	5°	R5	2	78	2	M3X0.5X6	45	Fig. C-18

M : Screw size P : Thread pitch L : Thread length P.C.D : Mounting pitch N : Q'ty

Notes: [1] Output torque is (+) on the shown rotation, and (-) on the opposite rotation.
[2] No screw is required for safety cover for frame size #03, 07, and 17.
[3] Contact factory when safety covers are required.

Dimensions are for reference only and subject to change without notice.

MOTOR CHARACTERISTICS

3-phase Motor Characteristics[1]

Table C-16 200V class

Motor Frame Size	Reducer Frame Size	Pole	4 poles														
		Power	200V-50Hz						200V-60Hz					220V-60Hz					
		Output Power (W)	Full Load Current (A)	Largest Torque (%)	Starting Torque (%)	Starting Current (A)	Speed (r/min)	Full Load Current (A)	Largest Torque (%)	Starting Torque (%)	Starting Current (A)	Speed (r/min)	Full Load Current (A)	Largest Torque (%)	Starting Torque (%)	Starting Current (A)	Speed (r/min)
F-50S	01#, 03#	0.015	0.13	282	282	0.36	1390	0.10	264	264	0.33	1670	0.11	319	319	0.37	1680
F-50M	01#, 03#	0.025	0.19	232	232	0.51	1360	0.17	231	225	0.49	1630	0.17	279	272	0.54	1670
F-50L	05#, 07#	0.04	0.27	218	218	0.72	1320	0.24	196	196	0.67	1570	0.24	248	248	0.74	1630
F-56S	17#	0.04	0.31	239	264	0.9	1410	0.27	222	203	0.8	1690	0.28	274	266	0.9	1710
F-50L	07#	0.06	0.40	172	172	0.91	1220	0.41	141	141	0.84	1350	0.35	197	197	0.92	1590
F-56M	17#	0.06	0.44	235	246	1.3	1390	0.38	218	201	1.2	1670	0.39	268	261	1.4	1690
F-56L	15#, 17#	0.09	0.65	236	254	2.1	1380	0.55	219	204	1.9	1660	0.57	269	271	2.1	1690

Single-phase Motor Characteristics

Table C-17 100V class

Motor frame size	Reducer frame size	Pole	4 poles					4 poles				
		Power	100V-50Hz					100V-60Hz				
		Output Power (W)	Full Load Current (A)	Largest Torque (%)	Starting Torque (%)	Starting Current (A)	Speed (r/min)	Full Load Current (A)	Largest Torque (%)	Starting Torque (%)	Starting Current (A)	Speed (r/min)
FS-50S	01#, 03#	0.015	0.34	183	105	0.65	1380	0.32	169	102	0.64	1680
FS-50M	01#, 03#	0.025	0.51	151	83	0.88	1330	0.49	173	107	0.86	1640
FS-50L	05#, 07#	0.04	0.76	126	77	1.15	1300	0.85	151	103	1.15	1600
FS-56S	17#	0.04	0.78	198	103	1.9	1360	0.78	220	117	1.8	1660
FS-56M	15#, 17#	0.06	1.1	169	87	2.5	1340	1.1	192	109	2.3	1670
FS-56L	15#, 17#	0.09	1.6	154	72	3.5	1350	1.60	168	88	3.2	1650

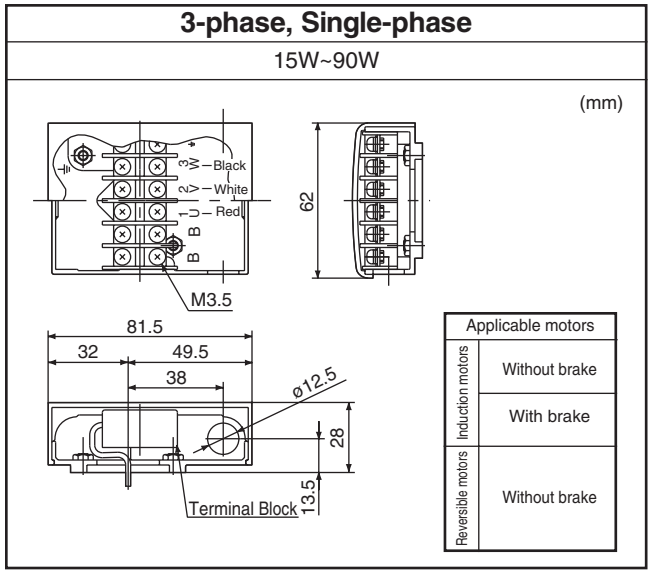
Table C-18 Reversible Motors

Motor frame size	Reducer frame size	Pole	4 poles					4 poles				
		Power	100V-50Hz					100V-60Hz				
		Output Power (W)	Full Load Current (A)	Largest Torque (%)	Starting Torque (%)	Starting Current (A)	Speed (r/min)	Full load Current (A)	Largest Torque (%)	Starting Torque (%)	Starting Current (A)	Speed (r/min)
FS-50S	01#, 03#	0.015	0.41	175	104	0.69	1290	0.38	158	103	0.67	1630
FS-50M	01#, 03#	0.025	0.57	162	105	0.92	1310	0.66	190	133	0.93	1620
FS-50L	05#, 07#	0.04	0.84	136	89	1.22	1270	0.97	145	106	1.24	1580
FS-56S	17#	0.04	0.78	217	114	1.9	1370	0.92	240	150	1.8	1670
FS-56M	15#, 17#	0.06	1.1	195	112	2.5	1370	1.4	220	140	2.4	1660
FS-56L	05#, 07#	0.09	1.6	185	104	3.5	1360	2.10	206	138	3.3	1660

Note: [1] Values shown in Tables C-15~C-17 are subject to change without notice. Contact factory for confirmed values.

TERMINAL BOX DIMENSIONS

Fig. C-17 Terminal Box with a Terminal Block (option) Terminal boxes are optional for 15-90W.



Mounting direction of a terminal box

Mounting direction of a terminal box may be changed by 90˚. Specify a direction according to the Figs. C-18~19 below. The direction must be changed by the factory.

(Terminal boxes are optional for 15-90W. Refer to Figs. C-18~19 for lead wire opening direction. The direction cannot be changed after shipment.)

Fig. C-18 3-phase (Standard motors)

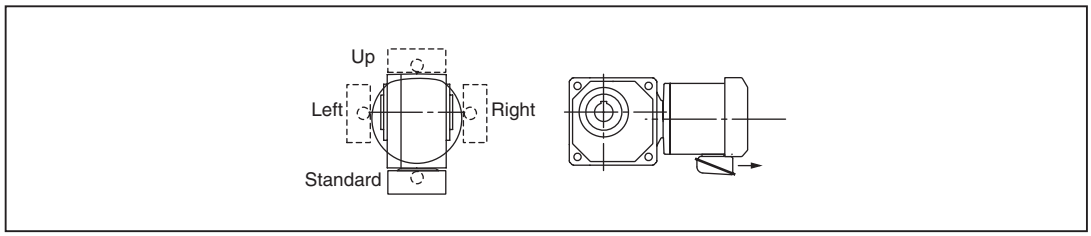
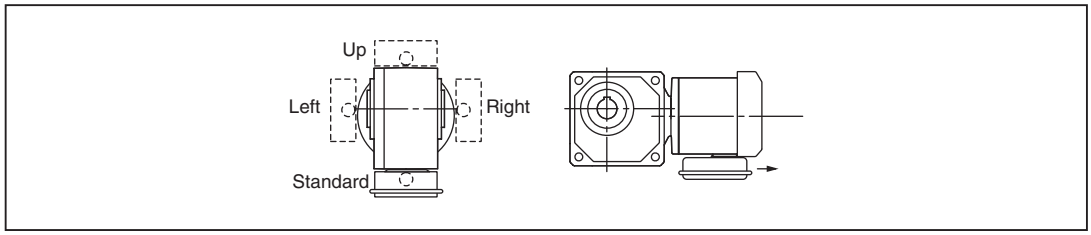


Fig. C-19 Single-phase



The directions shown in Figs. C-18 and C-19 are viewed from motor fan cover.
Arrows indicate lead wire opening direction.

Dimensions are for reference only and subject to change without notice.

SPECIFICATIONS AND CONSTRUCTION OF BUILT-IN BRAKE

Specifications

Table C-19 Brake Specifications for 3-phase Motors (standard)

Brake type	Output power (4 poles)	Reducer frame size	Standard torque (Nm)	Moment of inertia ($1x10^{-4}$kg • m^2)	Total braking energy ($x10^7$J)	Motion delay (Sec)		Brake current (A)				
						Standard control circuit	Quick braking circuit	200V50 60Hz	220V 60Hz	380V 50Hz	400V50 60Hz	440V 60Hz
SB-004	15W	01#, 03#	0.4	0.135	1.1	0.1~0.2	0.005~0.015	0.05	0.05	–	–	–
	25W	01#, 03#										
	40W	05#, 07#										
FB-003	40W	17#	0.3	1.1	1.0	0.1~0.12	0.05~0.06	0.04	0.04	–	–	–
SB-004	60W	07#	0.4	0.135	1.1	0.1~0.2	0.005~0.015	0.05	0.05	–	–	–
FB-005	60W	17#	0.5	1.2	1.0	0.1~0.12	0.05~0.06	0.04	0.04	–	–	–
	90W	15#, 17#, 361#, 36#		1.5								

Table C-20 Brake Specifications 3-phase Motors (waterproof)

Brake type	Output power (4 poles)	Reducer frame size	Standard torque (Nm)	Moment of inertia ($1x10^{-4}$ kg • m^2)	Total braking energy ($x10^7$J)	Motion delay (Sec)		Brake current (A)	
						Standard control circuit	Quick braking circuit	200V50 60Hz	220V 60Hz
SB-004	15W	01#, 03#	0.4	0.074	1.1	0.1~0.2	0.005~0.015	0.05	0.05
	25W	01#, 03#							
	40W	05#, 07#							
	60W	07#							
	90W	17#							

Table C-21 Brake Specifications of Single-phase Motors (standard)

Brake type	Output power (4 poles)	Reducer frame size	Standard torque (Nm)	Moment of inertia ($1x10^{-4}$k • m^2)	Total braking energy ($x10^7$J)	Motion delay (Sec)		Brake current (A)	
						Standard control circuit	Quick braking circuit	100V50 60Hz	200V60Hz
SB-004	15W	01#, 03#	0.4	0.135	1.1	0.1~0.2	0.005~0.015	0.1	–
	25W	01#, 03#							
	40W	05#, 07#							
FB-003	40W	17#	0.3	1.4	1.0	0.1~0.12	0.05~0.06	0.07	–
FB-005	60W	15#, 17#	0.5	1.2					
	90W	15#, 17#		1.5					

Table C-22 Brake Specifications of Single-phase Motors (waterproof)

Brake type	Output power (4 poles)	Reducer frame size	Standard torque (Nm)	Moment of inertia ($1x10^{-4}$kg•m^2)	Total braking energy ($x10^7$J)	Motion delay (Sec)		Brake current (A)
						Standard control circuit	Quick braking circuit	100V50 60Hz
SB-004	15W	01#, 03#	0.4	0.074	1.1	0.1~0.2	0.005~0.015	0.1
	25W	01#, 03#						
	40W	05#, 07#						

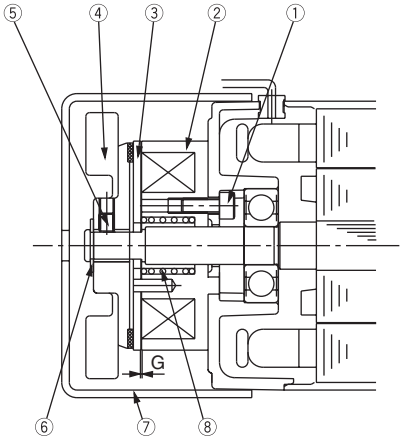
- Continuous time rating for Motor as well as brake.
- Non-asbestos lining is used for brake.
- Mechanical lifetime of brake is as long as 2 million times under normal usage conditions.
- Rectifiers of FB brake are built in the brake for 40-90W. Rectifiers of SB brake are supplied separately.
- Low-noise type FB brake is available optionally. (FB-01A2~FB-8B)
- FB brake is direct current and spring braking type (non-electrical braking).
- The above standard torque indicates the value of dynamic friction torque.

Output power of a rectifier in 3-phase brake

Input voltage	Output voltage
AC200V	DC90V
AC220V	DC99V
AC400V	DC180V
AC440V	DC198V

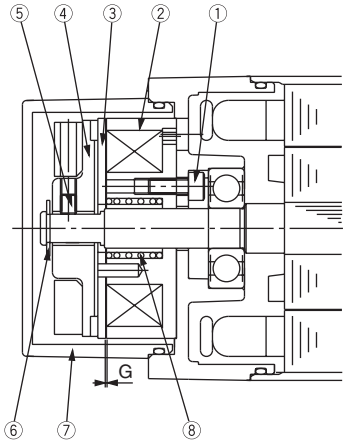
Construction

Fig. C-20 SB-004 (Indoor) (15W~60WX4 Poles)



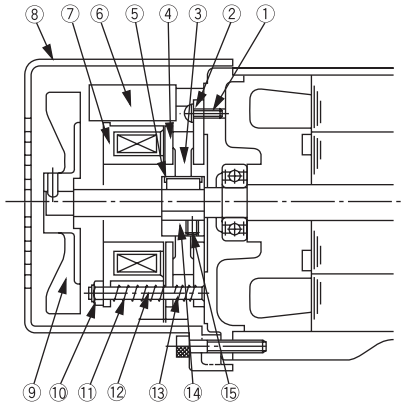
Part No.	Description	8	Set bolt
1	Assembling bolt	9	Retaining ring
2	Stationary core	10	Cover
3	Armature plate	11	Torque spring
4	Lining with fan		

Fig. C-21 SB-004 (waterproof) (15W~90WX4 Poles)



Part No.	Description	8	Set bolt
1	Assembling bolt	9	Retaining ring
2	Stationary core	10	Cover
3	Armature plate	11	Torque spring
4	Lining with fan		

Fig. C-22 FB-003, 005 (40W~90WX4 Poles)



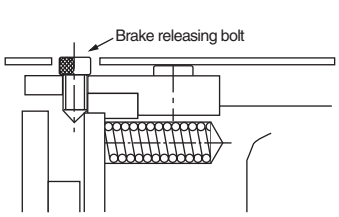
Part No.	Description	8	Cover
1	Assembling bolt	9	Fan (only for single-phase 60 and 90W)
2	Stationary core	10	Gap adjusting shim
3	Brake lining	11	Torque spring
4	Armature plate	12	Stud bolt
5	Leaf spring	13	Supporting spring
6	Rectifier	14	Boss
7	Stationary core	15	Boss set bolt

Fig. C-23 Manual Releasing of FB Brake

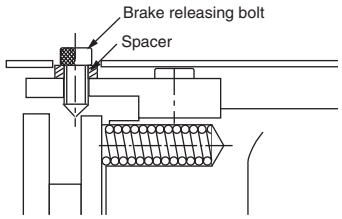
To release the brake manually, follow the steps below.

(1) Unscrew two of the brake releasing bolts diagonally and remove the spacer. Then replace the bolts using a hexagon wrench until the brake is released. Carefully screw the releasing bolts as the brake is being released.
(2) After the brake is released, return the spacer to its proper place to ensure safety.

Note that brake releasing unit is optional for FB-01A1, FB-02A1 and FB-05A1 while it is supplied as standard specifications to FB-1B and above.



Released



In operation

WIRING DIAGRAMS

Single-phase Motor

Fig. C-24 Wiring Diagram for Standard Motors

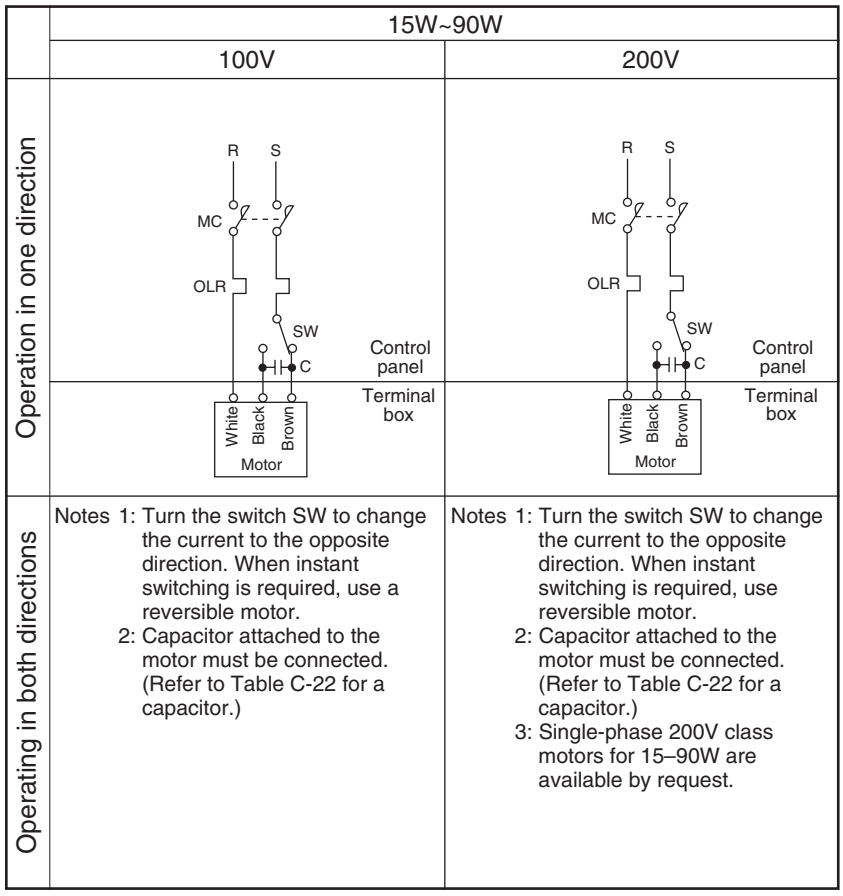


Fig. C-25 Capacitor Dimensions for 15-90W Single-phase Motor

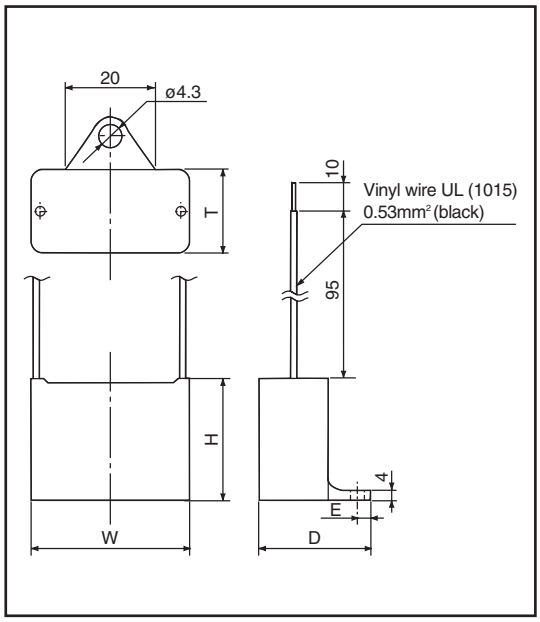


Table C-23 Specifications and Dimensions of Capacitors for 15-90W Single-phase Motor

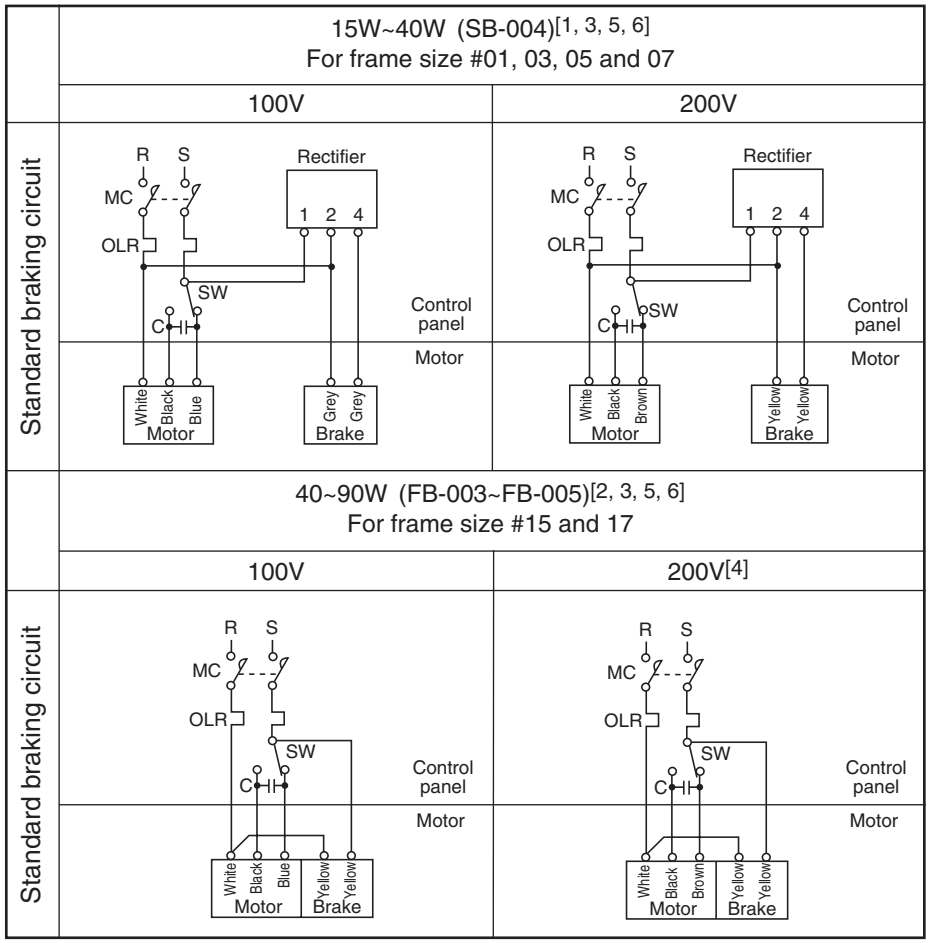
Motor Voltage	Capacitor Coltage	Motor Type	Input Power (W)	Reducer Frame Size	Capacitor Capacity (μF)	Capacitor Dimension (mm)				
						W	H	T	D	E
100V	220V	Induction	15	01#,03#	5	31	27	17	27	4.5
			25	01#,03#	7	37	27	18	28	4.5
			40	05#,07#	12	48	29	19	29	4.5
			40	17#	14	58	31	21	31	4.5
			60	17#	18	58	31	21	31	4.5
			90	15#,17#	25	58	37	23.5	38.5	7
		Reversible	15	01#,03#	6	37	27	18	28	4.5
			25	01#,03#	10	48	29	19	29	4.5
			40	05#,07#	14	58	31	21	31	4.5
			40	17#	16	58	31	21	31	4.5
			60	17#	22	58	37	23.5	38.5	7
			90	15#,17#	32	58	41	29	44	7
200V[1]	440V	Induction	40	17#	3.5	58	35	22	32	4.5
			60	17#	4.5	58	37	23.5	38.5	7
			90	15#,17#	6.5	58	41	29	44	7
		Reversible	40	17#	4	58	35	22	32	4.5
			60	17#	5.5	58	37	23.5	38.5	7
			90	15#,17#	8	58	50	35	50	7

Note: [1] Contact factory for 200V motors.

Dimensions are for reference only and subject to change without notice.

Single-phase Motor with Brake

Fig. C-26 Connections for Single Direction Operation



Notes: [1] A rectifier is supplied separately for 15~40W motors for frame size #01, 03, 05 and 07.
[2] A rectifier is built in the brake of 40~90W motors for frame size #15 and 17. (FB-003~005)
[3] Turn the switch SW to change the current of 15-90W motors to the opposite direction. When instant switching is required, use a reversible motor.
[4] Contact factory for 40~90W 200V motors.
[5] MC: Electromagnetic contactor, OLR: Overload relay (thermal relay), SW: switch, VR: varistor and C: capacitor are not supplied by factory.
[6] Capacitor – Use the capacitor attached to the product.

Capacity of Varistor (VR)

Input power	AC100V, 200V
Rated voltage of varistor	AC260V~300V
Voltage of varistor	430V~470V
Rated capacity of motor	0.2Watt or more

Varistor is an option available from factory.

WIRING DIAGRAMS

3-phase Motor with Brake[1, 2]

Fig. C-27 Connections for Single Direction Operation

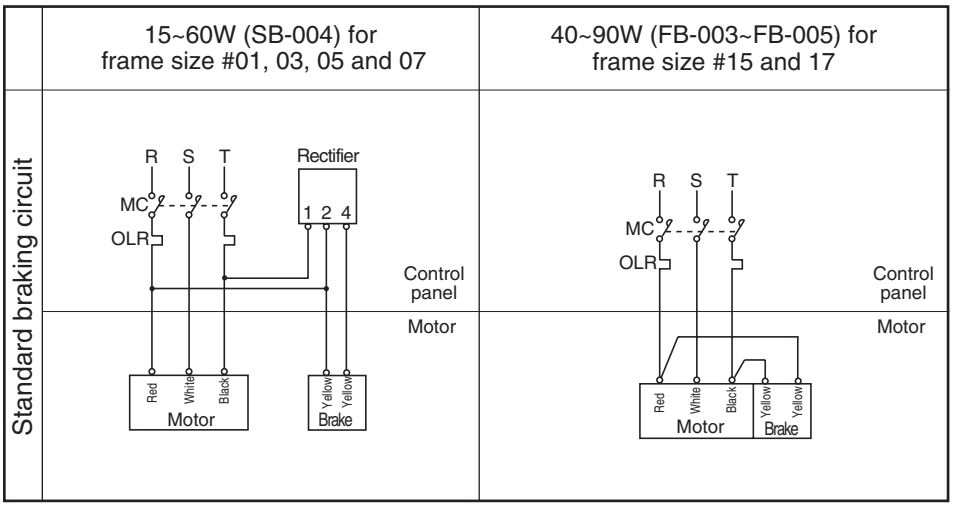
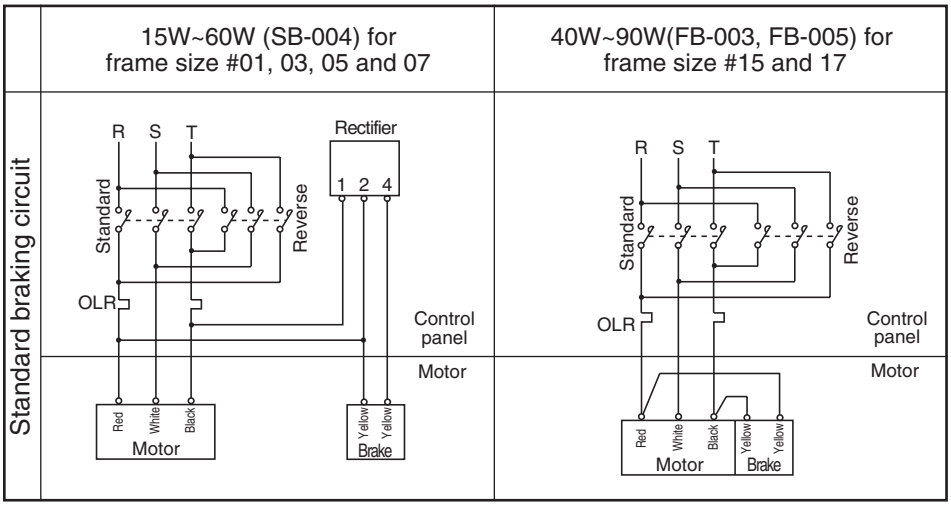


Fig. C-28 Connections for Operation in Both Directions



Notes: [1] A rectifier is supplied separately for 15~40W motors for frame size #01, 03, 05 and 07.
[2] A rectifier is built in the brake of 40~90W motors for frame size #15 and 17. (FB-003~005)

Electromagnetic contactor and OLR: Overload relay are not supplied by factory.
VR: varistor is an option available from factory.

Brake input power		AC200V~230V	AC380V~460V
Rated voltage of varistor		AC260~AC300V	AC510V
Varistor voltage		430V~470V	820V
Rated capacity of varistor	FB-01A1, 02A1, 05A1	0.2Watt or more	0.4Watt or more
	FB-1B	0.4Watt or more	0.6Watt or more
	FB-2B, 3B, 5B, 8B	0.6Watt or more	1.5Watt or more

BRAKEMOTOR TERMINAL BOX CONSTRUCTION

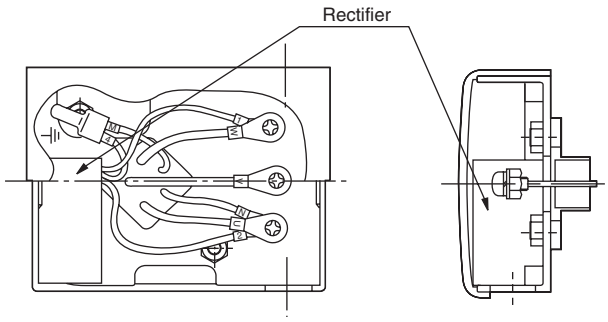


Fig. C-29 Indoor Type Standard (FB-01A1~FB-05A1)

Connection of Terminal Plate for Brakemotors (optional)[1, 2]

Fig. C-30 Frame Size 01#, 03#, 05# and 07# (Motor frame F-50S, F-50M, F-50L, FS-50S, FS-50M, FS-50L)

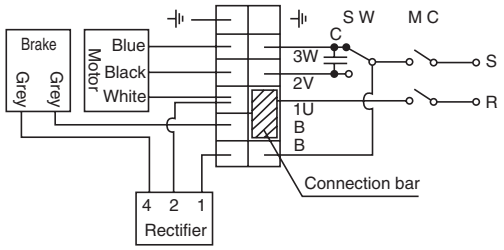
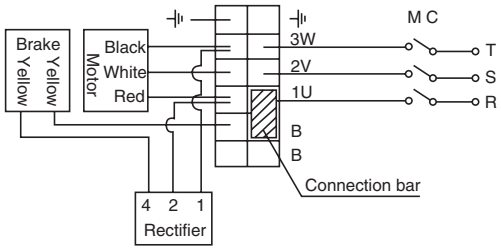
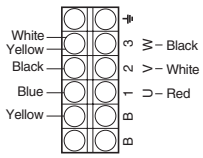
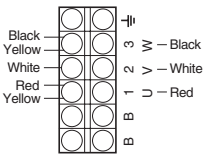
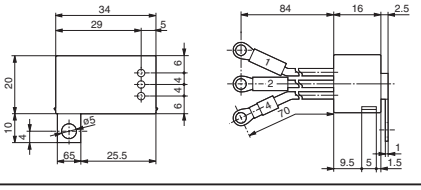
Single-phase motor 15~40W 100V	3-phase motor 15~60W 200V
Standard braking circuit	Standard braking circuit
	

Fig. C-31 Frame Size 15# and 17# (Motor frame F-56S, F-56M, F-56L, FS-56S, FS-56M, FS-56L)

Single-phase 40W~90W 100V	3-phase 40W~90W 200V
Standard braking (at shipment)	Standard braking (at shipment)
	

Notes: [1] Refer to pages C-16~C-18 for the connections shown in Figs. C-31~C-32.
[2] Symbols and colors of lead wire are different when a motor is driven in the reversed direction (standard: clock-wise rotation viewed from the fan cover.)

Fig. C-32 Dimensions of Separate Rectifier (15W-60W for frame size #01, 03, 05 and 07)



Dimensions are for reference only and subject to change without notice.

MOTOR PROTECTION

The first number (No. 1) denotes the level of motor protection against human or other foreign substances.
The second number (No. 2) denotes the level of motor protection against water permeation.
} Classified according to combination.

Table C-24 Protection Method of Motors[1, 2, 3]

First Number (No. 1)	Second Number (No. 2)							
	0 Non-Protected	2 Drip-Proof	3 Spray-Proof	4 Splash-Proof	5 Water-Jet-Proof	6 Sea-Wave-Proof	7 Immersion-Proof	8 Submersible
0 Non-Protected	IP00			X	X	X	X	
1 Semi-Protected	IP10	IP12			X	X	X	
2 Protected	IP20	IP22	IP23	IP24	X	X	X	
4 Totally Enclosed	X			IP44	IP45			
5 Dust-Protected	X			IP54	IP55	IP56		
6 Dust-Tight					IP65			

Table C-25 First Number Description

Type	Number	Description
Non-Protected	0	Constructed without special protection against human contact and penetration of solid foreign objects.
Semi-Protected	1	Constructed to prevent inadvertent contact with rotating and conductive parts inside the machine, by hand or other critical parts of the human body. Constructed to prevent penetration of solid foreign substances over 50 mm in diameter.
Protected	2	Constructed to prevent contact with rotating and conductive parts inside the machine, by hand or other critical parts of the body. Constructed to prevent penetration by solid substances over 12 mm in diameter.
Totally Enclosed	4	Constructed to prevent contact with the rotating and conductive parts inside the machine by tools, electric wires, etc. with minimum width and thickness over 1 mm. Constructed to prevent penetration of solid foreign substances over 1 mm diameter. However, water drainage outlet and exhaust outlet may be of Number 2 construction.
Dust-Protected	5	Constructed to prevent contact with rotating and conductive parts inside the machine by any form of objects. Constructed for protection against dust particle penetration, but will not interfere with normal operation, despite such penetration.
Dust-Tight	6	Constructed to prevent contact with rotating and conductive parts inside the machine by any form of objects. Constructed to prevent ingress of dust particle penetration.

Table C-26 Second Number Description

Type	Number	Description
Non-Protected	0	Constructed without special protection against water permeation.
Drip-Proof	2	Constructed to prevent harmful effect from dripping water falling from within 15° direction from vertical.
Spray-Proof	3	Constructed to prevent harmful effect from dripping water falling from within 60° direction from vertical.
Splash-Proof	4	Constructed to prevent harmful effect from dripping water falling from any direction.
Water-Jet Proof	5	Constructed to prevent harmful spray from any direction.
Sea-Wave Proof	6	Constructed to prevent harmful effect from strong spray from any direction.
Immersion-Proof	7	Constructed for submersion into water of prescribed depth and time but not having any harmful effect in spite of water permeation.
Submersible	8	Constructed to assure normal operations under water.

Example:
IP – 5 4
→ Form of protection against water permeation: Splash-Proof Type
→ Form of protection against bodily injury and solid foreign substance peneration. Dust-Proof Type
→ ICE Standards abbreviation.

Table C-27 Cooling

Enclosure Construction	JEC Standards	IEC Standard
Totally Enclosed, Non-Ventilated (TENV)	JCN4	IC410
Totally Enclosed, Fan-Cooled (TEFC)	JC4	IC411

Notes [1] "X" denotes a protection combination that is difficult to produce.
[2] IP44 and IP54 are standardly available from Sumitomo.
[3] Please consult factory for IP45 and IP55 selections.

INTERNATIONAL STANDARDS AND CORRESPONDING SUMITOMO MOTOR STANDARDS

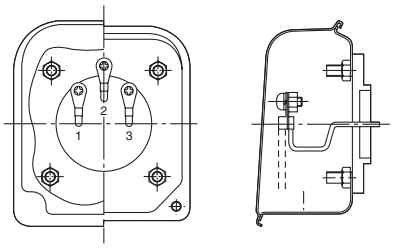
UL Standards (Underwriters Laboratories)

UL Standards, which are based on a series of scientific studies, research and experiments, are established for safety by a commercial testing institute in the U.S. to prevent fire, disaster and harm to human life. It is not regulated to comply with U.S. Federal Government standards, but it is regulated by some states or cities. In Canada, these motors carry the “cRU” mark denoting Component Recognition by Underwriters Laboratories under UL and CSA standards.

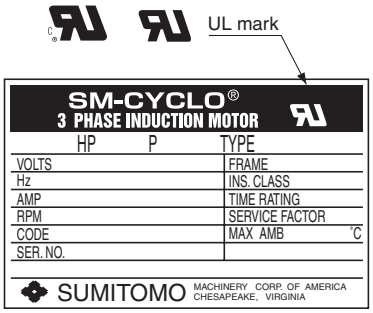
Motor	Non-explosion proof single-phase induction motor [1]	Non-explosion proof 3-phase induction motor	3-phase induction motor with brake [1]
Power	1/50~1HPX4P	1/50~8HPX4P	1/50~8HPX4P
Voltage	115V, 230V [4]	208V, 230V, 460V, 575V [4]	
Frequency	60Hz [4]	60Hz	
Insulation	Class A	Class A (Class B, Class F) [3]	Class F
Ambient conditions	Indoor type [2]		

Differences from Sumitomo standard models

- Terminal symbol: 1,2,3
- Nameplate with UL mark and measurement in HP
- Opposite rotating direction
- UL standard motor coil and brake coil



3-phase indoor terminal box



UL nameplate

Notes: [1] Single-phase motor or motor w/brake is manufactured in the range of 1/50 through 1/9 HP.
[2] Outdoor type is available. Please consult factory.
[3] F-class insulation type is available. Please consult factory.
[4] For other voltages or frequencies, please consult factory.

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- RIGHT ANGLE

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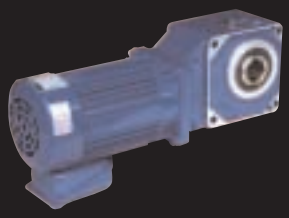
- CONSTANT SPEED
- MECHANICAL VS
- ELECTRICAL VS

WORLD-WIDE
- THE AMERICAS
- ASIA
- EUROPE

SHAFT MOUNT
GEARMOTOR



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