SM-Cyclo of Canada, Ltd. 870 Equestrian Court Oakville Ontario, Canada L6L 6L7

Mexico SM-Cydo De Mexico, S.A. de C.V. Calle "C" No. 506A Parque Industrial Almacentro Apodaca, N. L., Mexico 66600 Tel: (52)81-8369-3697

Brazil SM-Cydo Reductores Do Brasil Ltda. Av. Fagundes Filho, 191 Metro Sao Judas Edificio Houston-Sala H123 Sao Paulo-SP Tel: (55)11-5585-3600 Fax: (55)11-5585-9990

Chile SM-Cyclo De Chile, Ltda. San Pablo Ave, 3507 Quinta Nomal, Santiago, Chile Tel: (56)2-786-6963 Fax: (56)2-786-6964

Argentina SM-Cyclo De Argentina S.A. Montes de Oca #6719, (B1606BMG) Munro, Fax: (54)11-4765-5517

United Kingdom

SM-Cyclo U.K. Ltd. Marfleet, Kingston Upon Hull HU9 5RA, United Kingdom Tel: (44)1482-790340 Fax: (44)1482-790321

SM-Cyclo France E.U.R.L. 65/75 Avenue Jean Mermoz F-93126 La Courneuve France Tel: (33)149-929494 Fax: (33)149-929490

Italy SM-Cydo Italy Srl Via dell' Artigianato 231-20010 Cornaredo (Mi), Italy Tel: (39)02-9356-2121

Netherlands

SM-Cyclo Benelux BV Den Engelsman 16D NL-6026 RB Maarheeze The Netherlands

Sweden SM-Cyclo Scandinavia AB Företagsvägen 30A S-232 37 Arlöv Sweden

Spain SM-Cyclo Iberia, S.L. C/Landabarri N^o4 Escalera 1, 2°izgda Leioa 48940 Vizcaya Spain Fax: (34)944-801 550

Germany Sumitomo (SHI) Cyclo Drive Germany, GmbH Cyclostraße 92 D-85229 Markt Indersdorf Tel: (49)8136-66-0 Fax: (49)8136-5771

Austria
SCG Branch Austria Office Gruentalerstraße, 30A A-4028 Linz, Austria Tel: (43)732-330 958

Sumitomo (SHI) Cyclo Drive China, Ltd. 26F, Raffles City No.268, Xizang Road Central, Shanghai 200001 China Tel: (86)21-6340-4000 Fax: (86)21-6340-3673

Hong Kong

SM-Cyclo of Hong Kong Co., Ltd. Unit 1802, 18/F, Park Building, 476 Castle Peak Road, Kowloon, Hong Kong Tel: (852)2460-1881

Sumitomo (SHI) Cyclo Drive Asia Pacific Pte. Ltd. No.36 Tuas South Street 3, Singapore 638031 Tel: (65)6863-2238 Fax: (65)6863-4238

Malaysia SM-Cyclo of (Malaysia) Sdn. Bhd. No.2, Jalan BP 4/1, Bandar Bukit Puchong, 47100 Puchong, Selangor Darul Ehsan, Malaysia Tel: (60)3–8061–2909

Thailand SM-Cydo (Thailand) Co., Ltd. 195, Empire Tower Unit 1504, 15th Floor Bangkok 10120, Thailand Fax: (66)2-670-0999

Vietnam

Sumitomo (SHI) Cyclo-Drive Asia Pacific Pte. Ltd. Representative Office in Hochi Minh City Floor 4, 99 Nguyen Thi Minh Khai Street World Ben Thanh, District 1, HCM City, Vietnam Tel: (84)8-925-6504 Fax: (84)8-925-6505

Australia

SM-Cyclo (Australia) Pty., Ltd. 9 HolbecheRd, Arndell Park, NSW, 2148 Postal: PO Box 319 Doonside NSW, 2767 Tel: (61)2-8811-6555

Philippines
Sumitomo (SHI) Cyclo Drive Asia Pacific Pte. Ltd.
Representative Office in Philippines
Unit 23E Burgundy Corporate Tower
252 Sen. Gil Puyat Ave. Makati City, Philippines Fax: (63)2-843-0021

India Sumi-Cydo India Pet. Ltd. 759/17, Ramkripa Apartment, Flat No.2, First Floor Capt. A. Ranade Path, Deccan Gymkhana, Pune 411004. Maharashtra, India Tel: (91)202-5653760 Fax: (91)202-5653755

Taiwan

Tatung SM-Cyclo Co., Ltd. 22 Chungshan N. Road 3rd., Sec. Taipei, Taiwan, 104 R.O.C. Tel: (886)2-2595-7275 Fax: (886)2-2595-5594

Korea Sumitomo (SHI) Cyclo Drive Korea Ltd. Royal Bldg. 9F Rm. 913, 5 Dangju-dong Chongro-ku Seoul, Korea 110-721 Tel: (82)2-730-0151 Fax: (82)2-730-0156

Japan

Shinagawa-ku, Tokyo 141-6025, Tel: (81)3-6737-2511

Sumitomo Drive Technologies

ASTERO 6

90

Sumitomo Heavy Industries, Ltd. ThinkPark Tower 1-1, Osaki 2-Chome

Sumitomo Drive Technologies Always on the Move

ASTERO®

Gear Motors & Controllers

 $6 \sim 90 \text{ w}$



Gear Motors & Controllers





A Global Standard for Compact Gear Motors from Sumitomo Heavy Industries

FEATURES AND BENEFITS

- Involute gear, Parallel shaft type
 Grease lubricated units
 (Maintenance free and universal mounting)
- Clear silver metallic color
- High quality materials are used throughout. Sealed ball bearing, Steel gears, Aluminum housing
- CE Marking (with Thermal protect)UL Standard (115V Single phase motor)
- Motor and Gearhead come apart for easy use. (Motor and Gearhead are sold separately)

The Sumitomo Heavy Industries Power Transmission & Control (PTC) Group has been a leader in the gear box and gear motor market for over 60 years.

Our mission in to work with custmers worldwide to devise power transmission equipment solusions that provide the optimum technology and reliability.

We listen to the needs of our customers to develop cutting-edge techonology and products, and manufacture the products that best meet the needs of world markets.

The Available Solution, Worldwide

A Global Presence
The PTC Group's 8 manufacturing plants, 35
assnmble plants and 226 sales offices are
located in over 50 countries worldwide. In each of
the countries we do business in, our goal is to
create the optimum partnership with our
customers and their end users.

Sumitomo Heavy Industries, ltd.

Sumitomo Heavy Industries, Ltd

Headquaters: Sumitomo Jukikai Bldg., 5-9-11 Kita-

Shinagawa, shinagawa-ku, Tokyo, Japan

141-8686

Founded : November 20, 1888 Established : November 1, 1934

Capital : 30,871,6500,000yen (as at March 31,

2001) Number of employees

For all consolidated

: 12,411 (as at March 31, 2001)

For Sumitomo Heavy Industries alone

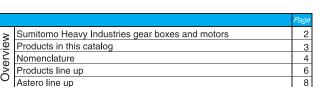
: 4,699 (as at March 31, 2001)

Power Transmission and Controls Group Headquarters and manufacturing

: U.S.A., Canada, England, Germany, Singapore, China, Korea, Taiwan, Japan

Office : Over 50 countries worldwide

Contents



	Gear motor Types	Overview	6W	15W	25W	40W	60W	90W
Constant-speed types	Induction models	10	14	16	18	20	22	24
es-sp	Reversible models	28	34	36	38	40	42	44
star	with Electromagnetic brakes	48	50	52	54	56	58	60
Sol	with Terminal boxes	64	66	70	74	78	82	86
pec	Unit-type (Induction)	96	100	102	104	106	108	110
es Sp	Socket-type (Induction)	113	130	132	134	136	138	140
Variable-speed types	Socket-type (Reversible)	113	144	146	148	150	_	-
Vari	Socket-type (with Electromagnetic brakes)	113	154	156	158	160	-	_

Brake packs	Page 1
Brake packs	163
Options	Page

	Options	Page
	Mounting plate for motors & gear heads	170
ns	Extension cords	172
ptiol	CR circuits for surge voltage absorption	172
ŏ	External speed control switch	173
	External resistor for braking	173

	Techur	ical Information	Page
	Techur	nical Information : Motor	175
	1、	Ratings(Continuous & short-time ratings)	176
	2、	Torque and motor speed	176
	3、	Ambient temperatures	177
	4、	Measuring the motor temperatures rise	177
	5、	Overhearting protectors	178
_	6、	Making ground connections	178
ior	7、	Compliance of Sumitomo products with standard in each country	178
nat	8、	Power requirements in defferent countries	179
orn	Techur	ical Information : Gear heads	180
Infe	9、	Gear head size	180
a	10、	Reduction ratio	180
nic	11、	Maximum allowable torque	180
Technical Information	12、	Service factor	180
Te	13、	Gear head efficiency	180
	14、	Shaft radial load and thrust load	181
	15、	Combining motors and gear heads	181
	16、	Combining motors and intermediate gear heads	181
	17、	Gear head shaft speed and direction	182
	18、	Attaching a motor and gear head	182
	19、	Affixing a load transmission mechanism	182

Induction

Reversible

Brake Packs

Options

Sumitomo Heavy Industries gear boxes and gear motors

Since the release of our first Cyclo speed reducer in 1939, Sumitomo Heavy Industries has been a leader in the gear box and gear motors market, continually working with customers to devise applications and solutions that incorporate the latest technology.

In addition to our gear motors and speed variators, we also make a wide range of electric motors, AC inverters and AC servo motors. Our extensive lineup of products ranges from ultra-compact models with capacities of a few watts, to large gear boxes with several hundred kW capacities.

The unique configurations and technology used in all our products are the result of our commitment to the ultimate performance and reliability, and of our expertise in speed reducers, motors and controllers.



Cydo disk used in the center of the Cyclo speed

shape creates powerful torque.

Caps	PTC products item	Parall	el shaft	Right-a	ngle shaft
6~08	Compact gear motors	Astero	Astero gear motors 6W~90W •Standard parallel shaft helical gear motors catalog products	GEARINGTON SERVICE	Hyponic®gear motors 15W~90W High-efficiency, high- strength gear motors using hypoid gears Water-resistant model (IP65) also
			Ŭ,	T	available.
0.1	Small gear motors	Altax° CC	Altax [®] gear motors 90W~2.2kW •A compact gear motors using a powerful Cyclo speed reducer's mechanism	ELANDIOR.	Hyponic [®] gear motor 0.1~5.5kW •Hypoid gears combining high efficiency and low noise



2

Products in this catalog

The Astero™ Series is a lineup of compact gear motors with the lowest capacity range (6 to 90 W) of any of Sumitomo's products. The Series features highly reliable Astero gear heads (combining helical gears and spur gears), A-motors (special Astero motors), and a variety of options and control equipment (such as speed controllers).

A wide range of motors is available for several applications and operating environments. Gear heads and motors for all models are sold separately, and can be used in any combination.



spec

122

124

overview wiring diagram

overview wiring diagram

overview wiring diagram

Electromagnetic brakes

AS	TERO Motors	Pov	ver		Speed		Stored	Lead	Time	0.11	Page	Page
Α0	A-motor	1ph	3ph	Speed	Change over tining	Brake	Torque	wire tipe	ratings	Other		Ratings
	Induction motors	0	0	Constant speed	After stopping motor	Natural stop *]	No	Lead wire	Continuous		10	14
speed	Reversible motors	0		Constant speed	Immediate stop & start	Simple buit-in brake	No	Lead wire	30mim		28	34
	Motors with Electromagnetic brakes	0	0	Constant speed	Immediate stop & start	Electro- magnetic brake	Yes	Lead wire	1ph 30min 3ph Continuous		48	50
Constant	Induction motors with Trminal boxes	0	0	Constant speed	After stopping motor	Natural stop *]	No	W/ Terminal box	Continuous		64	66
	Reversible motor with Trminal boxes	0		Constant speed	Immediate stop & start	Simple buit-in brake	No	W/ Terminal box	30mim		64	66

۸۵	STERO Motors	Pov	ver		Speed		Stored	Lead	Time		Page	Page	Speed Controller
AS	A-motor	1ph	3ph	Speed	Change over tining	Brake	Torque	wire	Time ratings	Other		Ratings	
g	Unit type Induction motors	0		Variable speed	After stopping motor	Natural stop	No	Lead wire 300mm with special connector	Continuous	Easy connection	96	100	Unit type overview wiring diag
spee	Socket type Induction motors	0		Variable speed	After stopping motor	Immediate stop *2	No	Lead wire 300mm	Continuous	Soft Start Soft Stop	115	129	Socket type Induction motors overview wiring diag
Variable	Socket type Reversible motors	0		Variable speed	Immediate stop and start	Immediate stop *2	No	Lead wire 300mm	30mim	Soft Start Soft Stop	115	143	Socket type Reversible motors overview wiring diag
	Socket type Electromagnetic brakes	0		Variable speed	Immediate stop and start	Electro- magnetic brake	Yes	Lead wire 300mm		Soft Start Soft Stop	115	153	Socket type Electromagnetic br overview wiring diag

± 1	Imme	diata	eton	ic	nossible	with	hrako	nack	

^{*2 :} External resistor for braking should be installed outside

™ ASTERO Gear Heads			Gear hea	ds	Intern	nediate G	ear heads
	Output shaft	Lubrication	Brg	Reduction ratio	Lubrication	Brg	Reduction ratio
60mm	D-cut type Key type	Grease	Ball Brg	3, 3.6, 5, 6, 7.5, 9, 10 12.5, 15, 18, 20 25, 30, 36, 40 50, 60, 75, 90, 100 120, 150, 180, 200	Grease	Ball Brg	10

Brake Packs

9000

Nomenclature

A-motor

Speed controllers

CAU

Type

BAS

Type

BAS Brake packs

Brake packs

CAU Unit-type

CAH Socket-type

Astero gear motors(Output shaft is helical gear type)

15

Output 6 6W

15 15W

90 90W

Α

Voltage symbol

*The CAH type has an output of 90 W regardless of the motor output.

Α

Voltage symbol

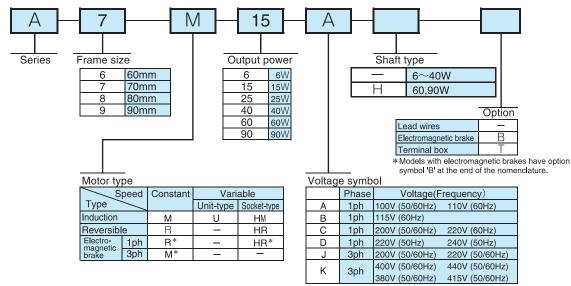
Phase

Voltage(Frequency)

 1ph
 100V (50/60Hz)
 110V (60Hz)

 1ph
 200V (50/60Hz)
 220V (60Hz)

 1ph
 220V (50Hz)
 240V (50Hz)



Voltage(Frequency)

A 1ph 100V (50/60Hz) 110V (60Hz)

C 1ph 200V (50/60Hz) 220V (60Hz)

D 1ph 220V (50Hz) 240V (50Hz)

*The applicable voltage depends on the motor output and motor type. See the rating table for more information.

Speed controllers

- Can control the motor speed over a wide range.
- Each controller type must be used with its own motor type (with speed detector).

•Unit-type speed controllers

- Simple wiring and speed control switch built into panel enable use right away.
- For use with type 'U' induction motors.
- •Controller dimensions: 60 x 100 x 98.5 mm (W x H x D)

■Socket-type speed controllers

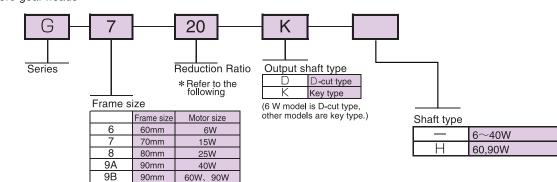
- Multi-functional speed controllers
- Built-in soft start, soft stop functions
- Built-in electronic brake
- Can be used with induction motors, reversible
- motors, or motors with electromagnetic brakes
 Controller dimensions (main unit): 50 x 80 x 92
- Controller dimensions (main unit): 50 x 80 x 92 mm (W x H x D)

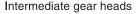
Brake packs

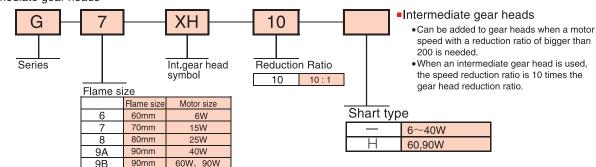
- Used to stop single-phase motors instantly.
- Non contact type
- Can be used with type 'M' induction motors and type 'R' reversible motors.
- Unlike electromagnetic brakes, brake packs don't store and hold braking torque (brake packs are electronic brakes).



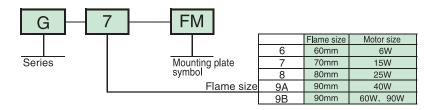








Mounting plate



*Reduction ratio

Gear head output speed = motor output speed / reduction ratio

•The Astero gear head reduction ratios are listed below

		, ,,,,,,,,	, g.a.,					
ı			Re	ducti	ion ra	ıtio		
ı	3	3.6	5	6	7.5	9	10	12.5
ı	15	18	20	25	30	36	40	50
ı	60	75	90	100	120	150	180	200

Induction

Reversible

Unit type

Brake Packs Options

Technical Information

Products line up

A-motor

■Astero gear motors(Output shaft is helical gear type)

lame	Output	Phase	Voltage(F	Frequency)				C	onstant s	pee	d				
size (mm)	power				Induction	Р	Reversible	Р	Electromagne brake	etic	Induction W/Terminal box	Р	Reversible W/Terminal box		
			100)//50/60[]=)	110\((00 =)	ACMOCA	Р	A6R06A	Р	ACDOCAD	Р	A6M06AT	Р		٠	
			100V(50/60Hz)	110V(60Hz)	A6M06A				A6R06AB			1	A6R06AT	1	
60	6W	1ph	115V(60Hz)	000) ((001 I=)	A6M06B	14	A6R06B	34	A6R06BB	50	A6M06BT	66	A6R06BT	- 6	
			200V(50/60Hz)	220V(60Hz)	A6M06C		A6R06C	-	A6R06CB		A6M06CT	1	A6R06CT	+	
			220V(50Hz)	240V(50Hz)	A6M06D	<u> </u>	A6R06D		A6R06DB		A6M06DT	<u> </u>	A6R06DT	_	
			100V(50/60Hz)	110V(60Hz)	A7M15A		A7R15A		A7R15AB		A7M15AT		A7R15AT	Τ	
70	15W	4 1-	115V(60Hz)		A7M15B	16	A7R15B	36	A7R15BB	52		70	A7R15BT].	
70	1500	1ph	200V(50/60Hz)	220V(60Hz)	A7M15C] '	A7R15C	700	A7R15CB	32	A7M15CT	1′	A7R15CT		
			220V(50Hz)	240V(50Hz)	A7M15D		A7R15D		A7R15DB		A7M15DT	1	A7R15DT	1	
			100V(50/60Hz)	110V(60Hz)	A8M25A		A8R25A		A8R25AB		A8M25AT		A8R25AT		
		1ph	115V(60Hz)		A8M25B		A8R25B	38	A8R25BB				A8R25BT	_ .	
		трп	200V(50/60Hz)	220V(60Hz)	A8M25C		A8R25C	36	A8R25CB	J	A8M25CT	74	A8R25CT		
80	25W		220V(50Hz)	240V(50Hz)	A8M25D	18	A8R25D		A8R25DB	54	A8M25DT	/4	A8R25DT	丄	
			200V(50/60Hz)	220V(50/60Hz)	A8M25J				A8M25JB		A8M25JT				
		3ph	400V(50/60Hz)	440V(50/60Hz)	A8M25K				A8M25KB		A8M25KT				
			380V(50/60Hz)	415V(50/60Hz)	Adivizar				Adivizand		AOIVIZ5K I				
			100V(50/60Hz)	110V(60Hz)	A9M40A		A9R40A		A9R40AB		A9M40AT		A9R40AT		
		1ph	115V(60Hz)		A9M40B		A9R40B	١.,	A9R40BB			70	A9R40BT	7	
		ı pıı	200V(50/60Hz)	220V(60Hz)	A9M40C		A9R40C	40	A9R40CB		A9M40CT		A9R40CT		
90	40W		220V(50Hz)	240V(50Hz)	A9M40D	20	A9R40D		A9R40DB	56	A9M40DT	78	A9R40DT		
			200V(50/60Hz)	220V(50/60Hz)	A9M40J				A9M40JB		A9M40JT				
		3ph	400V(50/60Hz)	440V(50/60Hz)	A9M40K				A9M40KB		A9M40KT				
			380V(50/60Hz)	415V(50/60Hz)	ASIVITOR				AUNITORD		Admitore			_	
				Г	T	1	1	1	<u> </u>	1	_		Т	_	
			100V(50/60Hz)	110V(60Hz)	A9M60AH		A9R60AH	-	A9R60AHB		A9M60AHT	-	A9R60AHT	4	
		1ph	115V(60Hz)		A9M60BH		A9R60BH	42	A9R60BHB				A9R60BHT	4	
		ı.	200V(50/60Hz)	220V(60Hz)	A9M60CH		A9R60CH	42	A9R60CHB		A9M60CHT	82	A9R60CHT	4	
90	60W		220V(50Hz)	240V(50Hz)	A9M60DH	22	A9R60DH		A9R60DHB	58	A9M60DHT	02	A9R60DHT	1	
			200V(50/60Hz)	220V(50/60Hz)	A9M60JH				A9M60JHB		A9M60JHT				
		3ph	400V(50/60Hz)	440V(50/60Hz)	A9M60KH				A9M60KHB		A9M60KHT				
			380V(50/60Hz)	415V(50/60Hz)	7.0				7101110011110		7.6			_	
			ı	1	ı	1	ı	1		1		ı	Γ	_	
			100V(50/60Hz)	110V(60Hz)	A9M90AH	1	A9R90AH	-	A9R90AHB	-	A9M90AHT	1	A9R90AHT	4	
		1ph	115V(60Hz)		A9M90BH		A9R90BH	44	A9R90BHB	-		-	A9R90BHT	4	
			200V(50/60Hz)	220V(60Hz)	A9M90CH	1,,	A9R90CH	-	A9R90CHB	60	A9M90CHT	86	A9R90CHT	4	
90	90W		220V(50Hz)	240V(50Hz)	A9M90DH	24	A9R90DH		A9R90DHB	A9M90DHT	-	A9R90DHT	\perp		
			200V(50/60Hz)	220V(50/60Hz)	A9M90JH	-			A9M90JHB	4	A9M90JHT	1			
		3ph	400V(50/60Hz)	440V(50/60Hz)	A9M90KH				A9M90KHB		A9M90KHT				
			380V(50/60Hz)	415V(50/60Hz)		1						I	1		

6

Astero™

Astero gear heads

	6W	15W	25W	40W	60W,90W
Ratio	60mm	70mm	80mm	90mm	90mm
3	G63D	G73K	G83K	G9A3K	G9B3KH
3.6	G63.6D	G73.6K	G83.6K	G9A3.6K	G9B3.6KH
5	G65D	G75K	G85K	G9A5K	G9B5KH
6	G66D	G76K	G86K	G9A6K	G9B6KH
7.5	G67.5D	G77.5K	G87.5K	G9A7.5K	G9B7.5KH
9	G69D	G79K	G89K	G9A9K	G9B9KH
10	G610D	G710K	G810K	G9A10K	G9B10KH
12.5	G612.5D	G712.5K	G812.5K	G9A12.5K	G9B12.5KH
15	G615D	G715K	G815K	G9A15K	G9B15KH
18	G618D	G718K	G818K	G9A18K	G9B18KH
20	G620D	G720K	G820K	G9A20K	G9B20KH
25	G625D	G725K	G825K	G9A25K	G9B25KH
30	G630D	G730K	G830K	G9A30K	G9B30KH

	D-4i-	6W	15W	25W	40W	60W,90W
	Ratio	60mm	70mm	80mm	90mm	90mm
1	36	G636D	G736K	G836K	G9A36K	G9B36KH
]	40	G640D	G740K	G840K	G9A40K	G9B40KH
	50	G650D	G750K	G850K	G9A50K	G9B50KH
	60	G660D	G760K	G860K	G9A60K	G9B60KH
	75	G675D	G775K	G875K	G9A75K	G9B75KH
]	90	G690D	G790K	G890K	G9A90K	G9B90KH
]	100	G6100D	G7100K	G8100K	G9A100K	G9B100KH
╛	120	G6120D	G7120K	G8120K	G9A120K	G9B120KH
╛	150	G6150D	G7150K	G8150K	G9A150K	G9B150KH
1	180	G6180D	G7180K	G8180K	G9A180K	G9B180KH
╛	200	G6200D	G7200K	G8200K	G9A200K	G9B200KH
1	Interm	ediate gear l				
⅃	10	G6XH10	G7XH10	G8XH10	G9AXH10	G9BXH10H

A-motor

■Astero gear motors(Output shaft is helical gear type)

			vonable	speed	INIO	tor+Spee	ea contro	mer	S)			Applicable gear heads
Unit-type Induction mo	otors	Р	Socket-type Induction mot	ors	Р	Socket-type Reversible m	otors	Р	Socket-type Reversible motor w/	electromagnetic brake	Р	Applicable geal fleads
A6U06A	+CAU06A		A6HM06A	+CAH90A		A6HR06A	+CAH90A		A6HR06AB	+CAH90A		G6□D
		100			130			144			154	: Reduction ratio
A6U06C	+CAU06C		A6HM06C	+CAH90C		A6HR06C	+CAH90C		A6HR06CB	+CAH90C		Output shaft type: D-cut type Intermediate gear head: G6XH10
A6U06D	+CAU06D		A6HM06D	+CAH90D		A6HR06D	+CAH90D		A6HR06DB	+CAH90D		Intermediate gear nead. doxirro
					1	1		1				
A7U15A	+CAU15A		A7HM15A	+CAH90A		A7HR 15A	+CAH90A	-	A7HR15AB	+CAH90A		G7□K
		102			132			146			156	: Reduction ratio Output shaft type: D-cut type
A7U15C	+CAU15C		A7HM15C	+CAH90C		A7HR15C	+CAH90C	1	A7HR15CB	+CAH90C		Intermediate gear head: G7XH10
A7U15D	+CAU15D		A7HM15D	+CAH90D		A7HR15D	+CAH90D		A7HR15DB	+CAH90D		The state of the s
					1	T		1				
A8U25A	+CAU25A		A8HM25A	+CAH90A	-	A8HR25A	+CAH90A	-	A8HR25AB	+CAH90A		G8□K
4011050	0411050	104	40114050	0.411000	134	AGUDOFO	+CAH90C	148	AGUIDOFOD	0411000	158	: Reduction ratio Output shaft type: D-cut type
A8U25C	+CAU25C		A8HM25C	+CAH90C		A8HR25C		1	A8HR25CB	+CAH90C		Intermediate gear head: G8XH10
A8U25D	+CAU25D		A8HM25D	+CAH90D	1	A8HR25D	+CAH90D	1	A8HR25DB	+CAH90D	_	
		1			1	1		1	I			Г
A9U40A	+CAU40A	-	A9HM40A	+CAH90A	-	A9HR 40A	+CAH90A	-	A9HR40AB	+CAH90A		G9A□K
		106			136			150			160	: Reduction ratio Output shaft type: Key type
A9U40C	+CAU40C	4	A9HM40C	+CAH90C	4	A9HR 40C	+CAH90C	-	A9HR40CB	+CAH90C		Intermediate gear head:

A9U60AH	+CAU60A		A9HM60AH	+CAH 90A	
		100			100
A9U60CH	+CAU60C	108	A9HM60CH	+CAH 90C	138
A9U60DH	+CAU60D		A9HM60DH	+CAH 90D	
		-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		

A9HR 40D +CAH90D

A9U90AH	+CAU90A		A9HM90AH	+CAH	90A	
A9U90CH	+CAU90C	110	А9НМ90СН	+CAH	90C	140
A9U90DH	+CAU90D		A9HM90DH	+CAH	90D	

A9HM40D +CAH90D

Bra	ke	nacks	

A9U40D +CAU40D

- Drake packs	
Voltage(Frequency)	Type
1ph 100V (50/60Hz) 110V(60Hz)	BASA
1ph 200V (50/60Hz) 220V(60Hz)	BASC
1ph 220V (50Hz) 240V(50Hz)	BASD

Mounting plate						
Capacity	□Size	Type				
6W	60mm	G6FM				
15W	70mm	G7FM				
25W	80mm	G8FM				
40W	90mm	G9AFM				
60,90W	90mm	G9BFM				

Extension cables
Length(m) Type
0.5 EAWE05 EAWE10 1.5 EAWE15 EAWE20 2.0

Voltage symbol (V) Type
250 EACR25
500 EACR50

■ CR circuits for surge voltage absorber *Used with unit-type speed controllers.

A9HR40DB +CAH90D

Intermediate gear head:

with 60 or 90 W motors.

Note: Gear heads for use with 40 W motor only. Can't be used

Note: Gear heads for use with 60 or 90 W motors only. Can't be used with 40 W motors.

Note: Motor and gear head are sold separately.

(Customers assemble them by themselves).

G9AXH10

G9B□KH : Reduction ratio Output shaft type: Key type Intermediate gear head: G9BXH10

*Used with Socket-type speed controllers.

*Used with Socket-type speed controllers.

Astero,a gear motor pursuing quality & usability



Gear Head

Very reliable gear head with the involute gear.

Grease lubrication & ball bearing are applied to all models Reduction ratio: 3~200 (24 types) Size: 60~90mmsg. (5 types)

Intermediate Gear Head



Intermediate gear head with higher reduction ratio than 200. (Option) Reduction ratio: 10 Size: 60~90mm sg. (5 types)

Mounting Plate

The plate is used as an adopter when installing motor and gear motor to the parallel surface to the shaft direction. Size: 60~90mm sg. (5 types)

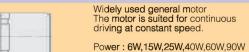
When it comes to the right angle shaft, Hyponic!



and strong with Hypoid gear. Capacity: 15~90W Reduction Induction Reversible With electromag



Induction Motors (1 phase, 3 phase)



Reversible Motors (1 phase)



The rotating direction can be changed in an instant.
The motor is suited for frequent

Brake packs (1 phase)

0 ...

Non contact type brake packs can bring the 1 phase induction motors and the reversible motors

to a stop in an instance. A motor itself can come to

a stop for below 0.1 sec-

t can not store the brak-

ing power. Extra power supply (DC12~14V 0.1A)

Unit Type Speed

Sed.

The control panel has the operation switch and the

volume for speed control.

The controller can wire with the touch of a key

and bring variable speed driving to fruition easily.

Speed Controller

Printer (D)

\$

High functions speed

· Soft start & soft stop Electronics brake
 Parallel driving
 Instant stop with

Socket Type

Controller

is needed.

change of the rotating direction at constant speed.

Power: 6W,15W,25W,40W,60W,90W Voltage symbol: A,B,C,D

Motors with Electromagnetic Brake

Motors with Electromagnetic Brake (1 phase, 3 phase) The motor has a store after stopping

Power: 6W,15W,25W,40W,60W,90W Voltage symbol: A,B,C,D,J,K

Motors with Terminal Box (1 phase, 3 phase)



The motor is equipped with terminal There are induction and reversible mo-

Power: 6W,15W,25W,40W,60W,90W Voltage symbol : A,B,C,D,J,K

Induction Motors for Unit type Speed Controller (1 phase)



The rotating speed can be changed as

you like.
The motor comes with a controller of the unit type as a set and features the sim-

Power: 6W,15W,25W,40W,60W,90W Voltage symbol: A,B,C,D,J,K

Induction Motos for Socket type Speed Controller (1 phase)



The rotating speed can be changed as you like. The motor comes with a controller of the socket type as a set and features high functions such as soft start, soft other electrosis backs as set specifical. soft stop, electronics brake, and paralle

Power: 6W,15W,25W,40W,60W,90W Voltage symbol: A,C,D

Reversible Motor fors Socket type Speed Controller (1 phase)



Not only the rotating speed can be changed as you like but the rotating direction can in an instant.

The motor comes with a controller of the

Power: 6W,15W,25W,40W

Motors with Electromagnetic Brake for Socket type Speed Controller (1 phase)

Not only the rota ting speed can be changed as you like but the rotating direction can in an instant.
Furthermore, it has a built-in electromagnetic brake and can store after stopping.

Capacity: 6W,15W,25W,40W Power supply: A,C,D

■Voltago symbol 1- phase motor ■Voltago symbol 3-phsae motor | A | 100V(50Hz,60Hz) | B | 115V(60Hz) | C | 200V(50Hz,60Hz) | D | 220V(50Hz | 3 | 200V(50Hz,60Hz) | J | 200V(50Hz,60Hz) | K | 400V,440V,380V,415V | 110V(60Hz) | 220V(50Hz,60Hz) | 240V(50Hz,60Hz) | 240V(50Hz,60Hz) | (50Hz,60Hz) | (50Hz,60Hz

Induction motors



*Gear head and induction motor are sold separately.

Induction motors

- · Most widely-used gear motors
- •Used for constant-speed operation.
- •Stop naturally using load torque (can be stopped quickly using separately-sold brake
- Motor must be completely stopped before motor operation direction can be switched.
- Lead wires type.
- •Time rating: Continuous



P.14 15W P.16 25W P.18 40W P.20 60W P.22 90W P.24

Induction motors



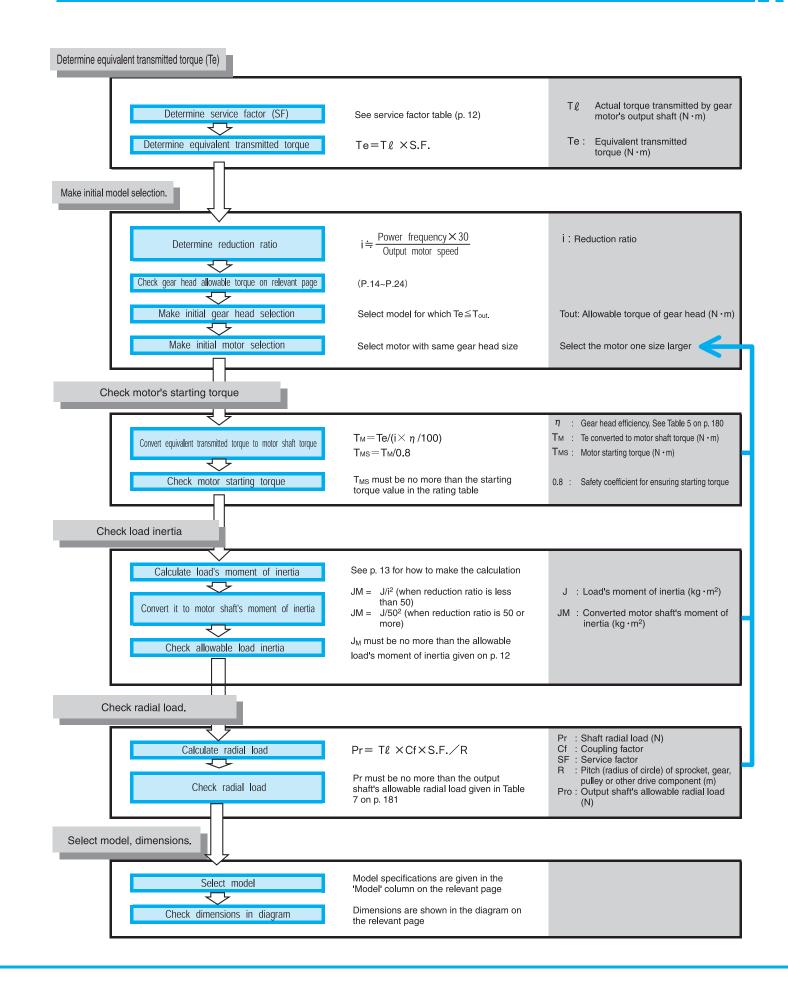




Overview of induction motors (Standard specifications)

Tabl	e 1. Induction motor s	standard specifications					
	la		r standard specifications				
	Item	Single-phase motor	3-phase motor				
	Capacity range	6 ~ 90 W 4 poles 6 ~ 40 W: IP23	25 ~ 90 W 4 poles 25 ~ 40 W: IP23				
	Protection method Enclosure	Totally enclosed non ventilated type 60 W~: IP23 Totally enclosed fun cooled type	Totally enclosed non ventilated type 60 W~: IP23 Totally enclosed fun cooled type				
		100V 50/60Hz, 110V 60Hz	200V 50/60Hz, 220V 50/60Hz				
		115V 60Hz					
	Power source	200V 50/60Hz, 220V 60Hz	380V 50/60Hz, 400V 50/60Hz,				
		220~240V 50Hz	415V 50/60Hz, 440V 50/60Hz				
	CE Marking, Class E (120°C) UL Standard, Class A (105°C)		CE Marking, Class E (120°C) UL Standard, Class A (105°C)				
or	Time rating	Continuous	Continuous				
Motor	Starting method	Condenser running	Direct start				
	Lead wires (Number of lead wire)	6W: 4wires(220~240V/50Hz 3wires) 15~90W: 5wires(220~240V/50Hz 3wires) UL Style 3266 20AWG	3wires UL Style 3271 20 AWG				
	Standards	CE Mark (Low Voltage Directive), UL Standa	e Directive), UL Standard				
	Insulation resistance	At least 100 M Ω when measured with a 500 VDC megger between the motor coil and case normal temperature and humidity after motor has reached rated operation.					
	Insulation withstand voltage	No malfunction when a 1500 V, 50/60 Hz current is applied between the motor coil and case for 1 minute at normal temperature and humidity after the motor has reached rated operation.					
	Temperature rise	The temperature rise value (ΔT) should be no more than 60°C (no more than 45°C for motors with fans) when measured by the prescribed method after the motor has reached the rated operation.					
	Overheating protector (TP)	Built-in thermal protector (auto-restore type)	Release: 120 ±5°C, Restore: 77 ±5°C				
Gear	Lubrication method	Grease lubrication. Grease is loaded at shipr	ment.				
Paint	Color	Astero silver					
S	Locations	Indoors (Minimal dust and humidity)					
lition	Temperature	-10 to 40°C					
cond	Humidity	Under 85%					
Ambient conditions	Elevation	Under 1,000 m					
Amb	Atmosphere	Well ventilated location, free of corrosive gase	es, explosive gases, vapors and dust.				

Overview of induction motors (Selection procedure)



Overview

Unit type Socket type

Brake Packs

Overview of induction motors (Service factor)

Service factor (S. F.)

• Service factors are designed for 8 hours of per day with a uniform load.

Table 2 Service factor (S.E.)

Table 2. Service factor (S.1.)							
Load Operation time condition	Up to 8 hours/day	Applications					
Uniform load	1	Continuous load in one direction					
Moderate shock load	1.5	Frequent changes of motor direction					
Shock load	2	Instant changes of motor direction/stops					

Shaft radial load and thrust load

- Calculate the shaft radial load when attaching a chain sprocket or pulley.
- The shaft radial load is calculated by the formula below. It must be smaller than the allowable radial load of the output shaft given table 7 on p.181.

Shaft radial load (Pr) =
$$\frac{P\ell \times Cf \times S.F.}{R}$$
[N]

Pℓ: Actual torque transmitted by slow speed shaft (N·m)

Cf: Load connection factor (see Table 3)

R: Pitch (radius of circle) of sprocket, gear, pulley or other drive component (m)

Table 3. Load connection factor (Cf)

Cf
1
1.25
1.5

Load moment of inertia

• The converted motor shaft load moment of inertia is calculated by the following formula.

i : Reduction ratio

 $J_M = J/i^2$ (when reduction ratio is less than 50) J: Load moment of inertia (kg·m²)

J_M = J/50² (when reduction ratio is 50 or more) J_M: Converted motor shaft load moment of inertia (kg·m²)

• Note that if the motor is used with a load moment of inertia exceeding the corresponding

allowable valbe(given table4.), gears and bearings will quickly become damaged.

Table 4. Allowable values for converted motor shaft load moment of inertia (10⁻⁴ kg·m²)

Motor size	Motor power(W)	1ph	3ph
A6M06	6	0.05	_
A7M15	15	0.15	_
A8M25	25	0.30	0.30
A9M40	40	0.75	0.75
A9M60	60	1.00	1.00
A9M90	90	1.00	1.00

Overview of induction motors (Moment of inertia)

Calculation of moment of inertia J

(1) Moment of inertia of rotating motion

Rotating center me	eets gravity center	Rotating center dosen't meets gravity center			
D(m) M(kg)	$J = \frac{1}{8} MD^2 \left(kg \cdot m^2 \right)$	D(m) R(m) M(kg)	$J = \frac{M}{4} \left(\frac{1}{2} D^2 + 4R^2 \right) (kg \cdot m^2)$		
D(m) d(m) M(kg)	$J = \frac{1}{8} M \left(D^2 + d^2 \right) \left(kg \cdot m^2 \right)$	a (m) M(kg)	$J = \frac{M}{4} \left(\frac{a^2 + b^2}{3} + 4R^2 \right) (kg \cdot m^2)$		
a (m) M(kg)	$J = \frac{1}{12} M (a^2 + b^2) [kg \cdot m^2]$	c(m) L(m) M(kg)	$J = \frac{1}{12}M \left(4L^2 + C^2\right) \left(kg \cdot m^2\right)$		

(2) Moment of inertia of rectilinear motion

General motion	V (m/min) D (m) Ns (r/min)	$J = \frac{M}{4} \left(\frac{V}{\pi \cdot Ns} \right)^2 = \frac{M}{4} D^2$	(kg·m²)
Horizontal motion by conveyor	M ₃ (kg) V (m/min) D(m) M ₁ (kg) M ₂ (kg) N ₃ (kg) V (m/min) D(m) M ₄ (kg)	$J = \frac{M}{4} \left(\frac{M_1 + M_2}{2} + M_3 + M_4 \right) \times D^2$	(kg·m²)
Horizontal motion by screw	M (kg) Ns (r/min) Ns (r/min) Read : P(m/rev)	$J = \frac{M}{4} \left(\frac{V}{\pi \cdot Ns} \right)^2 = \frac{M}{4} \left(\frac{P}{\pi} \right)^2$	[kg·m²]
Vertical motion by winch	Ns (r/min) M ₂ (kg) V (m/min)	$J = \frac{M_1 D^2}{4} + \frac{1}{8} M_2 D^2$	(kg·m²)

(3) Calculation of moment of inertia at defferent rotating speeds



60mm

Induction motors





Astero

60mm

6W

Motor specification table

Frame			Output	Voltage	Frequency			Rating	torque		Starting	ı torquo	Over-		Condenser		
size	Motor Type	Poles	Output	Voltage	rrequericy	Time ratiang	Current	Output speed	Tor	que	Starting	liorque	heating pro-	Standard	Condenser		
mm sq			(W)	(V)	(Hz)	3	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)			(μF)		
				1ph100	50		0.21	1200	0.050	0.50	0.045	0.45					
	A6M06A	4	6	тріттоо	60	Cont.	0.19	1500	0.042	0.42	0.043	0.43	ZΡ	CE	2.5		
				1ph110	60	60	0.20	1550	0.040	0.40	0.055 0.55	0.55					
	A6M06B	4	6	1ph115	60	Cont.	0.19	1500	0.042	0.42	0.055	0.55	ZΡ	UL/CE	2.0		
60	AOMOOD			1ph200	50				0.10	1200	0.050	0.50	0.045	0.45			
	A6M06C	4	6	i prizoo	60	Cont.	0.10	1500	0.042	0.42	0.043	0.43	ZΡ	CE	0.7		
				1ph220	60		0.10	1550	0.040	0.40	0.055	0.55					
	VeMOED	4	6	1ph220	50	Cont	0.08	1200	0.050	0.50	0.050	0.50	ZP	CE	0.6		
	A6M06D	4	6 -	1ph240	- 50	Cont.	0.09	1200	0.053	0.53	0.055	0.55		Ы	0.0		
Th	The consider condense depends on the voltage in use. Be sure to use the conscitutor the voltage																

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and impedance-protected (ZP) types.

Gear head rating torque table

Gear head ty	rpe: G6⊡D													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Poting torque	N∙m	0.13	0.15	0.21	0.26	0.31	0.38	0.42	0.53	0.63	0.76	0.76	0.95
	Rating torque	Kgf∙cm	1.3	1.5	2.1	2.6	3.2	3.9	4.3	5.4	6.4	7.7	7.7	9.7
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz		N∙m	0.10	0.13	0.17	0.21	0.26	0.30	0.34	0.43	0.51	0.62	0.62	0.76
	Rating torque	Kgf⋅cm	1.0	1.3	1.7	2.1	2.6	3.1	3.5	4.4	5.2	6.3	6.3	7.8

Gear head ty	rpe: G6⊡D													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Poting torque	N∙m	1.14	1.36	1.52	1.72	2.06	2.57	2.94	2.94	2.94	2.94	2.94	2.94
	Rating torque	Kgf⋅cm	11.6	13.9	15.5	17.5	21.0	26.2	30.0	30.0	30.0	30.0	30.0	30.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Dating targue	N∙m	0.92	1.11	1.24	1.39	1.67	2.09	2.50	2.78	2.94	2.94	2.94	2.94
	Rating torque	Kgf⋅cm	9.4	11.3	12.6	14.2	17.0	21.3	25.5	28.4	30.0	30.0	30.0	30.0

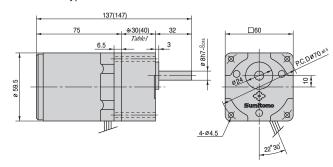
- □ in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 30 or more. When an intermediate gear head is used, the rating torque is 1.96 N·m (20 kgf·cm) for
- a reduction ratio between 30 and 40, and 2.94 N·m (30 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

Motor type	Voltage	Capacity	Condenser type	W	Т	Ι
	(V)	(μF)		(mm)	(mm)	(mm
A6M06A	1ph100	2.5	DMF-25255	36	16	25
HOWIOOH	1ph110	2.0	DIVIT 20200	00	10	20
A6M06B	1ph115	2.0	DMF-25205	36	16	25
A6M06C	1ph200	0.7	DMF-45704	36	16	25
ADIVIDEC	1ph220	0.7	DIVIF-43704	30	10	25
A6M06D	1ph220	0.6	DMF-45604	36	16	25
AGIVIOOD	1ph240	0.6	DIVIT-45004	30	10	25

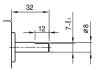
Dimensions

Gear motors

Motor type: A6M06□ Gear head type: G6□D



Gear head output shaft detail



Motor

Type: A6M06□

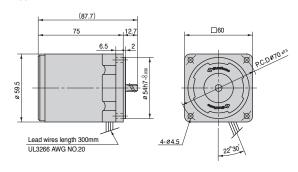
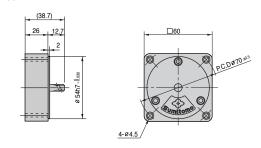


Table1. Gear head length

Gear head size	Length(mn
G63D~G618D	30
G620D~G6200D	40
	•

Intermediate gear head

Type: G6XH10



 Rotation directions are the directions as viewed from the end of the motor shaft. • The motor must be completely stopped before its operation direction can be switched. • If you try to switch the rotation direction while the motor is operating, the attempt may

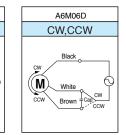
Table2. Weight

		Weight(kg
	Motor	0.70
ad	G63D ~ G618D	0.24
Gear head	G620D ~ G640D	0.30
ğ	G650D ~ G6200D	0.33
nter	mediate gear head	0.18

Wiring diagram

A6M06A A6M	106B A6M06C
CW	CCW
Black Brown White Gray Cap.	Black Gray White Brown - Cap.

be unsuccessful, or may take some time



Related information

Selection procedure: p.11 Options: p.169 Standard specifications: p.10 Technical information: p.175

Unit type

Socket type

Brake Packs

Options

Motor specification table

Overview

Speed contro**ll**er (Overview) Unit type

Socket type

Induction motors

0.135 1.35 0.090 0.90

Frame	Frame		Output	Voltago	Eroguenov	_		Rating	torque		Ctarting	torquo	Over-		Condenser
size	Motor Type	Poles	Output	Voltage	Frequency	Time ratiang	Current	Output speed	Tor	que	Starting		()(()-	Standard	Condenser
mm sq			(W)	(V)	(Hz)	,	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
				1ph100	50		0.35	1250	0.120	1.20	0.090	0.90			
	A7M15A	4	15	тритоо	60	Cont.	0.34	1550	0.100	1.00	0.030	0.90	ΤP	CE	5.0
				1ph110	60		0.34	1600	0.100	1.00	0.110	1.10			
	A7M15B	4	15	1ph115	60	Cont.	0.30	1600	0.100	1.00	0.090	0.90	TP	UL/CE	4.0
70				1ph200	50		0.19	1200	0.125	1.25	0.090	0.90			
	A7M15C	4	15	TPHZ00	60	Cont.	0.18	1500	0.120	1.20	0.030	0.90	ΤP	CE	1.2
				1ph220	60		0.19	1550	0.110	1.10	0.110	1.10			
	A 7M15D		15	1ph220	E0.	Cont	0.16	1200	0.125	1.25	0.075	0.75	Б	7	0

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- · The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head rating torque table

Gear head t	ype: G7⊡K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N⋅m	0.31	0.38	0.53	0.64	0.79	0.95	1.06	1.32	1.59	1.90	1.90	2.37
	rialing torque	Kgf∙cm	3.2	3.9	5.4	6.5	8.1	9.7	10.8	13.5	16.2	19.4	19.4	24.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	N⋅m	0.29	0.35	0.50	0.60	0.75	0.89	0.99	1.25	1.49	1.79	1.79	2.24	
Rating torque		Kgf⋅cm	3.0	3.6	5.1	6.1	7.6	9.1	10.1	12.7	15.2	18.2	18.2	22.8

Gear head t	ype: G7∐K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	2.85	3.42	3.81	4.28	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90
		Kgf⋅cm	29.1	34.9	38.8	43.6	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Poting torque	N∙m	2.68	3.22	3.58	4.02	4.83	4.90	4.90	4.90	4.90	4.90	4.90	4.90
	Rating torque	Kgf⋅cm	27.3	32.8	36.5	41.0	49.2	50.0	50.0	50.0	50.0	50.0	50.0	50.0

- □ in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 3.92 N·m (40 kgf·cm) for
- a reduction ratio between 25 and 40, and 4.90 N·m (50 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.



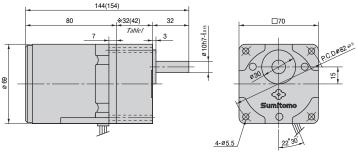
Motor type	Voltage	Capacity	Condenser type	W	Т	Н
	(V)	(μF)		(mm)	(mm)	(mm)
A7M15A	1ph100	5.0	DMF-25505	38	19	29
ATIVITSA	1ph110	5.0	DIVII -25505	30	19	25
A7M15B	1ph115	4.0	DMF-25405	38	19	29
A7M15C	1ph200	1.2	DMF-45125	36	16	25
ATMITSO	1ph220	1.2	DIVII -43123	30	10	25
A7M15D	1ph220	0.9	DMF-45904	36	16	25
ATIVITOD	1ph240	0.9	DIVII -43904	50	10	23

16

Dimensions

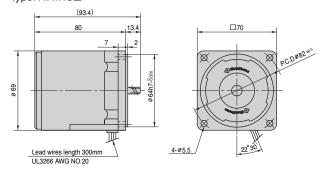
Gear motors

Motor type: A7M15□ Gear head type: G7□K



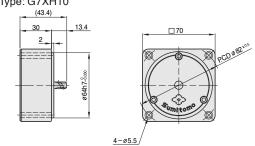
Motor

Type: A7M15□



Intermediate gear head

Type: G7XH10



Wiring diagram

A7M15A A7M15B A7M15C CW CCW

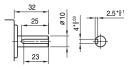
- Rotation directions are the directions as viewed from the end of the motor shaft.
- The motor must be completely stopped before its operation direction can be switched.
- If you try to switch the rotation direction while the motor is operating, the attempt may be unsuccessful,

A7M15D

CW,CCW

17

Gear head output shaft detail



key size

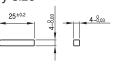


Table1. Gear head length

Gear head size	Length(mm)
G73K~G718K	32
G720K~G7200K	42

Table2. Weight

		Weight(kg)
	Motor	1.04
pg	G73K ∼G718K	0.38
Gear head	G720K ∼G740K	0.47
	G750K ∼G7200K	0.52
Inter	mediate gear head	0.32

Related information

Selection	procedure:	p.11

Options: p.169

Standard specifications: p.10 Technical information: p.175 Overview

Unit type

Socket type

80mm

Induction motors



___80mm

25W

Motor specification table

Frame			Output	Voltage	Eroguanou			Rating	torque		Ctarting	torquo	Over-		Condenser
size		Poles	Output	Voltage	age Frequency	Time ratiang	Current	Output speed	Tor	que	Starting torque	heating pro-	Standard	Condenser	
mm sq			(W)	(V)	(Hz)	J	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)			(μF)
	A8M25A			1ph100	50		0.57	1250	0.200	2.00	0.145	1.45			
		4	25	тритоо	60	Cont.	0.52	1550	0.165	1.65	0.145	1.45	TP	CE	6.0
				1ph110	60		0.51	1600	0.160	1.60	0.180	1.80			
	A8M25B	4	25	1ph115	60	Cont.	0.59	1500	0.170	1.70	0.120	1.20	TP	UL/CE	4.5
				1ph200	50		0.30	1250	0.200	2.00	0.145	1.45	TP	CE	
	A8M25C	4	25	1011200	60	Cont.	0.29	1500	0.170	1.70	0.170	1.43			1.5
				1ph220	60		0.23	1550	0.165	1.65	0.180	1.80			
	80	4	25	1ph220	50	Cont.	0.23	1200	0.210	2.10	0.110	1.10	TP	CE	1.3
			25	1ph240	50	Oont.	0.25	1200	0.220	2.20	0.130 1.30	1.30	IF	OL.	
				3ph200	50		0.25	1300	0.195	1.95	0.340	3.40			
80		4	25	3p11200	60	Cont.	0.22	1550	0.165	1.65	0.270	2.70	TP	CE	_
		'		3ph220	50		0.26	1350	0.190	1.90	0.410	4.10 3.20] ''		
				oprizzo	60		0.23	1600	0.160	1.60	0.320				
				3ph380	50	Cont.	0.14	1250	0.200	2.00	0.315	3.15	TP	CE	
				орпооо	60	Oom.	0.12	1500	0.170	1.70	0.250	2.50	''		
				3ph400	50	Cont.	0.14	1250	0.210	2.10	0.350	3.50	TP	CE	
		4	25	3p11400	60	Oom.	0.12	1500	0.180	1.80	0.275	2.75	"	OL	_
	A8M25K	~	25	3ph415	50	Cont.	0.15	1300	0.195	1.95	0.375	3.75	TP	CE	T -
				Op11413	60	001111	0.13	1550	0.165	1.65	0.300	3.00		J.	
				3ph440	50	Cont.	0.15	1300	0.210	2.10	0.440	4.40	TP	CE	
				орп440	60	Cont.	0.13	1550	0.180	1.80	0.340	3.40	''		

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head rating torque table

Gear head ty	ype: G8⊡K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N⋅m	0.52	0.63	0.87	1.05	1.31	1.57	1.74	2.19	2.62	3.15	3.15	3.94
		Kgf⋅cm	5.3	6.4	8.9	10.7	13.4	16.0	17.8	22.3	26.7	32.1	32.1	40.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Dating towns	N⋅m	0.43	0.51	0.72	0.85	1.07	1.28	1.43	1.78	2.15	2.57	2.58	3.22
	Rating torque	Kgf⋅cm	4.4	5.2	7.3	8.7	10.9	13.1	14.6	18.2	21.9	26.2	26.3	32.9

Gear head ty	ype: G8⊡K													
Frequency	Frequency Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	4.72	5.66	6.29	7.12	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84
		Kgf∙cm	48.2	57.8	64.2	72.6	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Doting torque	N∙m	3.86	4.64	5.16	5.82	6.99	7.84	7.84	7.84	7.84	7.84	7.84	7.84
	Rating torque	Kgf∙cm	39.4	47.3	52.6	59.4	71.3	80.0	80.0	80.0	80.0	80.0	80.0	80.0

- $\hfill\Box$ in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 5.88 N·m (60 kgf·cm) for a reduction ratio between 25 and 40, and 7.84 N·m (80 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.



Motor type	Voltage	Capacity	Condenser type	V	Τ	Ι
	(V)	(μV)		(mm)	(mm)	(mm)
A8M25A	1ph100	6.0	DMF-25605	38	19	29
AOIVIZJA	1ph110	0.0	DIVII -23003	30	19	20
A8M25B	1ph115	4.5	DMF-25455	38	19	29
A8M25C	1ph200	1.5	DMF-45155	36	16	25
AGIVIZGO	1ph220	1.5	DIVIT-45155	30	10	2
A8M25D	1ph220	1.3	DMF-45135	36	16	25
AOIVIZOD	1ph240	1.0	DIVIT -43133	30	10	25

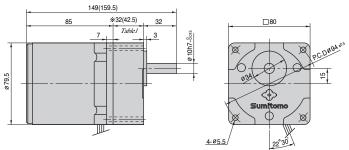
18

Dimensions

Gear motors

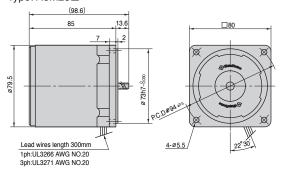
Motor type: A8M25□

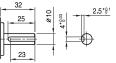
Gear head type: G8□K



Motor

Type: A8M25□





Gear head output shaft detail

key size



Table1. Gear head length

G83K ∼G818K	32
G820K ~ G8200K	42.5

Intermediate gear head

Type: G8XH10

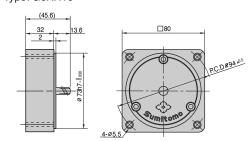


Table2. Weight

	Motor	1.46					
ad	G83K ∼G818K	0.43					
Gear head	G820K ∼G840K	0.57					
Ge	G850K ∼G8200K	0.61					
nter	mediate gear head	0.43					

Weight(kg)

Wiring diagram

A8M25A A8M	125B A8M25C	A8M25D
CW	CCW	CW,CCW
TP Black Orange Brown White Gray Cap.	TP Black Orange Gray White CCW Brown T Cap.	TP Black White CCW Brown CCW

Related information

Selection procedure: p.11	
Options: p.169	
2hmons: h:10a	
Standard specifications: p.10	
Forbidal deformation 175	
Fechnical information: p.175	

CW	CCW	CW	CCW
Black(U) R White(V) S TP Gray(W) T TP	Black(U) S White(V) R TP CCW Gray(W) T TP	Black(U) R Red(V) S TP Brown(W) T TP	Black(U) S Red(V) R TP CCW Brown(W) T

- Rotation directions are the directions as viewed from the end of the motor shaft.
- The motor must be completely stopped before its operation direction can be switched.
- If you try to switch the rotation direction while the motor is operating, the attempt may be unsuccessful, or may take some time

Unit type

Socket type

Options

Induction motors



Motor specification table

Frame			Output	Voltage	Eroguopov	_		Rating	torque		Storting	torquo	Over-		Condenser				
size	Motor Type	Poles	Output	voltage	Frequency	Time ratiang	Current	Output speed	Tor	que	Starting	g torque	heating pro-	Standard	Condenser				
mm sq			(W)	(V)	(Hz)		(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)				
				1ph100	50		0.80	1300	0.310	3.10	0.240	2.40							
	A9M40A	4	40	тритоо	60	Cont.	0.85	1550	0.260	2.60	0.240	2.40	TP	CE	10.0				
				1ph110	60		0.82	1600	0.250	2.50	0.290	2.90							
	A9M40B	4	40	1ph115	60	Cont.	0.91	1550	0.260	2.60	0.240	2.40	TP	UL/CE	8.0				
				1ph200	50		0.41	1300	0.310	3.10	0.240	2.40							
	A9M40C	4	40	1011200	60	Cont.	0.43	1550	0.260	2.60	0.240	2.40	TP	CE	2.5				
				1ph220	60		0.41	1600	0.250	2.50	0.290	2.90							
	A9M40D	4	4	4	4	4	40	1ph220	50	Cont.	0.34	1250	0.315	3.15	0.180	1.80	TP	CE	2.0
	ASIVITOD		۲	1ph240	50	COIII.	0.37	1230	0.335	3.35	0.210	2.10	IF	CE	2.0				
		4	40	3ph200	50	Cont.	0.30	1300	0.310	3.10	0.490	4.90							
90	A9M40J				60		0.28	1550	0.260	2.60	0.370	3.70	TP	CE	_				
	A31VI400			3ph220	50	50 60	0.30	1350	0.300	3.00	0.590	5.90	IIF.						
				Jpn220	60		0.28	1600	0.250	2.50	0.450	4.50							
				3ph380	50	Cont.	0.21	1300	0.320	3.20	0.630	6.30	TP	CE					
				орпоос	60	Oont.	0.19	1550	0.270	2.70	0.485	4.85	"	OL					
				3ph400	50	Cont.	0.21	1300	0.330	3.30	0.690	6.90	TP	CE					
		4	40	3p11400	60	Cont.	0.19	1550	0.280	2.80	0.525	5.25	IF	CE	_				
	A9M40K	4	40	3ph415	50	Cont.	0.21	1350	0.310	3.10	0.730	7.30	TP	CE	_				
			3pn4	JP11413	60	Cont.	0.19	1600	0.260	2.60	0.570	5.70	11						
				3ph440 5	50	Cont.	0.21	1350	0.320	3.20	0.820	8.20	TP	CE					
				5p11440	60	JUIL	0.19	1600	0.270	2.70	0.630	6.30	IF	CE					

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head rating torque table

Gear head ty	ype: G9A□K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
50Hz	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
	Rating torque	N∙m	0.81	0.97	1.35	1.62	2.03	2.43	2.70	3.37	4.05	4.86	4.86	6.09
		Kgf⋅cm	8.3	9.9	13.8	16.5	20.7	24.8	27.5	34.4	41.3	49.6	49.6	62.1
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	- · ·	N∙m	0.67	0.80	1.11	1.33	1.67	2.00	2.23	2.78	3.33	4.00	4.01	5.01
	Rating torque	Kgf⋅cm	6.8	8.2	11.3	13.6	17.0	20.4	22.7	28.4	34.0	40.8	40.9	51.1

Gear head ty	/pe: G9A□K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	7.30	8.76	9.73	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
	riating torque	Kgf∙cm	74.5	89.4	99.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Datin a ta unu	N∙m	6.01	7.21	8.02	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
	Rating torque	Kgf∙cm	61.3	73.6	81.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

- in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torque is 9.80 N•m(100kgf•cm).
- · Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

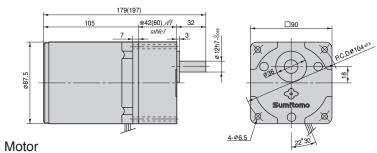


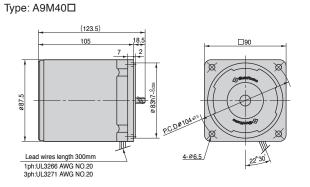
Motor type	Voltage	Capacity	Condenser type	W	Τ	Н
	(V)	(μF)		(mm)	(mm)	(mn
A9M40A	1ph100	10.0	DMF-251006	47	19	28
ASIVIAOA	1ph110	10.0	DIVIT -231000			
A9M40B	1ph115	8.0	DMF-25805	48	21	33
A9M40C	1ph200	2.5	DMF-45255	47	19	28
ASIVI40C	1ph220	2.5	DIVII -43233	+	19	
A9M40D	1ph220	2.0	DMF-45205	38	19	29
ASIVIAOD	1ph240	2.0	DIVII -43203	50	19	29

Dimensions

Gear motors

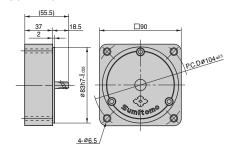
Motor type: A9M40□ Gear head type: G9A□K





Intermediate gear head

Type: G9AXH10



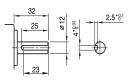
Wiring diagram

A9M40A A9M	40B A9M40C	A9M40D
CW	CCW	CW,CCW
TP Black Orange Brown White Gray T Cap.	TP Black Orange Gray White Brown Cap.	TP Black CW White White CW Brown CCW

A9M	I40J	A9N	140K
CW	CCW	CW	CCW
Black(U) R White(V) S TP Gray(W) T TP	Black(U) S White(V) R TP TP Black(U) S Gray(W) T	Black(U) R CW Red(V) S TP Brown(W) T TP	Black(U) S Red(V) R TP Brown(W) T

- · Rotation directions are the directions as viewed from the end of the motor shaft.
- The motor must be completely stopped before its operation direction can be switched.
- or may take some time

Gear head output shaft detail



key size



Table1. Gear head lenght

Gear head size	Length(mm)
G9A3K~G9A18K	42
G9A20K~G9A200K	60

Table2. Weight

		Weight(kg)
	Motor	2.30
Gear head	G9A3K ∼G9A18K	0.73
	G9A20K ∼G9A40K	1.03
Ge	G9A50K ∼G9A200K	1.13
Inter	mediate gear head	0.60

Related information

Selection	procedure:	p.31
Options:	p.169	
Standard	specifications:	p.28
Technical	information:	p.175

• If you try to switch the rotation direction while the motor is operating, the attempt may be unsuccessful,

size

90

Motor specification table

Motor Type

A9M60AH

A9M60BH

A9M60CH

A9M60DH

A9M60JH

A9M60KH

Gear head rating torque table

Reduction ratio

Ouput speed

Rating torque

Ouput speed

Rating torque

Ouput speed

Rating torque

Ouput speed

Rating torque

☐ in gear head type names indicates the reduction ratio

Gear head type: G 9 B K H Reduction ratio

Gear head type: G 9 B □ K H

Frequency

50Hz

60Hz

Frequency

50Hz

60Hz

Condenser

Voltage

(V)

1ph100

1ph110

1ph115

1ph200

1ph220

1ph220

1ph240

3ph200

3ph220

3ph380

3ph400

3ph415

3ph440

The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.

All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

٧·m

N∙m

r/min

N·m

When an intermediate gear head is used, the rating torgue is 19.60 N·m(200kgf·cm).

Kgf•cm

(Hz)

50

60

60

60

60

60

50

50

60

50

60

50

60

50

60

50

60

50

60

The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering

3.6

417

500

11.7

36

500

1.20

600

9.7

Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

5

300

40

99.0 | 119.0 | 132.0 | 165.0 | 198.0

45

Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.

1.43 | 1.99 | 2.38 | 2.99

14.6 | 20.3 | 24.3 | 30.4

250

360 300 240

30

Cont.

Output

(W)

60

60

60

60

60

4

4

Rating torque

Torque

0.460

0.390

0.380

0.400

0.470

0.390

0.460

0.490

0.460

0.440

0.390

0.460

0.390

0.470

0.400

0.460

0.380

0.470

0.390

166

3.58

200

75

20

24

| 79.2 | 95.0 | 106.0 | 132.0 | 158.0 | 177.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0

9.31 | 10.39 | 12.94 | 15.48 | 17.35 | 19.60 | 19.60 | 19.60 |

0.390

0.400

(N·m) (Kgf·cm)

4.60

3.90

3.80

4.00

4.70

4.00

3.90

4.60

4.90

4.60

3.90

4.40

3.90

4.60

3.90

4.70

4.00

4.60

3.80

4.70

3.90

10

150

36.5 40.5 45.6

180

90

16

20

200.0 | 200.0 | 200.0 | 200.0

Current Output speed

(r/min)

1300

1550

1600

1550

1300

1550

1600

1300

1300

1550

1350

1600

1300

1550

1300

1550

1350

1600

1350

1600

200

0.95 | 1.15 | 1.59 | 1.90 | 2.38 | 2.86 | 3.18 | 3.58 | 4.29

16.2 | 19.4 | 24.3 | 29.2 | 32.4 |

60

25

9.70 | 11.66 | 12.94 | 16.17 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 |

30

(A)

1.26

1.37

1.35

1.20

0.65

0.70

0.68

0.47

0.50

0.46

0.42

0.46

0.41

0.27

0.24

0.29

0.25

0.27

0.23

0.31

0.25

Overview

Reversible

Socket type

Unit type

controller (Induction)

Brake Packs

Options

Information



Voltage | Capacit Motor type (V) (μF) 1ph100 49M60AH OMF-251506 A9M60BH DMF-251206 48 21 33 1ph115 OMF-45405 A9M60CH 40 ph220 DMF-45355 1ph240

22

Induction motors

CE

CE

CE

CE

CE

CE

TP CE

TP CE

TP UL/CE

Condenser

(μF)

15.0

12.0

4.0

3.5

Starting torque

0.340

0.480

0.320

0.385

0.480

0.320

0.390

0.710

0.540

0.860

0.680

0.825

0.650

0.930

0.735

0.995

0.840

12.5

120

144

36.5

100

15

18

3.97 4.47

0.750 7.50

1.075 10.75

(N·m) (Kgf·cm)

3.40

4.80

3.20

3.85

4.80

3.20

3.90

7.10

5.40

8.60

6.80

8.25

6.50

9.30

7.35

9.95

8.40

15

100

5.37

54.8

120

43.8

120

12

18

83

6.44

65.7

100

52.6

150

10

20

75

73.0

90

180

19.60 <u>19.60</u> <u>19.60</u>

200.0 200.0 200.0

19.60 19.60 19.60

5.16 | 5.72

7.15 8.09

58.4 66.0

60

82.5

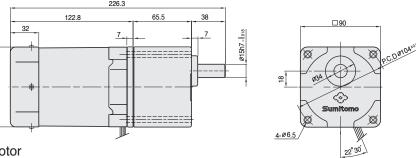




Dimensions

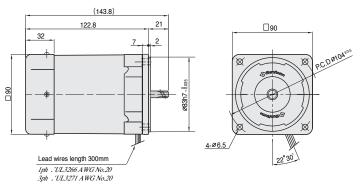
Gear motors

Motor type: A9M60□H Gear head type: G9B□KH



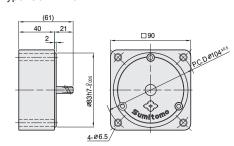
Motor

Type: A9M60□H



Intermediate gear head

Type: G9BXH10H



Related information

Selection procedure: p.11 Options: p.169 Standard specifications: p.10 Technical information: p.175

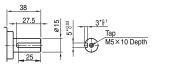
Wiring diagram

A9M60AH A9M6	60BH A9M60CH	A9M60DH
CW	CCW	CW,CCW
TP_Black Orange Brown White Gray Cap.	TP Black Orange Gray White CCW Brown T Cap.	TP Black White CCW Brown CCW

A9M	60JH	A9Me	60KH
CW	CCW	CW	CCW
Black(U) R White(V) S TP Gray(W) T TP	Black(U) S White(V) R TP Gray(W) T TP	Black(U) R Red(V) S TP Brown(W) T TP	Black(U) S Red(V) R TP Brown(W) T TP

- · Rotation directions are the directions as viewed from the end of the motor shaft.
- · The motor must be completely stopped before its operation direction can be switched.
- · If you try to switch the rotation direction while the motor is operating, the attempt may be unsuccessful, or may take some time

Gear head output shaft detail



key size



Table1. Weight

~~.	or. worgin	
		Weight(kg)
	Motor	2.44
Gear head	G9B3KH \sim G9B10KH	1.21
	G9B12.5KH ∼ G9B20KH	1.30
	G9B25KH \sim G9B60KH	1.40
	G9B75KH \sim G9B200KH	1.45
iter	mediate gear head	0.65
	<u> </u>	

Motor specification table

Brake Packs

90W

Induction motors

Frame			O street	Valtana	F			Rating	torque		044:		Over-		0
size		Poles	Output	Voltage	Frequency	Time ratiang	Current	Output speed	Tor	que	Starting	g torque	heating pro-	Standard	Condenser
mm sq			(W)	(V)	(Hz)	- and 19	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)		tection		(μF)
				1ph100	50		1.80	1300	0.690	6.90	0.500	5.00			
	A9M90AH	4	90	тріттоо	60	Cont.	2.00	1550	0.580	5.80	0.500	3.00	TΡ	CE	25.0
				1ph110	60		2.00	1600	0.560	5.60	0.570	5.70			
	A9M90BH	4	90	1ph115	60	Cont.	1.80	1550	0.600	6.00	0.500	5.00	ΤP	UL/CE	20.0
				1ph200	50		0.90	1300	0.690	6.90	0.500	5.00			
	A9M90CH	M90CH 4 90 1ph2		60		1.00	1550	0.580	5.80			TP	CE	6.0	
				1ph220	60		1.00	1600	0.560	5.60	0.570	5.70			
	A9M90DH 4	4	90	1ph220	50	Cont.	0.68	1300	0.690	6.90	0.480	4.80	TP	CE	5.0
		·		1ph240	- 00	Conti	0.72	1000	0.720	7.20	0.520	5.20			
			3ph2	3ph200	50	Cont.	0.63	1300	0.690	6.90	1.010	10.10			
90	A9M90JH	4		Орписос	60		0.60	1550	0.600	6.00	0.760	7.60	TP	CE	_
	71310130011	7		3ph220	50	Cont.	0.63	1350	0.680	6.80	1.250	12.50	l ''		
					60	Conti	0.60	1600	0.570	5.70	0.960	9.60			
				3ph380	50	Cont.	0.32	1300	0.680	6.80	1.055	10.55	TP	CE	
				орпоос	60	Oom.	0.30	1550	0.570	5.70	0.820	8.20		OL.	
				3ph400	50	Cont.	0.35	1300	0.690	6.90	1.170	11.70	TP	CE]
		4	90	3p11400	60	Cont.	0.32	1550	0.580	5.80	0.890	8.90	- 11	5	_
	A9M90KH	4	30	3ph415	50	Cont.	0.33	1350	0.680	6.80	1.200	12.00	TP	CE	
				0011413	60	Oont,	0.29	1600	0.570	5.70	0.950	9.50		JL.	
				3ph440	50	Cont.	0.35	1350	0.690	6.90	1.330	13.30	TP	CE	
				орп440	60	60 Cont.	0.31	1600	0.580	5.80	1.050	10.50	11		

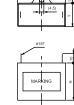
- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering. All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head rating torque table

Gear head t														
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	1.78	2.15	2.98	3.58	4.47	5.36	5.96	6.70	8.05	9.66	10.78	12.15
		Kgf∙cm	18.2	21.9	30.4	36.5	45.6	54.7	60.8	68.4	82.1	98.6	110.0	124.0
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Rating torque	N∙m	1.43	1.72	2.38	2.86	3.58	4.68	4.76	5.37	6.44	7.72	8.59	9.70
		Kgf∙cm	14.6	17.5	24.3	29.2	36.5	43.7	48.6	54.8	65.7	78.8	87.6	99.0

Gear head ty	/pe: G9B⊡KH													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N⋅m	14.60	17.44	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
		Kgf⋅cm	149.0	178.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Rating torque	N∙m	11.66	14.01	15.48	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
		Kgf∙cm	119.0	143.0	158.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0

- □ in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torgue is 19.60 N•m(200kgf•cm).
- · Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.



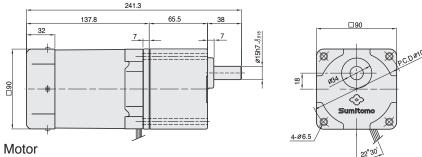
Motor type	Voltage	Capacity	Condenser type	W	Τ	Ι
	(V)	(μF)		(mm)	(mm)	(mm
A9M90AH	1ph100	25.0	DMF-252506	58	36	39
ASIVISUALI	1ph110	25.0	DIVII -232300	50	30	39
A9M90BH	1ph115	20.0	DMF-252006	58	36	39
A9M90CH	1ph200	6.0	DMF-45605	50	25	40
ASIVISOCITI	1ph220	0.0	DIVIT-45005	50	25	40
A9M90DH	1ph220	5.0	DMF-45505	50	25	40
ASIVISODIT	1ph240	5.0	DIVII -43303	50	23	0

24

Dimensions

Gear motors

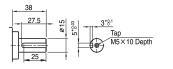
Motor type: A9M90□H Gear head type: G9B□KH



CCW

25

Gear head output shaft detail



key size



Table1. Weight

Related information

		Weight(kg)					
	11.						
	Motor	2.93					
	G9B3KH \sim G9B10KH	1.21					
head	G9B12.5KH ∼G9B20KH	1.30					
Gear head	G9B25KH ~ G9B60KH	1.40					
	G9B75KH ∼G9B200KH	1.45					
Inter	mediate gear head	0.65					
•							

Selection procedure: p.11

Standard specifications: p.10 Technical information: p.175

Options: p.169

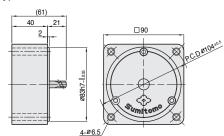
Intermediate gear head

Lead wires length 300mm

Type: G9BXH10H

Type: A9M90□

32



Wiring diagram

A9M90AH A9M90BH A9M90CH CW CCW CW,CCW (M)White

As	M90JH	A9M	90KH
CW	CCW	CW	
Black(U) R White(V) S Gray(W) T TP	Black(U) S White(V) R TP Gray(W) T TP	Black(U) R Red(V) S Brown(W) T TP	M CCW

- · Rotation directions are the directions as viewed from the end of the motor shaft.
- The motor must be completely stopped before its operation direction can be switched.
- · If you try to switch the rotation direction while the motor is operating, the attempt may be unsuccessful, or may take some time

MEMO

Reversible motors



*Gear head and reversible motor are sold separately.

Reversible motors

- •Rotating direction of reversible motors can be changed immediately.
- •Used for constant-speed operation.
- •Simple built-in brake enables rapid stopping, but when large stored torque is required, model with electromagnetic brake should be
- Lead wires type.Time rating: Short-time (30 minutes)



6W	P.34	
15W	P.36	
25W	P.38	
40W	P.40	
60W	P.42	
90W	P.44	

27

Reversible Motors







Induction

Reversible

Overview of reversible motors (Standard specifications)

Tab	le 1. Reversible motors standard specifications								
	Item	Reversible motors standard specifications							
		Single-phase motor							
	Capacity range	6 ~ 90 W 4 poles							
	Protection method	6 ~ 40 W: IP23 Totally enclosed non ventilated type							
	Enclosure	60 W ~: IP23 Totally enclosed fan cooled type							
		100V 50/60Hz, 110V 60Hz							
	Power source	115V 60Hz							
	Power source	200V 50/60Hz,220V 60Hz							
		220~240V 50Hz							
	Insulation	CE Marking, Class E(120°C)							
Motor	moulation	UL Standard, Class A (105℃)							
=	Time rating	Short-time(30minutes)							
	Starting method	Condenser running							
	Lead wires	3wires UL Style 3266 20 AWG							
	Standards	CE Marking (Low Voltage Directive), UL Standard							
	Insulation resistance	At least 100 M Ω when measured with a 500 VDC megger between the motor coil and case at normal temperature and humidity after motor has reached rated operation.							
	Insulation withstand voltage	No malfunction when a 1500 V, 50/60 Hz current is applied between the motor coil and case for 1 minute at normal temperature and humidity after the motor has reached rated operation.							
	Temperature rise	The temperature rise value (ΔT) should be no more than 60°C (no more than 45°C for motors with fans) when measured by the prescribed method after the motor has reached the rated operation.							
	Overheating protector (TP)	Built-in thermal protector (auto-restore type)Release: 120±5℃, Restore: 77±5℃							
Gear	Lubrication method	Grease lubrication. Grease is loaded at shipment.							
Paint	Color	Astero silver							
ડા	Locations	Indoors (MInimal dust and humidity)							
ndition	Temperature	-10 to 40℃							
Ambient conditions	Humidity	Under 85%							
mbie	Elevation	Under 1,000 m							
_	Atmosphere	Well ventilated location, free of corrosive gases, explosive gases, vapors and dust.							

Overview of reversible motors (Structure)

(1) Structure and operating principle

Reversible motors have a simple built-in braking into the rear of the motor shaft, making them ideal for applications requiring rapid and frequent changes in direction.

As shown in Fig1, the simple built-in braking structure uses a coil spring to slide a brake shoe on a brake plate while applying continual pressure. The simple built-in brakes of reversible motors have the following features:

- (1) Apply frictional load to improve instant reversibility characteristic.
- (2) Enable small overruns.
- (3) Can store torque to a limited degree (about 10% of rating torque).

Table 2 lists the stored torque and overrun of simple built-in brakes. These values vary according to the operation time and temperature, so should be used as reference values.

Note that during initial use, stored torque may be lower than the values in Table 2.

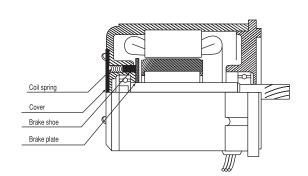


Fig1. Structure of reversible motor

Table 2. Stored torque and overrun

No. of	Frame size	Output power	Matartusa	Stored	d torque	Over run
Phase	(mm·sq)	(W)	Motor type	(N·cm)	(kgf · cm)	(Rev.)
	60	6	A6R06A	0.5	0.05	4
Cinalo	70	15	A7R15A	1.3	0.13	5
Single -phase	80	25	A8R25A	1.5	0.15	5
-pilase		40	A9R40A			
	90	60	A9R60AH	4.0	0.40	6
		90	A9R90AH			

Like induction motors, reversible motors are condenser runtype single-phase induction motors. Their motor speed/torque characteristic is the same as for induction

However, as shown in Figure 2, reversible motors have a higher starting torque setting than induction motors, to improve their instant reversibility characteristic. As a result, they have high input losses and higher temperature rises than induction motors, so have a time rating of 30 minutes.

Values for characteristic table items such as rating torque, starting torque and current characteristic are valid when the brake shoe has been attached to the motor.

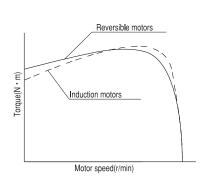


Fig 2. Motor speed-Torque characteristics

Brake Packs

Overview

Induction

Overview

Socket type

Brake Packs

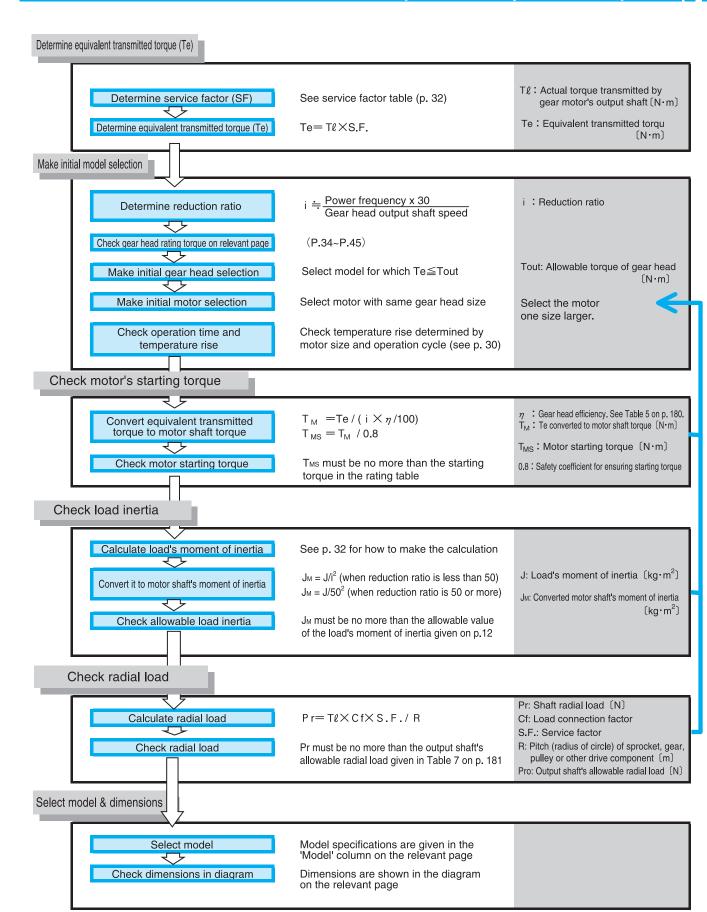
Reversible Motors







Overview of reversible motors (selection procedure)



31

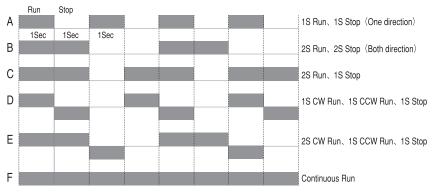
Overview of reversible motors (2) Operation time and temperature rise

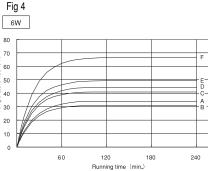
The temperature rise in a reversible motor depends on the operation cycle. Some operation cycles allow the motor to be used longer than the time rating (30 minutes).

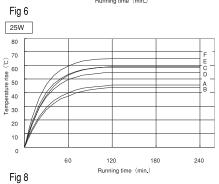
Figures 4 to 9 show the temperature rise characteristic corresponding to each of the six operation cycles (A to F) shown in Fig 3. These characteristics are for no-load operation (creating the most extreme temperature rise).

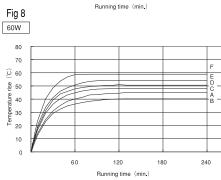
When using the motor, select the pattern in Fig 3 that most closely matches the operation cycle you will use. Make sure the temperature doesn't rise to more than 60°C, as shown in the corresponding temperature rise characteristic graph in Figures 4 to 9.

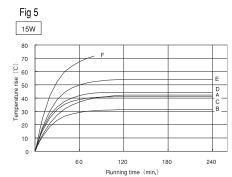
Fig3. Running cycle of reversible motors

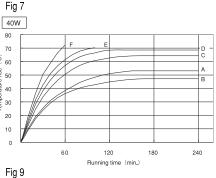


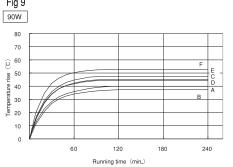












Reversible

Brake Packs

Reversible Motors



Overview of reversible motors (Moment of inertia)

Calculation of moment of inertia J

(1) Moment of inertia of rotating motion

(1) memerical entre entr							
Rotating center n	neets gravity center	Rotating center dosen't meets gravity center					
D(m) M(kg)	$J = \frac{1}{8} MD^2 \left(kg \cdot m^2 \right)$	D(m) R(m) M(kg)	$J = \frac{M}{4} \left(\frac{1}{2} D^2 + 4R^2 \right) (kg \cdot m^2)$				
D(m) d(m) M(kg)	$J = \frac{1}{8} M (D^2 + d^2) \left[kg \cdot m^2 \right]$	a(m) M(kg)	$J = \frac{M}{4} \left(\frac{a^2 + b^2}{3} + 4R^2 \right) (kg \cdot m^2)$				
a (m) M(kg)	$J = \frac{1}{12} M (a^2 + b^2) [kg \cdot m^2]$	o (m)	$J = \frac{1}{12} M \left(4L^2 + C^2\right) \left(kg \cdot m^2\right)$				

(2) Moment of inertia of rectilinear motion

(2) Wellett of Hotal of Footimour Motor								
General motion	V (m/min) D (m) Ns (r/min)	$J = \frac{M}{4} \left(\frac{V}{\pi \cdot Ns} \right)^2 = \frac{M}{4} D^2$	(kg∙m²)					
Horizontal motion by conveyor	M ₁ (kg) V (m/min) D (m) M ₂ (kg) M ₄ (kg) N ₅ (r/min)	$J = \frac{M}{4} \left(\frac{M_1 + M_2}{2} + M_3 + M_4 \right) \times D^2$	(kg·m²)					
Horizontal motion by screw	M (kg) Ns (r/min) Read: P(m/rev)	$J = \frac{M}{4} \left(\frac{V}{\pi \cdot Ns} \right)^2 = \frac{M}{4} \left(\frac{P}{\pi} \right)^2$	(kg·m²)					
Vertical motion by winch	Ns (r/min) M ₂ (kg) V (m/min)	$J = \frac{M_1 D^2}{4} + \frac{1}{8} M_2 D^2$	(kg·m²)					

(3) Calculation of moment of inertia at defferent rotating speeds



Overview of reversible motors (Service factor)

Service factor (S. F.)

• Service factors are designed for 8 hours of per day with a uniform load.

Table 3. Service factor (S. F.)

rable of Corried laster (Criti)								
Load Operation time condition	Up to 8 hours/day	Applications						
Uniform load	1	Continuous load in one direction						
Moderate shock load	1.5	Frequent changes of motor direction						
Shock load	2	Instant changes of motor direction/stops						

Shaft radial load and thrust load

- Calculate the shaft radial load when attaching a chain sprocket or pulley.
- The shaft radial load is calculated by the formula below. It must be smaller than the allowable radial load of the output shaft given table 7 on P.181.

Shaft radial load (Pr) =
$$\frac{P\ell \times Cf \times S.F.}{R}$$
[N]

Pl : Actual torque transmitted by slow speed shaft (N·m)

Cf: Load connection factor (see Table 4)

R: Pitch (radius of circle) of sprocket, gear, pulley or other drive

Table 4. Load connection factor (Cf)

Type of connection	Cf
Chain	1
Gear	1.25
Pulley	1.5

Load moment of inertia

- The converted motor shaft load moment of inertia is calculated by the following formula:
 - i : Reduction ratio
- $J_M = J/i^2$ (when reduction ratio is less than 50) J: Load moment of inertia (kg·m²)
- $J_{\rm M} = J/50^2$ (when reduction ratio is 50 or more) $J_{\rm M}$: Converted motor shaft load moment of inertia (kg·m²)
- Note that if the motor is used with a load moment of inertia exceeding the corresponding allowable valbe(given table5.)gears and bearings will quickly become damaged.

Table 5. Allowable values for converted motor shaft load moment of inertia (10⁻⁴ kg·m²)

Motor size	Motor power (W)	1ph	3ph	
A6M06	6	0.05	ı	
A7M15	15	0.15	ı	
A8M25	25	0.30	0.30	
A9M40	40	0.75	0.75	
A9M60	60	1.00	1.00	
A9M90	90	1.00	1 00	

Motor specification table

Motor Type

A6R06A

A6R06B

A6R06C

A6R06D

60mm

Voltage

1ph100

1ph110

1ph115

1ph200

1ph220

1ph220

1ph240

The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.

(Hz)

50

60

60

50

60

60

50

30Min

30Min.

The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.

60 30Min.

Output

(W)

6

· All the motor types in the table above are CE Mark and impedance-protected (ZP) types.

Poles

Reversible Motors

Starting torque

0.60

0.53

0.60

0.50

0.55

0.50 ZP UL/CE

ZΡ

ZΡ CE

(N·m) (Kgf·cm) (N·m) (Kgf·cm) tecti

0.40 0.060

0.42 0.050

0.40 0.060

0.47 0.050

0.50 0.055

0.045

0.053

Condenser

(μF)

3.0

2.3

0.8

0.7

CE

CE

60mm

6W

Induction

Frame size

mm sq

60

Unit type Socket type

Brake Packs

Torque

0.50

0.42

0.45

0.42

0.050

0.042

0.040

0.045

0.042

0.040

0.047

0.050

1500 0.042

Rating torque

(r/min)

1200

1500

1550

1200

1500

1550

1200

Current Output speed

(A)

0.22

0.18

0.10

0.11

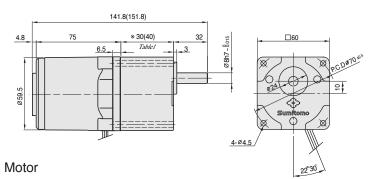
0.09

0.10

Dimensions

Gear motors

Motor type: A6R06□ Gear head type: G6□D



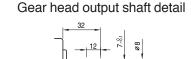


Table1. Gear head length

Gear head size	Length(mm
G63D~G618D	30
G620D~ G6200D	40

Type: A6R06□ Lead wires length 300mm UL3266 AWG NO. 20

Table2. Weight

		Weight(kg)
Mot	or	0.70
	G63D	0.24
ad	∼ G618D	0.21
Gear head	G620D	0.30
ar	∼ G640D	0.50
Ğ	G650D	0.33
	∼ G6200D	5.5
Inter	mediate gear head	0.18

Gear head rating torque table

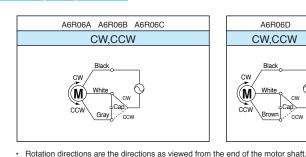
Gear head ty	rpe: G6⊡D													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Poting torque	N∙m	0.13	0.15	0.21	0.26	0.31	0.38	0.42	0.53	0.63	0.76	0.76	0.95
	Rating torque	Kgf⋅cm	1.3	1.5	2.1	2.6	3.2	3.9	4.3	5.4	6.4	7.7	7.7	9.7
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Dation towns	N∙m	0.10	0.13	0.17	0.21	0.26	0.30	0.34	0.43	0.51	0.62	0.62	0.76
	Rating torque	Kgf⋅cm	1.0	1.3	1.7	2.1	2.6	3.1	3.5	4.4	5.2	6.3	6.3	7.8

Gear head ty	rpe: G6⊡D													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Dating targue	N∙m	1.14	1.36	1.52	1.72	2.06	2.57	2.94	2.94	2.94	2.94	2.94	2.94
	Rating torque	Kgf∙cm	11.6	13.9	15.5	17.5	21.0	26.2	30.0	30.0	30.0	30.0	30.0	30.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Doting town	N∙m	0.92	1.11	1.24	1.39	1.67	2.09	2.50	2.78	2.94	2.94	2.94	2.94
	Rating torque	Kgf∙cm	9.4	11.3	12.6	14.2	17.0	21.3	25.5	28.4	30.0	30.0	30.0	30.0

Wiring diagram

Intermediate gear head

Type: G6XH10



CW,CCW

Related information

Options:	p.169	
Standard	specifications:	p.28
Technical	information:	p.175

Selection procedure: p.31

- Intermediate gear heads are for use with gear heads having a reduction ratio of 30 or more. When an intermediate gear head is used, the rating torque is 1.96 N·m (20 kgf·cm) for a reduction ratio between 30 and 40, and 2.94 N·m (30 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- · Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.





Motor type	Voltage	Capacity	Condenser type	W	Т	Н
	(V)	(μF)		(mm)	(mm)	(mm)
A6R06A	1ph100	3.0	DMF-25305	36	16	25
AUTIOUA	1ph110	5.0	DIVII -25505	30	10	2
A6R06B	1ph115	2.3	DMF-25235	36	16	25
A6R06C	1ph200	0.8	DMF-45804	36	16	25
AUHUUC	1ph220	0.6	DIVII =43004	30	10	23
A6R06D	1ph220	0.7	DMF-45704	36	16	25
AUNUOD	1ph240	0.7	DIVII -43704	50	10	23

Induction

Unit type Socket type

Brake Packs

Reversible Motors





□70mm

15W

Motor specification table

Frame			Output	Voltage	Eroguopov			Rating	torque		Starting	g torque	Over-		Condenser
size	Motor Type	Poles	Output	vollage	riequency	Time ratiang	Current	Output speed	Tor	que			heating pro-	Standard	Condenser
mm sq			(W)	(V)	(Hz)	3	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
				1ph100	50		0.42	1200	0.125	1.25	0.090	0.90			
	A7R15A	4	15	тріттоо	60	30Min.	0.42	1500	0.100	1.00	0.090	0.90	TP	CE	6.0
				1ph110	60		0.44	1550	0.100	1.00	0.110	1.10			
	A7R15B	4	15	1ph115	60	30Min.	0.35	1550	0.100	1.00	0.095	0.95	TP	UL/CE	4.5
70				1ph200	50		0.21	1200	0.125	1.25	0.090	0.90			
	A7R15C	4	15	Τριίζου	60	30Min.	0.21	1500	0.100	1.00	0.090	0.90	TP	CE	1.5
				1ph220	60		0.22	1550	0.100	1.00	0.110	1.10			
	A7R15D	4	15	1ph220	50	30Min.	0.17	1200	0.125	1.25	0.090	0.90	Щ	CE	1.2
	ATTTOD	-	13	1ph240	30	JOIVIII.	0.18	1200	0.145	1.45	0.110	1.10	IF.	OL	1.2

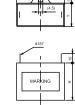
- · The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- · All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

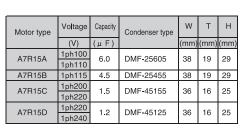
Gear head rating torque table

Gear head t	ype: G7⊡K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	0.31	0.38	0.53	0.64	0.79	0.95	1.06	1.32	1.59	1.90	1.90	2.37
	nating torque	Kgf∙cm	3.2	3.9	5.4	6.5	8.1	9.7	10.8	13.5	16.2	19.4	19.4	24.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Poting torque	N∙m	0.29	0.35	0.50	0.60	0.75	0.89	0.99	1.25	1.49	1.79	1.79	2.24
	Rating torque	Kgf⋅cm	3.0	3.6	5.1	6.1	7.6	9 1	10 1	127	15.2	18.2	18 2	22.8

Gear head t	ype: G7∐K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N⋅m	2.85	3.42	3.81	4.28	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90
	nating torque	Kgf⋅cm	29.1	34.9	38.8	43.6	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Poting torque	N∙m	2.68	3.22	3.58	4.02	4.83	4.90	4.90	4.90	4.90	4.90	4.90	4.90
	Rating torque	Kgf⋅cm	27.3	32.8	36.5	41.0	49.2	50.0	50.0	50.0	50.0	50.0	50.0	50.0

- \square in gear head type names indicates the reduction ratio.
- · Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 3.92 N·m (40 kgf·cm) for a reduction ratio between 25 and 40, and 4.90 N·m (50 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- · Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.



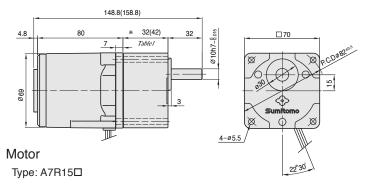


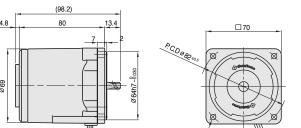
36

Dimensions

Gear motors

Motor type: A7R15□ Gear head type: G7□K

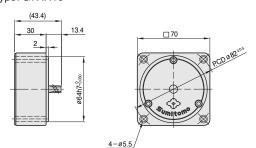




Intermediate gear head

Lead wires length 300mm UL3266 AWG NO. 20

Type: G7XH10



Wiring diagram

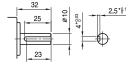
A7R15A A7R15B A7R15C CW,CCW

· Rotation directions are the directions as viewed from the end of the motor shaft

A7R15D

CW,CCW

Gear head output shaft detail



key size



Table1. Gear head length

Gear head size	Length(mn
G73K~G718K	32
G720K~G7200K	42
	G73K~G718K

Table2. Weight

			Weight(kg)
1ot	or		1.04
		G73K	0.38
ag	?	G718K	0.50
Gear nead		G720K	0.47
ar	~	G740K	0.47
3		G750K	0.52
	~	G7200K	0.52
iter	med	iate gear head	0.32

Related information

Selection procedure: p.31 Options: p.169

Standard specifications: p.28 Technical information: p.175

Induction

Unit type

Socket type

Brake Packs

Technical Information

Motor specification table

Frame			Output	Voltage	Eroguopou			Rating	torque		Ctartin	a torallo	Over-		Condenser
size	Motor Type	Poles	Output	Voltage	riequency	Time ratiang	Current	Output speed	Output speed Torq		Starting torque		heating pro-	Standard	Condenser
mm sq			(W)	(V)	(Hz)		(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)			(μF)
				1ph100	50		0.63	1250	0.210	2.10	0.180	1,80			
	A8R25A	4	25	тріттоо	60	30Min.	0.70	1500	0.170	1.70	0.100	1.00	TP	CE	10.0
				1ph110	60		0.71	1550	0.170	1.70	0.230	2.30			
	A8R25B	4	25	1ph115	60	30Min.	0.63	1550	0.170	1.70	1.300	1.30	TP	UL/CE	7.0
80				1ph200	50		0.33	1250	0.210	2.10	0.180	1,80			
	A8R25C	4	25	TPH200	60	30Min.	0.33	1550	0.170	1.70	0.160	1.00	TP	CE	2.5
				1ph220	60		0.35	1600	0.165	1.65	0.230	2.30			
	A8R25D	4	25	1ph220	50	30Min.	0.26	1200	0.200	2.00	1.700	1.70	TP	CE	2, 0
	Aonzou	4	25	1ph240] 30	SUMIII.	0.28	1200	0.220	2.20	2.200	2.20	I IF	CE	2. U

Reversible Motors

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage. The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- · All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head rating torque table

Gear head ty	ype: G8⊡K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Doting torque	N⋅m	0.52	0.63	0.87	1.05	1.31	1.57	1.74	2.19	2.62	3.15	3.15	3.94
	Rating torque	Kgf⋅cm	5.3	6.4	8.9	10.7	13.4	16.0	17.8	22.3	26.7	32.1	32.1	40.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Datingstown	N⋅m	0.43	0.51	0.72	0.85	1.07	1.28	1.43	1.78	2.15	2.57	2.58	3.22
Rating torque	Kaf·cm	44	52	73	8.7	10.9	13.1	14.6	18.2	21 0	26.2	26.3	32.0	

Gear head ty	ype: G8⊡K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	50Hz Rating torque	N∙m	4.72	5.66	6.29	7.12	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84
	Training torque	Kgf∙cm	48.2	57.8	64.2	72.6	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	N∙m	3.86	4.64	5.16	5.82	6.99	7.84	7.84	7.84	7.84	7.84	7.84	7.84	
Rating torqu	nating torque	Kgf⋅cm	39.4	47.3	52.6	59.4	71.3	80.0	80.0	80.0	80.0	80.0	80.0	80.0

- $\ \square$ in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 5.88 N·m (60 kgf·cm) for a reduction ratio between 25 and 40, and 7.84 N·m (80 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

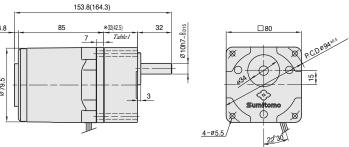


Motor type Voltage Capacity (V) Condenser type W T H A8R25A 1ph100 1ph110 10.0 DMF-251006 47 19 28 A8R25B 1ph115 7.0 DMF-25705 48 21 33 A8R25C 1ph200 1+b200 2.5 DMF-45255 47 19 28							
A8R25A	Motor type	Voltage	Capacity	Condenser type	W	Т	Η
A8R25A		(V)	(μF)		(mm)	(mm)	(mr
1ph110 A8R25B 1ph115 7.0 DMF-25705 48 21 33 A8R25C 1ph200 2.5 DMF-45255 47 19 28	Δ8R25Δ	1ph100	10.0	DMF-251006	47	10	28
A8B25C 1ph200 2.5 DMF-45255 47 19 28	AUTIZUA	1ph110	10.0	DIVII -231000	Ť	13	2
A8B25C - 2.5 LDME-45255 L47 L19 L28	A8R25B	1ph115	7.0	DMF-25705	48	21	33
A011230 1-h220 2.3 DIVII -43233 47 19 20	ASD35C	1ph200	2.5	DME-45255	17	10	28
TPHZZU	AGNZSC	1ph220	2.5	DIVIF-45255	47	19	20
A8R25D 1ph220 2.0 DMF-45205 38 19 29	V8B3ED	1ph220	2.0	DME-45205	30	10	20
1ph240 2.0 DMF-45205 38 19 29	AGINZOD	1ph240	۷.۵	DIVII -40200	50	19	29

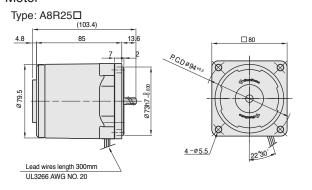
Dimensions

Gear motors

Motor type: A8R25□ Gear head type: G8□K

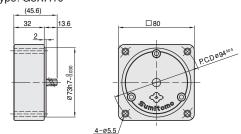


Motor

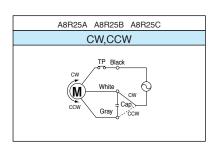


Intermediate gear head

Type: G8XH10

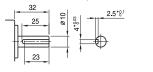


Wiring diagram



[·] Rotation directions are the directions as viewed from the end of the motor shaft.

Gear head output shaft detail



key size



Table1. Gear head length

Gear	head size	Length (mm)
G83K	~ G818K	32
G820K	∼ G8200K	42.5

Table2. Weight

		Weight(kg)
Mot	or	1.46
	G83K	0.43
эg	~ G818K	0.45
Gear head	G820K	0.57
ar	∼ G840K	0.57
Ğ	G850K	0.61
	∼ G8200K	0.01
nter	mediate gear head	0.43

Related information

Selection procedure: p.31

Options: p.169

Standard specifications: p.28

Technical information: p.175

CW,CCW

Motor specification table

Induction

Unit type Socket type

Brake Packs

Reversible Motors

Frame			Output	Voltage	Frequency	-		Rating	torque		Starting	g torque	Over-		Condenser
size	Motor Type	Poles	Output	voltage	requericy	Time ratiang	Current	Output speed	Tor	que	Starting	y torque	heating pro-	Standard	Condenser
mm sq			(W)	(V)	(Hz)	,	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)			(μF)
				1ph100	50		0.84	1300	0.300	3.00	0.280	2.80			
	A9R40A	4	40	тріттоо	60	30Min.	1.00	1550	0.260	2.60	0.200	2.00	TP	CE	15. 0
				1ph110	60		1.00	1600	0.250	2.50	0.350	3.50			
	A9R40B	4	40	1ph115	60	30Min.	1.00	1550	0.270	2.70	0.290	2.90	ΤP	UL/CE	12.0
90		4		1ph200	50		0.39	1300	0.310	3.10	0.380	2.80			
	A9R40C		4	40	ΤρπΖου	60	30Min.	0.47	1550	0.260	2.60	0.280 2.80 .	TP	CE	3. 5
				1ph220	60		0.46	1600	0.250	2.50	0.350	3.50			
	A9R40D	1	4 40	1ph220	50	30Min.	0.40	1250	0.320	3.20	0.300	3.00	TP	CE	3. 0
	A31140D		40	1ph240	30	JUIVIIII.	0.42	1230	0.340	3.40	0.320	3.20	I.E.		5.0

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- · The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

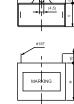
Gear head rating torque table

Gear head ty	rpe: G9A⊡K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	50Hz Rating torque	N∙m	0.81	0.97	1.35	1.62	2.03	2.43	2.70	3.37	4.05	4.86	4.86	6.09
	Training torque	Kgf⋅cm	8.3	9.9	13.8	16.5	20.7	24.8	27.5	34.4	41.3	49.6	49.6	62.1
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	N∙m	0.67	0.80	1.11	1.33	1.67	2.00	2.23	2.78	3.33	4.00	4.01	5.01	
Rating torque		Kgf⋅cm	6.8	8.2	11.3	13.6	17.0	20.4	22.7	28.4	34.0	40.8	40.9	51.1

Gear head ty	/pe: G9A⊟K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	7.30	8.76	9.73	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
	rialing lorque	Kgf∙cm	74.5	89.4	99.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	N∙m	6.01	7.21	8.02	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	
	Rating torque	Kgf⋅cm	61.3	73.6	81.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

- □ in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torque is 9.80 N·m(100kgf·cm).
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

Condenser

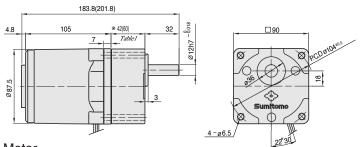


Motor type	Voltage	Capacity	Condenser type	W	Т	_
	(V)	(μF)		(mm)	(mm)	(mı
A9R40A	1ph100	15.0	DMF-251506	50	25	40
ASTIGOA	1ph110	13.0	DIVII -231300	30	25	+0
A9R40B	1ph115	12.0	DMF-251206	48	21	33
A9R40C	1ph200	3.5	DMF-45355	48	21	33
A911400	1ph220	5.5	DIVII -43333	40	21	Ju
A9R40D	1ph220	3.0	DMF-45305	47	19	28
7311400	1ph240	0.0	DIVII +3303	7/	19	

Dimensions

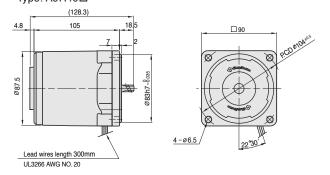
Gear motors

Motor type: A9R40□ Gear head type: G9A□K



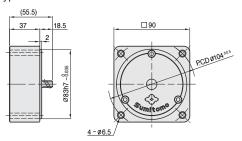
Motor



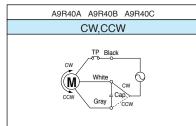


Intermediate gear head

Type: G9AXH10



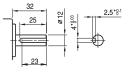
Wiring diagram



Rotation directions are the directions as viewed from the end of the motor shaft.

A9R40D CW,CCW

Gear head output shaft detail



key size

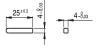


Table1. Gear head length

<u> </u>	
Gear head size	Length(mm)
G9A3K~G9A18K	42
G9A20K~G9A200K	60

Table2. Weight

			Weight(kg)
/lot	or		2.34
		G9A3K	0.73
ag	~	G9A18K	0.75
Gear head		G9A20K	1.03
ar	~	G9A40K	1.00
Ğ		G9A50K	1.13
	~	G9A200K	1.13
nter	med	iate gear head	0.60

Related information

Selection procedure: p.31

Options: p.169

Standard specifications: p.28 Technical information: p.175 Induction

Socket type

Unit type

Brake Packs

Motor specification table

Frame			Output	Voltage	Eroguopou			Rating torque				n torquo	Over-		Condenser	
size	Motor Type	Poles	Output	Voltage	riequency	Time ratiang	Current	Output speed	Torque		Starting torque		heating pro-	Standard	Condenser	
mm sq			(W)	(V)	(Hz)		(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)			(μF)	
				1ph100	50		1.40	1250	0.480	4.80	0.600	6.00				
	A9R60AH	4	60	ipiliou	60	30Min.	1.60	1550	0.390	3.90	0.000	0.00	ΤP	CE	25.0	
				1ph110	60		1.60	1600	0.380	3.80	0.700	7.00				
	A9R60BH	4	60	1ph115	60	30Min.	1.30	1600	0.390	3.90	0.600	6.00	ΤP	UL/CE	20.0	
90	A9R60CH	4		1ph200	50	30Min.	0.70	1250	0.480	4.80	0.550	5,50				
			60	TPHZ00	60		0.76	1550	0.390	3.90	0.550	5.50	ΤP	CE	6.0	
				1ph220	60		0.75	1600	0.380	3.80	0.700	7.00			ı	
	A9R60DH	4	60	1ph220	50	30Min.	0.63	1250	0.480	4.80	0.590	5.90	ΤP	CE	5, 0	
	ASHOUDH	+		1ph240] 30	30Min.	0.67	1230	0.500	5.00	0.630	6.30	IF.	SE	J. 0	

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head rating torque table

Gear head ty	КН													
Frequency	Reduction ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	1.20	1.43	1.99	2.38	2.99	3.58	3.97	4.47	5.37	6.44	7.15	8.09
		Kgf•cm	12.2	14.6	20.3	24.3	30.4	36.5	40.5	45.6	54.8	65.7	73.0	82.5
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Dating targue	N∙m	0.95	1.15	1.59	1.90	2.38	2.86	3.18	3.58	4.29	5.16	5.72	6.47
	Rating torque	Kaf•cm	9.7	117	16.2	194	24.3	29.2	32.4	36.5	43.8	52.6	58 4	66.0

Gear head ty	/pe: G 9 B □	ΚH												
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	9.70	11.66	12.94	16.17	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60
		Kgf cm	99.0	119.0	132.0	165.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Rating torque	N∙m	7.76	9.31	10.39	12.94	15.48	17.35	19.60	19.60	19.60	19.60	19.60	19.60
	halling lorque	Kaf•cm	79.2	95.0	106.0	132.0	158.0	177.0	200.0	200.0	200.0	200.0	200.0	200.0

- □ in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torgue is 19.60 N•m(200kgf•cm).
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

Condenser

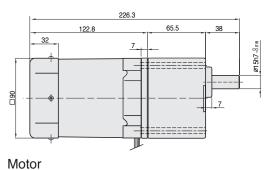


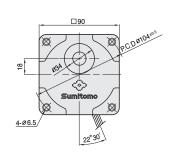
Motor type	Voltage	Capacity	Condenser type	W	Т	H
	(V)	(μF)		(mm)	(mm)	(m
A9R60AH	1ph100	25.0	DMF-252506	58	36	39
ASHOUAIT	1ph110	25.0	DIVII =232300	56	30	3
A9R60BH	1ph115	20.0	DMF-252006	58	36	39
A9R60CH	1ph200	6.0	DMF-45605	50	25	40
ASTIOUCIT	1ph220	0.0	DIVII -43003	50	25	ŕ
A9R60DH	1ph220	5.0	DMF-45505	50	25	40
ASTIOODIT	1ph240	5.0	DIVII 45505	50	20	70

Dimensions

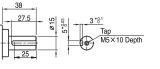
Gear motors

Motor type: A9R60□H Gear head type: G9B□KH





Gear head output shaft detail



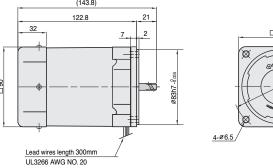
key size



Table1. weight

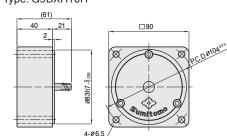
		Weight(kg)
Mot	or	2.48
	G9B3KH	1.21
	\sim G9B10KH	1.21
ad	G9B12.5KH	1.30
he	\sim G9B20KH	1.50
Gear head	G9B25KH	1.40
Q	\sim G9B60KH	1.40
	G9B75KH	1.45
	\sim G9B200KH	1.45
Inter	mediate gear head	0.65
	•	

Type: A9R60□H



Intermediate gear head

Type: G9BXH10H



Wiring diagram

A9R60AH A9R60BH A9R60CH CW,CCW

• Rotation directions are the directions as viewed from the end of the motor shaft.

Related information

Selection procedure: p.31 Options: p.169 Standard specifications: p.28 Technical information: p.175

A9R60DH

CW,CCW

Fram

size

mm s

90

Motor specification table

Motor Type

A9R90AH

A9R90BH

A9R90CH

A9R90DH

Gear head rating torque table

Reduction ratio

Ouput speed

Rating torque

Ouput speed

Rating torque

Ouput speed

Rating torque

Ouput speed

Rating torque

ullet in gear head type names indicates the reduction ratio

Gear head type: G9B KH

Gear head type: G9B KH

Frequency Reduction ratio

Frequency

50Hz

60Hz

50Hz

60Hz

Condenser

Voltage

(V)

1ph100

1ph110

1ph115

1ph200

1ph220

1ph220

1ph240

(Hz)

50

60

60

60

50

60

60

50

The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.

417

18.2 21.9 30.4

500

50

1.72 2.38

500

600

1.43

30

5

300

360

6

250

3.58

36.5

300

2.86

50

36

149.0 | 178.0 | 198.0 | 200.0 | 200.0 | 200.0 |

45

Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.

30Min.

Output

(W)

90

90

90

90

All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

r/min

N·m

r/min

N∙m

r/min

 $N \cdot m$

r/min

N·m

When an intermediate gear head is used, the rating torgue is 19.60 N•m(200kgf•cm).

Kgf⋅cm

Kgf⋅cm

Kgf⋅cm

The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.

Poles

4

4

4

Reversible Motors

Starting torque

(N·m) (Kaf·cm)

8.50

8.00

6.50

8.50

6.50

8.00

15

100

8.05

82.1

120

6.44

18

83

9.66

98.6

100

7.72

19.60 19.60 19.60

19.60 | 19.60 | 19.60 |

75

90

8.59

200.0

120 | 150 | 180 | 200

10.78 12.15

110.0 | 124.0

60

72

9.70

19.60

200.0

19.60

0.650

0.850

0.800

0.650

0.850

0.650

0.800

Condense

(μF)

30.0

25.0

7.0

6.0

CE

TP UL/CE

TP CE

TP CE

Rating torque

Torque

0.750

0.600

0.580

0.600

0.750

0.600

0.580

0.720

0.740

166

200

4.68

43.7

75

20

24

119.0 | 143.0 | 158.0 | 198.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 | 200.0 |

5.36

45.6 54.7

(N·m) (Kgf·cm)

7.50

6.00

5.80

6.00

7.50

6.00

5.80

7.20

7.40

10

150

5.96

180

4.76

48.6

90

16

20

60.8 68.4

120

6.70

144

5.37

100

15

18

200.0 200.0 200.0 200.0

15

Output speed

(r/min)

1200

1500

1550

1550

1200

1500

1550

1250

7.5

200

4.47

240

3.58

36.5

60

30

<u> 14.60 | 17.44 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | </u>

11.66 | 14.01 | 15.48 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 |

Current

(A)

2.10

2.25

2.25

1.80

0.90

1.00

1.00

0.82

0.86

Astero

90mm

90W

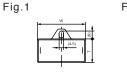
Induction

Overview

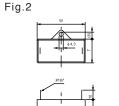
Socket type

Unit type

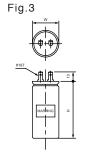
Brake Packs

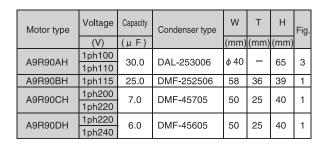






Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

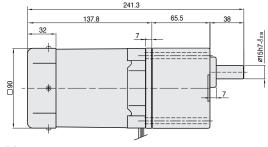


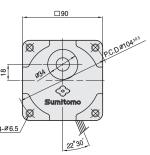


Dimensions

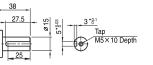
Gear motors

Motor type: A9R90□H Gear head type: G9B□KH





Gear head output shaft detail





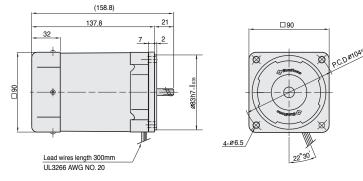
key size

Table 1. Weight

	Weigh								
Mot	or	2.93							
	G9B3KH	1.21							
	\sim G9B10KH	1.21							
ad	G9B12.5KH	1.30							
he	\sim G9B20KH	1.50							
Gear head	G9B25KH	1.40							
Ğ	\sim G9B60KH	1.40							
	G9B75KH	1.45							
	~ G9B200KH	1.45							
Inter	mediate gear head	0.65							
		_							

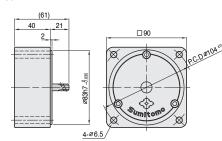
Motor

Type: A9R90□H



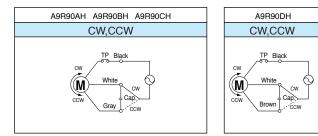
Intermediate gear head

Type: G9BXH10H



Wiring diagram

45



· Rotation directions are the directions as viewed from the end of the motor shaft.

Related information

Selection procedure: p.31

Options: p.169

Standard specifications: p.28

Technical information: p.175

MEMO

Motors with electromagnetic brakes



*Gear head and Motor with electromagnetic brake are sold separately.

Motors with electromagnetic brakes

- Motors with electromagnetic brakes
- •Motor can store load after stopping.
- •Used for constant-speed operation.
- Electromagnetic brake stops motor instantly.
- •Motor must be stopped by electromagnetic brake before the motor operation direction can be switched.
- Lead wires type.
- •Time rating: Short-time (30 minutes)



6W	P.50
15W	P.52
25W	P.54
40W	P.56
60W	P.58
90W	P.60

Astero

Overviev

Induct

Reversi

Termin boxe

(OVCIVIC

Socket typ

Spec controll

Speed contro ler (Electr magnetic brak

Brake Packs

Technic Informati

Overvie

6V

150

40V

60W

90W

Motors with electromagnetic brakes

Overview of motors with electromagnetic brakes (Standard specifications)

Table 1. Indu	ction motors with	ı electromagnatic bı	rakes standard	specifications
		9		1

	N	Induction motors with e	electromagnetic brake					
	Item	Single-phase motor	3-phase motor					
	Capacity range	6 ~ 90 W 4 poles	25 ~ 90 W 4 poles					
	Protection method Enclosure	6 ~ 40 W: IP23 Totally enclosed, non ventilated type 60 W~: IP23 Totally enclosed fan cooled type	25 ~ 40 W: IP23 Totally enclosed, non ventilated type 60 W~: IP23 Totally-enclosed fan cooled type					
		100V 50/60HZ, 110V 60HZ	200V 50/60Hz, 220V 50/60Hz					
	Power source	115V 60HZ	380V 50/60Hz, 400V 50/60Hz,					
	1 ower source	200V 50/60HZ, 220V 60HZ	415V 50/60Hz, 440V 50/60Hz					
		220~240V 50HZ						
	Insulation	CE Marking, Class E (120°C) UL Standard, Class A (105°C)	CE Marking, Class E (120°C) UL Standard, Class A (105°C)					
	Time rating	Short-time(30minutes)	Continuous					
Motor	Starting method	Condenser running	Direct start					
2	Lead wires	5wires UL Style 3266 20AWG	5wires UL Style 3271 20AWG					
	Standards	CE Marking (Low Voltage Directive), UL S	tandard					
	Insulation resistance	At least 100 $M\Omega$ when measured with a 500 VDC megger between the motor coil and case at normal temperature and humidity after motor has reached rated operation.						
	Insulation withstand voltage	No malfunction when a 1500 V, 50/60 Hz current is applied between the motor coil and case for 1 minute at normal temperature and humidity after the motor has reached rated operation.						
	Temperature rise	The temperature rise value (ΔT) should b 45°C for motors with fans) when measure motor has reached the rated operation.	e no more than 60°C (no more than do by the prescribed method after the					
	Overheating protector (TP)	Built-in thermal protector (auto-restore type	pe) Release: 120 ±5°C, Restore: 77 ±5°C					
Gear	Lubrication method	Grease lubrication. Grease is loaded at sl	nipment.					
Paint	Color	Astero silver						
SL	Locations	Indoors (in minimal dust and humidity)						
dition	Temperature	-10 to 40°C						
conc	Humidity	Under 85%						
ent	Elevation	Under 1,000 m						
Ambient conditions	Atmosphere	Well ventilated location, free of corrosive gases, explosive gases, vapors and dust.						

Overview of motors with electromagnetic brakes (Standard specifications)

1. Structure and operating principle

Figure 1 shows the structure of a motor with an electromagnetic brake. Sumitomo's motors with electromagnetic brakes are a de-energizing type. When voltage is applied to the electromagnetic coil, the armature plate held down by the spring is immediately attracted to it, creating a gap between the armature plate and brake lining, and readying the motor for operation. When the coil voltage is shut off, the armature plate applies the spring pressure to the brake lining, generating a braking force and stopping the motor.

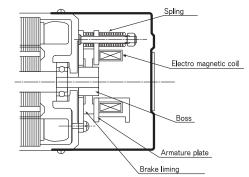


Fig 1. Structure of a motor with an electromagnetic brake.

2. Features of electromagnetic brakes

after the power is turned off with no load.

The brakes are AC de-energizing electromagnetic brakes, and are coupled directly to the motor. When the power is turned OFF, the motor stops instantly and the load is stored. The stored torque is between 0.05 and 0.5 N \cdot m (see Table 1). When the power is turned OFF, the stored power operates, making the brake ideal for use as a safety brake when the power is accidentally shut off. Electromagnetic brake motors have an overrun of 1 to 4 revolutions

They can be operated with frequent instant direction switching. A simple switching operation enables 6 stops per minute, but each stop should be at least 3 seconds. The motor and brake units can be operated on the same power supply. A rectifying circuit is built into the brake unit, and it uses the same AC power supply as the motor.

Table2. Electromagnetic brake soecifications

Dhasa	Frame size	Output power	Voltage	Frequency	Current	Input	Stored	torque	Over run
Phase	(mm)	(W)	(V)	(Hz)	(A)	(W)	(N · m)	(kgf · cm)	(Rev.)
	60	6	100		0.031	3.1	0.05	0.5	
	70	15	110		0.001	5.1	0.10	1.0	
Single	80	25	115	50/60	0.054	5.4	0.20	2.0	
phase	90	40	200	30700		10.0	0.30	3.0	
		60	220		0.100		0.50	5.0	3.5
		90	240				0.50	5.0	
	80	25	200~220		0.054	5.4	0,20	2.0	3.5
	00	25	380~440		0.031	6.3	0.20	2.0	
		40	200~220		0.100	10.0	0.30	3.0	
Three		40	380~440	50/60	0.043	8.5	0.50	5.0	
phase	90	60	200~220	30700	0.100	10.0			
	90	00	380~440		0.043	8.5	0.50	5.0	
		90 2	200~220		0.100	10.0	0.30	5.0	
		90	380~440		0.043	8.5			

3. Connection method and braking time

Fig. 2 shows the standard connection method. The simple connection method shown in Fig. 3 is also possible. However, this method has a 50 ms longer braking time than the standard method, and a correspondingly longer overrun.

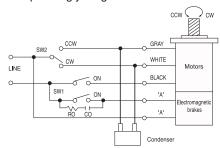


Fig2. Standard connebtion of motors with electromagnetic brakes

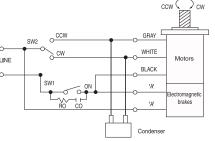


Fig 3. Simple connebtion of motors with electromagnetic brakes

4. Starting time/braking time characteristic

The starting time for motors with electromagnetic brakes consists of the electromagnetic brake's release time added to the starting time of the motor itself. The braking time is the amount of time required for the motor to completely stop after the power is shut off. Brake motor overruns, starting times and braking times vary depending on the combination of equipment in use. Contact us for more information.

60mm

Motors with electromagnetic brakes

60mm

Gear head output shaft detail

Table1. Gear head length

Table2. Weight

Motor

G63D

G618D G620D

G640D G650D

G6200D

Intermediate gear head

Gear head size Length(mm) G63D~G618D 30 G620D~G6200D 40

Weight(kg)

0.95

0.24

0.30

0.33

0.18

6W

Motor specification table

	Frame			Output	Voltago	Eroguenov	Time		Rating	torque		Storting	a torquo	Over-		Condenser
size		Motor Type	Poles	Output	voltage	oltage Frequency		Current	Output speed	Tor	que				Standard	Condenser
	mm sq			(W)	(V)	(Hz)	ratiang	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
					1ph100	50		0.21	1200	0.050	0.50	0.050	0.50			
		A6R06AB	4	6	тритоо	60	30Min.	0.21	1450	0.042	0.42	0.030	0.50	ZP	CE	3.0
					1ph110	60		0.23	1500	0.040	0.40	0.065	0.65			
		A6R06BB	4	6	1ph115	60	30Min.	0.17	1550	0.040	0.40	0.058	0.58	ZP	UL/CE	2.3
	60	A6R06CB		6	1ph200	50	30Min.	0.11	1200	0.050	0.50	0.055	0.55		CE	
			4		TPHZOO	60		0.11	1500	0.042	0.42	0.000	0.55	ZP		0.8
					1ph220	60		0.12	1550	0.040	0.40	0.070	0.70			
		VEBUEUB	A6R06DB 4	6	1ph220	50	30Min.	0.09	1200	0.050	0.50	0.055	0.55	ZP	CE	0.7
		70110000	-	٥	1ph240	30	GOIVIIII.	0.10	1200	0.052	0.52	0.065	0.65	ا ا	OL.	0.7

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- · The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head rating torque table

			_											
Gear head ty	/pe: G6⊡D													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Doting torque	N∙m	0.13	0.15	0.21	0.26	0.31	0.38	0.42	0.53	0.63	0.76	0.76	0.95
	Rating torque	Kgf∙cm	1.3	1.5	2.1	2.6	3.2	3.9	4.3	5.4	6.4	7.7	7.7	9.7
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Detina terror	N∙m	0.10	0.13	0.17	0.21	0.26	0.30	0.34	0.43	0.51	0.62	0.62	0.76
	Rating torque	Kgf⋅cm	1.0	1.3	1.7	2.1	2.6	3.1	3.5	4.4	5.2	6.3	6.3	7.8

Gear head ty	rpe: G6⊡D													
Frequency	,		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Dating targue	N⋅m	1.14	1.36	1.52	1.72	2.06	2.57	2.94	2.94	2.94	2.94	2.94	2.94
	Rating torque	Kgf⋅cm	11.6	13.9	15.5	17.5	21.0	26.2	30.0	30.0	30.0	30.0	30.0	30.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Dating towns	N⋅m	0.92	1.11	1.24	1.39	1.67	2.09	2.50	2.78	2.94	2.94	2.94	2.94
	Rating torque	Kgf⋅cm	9.4	11.3	12.6	14.2	17.0	21.3	25.5	28.4	30.0	30.0	30.0	30.0

- \square in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 30 or more. When an intermediate gear head is used, the rating torque is 1.96 N·m (20 kgf·cm) for a reduction ratio between 30 and 40, and 2.94 N·m (30 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

Condenser



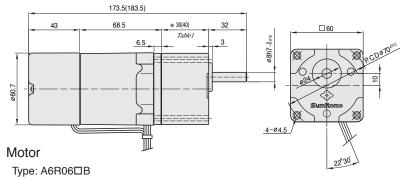


Motor type	Voltage	Capacity	Condenser type	W	Т	ŀ
	(V)	(μF)		(mm)	(mm)	(m
A6R06A B	1ph100	3.0	DMF-25305	36	16	2!
AONOOA B	1ph110	3.0	DIVIT -25505	30	10	2
A6R06B B	1ph115	2.3	DMF-25235	36	16	2
A6R06C B	1ph200	0.8	DMF-45804	36	16	2!
AOI 100C B	1ph220	0.0	DIVII -43004	30	10	۷.
A6R06D B	1ph220	0.7	DMF-45704	36	16	2!
AOI 100D B	1ph240	0.7	DIVII -43704	30	10	۷,

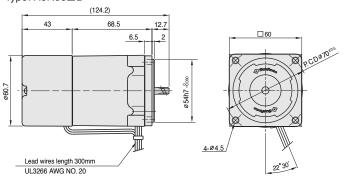
Dimensions

Gear motors

Motor type: A6R06□B Gear head type: G6□D

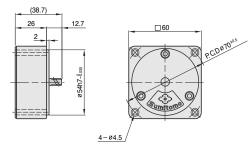


Astero



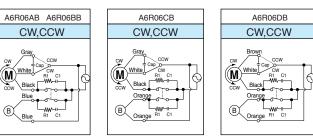
Intermediate gear head

Type: G6XH10



	Selection procedure:	p. 11
	Options: p. 169	
-		
	Standard specifications:	p. 4
Г		
	Technical information:	p. 17

Related information Wiring diagram



- $R_1=10$ to $200\Omega(1/4W$ or larger)
- C,=0.1 to 0.33μF(125VAC or 250VAC)

50

Induction

Options

Motors with electromagnetic brakes

Single phase





Aste

□70mm

15W

Induction

Reversib

Electromagnetic by

Termina boxe

Unit typ

Socket type

Spe control (Reversib

ler (Electromagnetic brake)

Brake Packs

Techni

Options

Overvie

15W

40)

60W

90W

Motor specification table

Frame			Output	Voltage	Eroguopou	_		Ratir	ng torque		Storting	g torque	Over-		Condenser
size	Motor Type	Poles	Output	vollage	riequency	Time ratiang	Current	Output speed	To	que		•	heating pro-	Standard	Condenser
mm sq			(W)	(V)	(Hz)		(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
				1ph100	50		0.44	1200	0.125	1.25	0.100	1.00			
	A7R15AB	4	15	ТРПТОО	60	30Min.	0.44	1500	0.100	1.00	0.100	1.00	TP	CE	6.0
				1ph110	60		0.46	1550	0.100	1.00	0.125	1.25			
	A7R15BB	4	15	1ph115	60	30Min.	0.34	1600	0.100	1.00	0.100	1.00	ΤP	UL/CE	4.5
70				1ph200	50		0.22	1250	0.125	1.25	0.100	1.00			
	A7R15CB	4	15	TPHZOO	60	30Min.	0.22	1550	0.100	1.00	0.100	1.00	TP	CE	1.5
				1ph220	60		0.23	1600	0.100	1.00	0.120	1.20			
	A7R15DB	4	15	1ph220	50	30Min.	0.17	1200	0.125	1.25	0.100	1.00	TP	CE	1, 2
	A/111300		13	1ph240	30	COMMIT.	0.18	1200	0.145	1.45	0.120	1.20	i F	OE.	1. 2

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head rating torque table

Gear head t	ype: G7⊡K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	0.31	0.38	0.53	0.64	0.79	0.95	1.06	1.32	1.59	1.90	1.90	2.37
	rialing torque	Kgf∙cm	3.2	3.9	5.4	6.5	8.1	9.7	10.8	13.5	16.2	19.4	19.4	24.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Pating targue N·m		0.29	0.35	0.50	0.60	0.75	0.89	0.99	1.25	1.49	1.79	1.79	2.24
	Rating torque	Kgf⋅cm	3.0	3.6	5.1	6.1	7.6	9.1	10.1	12.7	15.2	18.2	18.2	22.8

Gear head ty	ype: G7⊡K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	2.85	3.42	3.81	4.28	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90
	rialing torque	Kgf∙cm	29.1	34.9	38.8	43.6	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Rating torque	N∙m	2.68	3.22	3.58	4.02	4.83	4.90	4.90	4.90	4.90	4.90	4.90	4.90
	rialing lorque	Kgf∙cm	27.3	32.8	36.5	41.0	49.2	50.0	50.0	50.0	50.0	50.0	50.0	50.0

- □ in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 3.92 N·m (40 kgf·cm) for a reduction ratio between 25 and 40, and 4.90 N·m (50 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

Condenser



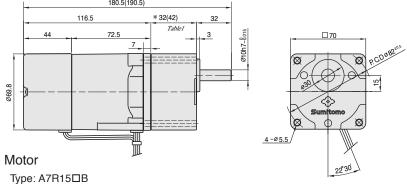
Motor type	Voltage	Capacity	Condenser type	W	Τ	Н
	(V)	(μF)		(mm)	(mm)	(mr
A7R15A B	1ph100	6.0	DMF-25605	38	19	29
ATTIOAB	1ph110	0.0	DIVII -23003	00	13	J
A7R15B B	1ph115	4.5	DMF-25455	38	19	29
A7R15C B	1ph200	1.5	DMF-45155	36	16	25
A/HI3C B	1ph220	1.5	DIVII -43133	30	10	2
A7R15D B	1ph220	1.2	DMF-45125	36	16	25
AMISOB	1ph240	1.2	DIVII -43123	30	10	2

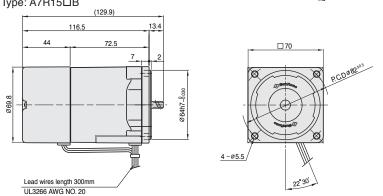
52

Dimensions

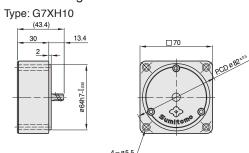
Gear motors

Motor type: A7R15□B Gear head type: G7□K

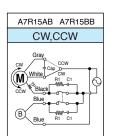


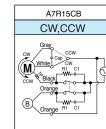


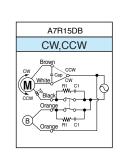
Intermediate gear head



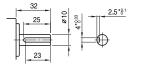
Wiring diagram







Gear head output shaft detail



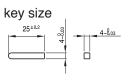


Table1. Gear head length

Gear head size	Length(mm)
G73K~G718K	32
G720K~G7200K	42
	•

Table2. Weight

	9	
		Weight(kg
	Motor	1.30
	G73K	0.38
ad	∼ G718K	0.00
Gear head	G720K	0.47
ar	∼ G740K	0.1
ဏီ	G750K	0.52
	∼ G7200K	0.52
Inte	rmediate gear head	0.32

tio	n		
	Selection procedure: p	. 11	
	Options: p. 169		
	Standard specifications:	p. 48	
	Technical information: p	. 175	

- · Rotation directions are the directions as viewed from the end of the motor shaft
- $R_1=10$ to $200\Omega(1/4W$ or larger)
- C₁=0.1 to 0.33μF(125VAC or 250VAC)

Motor specification table

key size

Gear head output shaft detail

Table1. Gear head length Gear head size Length (mm)

G83K ~ G818K 32 G820K ~ G8200K 42.5

Weight(kg)

1.86

0.57

0.61

0.43

Table2. Weight

Motor

G83K

G818K

G820K

G840K G850K

G8200K

Intermediate gear head

Socket type

Brake Packs

Options

25W

Motors with electromagnetic brakes

Frame			Output	Voltage	Eroguopov			Rating to	rque		Starting	n torquo	Over-		Condenser
size	Motor Type	Poles	Output	vollage	Frequency	Time ratiang	Current		j torque	heating pro-	Standard	Condenser			
mm sq			(W)	(V)	(Hz)	radiang	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
				1ph100	50		0.60	1250	0.200	2.00	0.220	2.20			
	A8R25AB	4	25	тритоо	60	30Min.	0.70	1500	0.170	1.70	0.220	2.20	TP	CE	10.0
				1ph110	60		0.73	1550	0.162	1.62	0.240	2.40			
	A8R25BB	4	25	1ph115	60	30Min.	0.52	1600	0.165	1.65	0.190	1.90	TP	UL/CE	7.0
				1ph200	50		0.30	1250	0.200	2.00	0.200	2.00			
	A8R25CB	4	25	1011200	60	30Min.	0.35	1500	0.170	1.70	0.200	2.00	TP	CE	2.5
				1ph220	60		0.36	1550	0.162	1.62	0.240	2.40			
	A8R25DB	4	25	1ph220	50	30Min.	0.25	1250	0.200	2.00	0.210	2.10	TP	CE	2.0
	A01123DD	7	20	1ph240	30	OOIVIII1.	0.27	1250	0.210	2.10	0.250	2.50	IF	CE	2.0
				3ph200	50		0.25	1300	0.195	1.95	0.340	3.40		CE	
80	A8M25JB	4	25	Oprizoo	60	Cont.	0.22	1550	0.165	1.65	0.270	2.70	ΤP	CE	_
	AUNIZUD	_	20	3ph220	50	Oon.	0.26	1350	0.190	1.90	0.410	4.10			
				Oprizzo	60		0.23	1600	0.160	1.60	0.320	3.20			
				3ph380	50	Cont.	0.14	1250	0.200	2.00	0.315	3.15	TP	CE	
				орпоос	60	Oont.	0.12	1500	0.170	1.70	0.250	2.50	IF	CE	
				3ph400	50	Cont.	0.14	1250	0.210	2.10	0.350	3.50	TP	CE	
		4	25	3p11400	60	Oont.	0.12	1500	0.180	1.80	0.275	2.75	IF	CE	
	A8M25KB	7	25	3nh/115	50	Cont.	0.15	1300	0.195	1.95	0.375	3.75	TP	CE	_
	ACIVIZORE	SIVIZORD		3ph415 -	60	Oont.	0.13	1550	0.165	1.65	0.300	3.00	IF	OE.	
				3ph440	50	Cont.	0.15	1300	0.210	2.10	0.440	4.40	TP	CE	
					60	COIII.	0.13	1600	0.160	1.60	0.340	3.40	I IP	OE.	

- · The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

ead rating torque table

Gear head ty	ype: G8⊡K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
50Hz Ouput speed Rating torque Ouput speed Rating torque Rating torque	r/min	500	417	300	250	200	166	150	120	100	83	75	60	
	Poting torque	N∙m	0.52	0.63	0.87	1.05	1.31	1.57	1.74	2.19	2.62	3.15	3.15	3.94
	Hating torque	Kgf∙cm	5.3	6.4	8.9	10.7	13.4	16.0	17.8	22.3	26.7	32.1	32.1	40.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
	Detine term	N∙m	0.43	0.51	0.72	0.85	1.07	1.28	1.43	1.78	2.15	2.57	2.58	3.22
	Rating torque	Kgf⋅cm	4.4	5.2	7.3	8.7	10.9	13.1	14.6	18.2	21.9	26.2	26.3	32.9

Gear head ty	ype: G8⊡K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
50Hz	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
	Rating torque	N∙m	4.72	5.66	6.29	7.12	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84
		Kgf∙cm	48.2	57.8	64.2	72.6	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
60Hz	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
	Dating targue	N∙m	3.86	4.64	5.16	5.82	6.99	7.84	7.84	7.84	7.84	7.84	7.84	7.84
	Rating torque	Kgf∙cm	39.4	47.3	52.6	59.4	71.3	80.0	80.0	80.0	80.0	80.0	80.0	80.0

- Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 5.88 N·m (60 kgf-cm) for
- a reduction ratio between 25 and 40, and 7.84 N·m (80 kgf·cm) for a reduction ratio of 50 or more. Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.



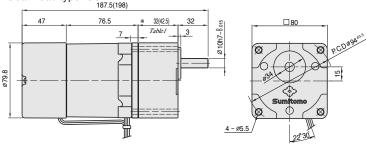
(4.5)	Motor type	Voltage	Capacity	Condenser type	W	Τ	Н
''' -		(V)	(μF)		(mm)	(mm)	(mm)
187	A8R25A B	1ph100 1ph110	10.0	DMF-251006	47	19	28
	A8R25B B	1ph115	7.0	DMF-25705	48	21	33
1 1	A8R25C B	1ph200 1ph220	2.5	DMF-45255	47	19	28
RKING =	A8R25D B	1ph220 1ph240	2.0	DMF-45205	38	19	29

54

Dimensions

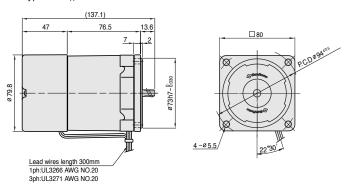
Gear motors

Motor type: A8 ^M_R 25□B Gear head type: G8□K



Motor

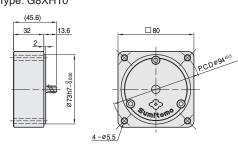
Å@TtypeÅFA8^M25□B



Intermediate gear head

Type: G8XH10

Wiring diagram



Selection procedure: p. 11 Options: p. 169 Standard specifications: p. 48

Technical information: p. 175

A8R25AB A8R25BB	A8R25CB	A8R25DB
CW,CCW	CW,CCW	CW,CCW
Grey CCW White Cow River Cow Blue Ri C1	White Cap O COW White RW -1-1 COW Black O COW Orange R1 C1	Brown W White Cap Cow R C Cow Black W-H- Orange R1 C1

A8M	25JB	A8M	25KB
CW	CCW	CW	CCW
Black(I) TP Write(I) Grange R Orange RI C1	Black(I) II Whelev W-1 R Grayon W-1 Grayon R1 C1	Black(U) Black(U) Brand(V) Brand(Black(I) P RedV) WH CW Fellow Ri Ct

- Rotation directions are the directions as viewed from the end of the motor shaft
- R₁=10 to 200Ω(1/4W or larger)
- C₁=0.1 to 0.33μF(125VAC or 250VAC)

Astero

90mm

40W

Socket type

Options

Brake Packs

40W

Motors with electromagnetic brakes

Motor specification table

Frame			0.44	Mallana	F			Rating to	rque		Starting	torquo	Over-		Candanaar	
size	Motor Type	Poles	Output	Voltage	Frequency	Time ratiang	Current	Output speed	Tor	que	Starting	j torque	heating pro-	Standard	Condenser	
mm sq			(W)	(V)	(Hz)	3	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF) CE 15.0 L/CE 12.0 CE 3.5 CE 3.0	
				1ph100	50		0.85	1300	0.310	3.10	0.350	3.50				
	A9R40AB	4	40	тріттоо	60	30Min.	1.00	1550	0.260	2.60	0.550	3.30	ΤP	CE	15.0	
				1ph110	60		1.00	1600	0.250	2.50	0.400	4.00				
	A9R40BB	4	40	1ph115	60	30Min.	0.86	1600	0.260	2.60	0.345	3.45	ΤP	UL/CE	12.0	
				1ph200	50		0.40	1300	0.310	3.10	0.335	3.35				
	A9R40CB	4	40	1011200	60	30Min.	0.48	1550	0.260	2.60	0.555	3.33	ΤP	CE	3.5	
			1ph220	60		0.48	1600	0.250	2.50	0.400	4.00					
	, tertioss	40	1ph220	220 50 3	30Min.	0.40	1250	0.320	3.20	0.330	3.30	TP	CE	3.0		
		4	40	1ph240	30	JOIVIIII.	0.43	1230	0.340	3.40	0.400	4.00	IP	CE	5.0	
				3ph200	50	Cont.	0.30	1300	0.310	3.10	0.630	6.30				
90	ΔΩΜΛΟ ΙΒ	₁	40	3p11200	60	COIII.	0.28	1550	0.260	2.60	0.520	5.20	ΤP	CE	_	
	ASIVIAOSD	4	40	3ph220	50	Cont.	0.30	1350	0.300	3.00	0.760	7.60				
		M40JB 4		oprizzo	60	Oont.	0.28	1600	0.250	2.50	0.610	6.10				
				3ph380	50	Cont.	0.21	1300	0.320	3.20	0.630	6.30	ΤP	CE		
				эрпээо	60	Cont.	0.19	1550	0.270	2.70	0.485	4.85	IF	CE		
				3ph400	50	Cont.	0.21	1300	0.330	3.30	0.690	6.90	ΤP	CE		
	A9M40KB	4	40	3p11400	60	Oont.	0.19	1550	0.280	2.80	0.525	5.25	IF	OL		
			40	3ph415	50	Cont.	0.21	1350	0.310	3.10	0.730	7.30	TP	CE	_	
				Op11413	60	Cont.	0.19	1600	0.260	2.60	0.570	5.70	I.F	OE		
			G	3ph440	50	Cont.	0.21	1350	0.320	3.20	0.820	8.20	TP	CE		
				3pi1440	60	Cont.	0.19	1600	0.270	2.70	0.630	6.30	IP.	CE		

- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

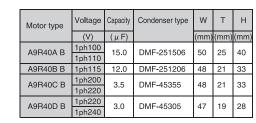
Gear head rating torque table

			-											
Gear head type: G9A□K														
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
Frequency Ro	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
	Dating targue	N∙m	0.81	0.97	1.35	1.62	2.03	2.43	2.70	3.37	4.05	4.86	4.86	6.09
	Rating torque	Kgf∙cm	8.3	9.9	13.8	16.5	20.7	24.8	27.5	34.4	41.3	49.6	49.6	62.1
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
	Doting torque	N∙m	0.67	0.80	1.11	1.33	1.67	2.00	2.23	2.78	3.33	4.00	4.01	5.01
	Rating torque	Kgf⋅cm	6.8	8.2	11.3	13.6	17.0	20.4	22 7	28.4	34.0	40.8	40.9	51.1

Gear head ty	rpe: G9A⊡K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
Ouput speed 50Hz	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5	
	Rating torque	N∙m	7.30	8.76	9.73	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
		Kgf⋅cm	74.5	89.4	99.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
60Hz	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
	Poting torque	N∙m	6.01	7.21	8.02	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
	Rating torque	Kgf⋅cm	61.3	73.6	81.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

- \square in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torque is 9.80 N•m(100kgf•cm).
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.





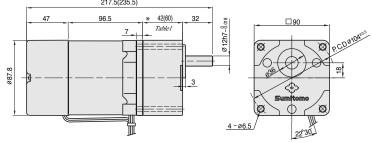
56

Dimensions

Gear motors

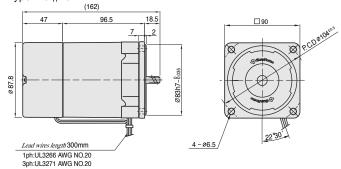
Motor type: A9 M 40 □B

Gear head type: G9A□K 217.5(235.8



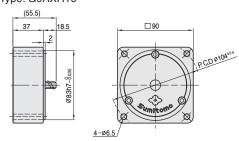
Motor

Type: A9 M 40□B



Intermediate gear head

Type: G9AXH10



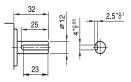
Wiring diagram

A9R40AB A9R40BB CW,CCW

A9M	40JB	A9M-	40KB
CW	CCW	CW	CCW
Blacket) R Whiteler	Black(u) S S S S S S S S S S S S S S S S S S S	Black(s) Brownson Browns	Black(s) By Restrict the second of the seco

- Rotation directions are the directions as viewed from the end of the motor shaft.
- R₁=10 to 200Ω(1/4W or larger)
- C₁=0.1 to 0.33μF(125VAC or 250VAC)

Gear head output shaft detail



key size

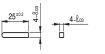


Table1. Gear head length

Gear head size	Length(mm)
G9A3K~G9A18K	42
G9A20K~G9A200K	60

Table2. Weight

		Weight(kg)
	Motor	2.74
	G9A3K	0.73
ad	∼ G9A18K	0.75
Gear head	G9A20K	1.03
ar	~ G9A40K	1.00
Ğ	G9A50K	1.13
	∼ G9A200K	1.10
Inte	rmediate gear head	0.60

Selection procedure: p. 11	
Options: p. 169	
Standard specifications: p. 48	
Tarketal information in 175	i
Technical information: p. 175	

Gear motors

Motor specification table

Motor Type

Socket type

Brake Packs

Options

60W

(4.5)	Motor type	voltage	Capacity	Condenser type	VV	- 1
-m- -		(V)	(μF)		(mm)	(mm
	A9R60AH B	1ph100	25.0	DMF-252506	58	36
#187	ASHOUAH B	1ph110	25.0	DIVIT-232300	56	30
<u>*****</u>	A9R60BH B	1ph115	20.0	DMF-252006	58	36
1 9	A9R60CH B	1ph200	6.5	DMF-45655	50	25
	ASTROCCITE	1ph220	0.5	DIVII -43033	30	2
MARKING ±	A9R60DH B	1ph220	5.0	DMF-45505	50	25
- - 	ASHOODITB	1ph240	5.0	DIVII -43303	50	23

58

Motors with electromagnetic brakes

Voltage Output Current Torque (W) (V) (Hz) (A) (N·m) (Kgf·cm) (N·m) (Kgf·cm) (μF) 1,50 1250 0.480 4.80 50 0.620 1ph100 6.20 A9R60AHB 60 60 1.75 1500 0.400 CE 25.0 4.00 1ph110 60 1.70 1550 0.390 3.90 0.700 7.00 A9R60BHB 60 1ph115 60 1.40 1600 0.390 3.90 0.580 5.80 20.0 0.75 0.480 4.80 1ph200 0.620 6.20 A9R60CHB 60 60 30Min 0.90 1500 0.400 4.00 CE 6.5 1ph220 60 0.90 1550 0.390 3.90 0.700 7.00 1ph220 0.460 4.60 0.600 6.00 CE A9R60DHB 50 1300 5.0 1ph240 0.61 0.490 4.90 0.700 7.00 0.46 1300 0.460 4.60 0.710 50 7.10 3ph200 60 0.42 1550 0.390 3.90 0.540 5.40 A9M60JHB 60 0.46 1350 0.440 4.40 0.860 8.60 50 3ph220 CE 60 0.41 1600 0.390 3.90 0.680 6.80 50 0.27 1300 0.460 4.60 0.825 8.25 3ph380 ΤP CE 0.24 60 1550 0.390 3.90 0.650 6.50 0.470 4.70 0.930 CE 3ph400 60 0.25 1550 0.400 4.00 0.735 7.35 60

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering

3ph415

3ph440

50

60

50

All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head rating torque table

A9M60KHB

Gear head ty	/pe: G 9 B 🗌	КН]											
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	1.20	1.43	1.99	2.38	2.99	3.58	3.97	4.47	5.37	6.44	7.15	8.09
		Kgf∙cm	12.2	14.6	20.3	24.3	30.4	36.5	40.5	45.6	54.8	65.7	73.0	82.5
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Rating torque	N∙m	0.95	1.15	1.59	1.90	2.38	2.86	3.18	3.58	4.29	5.16	5.72	6.47
		Kaf•cm	9.7	117	16.2	194	24.3	29.2	32.4	36.5	43.8	52.6	58.4	66.0

0.27

0.23

0.31

1350

1600

1350

1600

0.460

0.380

4.60

3.80

0.470 4.70

0.390 3.90

0.995

0.750

1.075 10.75

0.840 8.40

9.95

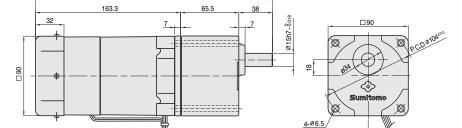
7.50

CE

CE

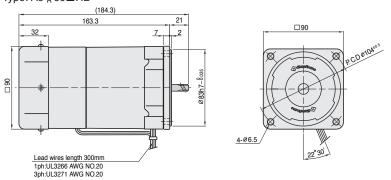
Gear head ty	/pe: G 9 B □ I	КН												
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	9.70	11.66	12.94	16.17	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60
	rialing lorque	Kgf∙cm	99.0	119.0	132.0	165.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
Hating torque	Poting torque	N∙m	7.76	9.31	10.39	12.94	15.48	17.35	19.60	19.60	19.60	19.60	19.60	19.60
	Kgf•cm	79.2	95.0	106.0	132.0	158.0	177.0	200.0	200.0	200.0	200.0	200.0	200.0	

- \square in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torgue is 19.60 N•m(200kgf•cm)
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.



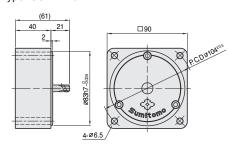
Motor

Type: A9 M 60 □ HB



Intermediate gear head

Type: G9BXH10H



Wiring diagram

CW,CCW CW,CCW CW,CCW

	J L	J L					
A9M	60JHB	A9M60KHB					
CW	CCW	CW	CCW				
Black(I) P White(Y) W S Gray(V) W S Gray(Black(I) The Whiteley Cow Graywy Bill Col Orange Ri Col Orange Ri Col	Black(I) Black(I) Breaty) Redty Willow Fill Ct	Black(s) Restrict Re				

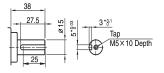
- Rotation directions are the directions as viewed from the end of the motor shaft.
- R₁=10 to 200Ω(1/4W or larger)
- C,=0.1 to 0.33μF(125VAC or 250VAC)

Dimensions

Motor type: A9 ^M_R 60 □ HB

Gear head type: G9B□KH

Gear head output shaft detail



key size



Table1. Weight

		Weight(kg)
	Motor	2.90
	G9B3KH	1.21
~	G9B10KH	1.21
ad	G9B12.5KH	1.30
~ Pe	G9B20KH	1.50
Gear head	G9B25KH	1.40
ٽ _~	G9B60KH	1.40
	G9B75KH	1.45
~	G9B200KH	1.43
Interme	ediate gear head	0.65

_	
	Selection procedure: p. 11
	Options: p. 169
	Standard specifications: p. 48
	Technical information: p. 175

Socket type

Brake Packs

Options



Frame					_			Rating to	rque		C44:		Over-		0 1
size	Motor Type	Poles	Output	Voltage	Frequency	Time ratiang	Current	Output speed	Tor	que	Starting	g torque	heating pro-	Standard	Condenser
mm sq			(W)	(V)	(Hz)		(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
				1ph100	50		2.00	1250	0.720	7.20	0.700	7.00			
	A9R90AHB	4	90	тритоо	60	30Min.	2.25	1500	0.600	6.00	0.700	7.00	TP	CE	30.0
				1ph110	60		2.20	1550	0.580	5.80	0.890	8.90			
	A9R90BHB	4	90	1ph115	60	30Min.	1.90	1600	0.580	5.80	0.690	6.90	TP	UL/CE	25.0
				1ph200	50		0.90	1250	0.720	7.20	0.700	7.00			
	A9R90CHB	4	90	1011200	60	30Min.	1.10	1500	0.600	6.00	0.700	7.00	TP	CE	7. 5
				1ph220	60		1.10	1550	0.580	5.80	0.890	8.90			
	A9R90DHB	4	90	1ph220	50 30Min.	0.71	1300	0.690 6.90	0.680	6.80	TP	CE	6.0		
	71011000110		- 00	1ph240	00	COMMIN	0.75	1000	0.720	7.20	0.860	8.60		<u> </u>	
				3ph200	50	Cont.	0.63	1300	0.690	6.90	1.010	10.10	TP	CE	_
90	A9M90JHB	4	90	Орпдоо	60	00114	0.60	1550	0.600	6.00	0.760	7.60	-"	<u> </u>	
	7101010001115	·		3ph220	50	Cont.	0.63	1350	0.680	6.80	1.250	12.50	TP	CE	_
				OPITEEO	60	Conta	0.60	1600	0.570	5.70	0.960	9.60	"		
				3ph380	50	Cont.	0.32	1300	0.680	6.80	1.055	10.55	TP	CE	
				Оргюсо	60	00111.	0.30	1550	0.570	5.70	0.820	8.20		<u> </u>	
				3ph400	50	Cont.	0.35	1300	0.690	6.90	1.170	11.70	TP	CE	
	A9M90KHB	4	90	Оритоо	60	Conta	0.32	1550	0.580	5.80	0.890	8.90			_
	7101110011112	·		3ph415	50	Cont.	0.33	1350	0.680	6.80	1.200	12.00	TP	CE	
			-	3ph415	60	Conta	0.29	1600	0.570	5.70	0.950	9.50			
				3ph440	50	Cont.	0.35	1350	0.690	6.90	1.330	13.30	TP	CE	
				оринно	60	00111.	0.31	1600	0.580	5.80	1.050	10.50		OL.	

Motors with electromagnetic brakes

- · The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- · All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head ty	ype: G9B□KH													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Deting torque	N⋅m	1.78	2.15	2.98	3.58	4.47	5.36	5.96	6.70	8.05	9.66	10.78	12.15
	Rating torque	Kgf∙cm	18.2	21.9	30.4	36.5	45.6	54.7	60.8	68.4	82.1	98.6	110.0	124.0
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Doting toward	N∙m	1.43	1.72	2.38	2.86	3.58	4.68	4.76	5.37	6.44	7.72	8.59	9.70
Hating torq	Rating torque	Kgf∙cm	14.6	17.5	24.3	29.2	36.5	43.7	48.6	54.8	65.7	78.8	87.6	99.0

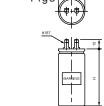
Gear head ty	ype: G9B⊡KH													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Doting torque	N⋅m	14.60	17.44	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
	Rating torque	Kgf⋅cm	149.0	178.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Detine a terrario	N∙m	11.66	14.01	15.48	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
	Rating torque	Kgf⋅cm	119.0	143.0	158.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0

- \square in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torgue is 19.60 N•m(200kgf•cm)
- · Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- · Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.









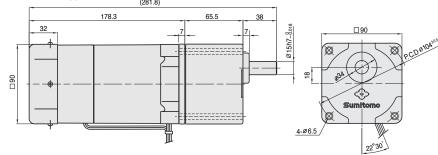
60

Motor type	Voltage	Capacity	Condenser type	W	Т	Н	Figure
	(V)	(μF)		(mm)	(mm)	(mm)	
A9R90AH B	1ph100	30.0	DAL-253006	φ 40		65	3
ASTISOATIB	1ph110	30.0	DAL-253006	Ψ		3	3
A9R90BH B	1ph115	25.0	DMF-252506	58	36	39	1
A9R90CH B	1ph200	7.5	DMF-45755	58	26	40	2
ASHSOCITE	1ph220	7.5	DIVIF-45/55	50	20	‡	_
A9R90DH B	1ph220	6.0	DMF-45605	50	25	40	1
ASTISODITO	1ph240	0.0	DIVII -43003	50	2	†	

Dimensions

Gear motors

Motor type: A9 ^M_R 90 □ HB Gear head type: G9B□KH



Motor

Type: A9 № 90 □ HB

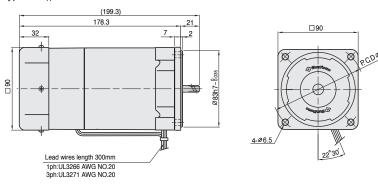


Table 1 Weight

Related information

		Weight(kg)
	Motor	3.41
	G9B3KH	1.21
	~ G9B10KH	1.21
ad	G9B12.5KH	1.30
he	~ G9B20KH	1.50
Gear head	G9B25KH	1.40
Ğ	\sim G9B60KH	1.40
	G9B75KH	1.45
	∼ G9B200KH	1.40
Inte	rmediate gear head	0.65

Selection procedure: p. 11

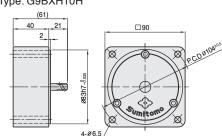
Standard specifications: p. 48

Technical information: p. 175

Options: p. 169

Intermediate gear head

Type: G9BXH10H



Wiring diagram

A9R90AHB A9R90BHB	A9R90CHB	A9R90DHB
CW,CCW	CW,CCW	CW,CCW
Gray COW White Co COW Black M. I. C.	Gray White Cop COW White Cop COW Fil C1 Orange Black WW-H Orange Ri C1	Brown White COW Black Orange Orange

A9MS	00JHB	A9M9	OKHB
CW	CCW	CW	CCW
Blacket) Whitever with a construction of the	Black(s) Whitery Wilder Grayw Bir Ci To Grayge Ri Ci	Blackes Programmer Research Programmer Researc	Blackey Brown Brow

61

- · Rotation directions are the directions as viewed from the end of the motor shaft.
- $R_1=10$ to $200\Omega(1/4W$ or larger)
- C_1 =0.1 to 0.33 μ F(125VAC or 250VAC)

Gear head output shaft detail

key size



MEMO

Motors with terminal boxes



*Gear head and motor with terminal box are sold separately.

Motors with terminal boxes

- Induction motors and reversible motors are
- Used for constant-speed operation.



Motors with terminal boxes







Overview

Induction

Reversible

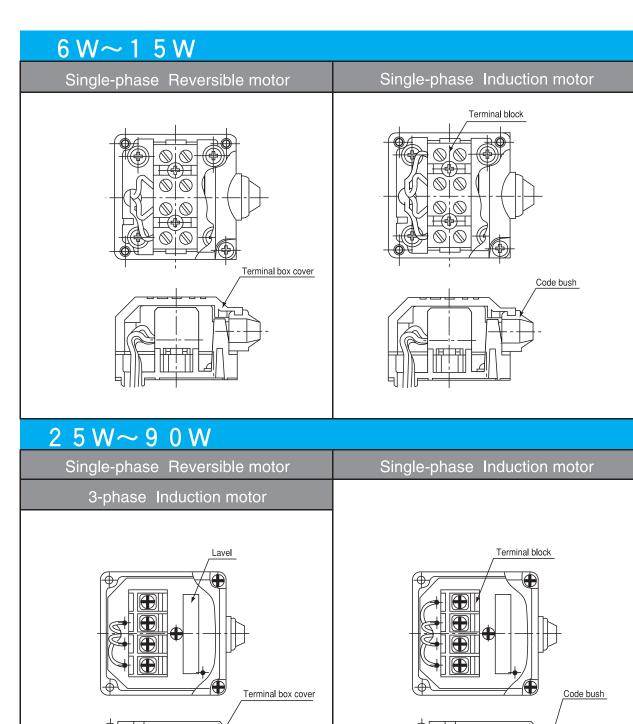
Socket type

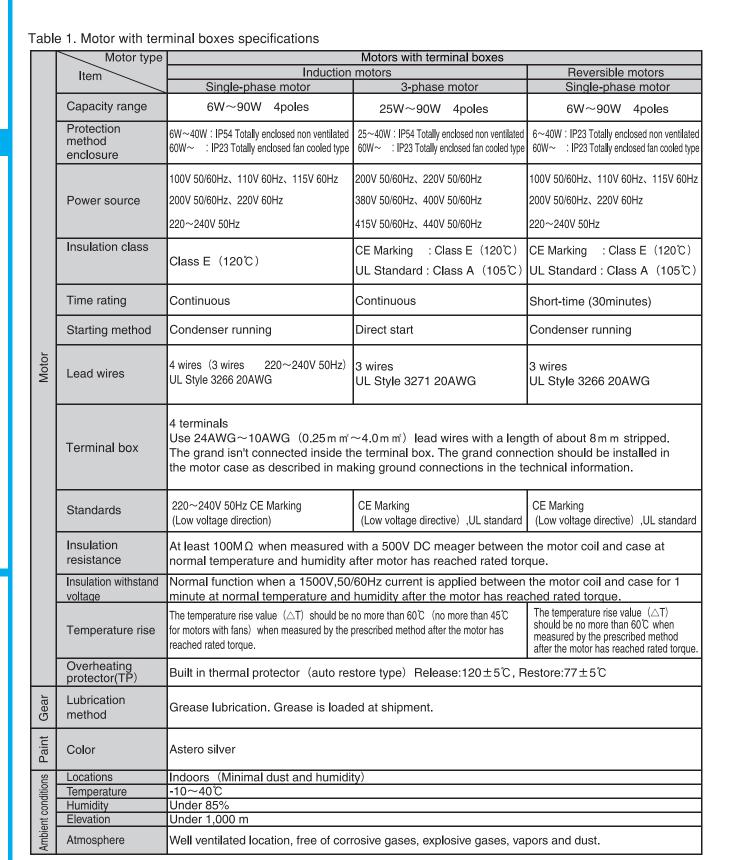
Brake Packs

Options



Overview of Motors with terminal boxes(Standard specifications)





Overview of Motors with terminal boxes(Standard specifications)

64

Single

Three phase

Terminal box

Astero 6

□60mm

6W

Induction

Socket type

Brake Packs

Options

Technical Information

Overview

Motor specification table

Induction motor

- Induction in

Frame			Output	Voltage	Eroguopov	_		Rating	torque		Starting torque		Over-		Condense		
size	Motor Type	Poles	Output	Voltage	riequency	Time ratiang	Current	Output speed	Torque		Starting torque		heating pro-	Standard	Condenser		
mm sq			(W)	(V)	(Hz)	14114119	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)		
				1ph100	50		0.21	1200	0.050	0.50	0.045	0.45	ZΡ	_			
	A6M06AT	4	6	тріттоо	60	Cont.	0.19	1500	0.042	0.42	0.043	0.45			2.5		
				1ph110	60		0.20	1550	0.040	0.40	0.055	0.55					
	A6M06BT	4	6	1ph115	60	Cont.	0.19	1500	0.042	0.42	0.055	0.55	ZΡ	UL/CE	2.0		
60				1ph200	50		0.10	1200	0.050	0.50	0.045	0.45					
	A6M06CT	4	6	6	6	1011200	60	Cont.	0.10	1500	0.042	0.42	0.043	0.45	ZΡ	_	0.7
				1ph220	60		0.10	1550	0.040	0.40	0.055	0.55					
	A6M06DT	4	6	1ph220	50	Cont.	0.08	1200	0.050	0.50	0.050	0.50	ZP	CE	0.6		
				1ph240	30	Cont.	0.09	1200	0.053	0.53	0.055	0.55					

Motors with terminal boxes

Reversible motor

Frame			Output	Voltage	Fraguanay	_		Rating	torque		Starting torque		Over- heating pro-	Standard	Condenser
size	Motor Type	Poles	Output	voltage	rrequency	Time ratiang	Current	Output speed	То	rque					
mm sq			(W)	(V)	(Hz)		(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
				1ph100	50		0,21	1200	0.050	0.50	0.045	0.45		CE	
	A6R06AT	4	6	Iphilou	60	30Min.	0.21	1500	0.042	0.42	0.045	0.43	ZP		3.0
				1ph110	60		0.22	1550	0.040	0.40	0.060	0.060 0.60			
	A6R06BT	4	6	1ph115	60	30Min.	0.18	1500	0.042	0.42	0.050	0.50	ZΡ	UL/CE	2.3
60	A6R06CT		6	1ph200	50		0.10	1200	0.050	0.50	0.053	0.53	ZP	CE	0.8
		4		TPHZUU	60	30Min.	0.10	1500	0.042	0.42	0.055				
				1ph220	60		0.11	1550	0.040	0.40	0.060	0.60			
	A6R06DT	1	6	1ph220	50	0014	0.09	1200	0.047	0.47	0.050	0.50	ZΡ	CE	0.7
		4		1ph240	30	30Min.	0.10	1200	0.050	0.50	0.055	0.55	ZP		

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and impedance-protected (ZP) types.

Gear head rating torque table

Gear head ty	/pe: G6⊡D													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	0.13	0.15	0.21	0.26	0.31	0.38	0.42	0.53	0.63	0.76	0.76	0.95
		Kgf⋅cm	1.3	1.5	2.1	2.6	3.2	3.9	4.3	5.4	6.4	7.7	7.7	9.7
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Rating torque	N∙m	0.10	0.13	0.17	0.21	0.26	0.30	0.34	0.43	0.51	0.62	0.62	0.76
		Kgf⋅cm	1.0	1.3	1.7	2.1	2.6	3.1	3.5	4.4	5.2	6.3	6.3	7.8

Gear head ty	rpe: G6⊡D													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	1.14	1.36	1.52	1.72	2.06	2.57	2.94	2.94	2.94	2.94	2.94	2.94
		Kgf∙cm	11.6	13.9	15.5	17.5	21.0	26.2	30.0	30.0	30.0	30.0	30.0	30.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Rating torque	N∙m	0.92	1.11	1.24	1.39	1.67	2.09	2.50	2.78	2.94	2.94	2.94	2.94
		Kgf∙cm	9.4	11.3	12.6	14.2	17.0	21.3	25.5	28.4	30.0	30.0	30.0	30.0

- ${}^{\textstyle \star}$ \square in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 30 or more. When an intermediate gear head is used, the rating torque is 1.96 N·m (20 kgf·cm) for a reduction ratio between 30 and 40, and 2.94 N·m (30 kgf·cm) for a reduction ratio of 50 or more.

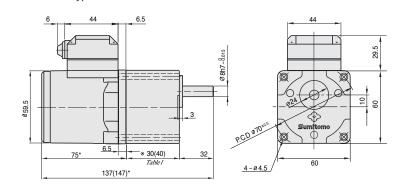
66

- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

Dimensions

Gear motors

Motor type: A6 ^M_R 06□T Gear head type: G6□D



Gear head output shaft detail



Length of reversible motor is longer than one of induction motor

Motor

Type: A6 ^M 06□T

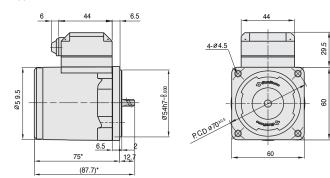


Table1. Gear head length

Gear head size	Length(mm)
G63D~G618D	30
G620D~G6200D	40

Length of reversible motor is longer than one of induction motor

Intermediate gear head

Type: G6XH10

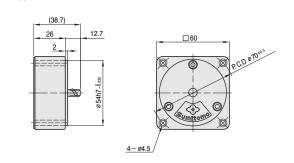


Table2. Weight

	rabiozi vroigiti												
		Weight(kg)											
	Induction motor	0.76											
	Reversible motor	0.77											
	G63D	0.24											
ad	∼ G618D	0.24											
Gear head	G620D	0.30											
ear	\sim G640D	0.50											
Ğ	G650D	0.33											
	\sim G6200D	0.55											
Inte	rmediate gear head	0.18											

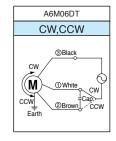
□60mm

Motors with terminal boxes

Wiring diagram

Induction motor

A6M06AT A6M0	O6BT A6MO6CT
CW	CCW
@Black @Brown @Gray i Cap	@Black @Gray @White CCW @Brown Cap



- · Rotation directions are the directions as viewed from the end of the motor shaft.
- The motor must be completely stopped before its operation direction can be switched. • If you try to switch the rotation direction while the motor is operating, the attempt may be unsuccessful, or may take some time

Reversible motor

Unit type

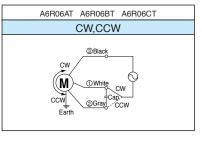
Socket type

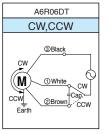
Brake Packs

Options

Overview

6W





• Rotation directions are the directions as viewed from the end of the motor shaft.



Induction motor

Reversible motor

Motor type	Voltage	Capacity	Condenser type	w	Т	Н
	(V)	(μF)		(mm)	(mm)	(mm)
A6M06AT	1ph100	2.5	DMF-25255	36	16	25
AOMAGODT	1ph110		DME 05005		40	05
A6M06BT	1ph115	2.0	DMF-25205	36	16	25
A6M06CT	1ph200	0.7	DMF-45704	36	16	25
	1ph220					
A6M06DT	1ph220	0.6	DMF-45604	36	16	25
7101110001	1ph240	0.0	DIVII 45004	00		

Motor type	otor type Voltage Capacity Condenser type		W	Т	Н	
,	(V)	(μF)		(mm)	(mm)	(mm)
A6R06AT	A6R06AT 1ph100 3.0		DMF-25305	36	16	25
AUNUUAT	1ph110	3.0	DIVII -25505	30	10	25
A6R06BT	A6R06BT 1ph115 2		DMF-25235	36	16	25
A6R06CT	1ph200	0.8	DMF-45804	36	16	25
1ph220		0.0	DIVII -43004	30	10	25
A6R06DT 1ph220		0.7	DMF-45704	36	16	25
AUTUUDT		0.7	DIVII -43704	00	10	20

Related information

Selection procedure:	Induction.	p. 11,	Reversible.	p. 31
Options:	Induction.	p. 169,	Reversible.	p. 169
Standard specifications:	Induction.	p. 10,	Reversible.	p. 28
Technical information:	Induction.	p. 175,	Reversible.	p. 175

68

MEMO

Induction

Socket type

Brake Packs

Options

Technical Information Motor specification table

Induction motor

Voltage Starting torque Output Motor Type Torque (W) (V) (A) (N·m) (Kgf·cm) (N·m) (Kgf·cm) (μF) (Hz) 50 0.35 1250 0.120 1.20 1ph100 0.090 0.90 5.0 15 A7M15AT 60 0.34 1550 0.100 1.00 Cont. 1ph110 0.34 1600 0.100 60 1.00 0.110 1.10 50 0.19 1200 0.125 1.25 70 1ph200 0.090 0.90 1.2 A7M15CT 15 60 0.18 0.120 1.20 1500 Cont. 1ph220 60 0.19 1550 0.110 1.10 1ph220 0.16 0.125 1.25 0.075 0.75 50 1200 CE A7M15DT 0.9 Cont. 0.18 0.135 1.35 0.090

Motors with terminal boxes

Reversible motor

Frame			Output	Voltage	Fraguanas			Rating	torque		Ctortin	a torallo	Over-		Condenser	
size	Motor Type	Poles	Output	Voltage	rrequency	Time ratiang	Current	Output speed	То	rque	Startin	g torque	heating pro-		Condenser	
mm sq			(W)	(V)	(Hz)		(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)			(μF)	
	A7R15AT			1ph100	50		0.42	1200	0.125	1.25	0.090	0.90				
		4	15	тріттоо	60	30Min.	0.42	1500	0.100	1.00	0.090	0.90	TP	CE	6.0	
				1ph110	60		0.44	1550	0.100	1.00	0.110	1.10				
	A7R15BT	4	15	1ph115	60	30Min.	0.35	1550	0.100	1.00	0.095	0.95	TP	UL/CE	4.5	
70			15	1ph200	50		0.21	0.21	1200	0.125	1.25	0.090	0.90			
	A7R15CT	4		1011200	60	30Min.	0.21	1500	0.100	1.00	0.090	0.90	TP	CE	1.5	
				1ph220	60		0.22	1550	0.100	1.00	0.110	1.10				
	A7R15DT	1	4 15	1ph220	50	30Min.	0.17	1200	0.125	1.25	0.090	0.90	TP	CE	1.2	
		+		1ph240	30	JOIVIII.	0.18	1200	0.145	1.45	0.110	1.10	i F	OL.	1,2	

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.

Gear head rating torque table

Gear head t	ype: G7⊡K													
Frequency	Frequency Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N⋅m	0.31	0.38	0.53	0.64	0.79	0.95	1.06	1.32	1.59	1.90	1.90	2.37
		Kgf∙cm	3.2	3.9	5.4	6.5	8.1	9.7	10.8	13.5	16.2	19.4	19.4	24.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Poting torque	N∙m	0.29	0.35	0.50	0.60	0.75	0.89	0.99	1.25	1.49	1.79	1.79	2.24
	Rating torque	Kgf∙cm	3.0	3.6	5.1	6.1	7.6	9.1	10.1	12.7	15.2	18.2	18.2	22.8

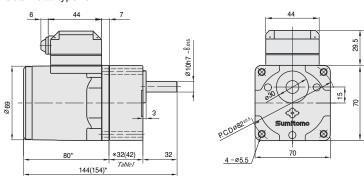
Gear head ty	ype: G7⊡K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	I Rating torque ⊢	N⋅m	2.85	3.42	3.81	4.28	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90
		Kgf⋅cm	29.1	34.9	38.8	43.6	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Rating torque	N∙m	2.68	3.22	3.58	4.02	4.83	4.90	4.90	4.90	4.90	4.90	4.90	4.90
	Rating torque	Kgf∙cm	27.3	32.8	36.5	41.0	49.2	50.0	50.0	50.0	50.0	50.0	50.0	50.0

- □ in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 3.92 N·m (40 kgf·cm) for a reduction ratio between 25 and 40, and 4.90 N·m (50 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

Dimensions

Gear motors

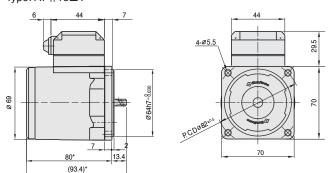
Motor type: A7 ^M 15□T Gear head type: G7□K



Length of reversible motor is longer than one of induction motor

Motor

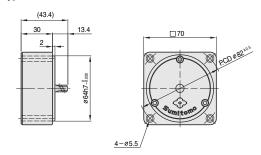
Type: A7 ^M 15□T



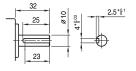
Length of reversible motor is longer than one of induction motor

Intermediate gear head

Type: G7XH10



Gear head output shaft detail



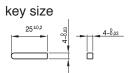


Table1. Gear head length

Gear head size	Length(mm
G73K~G718K	32
G720K~G7200K	42

Table2 Weight

Iau	iez. Weigiii	
		Weight(kg)
	Induction motor	1.10
	Reversible motor	1.11
	G73K	0.38
ad	~ G718K	0.50
Gear head	G720K	0.47
ear	∼ G740K	0.47
Ğ	G750K	0.52
	∼ G7200K	0.52
Inte	rmediate gear head	0.32

MEMO

Induction

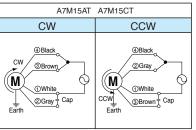
Socket type

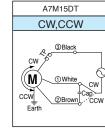
Brake Packs

Options

Wiring diagram

Induction motor

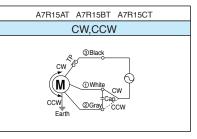


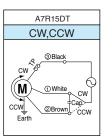


- · Rotation directions are the directions as viewed from the end of the motor shaft.
 - The motor must be completely stopped before its operation direction can be switched. • If you try to switch the rotation direction while the motor is operating, the attempt may be

Motors with terminal boxes

Reversible motor





· Rotation directions are the directions as viewed from the end of the motor shaft.



Induction motor

Motor type	Voltage	Capacity	Condenser type	W	Т	Н
	(V)	(μ F)		(mm)	(mm)	(mm)
A7M15AT	1ph100	5.0	DMF-25505	38	19	29
A/M15A1	1ph110	5.0	DIVII -23303	50	13	23
A7M15CT	1ph200	1.2	DMF-45125	36	16	25
A/WIISCI	1ph220	1.2	DIVII -45125	30	10	2
A7M1EDT	1ph220	0.9	DMF-45904	36	16	25
A7M15DT		0.9	DIVIT-43304	30	10	20

Reversible motor

Motor type	Voltage	Capacity	Condenser type	W	Т	Н	
,	(V)	(μF)		(mm)	(mm)	(mm)	
A7R15AT	1ph100	6.0	DMF-25605	38	19	29	
ATTIOAT	1ph110	0.0	DIVII -23003	5	1	20	
A7R15BT	1ph115	4.5	DMF-25455	38	19	29	
A7R15CT	1ph200	1.5	DMF-45155	36	16	25	
A/HISCI	1ph220	1.5	DIVIT -45155	50	10	25	
A7R15DT	1ph220	1.2	DMF-45125	36	16	25	
A/HISDI	1ph240	1.2	DIVIT-45125	30	10	25	

Related information

Selection procedure:	Induction.	p. 11,	Reversible.	p. 31
Options:	Induction.	р. 169,	Reversible.	p. 169
Standard specifications:	Induction.	р. 10,	Reversible.	p. 28
Technical information:	Induction.	p. 175,	Reversible.	p. 175

Motors with terminal boxes

Motor specification table

Induction motor

Frame			Output	Voltage	Frequency	Time		Rating t			Starting	torque	Over-		Condenser
size	Motor Type	Poles	Output	romago	. roquonoj	ratiang	Current	Output speed	Torq	ue		<u> </u>		Standard	
mm sq			(W)	(V)	(Hz)		(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
				1ph100	50		0.57	1250	0.200	2.00	0.145	1.45			
	A8M25AT	4	25	тритоо	60	Cont.	0.52	1550	0.165	1.65	0.143	1.45	_	_	6.0
				1ph110	60		0.51	1600	0.160	1.60	0.180	1.80			
				1ph200	50		0.30	1250	0.200	2.00	0.145	1.45			
	A8M25CT	4	25	100200	60	Cont.	0.29	1500	0.170	1.70	0.145	1.43	_	_	1.5
				1ph220	60	Ï	0.23	1550	0.165	1.65	0.180	1.80			
	A8M25DT	4	25	1ph220	50	01	0.23	1200	0.210	2.10	0.110	1.10	TP	CE	1.3
	AOIVIZOD I	4	25	1ph240	50	Cont.	0.25	1200	0.220	2.20	0.180	1.30	I IF	CE	1.3
				2-5200	50		0.25	1300	0.195	1.95	0.340	3.40			
80	A8M25JT	_	25	3ph200	60	Cont.	0.22	1550	0.165	1.65	0.270	2.70	TP	CE	
00	HOIVIZOJ I	4	25	0	50	Cont.	0.26	1350	0.190	1.90	0.410	4.10	IF	CE	
				3ph220	60		0.23	1600	0.160	1.60	0.320	3.20			
				0-1-000	50	Cont.	0.14	1250	0.200	2.00	0.315	3.15	TP	CE	
				3ph380	60	Cont.	0.12	1500	0.170	1.70	0.250	2.50	IP	CE	
				2-5400	50	Cont.	0.14	1250	0.210	2.10	0.350	3.50	TP	CE	
	AOMOEKT	_	0.5	3ph400	60	Cont.	0.12	1500	0.180	1.80	0.275	2.75	IF	CE	
	A8M25KT	4	25	0-5415	50		0.15	1300	0.195	1.95	0.375	3.75	TP	Œ	_
				3ph415	60	Cont.	0.13	1550 0.165 1.65 0.3	0.300	3.00	7 15	CE			
				0	50	Cont.	0.15	1300	0.210	2.10	0.440	4.40		<u></u>	
				3ph440	60	Cont.	0.13	1550	0.180	1.80	0.340	3.40	TP	CE	

Reversible motor

		-													
Frame			Output	Voltago	Frequency			Rating	torque		Ctartin	a torauo	Over-		Condenser
size	Motor Type	Poles	Output	Voltage	riequency	Time ratiang	Current	Output speed	To	que	Starting torque		heating pro-	eating Standard	Condenser
mm sq			(W)	(V)	(Hz)	radang	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
				1ph100	50		0.63	1250	0.210	2.10	0.180	1.80			
	A8R25AT	4	25	тритоо	60	30Min.	0.70	1500	0.170	1.70	0.160	1.00	TP	CE	10.0
				1ph110	60		0.71	1550	0.170	1.70	0.230	0.230 2.30			
	A8R25BT	4	25	1ph115	60	30Min.	0.63	1550	0.170	1.70	0.130	1.30	ΤP	UL/CE	7.0
80				1ph200	50		0.33	1250	0.210	2.10	0.180	1.80			
	A8R25CT	4	25	TPHZ00	60	30Min.	0.55	1550	0.170	1.70	0.100	1.00	TP	CE	2.5
				1ph220	60		0.35	1600	0.165	1.65	0.230	2.30			
	A8R25DT	4	25	1ph220	50	30Min.	0.26	1200	0.200	2.00	0.170	1.70	ΤP	CE	2.0
	AONZODI	"	25	1ph240] 30	JOIVIII.	0.28	1200	0.220	2.20	0.220	2.20	Ŀ	OE	۷.0

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before orderin

Gear head rating torque table

Brake Packs

Options

Overview

Gear head ty	ype: G8⊡K													
Frequency	Reduction ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	0.52	0.63	0.87	1.05	1.31	1.57	1.74	2.19	2.62	3.15	3.15	3.94
		Kgf∙cm	5.3	6.4	8.9	10.7	13.4	16.0	17.8	22.3	26.7	32.1	32.1	40.2
60Hz	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
	Rating torque	N∙m	0.43	0.51	0.72	0.85	1.07	1.28	1.43	1.78	2.15	2.57	2.58	3.22
		Kgf⋅cm	4 4	5.2	7.3	8.7	10.9	13.1	14.6	18.2	21.9	26.2	26.3	32.9

Gear head t	head type: G8□K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed		50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	4.72	5.66	6.29	7.12	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84
	Trailing torque	Kgf∙cm	48.2	57.8	64.2	72.6	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Dating to your	N∙m	3.86	4.64	5.16	5.82	6.99	7.84	7.84	7.84	7.84	7.84	7.84	7.84
	Rating torque	Kgf∙cm	39.4	47.3	52.6	59.4	71.3	80.0	80.0	80.0	80.0	80.0	80.0	80.0

- □ in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 5.88 N·m (60 kgf·cm) for a reduction ratio between 25 and 40, and 7.84 N·m (80 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.

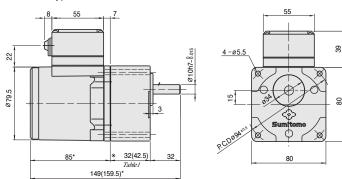
74

• Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

Dimensions

Gear motors

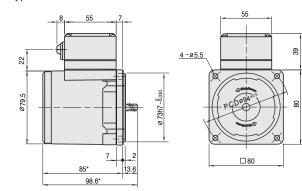
Motor type: A8^M_R25□T Gear head type: G8□K



Length of reversible motor is longer than one of induction

Motor

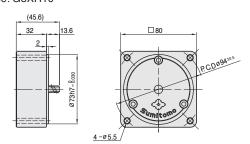
Type: A8 ^M 25□T



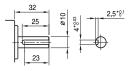
Length of reversible motor is longer than one of induction motor

Intermediate gear head

Type: G8XH10



Gear head output shaft detail



key size



Table 1. Gear head length

Gear head size	Length (mn
G83K ∼ G818K	32
G820K ∼ G8200K	42.5

Table2. Weight

avi	ez. vveig	ji it	
			Weight(kg)
	Induction me	otor	1.55
	Reversible n	notor	1.60
	G83K	ζ	0.43
ad	~ G818	K	0.45
Gear head	G820	K	0.57
ear	~ G840	K	0.57
Ğ	G850	K	0.61
	~ G820	0K	0.01
Inte	rmediate ge	ar head	0.43

25W

□80mm

Motors with terminal boxes

Wiring diagram

Induction motor

A8M25AT	A8M25CT	A8M25DT	A8M	25JT	A8M	25KT
CW	CCW	CW,CCW	CW	CCW	CW	CCW
®Brown White @Gray = Cap	@Black @Gray @White CCW Cap	®Black CW %	© Black(U) R CW @ White(V) S TP TP @ Gray(W) T	© Black(U) S @ White(V) R TP CCW @ Gray(W) T	© Black(U) R CW © Red(V) S TP © Brown(W) T TP B - Earth	⊕ Black(U) S ⊕ Red(V) R ⊕ R ⊕ Red(V) R ⊕ R ⊕ R ⊕ R ⊕ R ⊕ R ⊕ R ⊕ R

- · Rotation directions are the directions as viewed from the end of the motor shaft.
- ${\boldsymbol{\cdot}}$ The motor must be completely stopped before its operation direction can be switched.
- · If you try to switch the rotation direction while the motor is operating, the attempt may be unsuccessful, or may take some time

Reversible motor

A8R25AT A8R25BT A8R25CT	A8R25DT
CW,CCW	CW,CCW
© Black CW ⊕ Earth ⊕ White CCW ⊕ Gray CCW	③Black CW ④- FEarth OWhite CCW ②Brown CCCW

Rotation directions are the directions as viewed from the end of the motor shaft.

Condensei

Brake Packs

Options

25W

(6.5) | h

Induction motor

Motor type	Voltage	Capacity	Condenser type	W	Т	Н
	(V)	(μF)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(mm)	(mm)	(mm)
A8M25AT	1ph100	6.0	DMF-25605	38	19	29
AGIVIZGAT	1ph110	0.0	DIVIF-23003	-25605 38 1	19	29
A8M25CT	1ph200	1.5	DMF-45155	36	16	25
Adivizaci	1ph220	1.5	DIVIT-45155	30	10	25
A8M25DT	1ph220	1.3	DMF-45135	36	16	25
AOIVIZODI	4 -1-040	1.3	DIVII -43 133	30	10	20

Reversible motor

	Motor type	Voltage	Capacity	Condenser type	W	Т	Н
١		(V)	(μF)		(mm)	(mm)	(mm)
ı	A8R25AT	1ph100	10.0	DMF-251006	47	19	28
١	AUTIZJAT	1ph110	10.0	DIVII -231000	47	10	۵
ı	A8R25BT	1ph115	7.0	DMF-25705	48	21	33
ı	A8R25CT	1ph200	2.5	DMF-45255	47	19	28
١	A0112301	1ph220	2.5	DIVII -43233	+/	10	٥
١	A8R25DT	1ph220	2.0	DMF-45205	38	19	29
١	AUTIZUDT	1ph240	2.0	DIVII -43203	30	19	23

Related information

Selection procedure:	Induction.	р. 11,	Reversible.	p. 31
Options:	Induction.	р. 169,	Reversible.	p. 169
Standard specifications:	Induction.	р. 10,	Reversible.	p. 28
Technical information:	Induction.	p. 175,	Reversible.	p. 175

MEMO

Motor specification table

Brake Packs

Options

Overview

Induction motor

Rating torque Starting torque Condenser Output Voltage Output speed Torque size Motor Type mm sc (N·m) (Kgf·cm) (W) (N·m) (Kgf·cm (μF) (Hz) (A) (r/min) 1300 0.310 3.10 50 0.80 1ph100 0.240 2.40 A9M40AT 60 0.85 1550 0.260 2.60 10.0 1ph110 60 1600 0.250 2.50 0.290 2.90 50 0.41 1300 0.310 3.10 1ph200 0.240 2.40 A9M40CT 60 0.43 1550 0.260 2.60 1ph220 60 0.41 1600 0.250 2.50 0.290 2.90 1ph220 0.315 3.15 0.180 1.80 0.34 A9M40DT 50 1250 CE 2.0 1ph240 0.335 3.35 1300 0.310 3.10 50 0.30 0.490 4.90 3ph200 60 0.28 1550 0.260 2.60 0.370 3.70 A9M40JT CE 50 1350 0.300 3.00 0.590 5.90 3ph220 60 1600 0.250 2.50 0.450 4.50 0.28 1300 0.320 3.20 0.630 6.30 50 3ph380 60 1550 0.270 2.70 0.485 4.85 1300 0.330 3.30 0.690 6.90 50 0.21 3ph400 CE A9M40KT 60 1550 0.280 2.80 50 0.21 1350 | 0.310 | 3.10 0.730 7.30 CE 3ph415 Cont. 60 1600 0.260 2.60 0.570 5.70 0.19 50 0.21 1350 0.320 3.20 0.820 8.20 60 1600 0.270 2.70 0.630 6.30

Reversible motor

Frame			Output	Voltage	Frequency			Rating	torque		Ctortin	a torano	Over-		Condenser
size	Motor Type	Poles	Output	voltage	riequency	Time ratiang	Current	Output speed	To	rque	Startin	Starting torque		Standard	Oorideriser
mm sq			(W)	(V)	(Hz)	ranang	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	pro- tection		(μF)
				1ph100	50 60 30Min.	0.84	1300	0.300	3.00	0.280	2.80				
	A9R40AT	4 40	60	30Min.	1.00	1550	0.260	2.60		2.00	TP	CE	15.0		
-				1ph110	60		1.00	1600	0.250	2.50	0.350	3.50			
	A9R40BT	4	40	1ph115	60	30Min.	1.00	1550	0.270	2.70	0.290	2.90	TP	UL/CE	12.0
90				1ph200	50		0.39	1300	0.310	3.10	0.280	2.80		TP UL/CE	
	A9R40CT	4	40	TPHZUU	60	30Min.	0.47	1550	0.260	2.60	0.200	2.00	TP	CE	3.5
				1ph220	60		0.46	1600	0.250	2.50	0.350	3.50			
	AOD40DT	1	40	1ph220	50	30Min.	0.40	1250	0.320	3.20	0.300 3.00	3.00	TP	CE 3.	3.0
A9R40DT	4	40	1ph240	- 50 I	30Min.	0.42	1230	0.340	3.40	0.320	3.20	1F		3.0	

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.

Gear head rating torque table

Gear head ty	/pe: G9A□K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	0.81	0.97	1.35	1.62	2.03	2.43	2.70	3.37	4.05	4.86	4.86	6.09
		Kgf⋅cm	8.3	9.9	13.8	16.5	20.7	24.8	27.5	34.4	41.3	49.6	49.6	62.1
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Doting torque	N∙m	0.67	0.80	1.11	1.33	1.67	2.00	2.23	2.78	3.33	4.00	4.01	5.01
	Rating torque	Kgf⋅cm	6.8	8.2	11.3	13.6	17.0	20.4	22.7	28.4	34.0	40.8	40.9	51.1

Gear head ty	/pe: G9A⊡K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	7.30	8.76	9.73	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
	halling lorque	Kgf∙cm	74.5	89.4	99.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Poting torque	N∙m	6.01	7.21	8.02	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
	Rating torque	Kgf∙cm	61.3	73.6	81.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

- $\ \square$ in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torque is 9.80 N•m(100kgf•cm).
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.

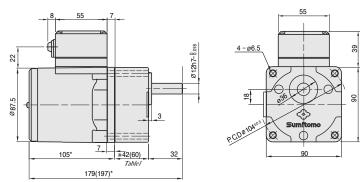
78

• Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

Dimensions

Gear motors

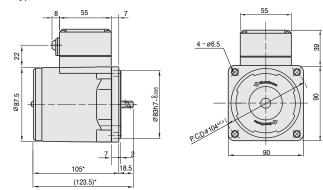
Motor type: A9 M 40□T Gear head type: G9A□K



Length of reversible motor is longer than one of induction motor

Motors

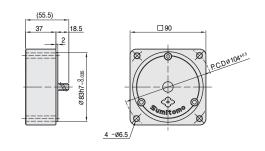
Type : A9 ^M_R 40□T



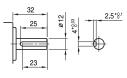
Length of reversible motor is longer than one of induction motor

Intermediate gear head

Type: G9AXH10



Gear head output shaft detail



key size

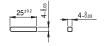


Table1. Gear head length

Gear head size	Length(mm)
G9A3K~G9A18K	42
G9A20K~G9A200K	60

Table2. Weight

iub	oz. Wolgin	
		Weight(kg)
Ind	ustion Motor	2.40
Rev	ersible Motor	2.45
	G9A3K	0.73
ad	∼ G9A18K	0.73
Gear head	G9A20K	1.03
iea	\sim G9A40K	1.00
۳	G9A50K	1.13
	\sim G9A200K	1.13
Inte	rmediate gear hea	d 0.60

40W

□90mm

MEMO

Wiring diagram

Induction motor

A9M40AT	A9M40CT	A9M40DT	A9M	40JT	A9M	40KT
CW	CCW	CW,CCW	CW	CCW	CW	CCW
© Black CW ⑤ Brown (M) ① White ② Gray † Cap	@Black @Gray @White CCW	③Black CW ③ Brown ○ White CCW ② Brown ○ CCW	① Black(U) R @ White(V) S TP ② Gray(W) T TP ① H Earth	© Black(U) S @ White(V) R TP CCW © Gray(W) T TP Barth	© Black(U) R CW © Red(V) S TP © Brown(W) T TP ⊕ Brown(W) T Earth	① Black(U) S ② Red(V) R TP ② Brown(W) T TP ③ b Earth

- Rotation directions are the directions as viewed from the end of the motor shaft.
- The motor must be completely stopped before its operation direction can be switched.
- If you try to switch the rotation direction while the motor is operating, the attempt may be unsuccessful, or may take some time

Reversible motor

A9R40AT A9R40BT A9R40CT	A9R40DT
CW,CCW	CW,CCW
© Black CW ③ H-Earth ① White CCW ② Gray CCW	©Black CW ③⊩Earth OWhite CCW ②Brown CCW

Rotation directions are the directions as viewed from the end of the motor shaft.

Brake Packs

Options



Induction motor

Motor type	Voltage	Capacity	Condenser type	W	Т	Н
	(V)	(μF)		(mm)	(mm)	(mm
A9M40AT	1ph100	10.0	DMF-251006	47	19	28
ASIVI4UA I	1ph110	10.0	DIVIT-231000	47	19	20
A9M40CT	1ph200	2.5	DMF-45255	47	19	28
ASIVI40C1	1ph220	2.5	DIVII -43233	47	19	20
A9M40DT	1ph220	2.0	DMF-45205	38	19	29
ASIVI40D I	1nh240	2.0	DIVII -43203	30	19	23

Reversible motor

Motor type	Voltage	Capacity	Condenser type	W	Т	Н
	(V)	(μF)		(mm)	(mm)	(mm)
A9R40AT	1ph100	15.0	DMF-251506	50	25	40
A31140A1	1ph110	13.0	DIVIT -231300	50	2	40
A9R40BT	1ph115	12.0	DMF-251206	48	21	33
A9R40CT	1ph200	3.5	DMF-45355	48	21	33
A9N40C1	1ph220	3.5	DIVIF-45355	40	21	33
A9R40DT	1ph220	3.0	DMF-45305	47	19	28
ASN40D1	1nh240	3.0	DIVIT-45505	47	19	20

Motors with terminal boxes

Related information

Selection procedure:	Induction.	p. 11,	Reversible.	p. 31
Options:	Induction.	p. 169,	Reversible.	p. 169
Standard specifications:	Induction.	p. 10,	Reversible.	p. 28
Technical information:	Induction.	p. 175,	Reversible.	p. 175

Three phase

Terminal box

Astero

□90mm

60W

Motor specification table

Induction motor

Frame			0	\/=lk====	Г	y Time		Rating t	orque		Starting	g torque	Over-		Condenser
size	Motor Type	Poles	Output	Voltage	Frequency	Time ratiang	Current	Output speed	Tor	que	Starting	y torque	heating pro-	Standard	Condenser
mm sq			(W)	(V)	(Hz)		(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
				1ph100	50		1.26	1300	0.460	4.60	0.340	3.40			
	A9M60AHT	4	60	тритоо	60	Cont.	1.37	1550	0.390	3.90	0.540	3.40	_	_	15.0
				1ph110	60		1.35	1600	0.380	3.80	0.480	4.80			
				1ph200	50		0.65	1300	0.470	4.70	0.385	3.85			
	A9M60CHT	4	60	1011200	60	Cont.	0.70	1550	0.400	4.00	0.000	0.00	_	_	4.0
				1ph220	60		0.68	1600	0.390	3.90	0.480	4.80			
	A9M60DHT	4	60	1ph220	50	Cont.	0.47	1300	0.460	4.60	0.320	3.20	TP	CE	3.5
	7.01010000111	·		1ph240	00	Cont.	0.50	1000	0.490	4.90	0.390	3.90	"	OL	
				3ph200	50	Cont.	0.46	1300	0.460	4.60	0.710	7.10			_
90	A9M60JHT	4	60	Oprizoo	60		0.42	1550 0.390 3.90 0.540 5	5.40	TP	CE -				
	710101000111			3ph220	50	Cont.	0.46	1350	0.440	4.40	0.860 8.60	8.60			_
				Oprizzo	60	Oont.	0.41	1600	0.390	3.90	0.680	6.80			
				3ph380	50	Cont.	0.27	1300	0.460	4.60	0.825	8.25	TP	CE	
				Оргюсос	60		0.24	1550	0.390	3.90	0.650	6.50	"	0_	
				3ph400	50	Cont.	0.29	1300	0.470	4.70	0.930	9.30	TP	CE	
	A9M60KHT	4	60	орптоо	60	001111	0.25	1550	0.400	4.00	0.735	7.35	"	OL.	_
	ACIVIOCITI	,	30	3ph415	50	Cont.	0.27	1350	0.460	4.60	0.995	9.95	TP	CE] _
				3ph415	60	Oont.	0.23	1600	0.380	3.80	0.750	7.50	<u> </u>		
				3ph440	50	Cont.	0.31	1350	0.470	4.70	1.075	10.75	TP	CE	
				орптто	60	33111.	0.25	1600	0.390	3.90	0.840	8.40		-	

Reversible motor

Socket type

Brake Packs

Options

Overview

Frame			Output	Voltage	Frequency			Rating	torque		Startin	a torauo	Over-		Condenser	
size Motor Type		Poles	Output	Voltage	Time ratiang		Current	Output speed	Torque		Starting torque		heating pro-	Standard	Condenser	
mm sq			(W)	(V)	(Hz)	ranang	(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)	
				1ph100	50		1.40	1250	0.480	4.80	0.600	6.00				
	A9R60AHT	4	60	тритоо	60	30Min.	1.60	1550	0.390	3.90	0.000	0.00	TP	CE	25.0	
				1ph110	60		1.60	1600	0.380	3.80	0.700	7.00				
	A9R60BHT	4	60	1ph115	60	30Min.	1.30	1600	0.390	3.90	0.600	6.00	TP	UL/CE	20.0	
90				1ph200	50		0.70	1250	0.480	4.80	0.550	5.50				
	A9R60CHT	4	60	TPHZUU	60	30Min.	0.76	1550	0.390	3.90	0.550	5.50	TΡ	CE	6.0	
				1ph220	60		0.75	1600	0.380	3.80	0.700	7.00				
	A9R60DHT	1	60	1ph220	50	30Min.	0.63	1250	0.480	4.80	0.590	5.90	TP	CE	5. 0	
	ASHOUDHI	4	00	1ph240	30	JOIVIII.	0.67	1230	0.500	5.00	0.630 6.30		IF.	OE	3.0	

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.

Gear head rating torque table

Gear head ty														
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Dating targue	N∙m	1.20	1.43	1.99	2.38	2.99	3.58	3.97	4.47	5.37	6.44	7.15	8.09
	Rating torque	Kgf•cm	12.2	14.6	20.3	24.3	30.4	36.5	40.5	45.6	54.8	65.7	73.0	82.5
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Doting torque	N∙m	0.95	1.15	1.59	1.90	2.38	2.86	3.18	3.58	4.29	5.16	5.72	6.47
	Rating torque	Kaf•cm	9.7	117	16.2	194	24.3	29.2	32.4	36.5	43.8	52.6	58.4	66.0

Gear head ty	Gear head type: G 9 B 🗆 K H													
Frequency	quency Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	9.70	11.66	12.94	16.17	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60
		Kgf cm	99.0	119.0	132.0	165.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Pating targue	N∙m	7.76	9.31	10.39	12.94	15.48	17.35	19.60	19.60	19.60	19.60	19.60	19.60
	Rating torque	Kgf•cm	79.2	95.0	106.0	132.0	158.0	177.0	200.0	200.0	200.0	200.0	200.0	200.0

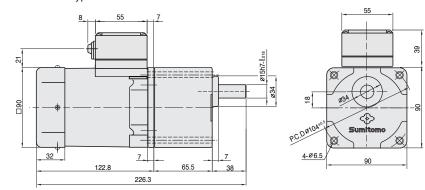
82

- ☐ in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torgue is 19.60 N•m(200kgf•cm)
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the
- opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

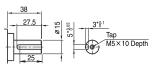
Dimensions

Gear motors

Motor type: A9 № 60 □ T Gear head type: G9B □ KH



Gear head output shaft detail



key size



Motors

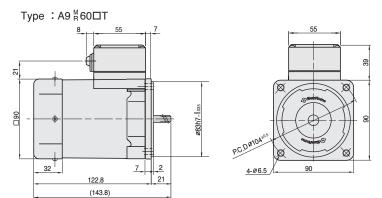
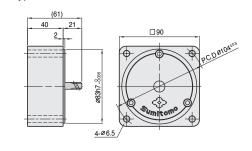


Table1. Weight

		_	Weight(kg)			
Indu	ustion	Motor	2.55			
Rev	ersib	le Motor	2.60			
		G9B3KH	1.21			
	~	G9B10KH	1.21			
ad		G9B12.5KH	1.30			
ļ.	~	G9B20KH	1.00			
Gear head		G9B25KH	1.40			
മ	~	G9B60KH	1.40			
		G9B75KH	1.45			
	~	G9B200KH	1.40			
Intermediate gear head 0.65						

Intermediate gear head

Type: G9AXH10



MEMO

Wiring diagram

Induction motor

A9M60AHT	A9M60CHT	A9M60DHT	A9M6	60JHT	A9M6	60KHT
CW	CCW	CW,CCW	CW	CCW	CW	CCW
© Black © Brown White © Gray † Cap	@Gray @Mhite COW @Brown T Cap	®Black CW ⊕ Earth ⊕ White CCW ®Brown CCW	© Black(U) R CW @ White(V) S TP @ Gray(W) T TP @ H	© Black(U) S @ White(V) R TP CCW @ Gray(W) T TP	① Black(U) R CW ② Red(V) S TP ③ Brown(W) T TP ③ Brown(W) T	① Black(U) S ② Red(V) R TP CCW ③ Brown(W) T TP ③ Brown(W) T

- Rotation directions are the directions as viewed from the end of the motor shaft.
- The motor must be completely stopped before its operation direction can be switched.
- If you try to switch the rotation direction while the motor is operating, the attempt may be unsuccessful,

Reversible motor

A9R60AHT A9R60BHT A9R60CHT	A9R60DHT
CW,CCW	CW,CCW
®Black CW ⊕ Earth ⊕ White CCW Gray CCW © Gray CCW	(S) Black (W) (O) (H) Earth (W) (W) (H) (CW) (CCW) (S) Brown (CCW)

Brake Packs

Options

Induction motor

Motor type	Voltage	Capacity	Condenser type	W	Т	Н
	(V)	(μF)	урс	(mm)	(mm)	(mm)
A9M60AHT	1ph100	15.0	DMF-251506	50	25	40
ASIVIOUALLI	1ph110	13.0	DIVII -251500	50	25	1
A9M60CHT	1ph200	4.0	DMF-45405	48	21	33
ASIMBUCHT	1ph220	4.0	DIVII -45405	+0	۱ ک	5
A9M60DHT	1ph220	3.5	DMF-45355	48	21	33
ASIVIOUDITI	1ph240	5.5	DIVII -43000	40	21	55

Reversible motor

Motor type	11		Condenser type	W	Τ	Н	
	(V)	(μF)		(mm)	(mm)	(mm)	
A9R60AHT	1ph100	25.0	DMF-252506	58	36	39	
ASHOUAHT	1ph110	25.0	DIVII -232300	50	30	55	
A9R60BHT	1ph115	20.0	DMF-252006	58	36	39	
A9R60CHT	1ph200	6.0	DMF-45605	50	25	40	
A311000111	1ph220	0.0	DWI 43003	50	23	70	
A9R60DHT	1ph220	5.0	DMF-45505	50	25	40	
A9R60DH1	1nh240	5.0	DIVII -43303	50	23	40	

Motors with terminal boxes

Related information

Selection procedure:	Induction.	p. 11,	Reversible.	p. 31
Options:	Induction.	p. 169,	Reversible.	p. 169
Standard specifications:	Induction.	p. 10,	Reversible.	p. 28
Technical information:	Induction.	p. 175,	Reversible.	p. 175

Motor specification table

Induction

Brake Packs

Options

Overview

Induction motor

Condenser Output Starting torque Time Current Output speed Torque Motor Type size mm sq (W) (N·m) (Kgf·cm) (N·m) (Kgf·cm) (μF) (V) (Hz) (A) 0.690 6.90 0.500 5.00 1ph100 A9M90AHT 90 60 25.0 2.00 1550 0.580 5.80 1ph110 60 2.00 1600 0.560 5.60 0.570 5.70 50 0.90 1300 0.690 6.90 0.500 5.00 1ph200 A9M90CHT 60 1.00 1550 0.580 5.80 1ph220 1.00 0.560 5.60 0.570 5.70 60 1600 1ph220 0.68 0.690 6.90 0.480 4.80 90 A9M90DHT CE 5. 0 50 1300 1ph240 0.72 0.520 5.20 0.720 7.20 0.63 1300 0.690 6.90 1.010 10.10 3ph200 60 0.60 7.60 1550 0.600 6.00 0.760 A9M90JHT TP CE 50 0.63 1350 0.680 6.80 1.250 12.50 3ph220 60 0.60 1600 0.570 5.70 0.960 9.60 10.55 0.32 1300 6.80 1.055 50 0.680 CE 3ph380 60 0.30 1550 0.570 5.70 0.820 8.20 50 0.35 1300 0.690 6.90 1.170 11.70 TP CE 3ph400 5.80 0.890 0.32 1550 0.580 60 8.90 A9M90KHT CE 3ph415 60 0.29 1600 5.70 0.950 9.50 0.570 50 0.35 1350 0.690 6.90 1.330 13.30 60 0.31 1600 0.580 5.80 1.050 10.50

Motors with terminal boxes

Reversible motor

Frame			Output	Voltage	Eroguonov			Rating	torque		Starting torque		Over-		Condenser
size	Motor Type	Poles	Output	Voltage	riequency	ratiang	Current	Current Output speed		rque	Starting torque		heating pro-	Standard	Condenser
mm sq			(W)	(V)	(Hz)			(A)	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection	
				1ph100	50		2.10	1200	0.750	7.50	0.650	6.50			
	A9R90AHT	4	90	тритоо	60	30Min.	2.25	1500	0.600	6.00	0.650	6.50	TP	CE	30.0
				1ph110	60		2.25	1550	0.580	5.80	0.850	8.50			
	A9R90BHT	4	90	1ph115	60	30Min.	1.80	1550	0.600	6.00	0.800	8.00	TP	UL/CE	25.0
90				1ph200	50		0.90	1200	0.750	7.50	0.650	6.50			
	A9R90CHT	4	90	TPHZ00	60	30Min.	1.00	1500	0.600	6.00	0.650	6.50	TP	CE	7.0
				1ph220	60		1.00	1550	0.580	5.80	0.850	8.50			
	A9R90DHT	AODOODHT 4	4 90 1	1ph220 1ph240	- 50 130Min i	0.82	0.720	7.20	0.650	6.50	TP	CE	6.0		
		4				30Min.	0.86	1230	0.740	7.40	0.800	8.00	IF	OL.	0.0

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.

Gear head ty	/pe: G9B⊟KH													
Frequency	quency Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	1.78	2.15	2.98	3.58	4.47	5.36	5.96	6.70	8.05	9.66	10.78	12.15
		Kgf∙cm	18.2	21.9	30.4	36.5	45.6	54.7	60.8	68.4	82.1	98.6	110.0	124.0
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Rating torque	N∙m	1.43	1.72	2.38	2.86	3.58	4.68	4.76	5.37	6.44	7.72	8.59	9.70
		Kgf⋅cm	14.6	17.5	24.3	29.2	36.5	43.7	48.6	54.8	65.7	78.8	87.6	99.0

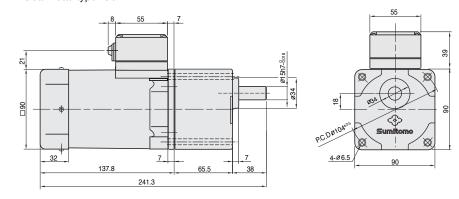
Gear head ty	/pe: G9B⊡KH													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Doting torque	N∙m	14.60	17.44	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
	Rating torque	Kgf∙cm	149.0	178.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Rating torque	N∙m	11.66	14.01	15.48	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
		Kgf⋅cm	119.0	143.0	158.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0

- $\hfill\square$ in gear head type names indicates the reduction ratio
- · Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

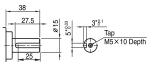
Dimensions

Gear motors

Motor type: A9 ^M_R90□HT Gear head type: G9B□KH



Gear head output shaft detail

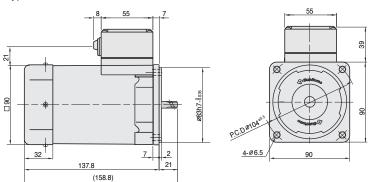


key size



Motor

Type: A9 M 90 ☐ HT



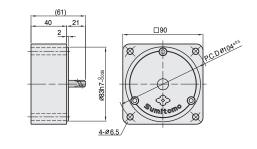
87

Table1. Weight

			Weight(kg)				
	Indu	ction motor	3.05				
	Reve	ersible motor	3.10				
		G9B3KH	1.21				
	~	G9B10KH	1.21				
ad		G9B12.5KH	1.30				
he	~	G9B20KH	1.50				
Gear head		G9B25KH	1.40				
Ű	~	G9B60KH	1.40				
		G9B75KH	1.45				
	~	G9B200KH	1.43				
Inte	Intermediate gear head 0.65						
			•				

Intermediate gear head

Type: G9BXH10H



90W

□90mm

Motors with terminal boxes

Wiring diagram

مر ما مرابات

Induction motor

A9M90AHT	A9M90CHT	A9M90DHT	A9M9	90JHT	A9M9	0KHT
CW	CCW	CW,CCW	CW	CCW	CW	CCW
©Black ®Brown ©White ©Gray † Cap	@Gray @Gray @Brown Cap	③ Black CW → Earth → White CCW → Cap. CCW ⊕ Brown, · · · CCW	© Black(U) R CW White(V) S TP © Gray(W) T FP O H Earth	⊕ Black(U) S White(V) R TP CCW ⊕ Gray(W) T TP ⊕ ⊨ Earth	⊕ Black(U) R CW ⊕ Red(V) S TP ⊕ Brown(W) T TP ⊕ Brath	③Black(U) S ②Red(V) R TP CCW ③Brown(W) T TP ⑤Brown(W) T FF Farth

- Rotation directions are the directions as viewed from the end of the motor shaft.
- The motor must be completely stopped before its operation direction can be switched.
 If you try to switch the rotation direction while the motor is operating, the attempt may be unsuccessful, or may take some time

Reversible motor

A9R90AHT A9R90BHT A9R90CHT	A9R90DHT
CW,CCW	CW,CCW
③ Black CW	@Black CW @#Earth @White CW #Cap CCW @Brown #CCW

Rotation directions are the directions as viewed from the end of the motor shaft.

Condense

Fig1

Brake Packs

Options





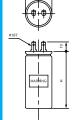
r	h	п	C.	ti	\cap	n	n	าด	to	۱r
ı	ıu	u	v	u	v	11		ıv	ı	"

Motor type	Voltage	Capacity	Capacity Condenser type		Т	Н
	(V)	(μF)		(mm)	(mm)	(mm)
A9M90AHT	1ph100	25.0 DM	DMF-252506	58	36	39
ASIVISUALI	1ph110	25.0	DIVII -232300	50	30	55
A9M90CHT 1ph200		6.0	6.0 DMF-45605		25	40
49101900011	1ph220	0.0	DIVII -43003	50	2	40
A9M90DHT	1ph220	5.0	DMF-45505	50	25	40
ASIVISODITI	1ph240	3.0	DIVII -43303	30	23	40

Reversible motor

Motor type	Voltage	Capacity	Condenser type	W	Т	Τ
	(V)	(μF)			(mm)	(mm)
A9R90AHT	1ph100	30.0	DAL-253006 *	φ 40		65
ASTISOATTI	1ph110	30.0	DAL-233006	ΨΨΟ		3
A9R90BHT	1ph115	25.0	DMF-252506	58	36	39
A9R90CHT	1ph200	7.0	DMF-45705	50	25	40
ASHSOOM	1ph220		DIVII -43703	50	23	40
A9R90DHT	1ph220	6.0	DMF-45605	50	25	40
ASINSUDITI	1nh240	0.0	DIVII -43003	50	23	40

*Refor to Fig2



Related information

Sele	ction procedure:	Induction.	p.	11,	Reversible.	p	o. 31
Optio	ons:	Induction.	p.	169,	Reversible.	p.	169
Stan	dard specifications:	Induction.	р.	10,	Reversible.	p.	28
Tech	nical information:	Induction.	p.	175,	Reversible.	p.	175

88

Speed controllers



Overview of speed controllers	P.90
Unit-type speed controllers	P.95
Socket-type speed control motors	P.113

Speed controllers

Dovorcihl

Electromagnetic brakes

> Termin boxe

peed controller (Overview)

Unit type

Speed controller

Socket type

controll (Reversible

Brake Packs

Options

Technical Information

Overviev

25\

40V

60W

90W

Oversions

Overview of speed controllers (Characteristics)

1. Speed controllers characteristics

Speed control switch makes it easy to regulate wide range of speeds (50 Hz: 90 to 1,400 r/min, 60 Hz: 90 to 1,700 r/min).

Speed controllers come with a built-in TG (tachogenerator), and are designed to enable feedback control. The motor speed won't change even if the power frequency changes.

On speed control motors with electromagnetic brakes, the instant stop function and electromagnetic brake are both driven by the controller, enabling a powerful braking force. Since the brakes are de-energizing electromagnetic brakes, the load is stored when the power is shut off.

2. Operation characteristics

Don't let the motor casing surface temperature of a speed control motor exceed 90°C during operation.

Fig1. shows the N-T characteristic of a speed control motor, with operation limit lines. The operation limit lines indicate the torque limit (operation limit torque) for continuous operation (30-minute operation for reversible motors). This limit has been set to keep the motor casing temperature below 90°C. The formula below provides a rough estimate of temperature.

 $T_M \le (T_{1200} - T_{90}) \times (N_L - 90)/1,110 + T_{90}$

T_M : Equivalent transmitted torque converted to motor shaft torque (N·m)

NL : Motor's minimum speed (r/min)

 $\begin{array}{lll} T_{1200} & : & \text{Operation limit torque at 1,200 RPM (N·m)} \\ T_{90} & : & \text{Operation limit torque at 90 RPM (N·m)} \end{array}$

Note that when the motor is operated at speed settings, the motor speed decreases slightly when the load increases.

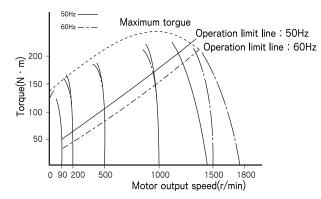


Fig 1 . N-T characteristic of a speed control motors

3. Principle of speed controllers

Speed control motors are comprised of the closed loop shown in Fig2. Voltage ① set by the speed control switch is compared to voltage ② detected by the tachogenerator, and the power voltage ③ is controlled (primary voltage control) to eliminate the voltage difference, maintaining the motor speed ④ at the set value.

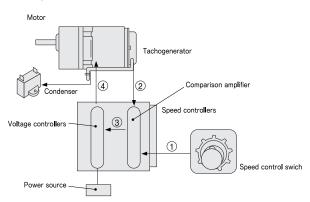
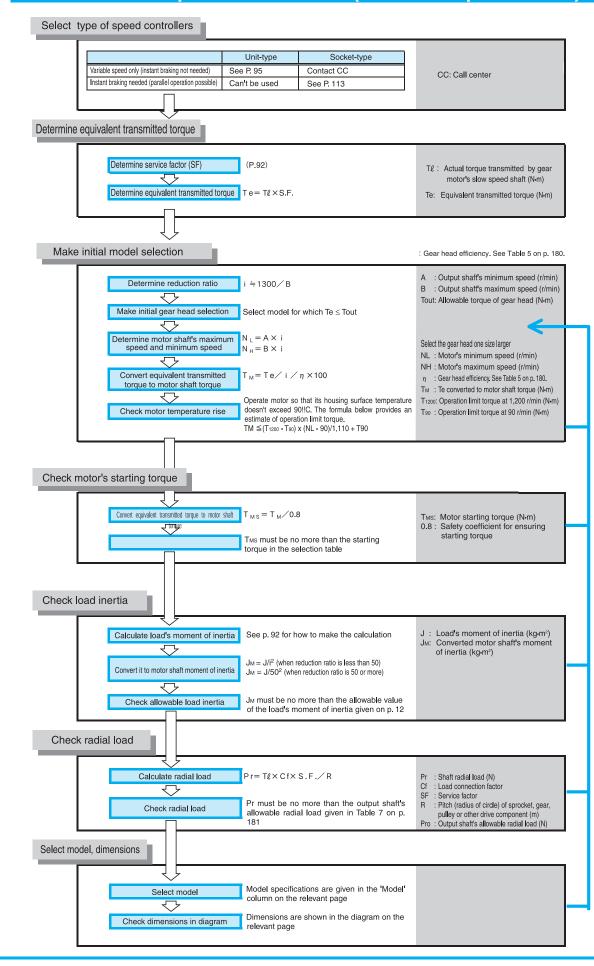


Fig2. Principle of speed controllers

Overview of speed controllers(Selection procedure)



Speed controllers

Reversible





Overview of speed controllers (Moment of inertia)

Calculation of moment of inertia J

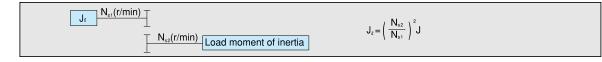
(1) Moment of inertia of rotating motion

Rotating center me	eets gravity center	Rotating center dosen't	meets gravity center
D(m) M(kg)	$J = \frac{1}{8} MD^2 (kg \cdot m^2)$	D(m) R(m) M(kg)	$J = \frac{M}{4} \left(\frac{1}{2} D^2 + 4R^2 \right) \left(kg \cdot m^2 \right)$
D(m) d(m) M(kg)	$J = \frac{1}{8} M (D^2 + d^2) \left(kg \cdot m^2 \right)$	a (m) R(m) M(kg)	$J = \frac{M}{4} \left(\frac{a^2 + b^2}{3} + 4R^2 \right) (kg \cdot m^2)$
a (m) M(kg)	$J = \frac{1}{12} M (a^2 + b^2) (kg \cdot m^2)$	c (m) L (m) M(kg)	$J = \frac{1}{12} M (4L^2 + C^2) [kg \cdot m^2]$

(2) Moment of inertia of rectilinear motion

General motion	V (m/min) D (m) Ns (r/min)	$J = \frac{M}{4} \left(\frac{V}{\pi \cdot Ns} \right)^2 = \frac{M}{4} D^2$	(kg·m²)
Horizontal motion by conveyor	M ₃ (kg) V (m/min) D(m) M ₁ (kg) M ₂ (kg) N ₃ (kg) V (m/min) D(m) M ₄ (kg)	$J = \frac{M}{4} \left(\frac{M_1 + M_2}{2} + M_3 + M_4 \right) \times D^2$	(kg·m²)
Horizontal motion by screw	M (kg) Ns (r/min) Read : P(m/rev)	$J = \frac{M}{4} \left(\frac{V}{\pi \cdot Ns} \right)^2 = \frac{M}{4} \left(\frac{P}{\pi} \right)^2$	(kg·m²)
Vertical motion by winch	Ns (r/min) M ₂ (kg) V (m/min)	$J = \frac{M_1 D^2}{4} + \frac{1}{8} M_2 D^2$	(kg•m²)

(3) Calculation of moment of inertia at defferent rotating speeds



Overview of speed controllers (Service factor)

Service factor (S. F.)

• Service factors are designed for 8 hours of per day with a uniform load.

Table 2. Service factor (S. F.)

Table 2. Control latter (Citt)						
Load Operation time condition	Up to 8 hours/day	Applications				
Uniform load	1	Continuous load in one direction				
Moderate shock load	1.5	Frequent changes of motor direction				
Shock load	2	Instant changes of motor direction/stops				

Shaft radial load and thrust load

- Calculate the shaft radial load when attaching a chain sprocket or pulley.
- The shaft radial load is calculated by the formula below. It must be smaller than the allowable radial load of the output shaft given table 7 on P.181.

Shaft radial load (Pr) =
$$\frac{P\ell \times Cf \times S.F.}{R}$$
[N]

Pℓ: Actual torque transmitted by slow speed shaft (N·m)

Cf: Load connection factor (see Table 3)

R: Pitch (radius of circle) of sprocket, gear, pulley or other drive component (m)

Table 3. Load connection factor (Cf)

Type of connection	Cf
Chain	1
Gear	1.25
Pulley	1.5

Load moment of inertia

• The converted motor shaft load moment of inertia is calculated by the following formula:

i : Reduction ratio

 $J_M = J/i^2$ (when reduction ratio is less than 50) J: Load moment of inertia (kg·m²)

J_M = J/50² (when reduction ratio is 50 or more) J_M: Converted motor shaft load moment of inertia (kg·m²)

• Note that if the motor is used with a load moment of inertia exceeding the corresponding allowable valbe(given table4.)gears and bearings will quickly become damaged.

Table 4. Allowable values for converted motor shaft load moment of inertia (10⁻⁴ kg·m²)

Motor size	Motor power (W)	1ph
A6□06	6	0.05
A7□15	15	0.15
A8□25	25	0.30
A9□40	40	0.75
A9□60	60	1.00
A9□90	90	1.00

☐in motor size indicates motor type U : Unit type

HM : Socket type Induction

HR : Socket type Reversible HR : Socket type W/Electromagnetic brake

MEMO

Unit-type speed control motors



*Gear head and induction motor are sold separately.

Unit-type speed control motors

- Product sets consisting of special motors, and unit-type speed controllers that can adjust the motor speed
- Controllers and special motors can be easily wired using special wiring.
- Speed range: 50 Hz: 90 to 1,400 r/min 60 Hz: 90 to 1,700 r/min
- Motors are induction motors with built-in tachogenerators (TG).
- Motors stop naturally using load torque.
 Motors can't be stopped instantly.
- Motor must be completely stopped before motor operation direction can be switched.
- Time rating: Continuous
- Built-in condenser (except for than 60/90 W, 100 V class products).



95

Unit-type speed control motors **Induction motors**

Single phase





Overview

Inducti

Electromagnet

boxe

controller (Overview)

Unit type (Overview

Socket typ

(Inductio

Speed contro (Electro-magnetic b

Ontio

Techni Informati

Overv

15'

40\

60W

90W

Overview of unit-type speed control motors (Specifications)

	able 1. Unit-typ	pe speed control motors standard specifications		
	Item	Induction motors Single-phase motor		
	Capacity range	6W~90W 4poles		
		$6W{\sim}40W$: IP23 Totally enclosed non ventilated $60W{\sim}$: IP20 Totally enclosed fan cooled type		
	Power source	100V 50/60Hz、110V 60Hz 200V 50/60Hz、220V 60Hz 220~240V 50Hz		
	Insulation	CE Marking, Class E(120℃)		
tor	Time rating	Continuous		
Motor	Starting method	Condenser running		
		6W~40W: Motor 3 wires UL Style 3266 20AWG, TG 2 wires UL Style 1007 22AWG		
	Lead wires (with connector)	60W~: Motor 3 wires UL Style 3266 20AWG, TG 2 wires UL Style 1007 22AWG, Fan 2 wires UL Style 3266 20AWG		
	Standard CE Marking (Low voltage direction)			
	nsulation At least 100MΩ when measured with a 500V DC meager between the motor coil and case at normal temperature and humidity after motor has reached rated torque.			
	Insulation withstand voltage Normal function when a 1500V,50/60Hz current is applied between the motor coil and case for 1 m at normal temperature and humidity after the motor has reached rated torque.			
	Temperature rise	The temperature of motor surface should be no more than 90°C when measured by the pre scribed method after the motor has reached rated torque.		
	Overheating protector (TP)	Built in thermal protect (auto restore type) Release:120±5°C, Restore:77±5°C		
oller	Insulation resistance	At least $100 M\Omega$ when measured with a 500V DC meager between Input and FG terminals.		
Controller	Withstand voltage	1500V,50/60Hz current is applied between Input and FG terminals for 1 minute.		
Gear	Lubrication method	Grease lubrication. Grease is loaded at shipment.		
Paint	Color	Astero silver		
	Locations	Indoors (Minimal dust and humidity)		
ditions	Temperature	-10~40℃		
Ambient conditions	Humidity	Under 85%		
Ambie	Elevation	Under 1,000m		
	Atmosphere	Well ventilated location, free of corrosive gases, explosive gases, vapors and dust.		

Overview of unit-type speed control motors (Characteristics)

1. Characteristics of unit-type speed controllers

Unit-type speed controllers are a unit product containing a controller and motor. The controller and motor can be connected in a single operation, without the need for separate connections. The motor speed is easily adjusted using the externally attached speed volume. Components such as the speed control circuit, motor condenser and speed volume are attached to the controller (some models have built-in condenser). Unit-type speed controllers have no instant stop function. The separately-sold extension cords can be used to control motor speed with the motor and controller up to 2.0 meters apart.

2. How to use

1) Operation

The controller and motor lead wires are connected by connectors. The plug cord connects to the AC power supply. At the time of factory shipment, the controller is connected so that the motor shaft turns clockwise (as seen from the motor's output shaft) when the controller's RUN/STOP switch is set to RUN.

2) Speed adjustment

The speed is adjusted using the speed volume on the controller. The motor speed can be adjusted between 90 and 1,400 RPM for 50 Hz operation, and between 90 and 1,700 RPM for 60 Hz operation.

3) Stop

Setting the controller's RUN/STOP switch to STOP stops the motor. Since this switch doesn't turn the power ON/OFF, a separate power switch should be installed and turned OFF to stop the motor for extended periods.

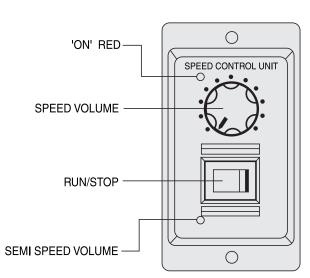


Fig 1. Front view of unit-type speed controllers

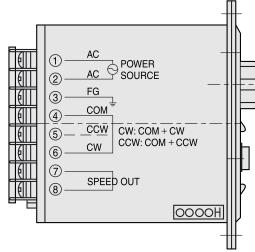


Fig 2. Side view of unit-type speed controllers

Unit-type speed control motors

Induction motors

Single phase





Induction

Electromagno brak

Speed

type

Socket ty

control (Induction

Speed contro ectro-magnetic bra

Brake Packs

Optio

Informat

15\

40V

60W

90W

Overview of unit-type speed control motors (Characteristics)

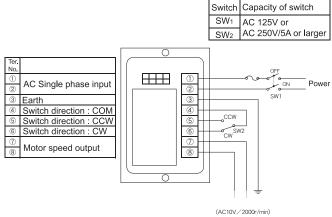
4) Switching the operation direction (Fig 3) Connect the power supply to AC ①and AC ②. Always turn the power OFF before making the connections.

Continuous single-direction operation
 Clockwise operation: Short the COM 4 and CW 6
 terminals.
 Counterclockwise operation: Short the COM 4 and
 CCW 5 terminals.

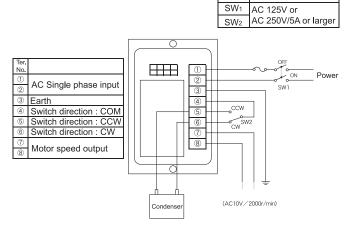
• Switching the operation direction

To switch the operation direction, install the power switch (SW1) and forward/reverse operation switch (SW2) as shown in Fig3. You can't switch between forward and reverse operation instantly. Turn off the power switch (SW1), then operate the forward/reverse operation switch (SW2) after the motor has stopped completely.

1.6~40W Class100 & 200V 60~90W Class 200V



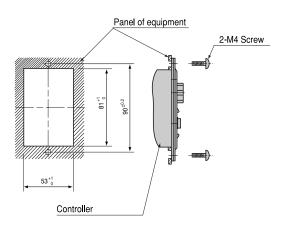
2.60~90W Class100V



Switch Capacity of switch

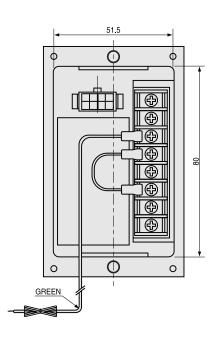
Fig 3. Rear view of unit-type speed controllers

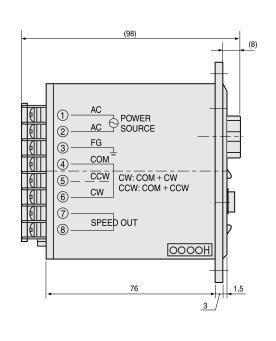
3. Attaching the unit

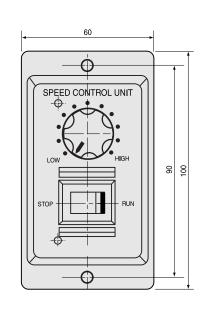


Overview of unit-type speed control motors (Dimensions)

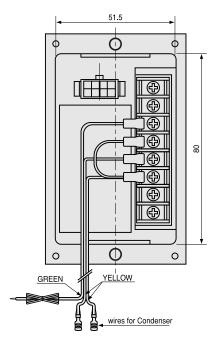
4. Dimensions
6~40W Class 100 & 200V
60~90W Class 200V
(International condenser type)

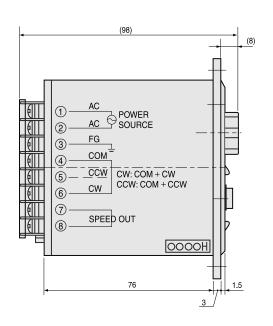


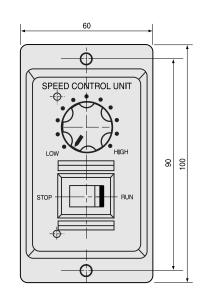




60~90W Class 200V (External condenser type)







□60mm

(Hz)

60

60

50

60

50

1ph100

1ph110

ph220

1ph220

90-1400

90-1700

90-1400

90-1700

90-1700

90-1400

300

40

37

1.52

1.24

2.6

50

1.72

17.5

1.39

Intermediate gear heads are for use with gear heads having a reduction ratio of 30 or more. When an intermediate gear head is used, the rating torque is 1.96 N·m (20 kgf·cm) for

0.13 | 0.15 | 0.21 | 0.26

600 500 360 300

0.10 0.13 0.17 0.21

1.5

41

1.36

1.11

11.3 12.6

Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.

90-1700

0.045

0.050

0.045

0.050

0.065

7.5

200

3.2

60

30

0.31 0.38

240 200

0.26 0.30

2.06 | 2.57

21.0 26.2

1.67 2.09

166

3.9

75

20

24

0.45

0.45

0.50

0.55

0.65

0.028

0.028

0.029

0.50 0.030

0.28

0.30

0.28

0.29

10

150

4.3

90

16

2.94

30.0

20

2.50

180

0.42 0.53

0.34 0.43

5.4

144

100

15

2.94

30.0

18

2.78

Unit-type speed control motors

(N·m) (Kgf·cm

0.050 0.50

0.045 0.45

15

100

6.4

2.94

30.0

15

2.94

0.63 | 0.76 |

120 100

0.51 0.62

18

7.7

120 | 150 | 180 | 200

2.94 | 2.94 | 2.94

30.0 | 30.0 | 30.0

2.94 2.94

10

2.94

7.7

90 72

0.62 0.76

0.40

0.40

0.50

0.040

0.040

0.050

(μF)

2.5

0.7

0.7

CE

CE

ZP

Astero

□60mm

6W

Motor specification table

A6U06A

A6U06C

A6U06D

Gear head type: G6 D

Gear head type: G6 D

Frequency

50Hz

60Hz

Frequency

50Hz

60Hz

Reduction ratio

Ouput speed

Rating torque

Ouput speed

Rating torque

Reduction ratio

Ouput speed

Rating torque

Ouput speed

Rating torque

☐ in gear head type names indicates the reduction ratio

CAU06A

CAU06C

CAU06D

To ensure that you order the correct model, check the voltage in use before ordering. All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Kgf⋅cm

r/min

N∙m

r/min

N∙m

r/min

Kgf⋅cm

a reduction ratio between 30 and 40, and 2.94 N·m (30 kgf·cm) for a reduction ratio of 50 or more

1.3

50

1.14

0.92

9.4

Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

Frame size mm so

Socket type

Brake Packs

Options

Technical Information

Overview

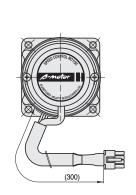
6W

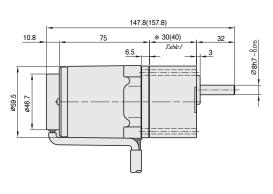
Induction motors

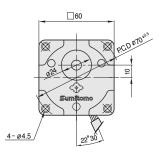
Dimensions

Gear motors

Motor type: A6U06□ Gear head type: G6□D







Gear head output shaft detail

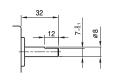


Table1. Gear head length

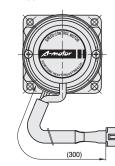
	_
Gear head size	Length(mm)
G63D~G618D	30
G620D~G6200D	40

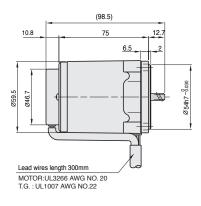
Table2. Weight

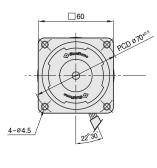
			Weight(kg)
		Motor	0.76
		G63D	0.24
gg	~	G618D	0.24
Gear head		G620D	0.30
ar	?	G640D	0.30
Ğ		G650D	0.33
	?	G6200D	0.55
Inte	rme	diate gear head	0.18

Motor

Type: G6XH10

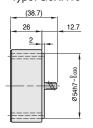


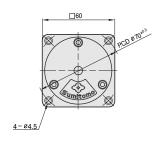




Intermediate gear head

Type: G6XH10





101

Related information

Selection procedure:	p. 91
Options: Induction. p	. 169
Standard specifications:	p. 96

Technical information: p. 175

Motor specification table

Brake Packs

Options

Overview

15W

			Output	Valtage	Eroguopou		Spood range		Allowable	e torque		Ctortin	a torquo	Over-		Condenser		
otor Type	Controller Type	Poles	Output	voltage	riequency	HILLIG	Speed range	At 120	00r/min	At 90	r/min		,			Condenser		
			(W)	(V)	(Hz)		(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)		
				155100	50		90-1400	0.100	1.00	0.030	0.30	0.070	0.70					
7U15A	CAU15A	4	15	тріттоо	60	Cont.	90-1700	0.080	0.80	0.030	0.30	0.079	0.79	TP	CE	5.0		
				1ph110	60		90-1700	0.125	1.25	0.045	0.45	0.095	0.95					
				155200	50		90-1400	0.100	1.00	0.020	0.20	0.080	0.80					
7U15C	CAU15C	4	15	1011200	60	Cont.	90-1700	0.080	0.80	0.030	0.30	0.079	0.79	TP	CE	1.2		
				1ph220	60		90-1700	0.125	1.25	0.045	0.45	0.095	0.95					
71.115D	CALIISD	4	15	1ph220	50	Cont	90-1400	0.100	1.00	0.025	0.005		0.05	0.070	0.70	ΤD	7	0.9
170130	CACISD	+	15	1ph240	50	COIII.	30-1400	0.120	1.20	0.035	0.35	0.085	0.85	111"	OL.	0. 9		
.7	7U15A	7U15A CAU15A 7U15C CAU15C	7U15A CAU15A 4 7U15C CAU15C 4	7U15A CAU15A 4 15 7U15C CAU15C 4 15	7U15A CAU15A 4 15 1ph100 1ph200 1ph220 7U15D CAU15D 4 15 1ph220	7U15A CAU15A 4 15 1ph200 60 7U15D CAU15D 4 15 1ph220 60 7U15D CAU15D 4 15 1ph220 50	7U15A CAU15A 4 15 1ph100 50 Cont. 7U15C CAU15C 4 15 1ph200 60 Cont. 7U15D CAU15D 4 15 1ph200 50 Cont.	7U15A CAU15A 4 15 1ph200 60 Cont. 90-1700 90-1700 7U15D CAU15D 4 15 1ph220 60 Cont. 90-1700 90-1700 7U15D CAU15D 4 15 1ph220 60 Cont. 90-1700 90-1700 90-1700 90-1700 90-1700 90-1700	TU15A CAU15A 4 15 1ph220 50 Cont. (r/min) At 12C (r/min) (N·m) 90-1700 0.125 (IIIII) 4 15 1ph220 50 Cont. (r/min) 90-1400 0.100 90-1700 0.080 90-1700 0.125 (IIIIII) At 12C (r/min) (N·m) 90-1700 0.080 90-1700 0.125 (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Tune Controller Type Poles Output Voltage Frequency Time ratiang (r/min) (N·m) (Kgf·cm) (Vmin) (Vmin)	Tutor Type Controller Type Poles Output Voltage Frequency Time ratiang Time ratiang Time	Time ration Controller Type Controller Type Poles Controller Type Contro	Tune Controller Type Poles Output Voltage Frequency Time ratiang (r/min) (N·m) (Kgf·cm) (N·m) (N·m) (Kgf·cm) (N·m) (Kgf·cm) (N·m) (N·m) (Kgf·cm) (N·m) (Kgf·cm) (N·m) (Kgf·cm) (N·m) (N·m) (Kgf·cm) (N·m) (Kgf·cm) (N·m) (Kgf·cm) (N·m) (Kgf·cm) (N·m) (N·m) (Kgf·cm) (N·m) (N·m) (Kgf·cm) (N·m) (N·m) (N·m) (Kgf·cm) (N·m) (N·m)	Tutor Type Controller Type Poles Output Voltage Frequency Time rationg W) (V) (Hz) (I/min) (N·m) (Kgf·cm) (N·m) (N·	Tune Controller Type Poles Controller Type Poles Controller Type Poles Controller Type Controller Type Poles Controller Type Control	Tutor Type Controller Type Poles Output Voltage Frequency Time ratiang (r/min) (N · m) (Kgf·cm) (N · m) (N		

- To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head t	ype: G7⊡K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N⋅m	0.31	0.38	0.53	0.64	0.79	0.95	1.06	1.32	1.59	1.90	1.90	2.37
	rialing lorque	Kgf⋅cm	3.2	3.9	5.4	6.5	8.1	9.7	10.8	13.5	16.2	19.4	19.4	24.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Poting torque	N⋅m	0.29	0.35	0.50	0.60	0.75	0.89	0.99	1.25	1.49	1.79	1.79	2.24
	Rating torque	Kgf⋅cm	3.0	3.6	5.1	6.1	7.6	9.1	10.1	12.7	15.2	18.2	18.2	22.8

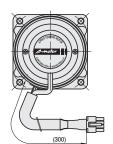
Gear head ty	ype: G7∐K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	2.85	3.42	3.81	4.28	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90
	riating torque	Kgf∙cm	29.1	34.9	38.8	43.6	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Pating torque	N∙m	2.68	3.22	3.58	4.02	4.83	4.90	4.90	4.90	4.90	4.90	4.90	4.90
	nating torque	Rating torque Kgf·cm		32.8	36.5	41.0	49.2	50.0	50.0	50.0	50.0	50.0	50.0	50.0

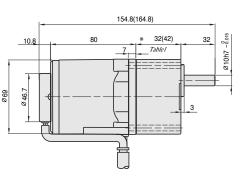
- $\hfill \square$ in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 3.92 N·m (40 kgf·cm) for
- a reduction ratio between 25 and 40, and 4.90 N·m (50 kgf·cm) for a reduction ratio of 50 or more. Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- · Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

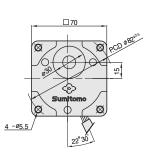
Dimensions

Gear motors

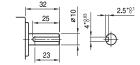
Motor type: A7U15□ Gear head type: G7□K







Gear head output shaft detail key size



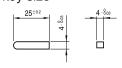


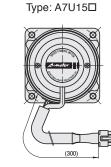
Table1. Gear head length

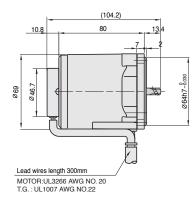
Gear head size	Length(mm)
G73K~G718K	32
G720K~G7200K	42

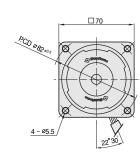
Table2. Weight

			Weight(kg)
		Motor	1.12
		G73K	0.38
рg	~	G718K	0.50
Gear head		G720K	0.47
ar	~	G740K	0.47
Ge		G750K	0.52
	~	G7200K	0.52
Inte	rme	diate gear head	0.32
		·	



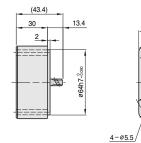


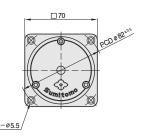




Intermediate gear head

Type: G7XH10





Related information

Selection procedure: p. 91 Options: Induction. p. 169 Standard specifications: p. 96

Technical information: p. 175

□80mm

Unit-type speed control motors

Induction motors







□80mm

25W

Motor specification table

Induction

Brake Packs

Options

Overview

Frame				Output	Voltage	Eroguonou		Speed range		Allowable	e torque		Stortin	g torque	Over-		Condenser
size		Controller Type	Poles	Output	voltage	riequency	Time ratiang	opeca range	At 120	00r/min	At 90	r/min	Startin	y lorque	heating pro-	Standard	Condenser
mm sq				(W)	(V)	(Hz)		(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
					1ph100	50		90-1400	0.160	1.60	0.055	0.55	0.100	1.00			
	A8U25A	CAU25A	4	25	тритоо	60	Cont.	90-1700	0.150	1.50	0.055	0.55	0.104	1.04	TP	CE	6.0
					1ph110	60		90-1700	0.200	2.00	0.050	0.50	0.122	1.22			
80					1ph200	50		90-1400	0.160	1.60	0.055	٥٠٠	0.100	1.00			
80	A8U25C	CAU25C	4	25	TPHZUU	60	Cont.	90-1700	0.150	1.50	0.055	0.55	0.104	1.04	TP	CE	1.5
					1ph220	60		90-1700	0.200	2.00	0.050	0.50	0.122	1.22			
	A8U25D	CAU25D	1	25	1ph220	50	Cont.	90-1400	0.190	1.90	0.047	0.47	0.135	1.35	ΤP	CE	1.5
	A0023D	CAUZSD	+	25	1ph240	50	COIII.	30-1400	0.200	2.00	0.047	0.47	0.162	1.62	115	OL.	1.5

- To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head ty	ype: G8⊡K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Doting torque	N⋅m	0.52	0.63	0.87	1.05	1.31	1.57	1.74	2.19	2.62	3.15	3.15	3.94
	Rating torque	Kgf⋅cm	5.3	6.4	8.9	10.7	13.4	16.0	17.8	22.3	26.7	32.1	32.1	40.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Dating a tayour	N∙m	0.43	0.51	0.72	0.85	1.07	1.28	1.43	1.78	2.15	2.57	2.58	3.22
	Rating torque	Kgf⋅cm	4.4	5.2	7.3	8.7	10.9	13.1	14.6	18.2	21.9	26.2	26.3	32.9

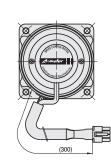
Gear head ty	ype: G8⊡K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	4.72	5.66	6.29	7.12	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84
	hatting torque	Kgf∙cm	48.2	57.8	64.2	72.6	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Poting torque	N∙m	3.86	4.64	5.16	5.82	6.99	7.84	7.84	7.84	7.84	7.84	7.84	7.84
	Rating torque	Kgf∙cm	39.4	47.3	52.6	59.4	71.3	80.0	80.0	80.0	80.0	80.0	80.0	80.0

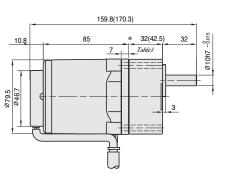
- □ in gear head type names indicates the reduction ratio.
- · Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 5.88 N·m (60 kgf·cm) for a reduction ratio between 25 and 40, and 7.84 N·m (80 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

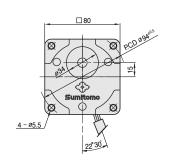
Dimensions

Gear motors

Motor type: A8U25□ Gear head type: G8□K







Gear head output shaft detail

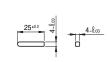


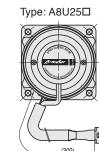
Table1. Gear head length

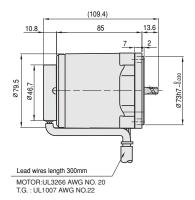
Gear head size	Length (mm)
G83K ~ G818K	32
G820K ~ G8200K	42.5

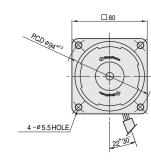
Table2. Weight

			Weight(kg)					
		Motor	1.60					
		G83K	0.43					
рg	~	G818K	0.43					
Gear head		G820K	0.57					
ar	~	G840K	0.57					
Ge		G850K	0.61					
~ G8200K 0.61								
Inte	Intermediate gear head 0.43							

Motor

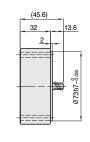


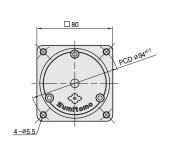




Intermediate gear head

Type: GBXH10





Related information

Selection procedure: p. 91 Options: Induction. p. 169 Standard specifications: p. 96

Technical information: p. 175







□90mm

40W

Motor specification table

Brake Packs

Options

Overview

Induction motors

Frame				Output	Voltago	Frequency Time	Speed range		Allowable	e torque		Starting torque		Over-		Condenser	
		Controller Type	Poles	Output	voltage	riequency	Time ratiang	opeca range	At 120	00r/min	At 90)r/min	Startin	y lorque	heating pro-	Standard	Condenser
mm sq				(W)	(V)	(Hz)		(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
					1ph100	50		90-1400	0.270	2.70	0.057	0.57	0.200	2.00			
	A9U40A	CAU40A	4	40	тритоо	60	Cont.	90-1700	0.240	2.40	0.057	0.57	0.200	2.00	TP	CE	10.0
					1ph110	60		90-1700	0.300	3.00	0.070	0.70	0.241	2.41			
90					1ph200	50		90-1400	0.270	2.70	0.057	0.57	0.200	2.00			
90	A9U40C	CAU40C	4	40	1011200	60	Cont.	90-1700	0.240	2.40	0.007	0.57	0.200	2.00	TP	CE	2.5
					1ph220	60		90-1700	0.300	3.00	0.070	0.70	0.241	2.41			
	A9U40D	CAU40D	1	40	1ph220	50	Cont.	90-1400	0.300	3.00	0.063	0.63	0.181	1.81	ΤP	CE	2.0
	A3040D	070400	7	70	1ph240	50	COIII.	30-1400	0.320	3.20	0.000	0.00	0.212	2.12	11"	SL.	2.0

- To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head ty	/pe: G9A□K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Doting torque	N∙m	0.81	0.97	1.35	1.62	2.03	2.43	2.70	3.37	4.05	4.86	4.86	6.09
	Rating torque	Kgf⋅cm	8.3	9.9	13.8	16.5	20.7	24.8	27.5	34.4	41.3	49.6	49.6	62.1
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Detinateur	N∙m	0.67	0.80	1.11	1.33	1.67	2.00	2.23	2.78	3.33	4.00	4.01	5.01
	Rating torque	Kgf∙cm	6.8	8.2	11.3	13.6	17.0	20.4	22.7	28.4	34.0	40.8	40.9	51.1

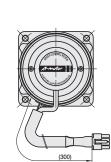
Gear head ty	/pe: G9A⊟K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	7.30	8.76	9.73	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
	rialing lorque	Kgf∙cm	74.5	89.4	99.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Poting torque	N∙m	6.01	7.21	8.02	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
	Rating torque	Kgf∙cm	61.3	73.6	81.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

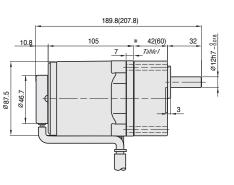
- In gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torque is 9.80 N·m(100kgf·cm).
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

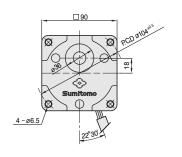
Dimensions

Gear motors

Motor type: A9U40□ Gear head type: G9A□K







Gear head output shaft detail

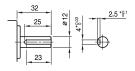


Table1. Gear head length

Gear head size	Length(mm)
G9A3K~G9A18K	42
G9A20K~G9A200K	60

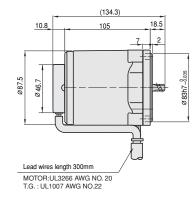
Table2. Weight

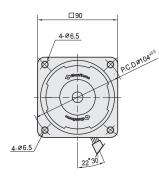
			Weight(kg)					
		Motor	2.42					
		G9A3K	0.73					
ЭС	~	G9A18K	0.73					
head		G9A20K	1.03					
Gear	?	G9A40K	1.05					
Ğ		G9A50K	1.13					
~ G9A200K								
Int	erme	diate gear head	0.60					



Type: A9U40□

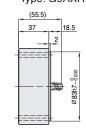


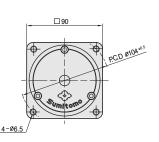




Intermediate gear head

Type: G9AXH10





Related information

Selection procedure: p. 91 Options: Induction. p. 169

Standard specifications: p. 96

Technical information: p. 175

Induction motors

Brake Packs

Options

Overview

Motor specification table

Frame				Output	Voltage	Eroguopou		Speed range		Allowable			Starting torque		Over-		Condenser
size	Motor Type	Controller Type	Poles	Output	voltage	riequelicy	Time ratiang	Opecu range	At 12	200r/min	At 90r/min		Startin	g torque	heating pro-	Standard	Oondenser
mm sq				(W)	(V)	(Hz)	ranang	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
					1ph100	50		90-1400	0.550	5.50	0.140	1.40	0.422	4.22			
	A9U60AH	CAU60A	4	60	тритоо	60	Cont.	90-1700	0.550	5.50	0.160	1.60	0.431	4.31	ΤP	CE	20. 0
					1ph110	60		90-1700	0.490	4.90	0.200	2.00	0.531	5.31			
90					1ph200	50		90-1400	0.550	5.50	0.140	1.40	0.422	4.22			
90	A9U60CH	CAU60C	4	60	TPHZUU	60	Cont.	90-1700	0.550	5.50	0.160	1.60	0.431	4.31	TΡ	CE	5.0
					1ph220	60		90-1700	0.490	4.90	0.200	2.00	0.531	5.31			
	A9U60DH	CAU60D	4	60	1ph220	50	Cont.	90-1400	0.490	4.90	4.90	1.40	0.323	3.23	TP	CE	3.5
	ASOSODIT	CAUGOD	+	30	1ph240	30	COIII.	30-1400	0.500	5.00	0.140	1.40	0.386	3.86	I IF	PCE	3.5

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- · The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head rating torque table

Gear head ty	Gear head type: G 9 B 🗌 K H													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	1.20	1.43	1.99	2.38	2.99	3.58	3.97	4.47	5.37	6.44	7.15	8.09
	nating torque	Kgf•cm	12.2	14.6	20.3	24.3	30.4	36.5	40.5	45.6	54.8	65.7	73.0	82.5
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Poting torque	N∙m	0.95	1.15	1.59	1.90	2.38	2.86	3.18	3.58	4.29	5.16	5.72	6.47
	Rating torque	Kgf•cm	9.7	11.7	16.2	19.4	24.3	29.2	32.4	36.5	43.8	52.6	58.4	66.0

Gear head ty	/pe: G 9 B □ I	ΚH												
Frequency	<u> </u>		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	9.70	11.66	12.94	16.17	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60
	rialing torque	Kgf•cm	99.0	119.0	132.0	165.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Pating targue	N∙m	7.76	9.31	10.39	12.94	15.48	17.35	19.60	19.60	19.60	19.60	19.60	19.60
	Rating torque Kgf-cm		79.2	95.0	106.0	132.0	158.0	177.0	200.0	200.0	200.0	200.0	200.0	200.0

- \square in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 30 or more. When an intermediate gear head is used, the rating torque is 1.96 N·m (20 kgf·cm) for a reduction ratio between 30 and 40, and 2.94 N·m (30 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.





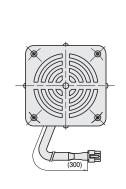
Motor type	Voltage	Capacity	Condenser type	W	Т	Н				
	(V) (μ F) (mm) (mm) (mm)									
A9U60AH	1ph100	20.0	DMF-252006	58	36	39				
1ph110 20.0 DWF-252006 56 36 39										
*Condensers are	**Condensers are built in the controllers CAU60C and CAU60D									

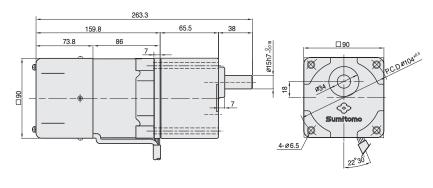
108

Dimensions

Gear motors

Motor type: A9U 60□H Gear head type: G9B□KH



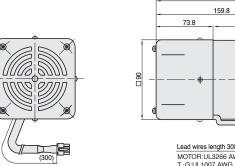


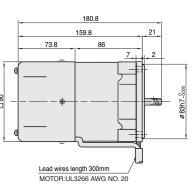
Gear head output shaft detail



Motor

Type: A9U 60□H

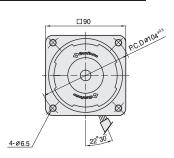




Key size

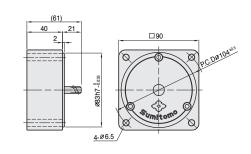
Table1. Weight

			Weight(kg)
		Motor	2.93
		G9B3KH	1.21
	~	G9B10KH	1.21
ad		G9B12.5KH	1.30
he	~	G9B20KH	1.50
Gear head		G9B25KH	1.40
O	?	G9B60KH	1.40
		G9B75KH	1.45
	~	G9B200KH	1.13
Inte	ermed	iate gear head	0.65



Intermediate gear head

Type: G9BXH10H



Related information

Selection pro	cedure: p. 91
Options: Indu	iction. p. 169
Standard spec	ifications: p. 96
Technical info	rmation: p. 175

Unit type (Overview)

Brake Packs

Options

Overview

Motor specification table

	Frame				Output	Voltage	Fraguancy		Speed range		Allowable	e torque		Startin	g torque	Over-		Condenser
	size	Motor Type	Controller Type	Poles	Output	voltage	riequency	Time ratiang	opood rango	At 120	00r/min	At 90	r/min	Jianin	g torque	heating pro-	Standard	Condenser
	mm sq				(W)	(V)	(Hz)		(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
						1 4 100	φ 100 50	90-1400	0.600	6.00	0.250	2.50	0.517	5.17		CE		
	A	A9U90AH CAU90A	4	90	ΙΨΙΟΟ	60	Cont.	90-1700	0.550	5.50	0.230 2.30	2.50	0.493	4.93	TΡ		24. 0	
						1 φ 110	60		90-1700	0.730	7.30	0.260	2.60	0.620	6.20			
	90					1 φ 200	50	90-1400	0.600	6.00	0.250	2.50	0.517	5.17				
	90	A9U90CH	A9U90CH CAU90C	4	90	Ι Ψ 200	60	Cont.	90-1700	0.550	5.50	0.230	2.50	0.493	4.93	TΡ	CE	7.0
						1 φ 220	60		90-1700	0.730	7.30	0.260	2.60	0.620	6.20			
		A9U90DH	CAU90D	1	90	1 φ 220	50	Cont.	90-1400	0.730	7.30	0.230	2.30	0.476	4.76	TP	OF.	5.0
		ASUSUDI	CAUSUD	4	90	1 φ 240	50 Cont.	90-1400	0.740	7.40	0.230	2.50	0.568	5.68	IF	CE	5.0	

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- · All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head rating torque table

Gear head ty	ype: G9B⊡KH													
Frequency	Frequency Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Doting torque	N∙m	1.78	2.15	2.98	3.58	4.47	5.36	5.96	6.70	8.05	9.66	10.78	12.15
	Rating torque	Kgf∙cm	18.2	21.9	30.4	36.5	45.6	54.7	60.8	68.4	82.1	98.6	110.0	124.0
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Detine to seve	N∙m	1.43	1.72	2.38	2.86	3.58	4.68	4.76	5.37	6.44	7.72	8.59	9.70
	Rating torque	Kgf∙cm	14.6	17.5	24.3	29.2	36.5	43.7	48.6	54.8	65.7	78.8	87.6	99.0

Gear head ty	Gear head type: G9B□KH													
Frequency Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200	
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N⋅m	14.60	17.44	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
		Kgf∙cm	149.0	178.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Detine to seve	N⋅m	11.66	14.01	15.48	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
	Rating torque	Kgf∙cm	119.0	143.0	158.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0

- ☐ in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 30 or more. When an intermediate gear head is used, the rating torque is 1.96 N·m (20 kgf·cm) for a reduction ratio between 30 and 40, and 2.94 N·m (30 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

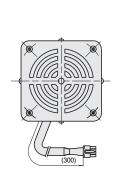


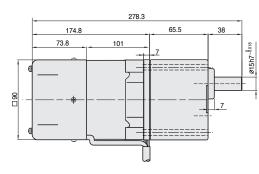


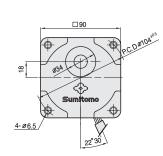
Motor type	Voltage Capacity		Condenser type	W	Т	Н
	(V)	(μF)		(mm)	(mm)	(mm)
A9U90AH	1ph100	24.0	DMF-252406	58	36	39
ASUSUAH	1ph110	24.0	DIVIT-232400	56	30	39
**Condensers are built in the controllers CAU90C and CAU90D						

Gear motors

Motor type: A9 U90□H Gear head type: G9B□KH

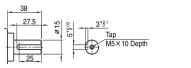


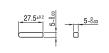




Gear head output shaft detail

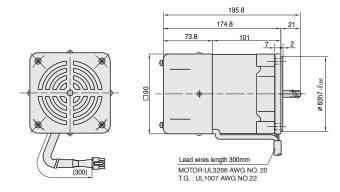
Key size





Motor

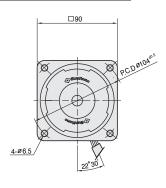
Å@MotortypeÅFA9U90□H





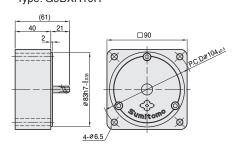
Intermediate gear head

Table1. Weight



Intermediate gear head

Type: G9BXH10H





Selection procedure: p. 91 Options: Induction. p. 169

Standard specifications: p. 96 Technical information: p. 175

110

MEMO

Soket type speed controllers

A-motor

Specification of so	ocket type speeg coutrollers	P.114
Specification of so	ocket type speeg coutrol moters	P.115
Characteristics		P.116
Dimentions		P.119
Wiring diagram(Induction)	P.120
Wiring diagram(Reversible)	P.122
Wiring diagram (with Electromagnetic brake)	P.124

Reversible

Brake Packs









Overview of Socket-type speed controllers (Standard Specifications)

	Item	Induction motor	Reversible motor	Motor with electromagnetic brake						
		Single-phase motor								
	Capacity range	6W~90W 4poles	6W~40W 4poles	6W~40W 4poles						
	Protection method Enclosure	6~40W: IP23 Totally enclosed non ventilated 60W~: IP20 Totally enclosed fan cooled type	6~40W: IP23 Totally enclosed non ventilated	6~40W: IP23 Totally enclosed non ventilated						
	Power source	100V 50/60Hz 200V 50/60Hz	100V 50/60Hz 200V 50/60Hz	100V 50/60Hz 200V 50/60Hz						
	1 ower searce	220~240V 50Hz	220~240V 50Hz	220~240V 50Hz						
Motor	Insulation	CE Marking, Class E (120℃)	CE Marking, Class E 120℃	CE Marking, Class E 120℃						
_	Time rating	Continuous	Short-time (30 minutes)	Short-time (30 minutes)						
	Starting method	Condenser running	Condenser running	Condenser running						
	6~40W: Motor 3 wires UL Style 3266 20AWG, TG 2 wires UL Style 1007 22AWG 6~40W: Motor 3 wires UL Style 3266 20AWG, Fan 2 wires UL Style 3266 20AWG, TG 2 wires UL Style 1007 22AWG		6~40W: Motor 3 wires UL Style 3266 20AWG, TG 2 wires UL Style 1007 22AWG	6~40W: Motor 3 wires UL Style 3266 20AWG, Brake 2 wires UL Style 3266 20AWG, TG 2 wires UL Style 1007 22AWG						
	Standards	CE marking (Low voltage direction)								
	Insulation resistance Insulation withstand voltage Temperature rise	At least 100M Ω when measured with a 500V DC meager between the motor coil and case at normal temperature and humidity after motor has reached rated torque. Normal function when a 1500V, 50/60Hz current is applied between the motor coil and case for 1 minute at normal temperature and humidity after the motor has reached rated torque.								
	Overheating protector (TP)		re type) Release:120±5℃ Restore:							
Gear	Lubrication method	Grease lubrication. Grease is load	ed at shipment.							
Paint	Color	Astero silver								
	Location	Indoors (Minimal dust and humidit	y)							
itions	Temperature	-10~40℃								
Ambient conditions	Humidity	Under 85%								
mbien	Elevation	Under 1,000m								
⋖	Atmosphere	Wall ventileted leasting free of our	rosive gases, explosive gases, vapo	are and dust						

Overview of Socket-type speed controllers (Standard Specifications)

	lt a ma		So	ocket type speed controlle	r					
	Item		CAH90A	CAH90C	CAH90D					
	Rating	y voltage	Single-phase AC100V	Single-phase AC200V	Single-phase AC220~240V					
	Voltag	e range	±10%							
	Rating	g frequency	50/60Hz 50Hz							
	Rating	g electric current	3.0A							
	motor	Induction	6W~90W							
% 1	Applicable motor output	Reversible	6W~40W	6W~40W						
	Appli	W/Brake	6W~40W							
	Speed	l range	50Hz : 90~1400r/min 60Hz : 90~1700r/min 90~1400r/min							
	Speed	regulation	5% (Average)							
	Speed instrur	l setting ment	It is possible to adjust it with External speed control switch							
	Brake		It is possible to stop in a	instant with electric brake).					
% 2	Electri work t	ic brake ime	0.5sec (Average)							
	Paralle	el operation	Having the function							
	Soft st	tart & Soft stop on	Having the function (0.5	sec~15sec/1200rpm)						
	Insula	tion resistance	At least $100M\Omega$ when measured with a 500V DC meager between case and pin at normal temperature and humidity after motor has reached rated torque.							
	Insula voltag	tion withstand e	Normal function when a 1500V, 50/60Hz current is applied between case and pin for 1 minute at normal temperature and humidity after the motor has reached rated torque.							

^{※1:} Applicable motor is SOCKET TYPE SPEED CONTROL MOTORS produced by SHI

⁽Please use motor whose T.G voltage is 24V)

^{※2:} Electric brake dosen't have stored torque.

1. Characteristics of socket-type speed controllers

Soft

Start

Acceleration Stable status

isn't needed, turn the dial on the inside all the way to the left (counterclockwise).

The motor can be stopped instantly using an electronic brake.

Socket-type speed controllers enable parallel operation.*

2. Soft start, soft stop characteristics

3. Instant stop characteristics

the RUN/STOP switch is set to STOP.

Socket-type speed controller





Overview

Induction

speed setting.

Brake Packs Options

Technical Information

Overview of socket-type speed control motors (Characteristics)

Deceleration

Socket-type speed controllers have soft start and soft stop functions, enabling gradual operation without sudden starts and

*Parallel operation: A single speed control switch is used to operate multiple speed control packs simultaneously at the same

Soft start gradually increases the speed up to the set speed. Soft stop gradually decreases the speed down to the set speed. Each time setting for these functions can be set using the variable resistors in the controller, in a range of about 0.5 to

15seconds (1,200 RPM). The soft stop function can't be used to stop the motor faster than a natural stop. If slow operation

Socket-type speed controllers have an electronic brake function that enables the motor to be stopped in just 0.1 second. A braking current operates for about 0.5 second, and then is automatically released. The electronic brake function doesn't store load torque. If stored torque is required (such as when stopping objects being moved up and down), use a control motor

•To operate the motor again after the instant stop operation, turn the braking switch in the operation direction. The motor starts in about 0.5 second. Don't perform the instant stop operation when the controller's speed control switch is set to 0, or

•When increasing the speed on the speed control switch or setting the RUN/STOP switch to RUN, the motor may operate for about 1 revolution even if the RUN/BRAKE switch is set to BRAKE. If the power switch is used to repeat RUN/STOP operations less than 0.5 second apart, the motor may start operating instantly, so don't use the power switch in this manner.

Soft

Stop

Stop

Time(T)

Set speed

r/min

Socket-type speed controllers use an external speed volume to adjust and set the motor speed.

The compact 11-pin plug-in socket-type speed controller offers simple operation and installation.

Time setting functions for soft start and soft stop are built-in, and the time settings can be adjusted easily.



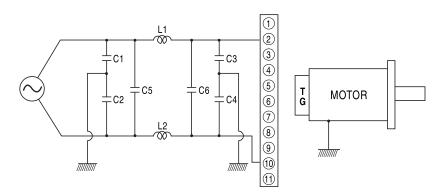
4. Cautions for use

1) Wiring cautions

- •Use the sockets for wiring. Don't solder anything to the main unit's pins directly.
- •When connecting sockets, check the terminal numbers.
- •Before inserting the controller into the socket's groove, turn off the power and check the pin numbers.
- •Equipment such as high-power motors, solenoids, high-frequency power supplies and electric welding equipment may cause the controller to malfunction. Use separate circuits for wiring the controller and main circuit cables of other equipment.
- •Install a noise filter to prevent noise and malfunctions.
- •Install the motor and controller as close together as possible, using short wiring.
- •When another component requires a noise filter, configure the circuit as shown in the diagram below.

2) Operation cautions

- •Don't let the motor's surface temperature exceed 90°C during operation with an actual load. Repeated instant RUN/STOP operations make the motor temperature rise.
- •Turn the power OFF when the motor is not in use for extended periods.
- •Don't start or stop the motor by turning the AC power supply ON/OFF, as surge voltage from the switch may cause product damage.



C1~C4: 1000pF(2000VDC)

C5 \sim C6 : 0.1 μ F \sim 0.2 μ F(125VAC or 250VAC)

L1 \sim L2 : About 10 μ H

- •L1 and L2 must not be magnetically saturated by the motor current.
- •Install in the same location as the capacitor ground.
- •Use short wiring, and thick ground wires.

Overview of socket-type speed control motors (Characteristics)

5. Troubleshooting

Motor

Motor operates

maximur

speed.

Can't change

motor speed.

doesn't stop

right away

doesn't operate.

Table 3. Troubleshooting

Check point

Disconnect the controller from the socket, connect

socket terminals @and11.

Disconnect the controller

from the socket, disconnec

socket terminals @and@.

Disconnect the controller

Disconnect the controller

from the socket, connect

socket terminals @and@.

Set the speed control variable resistor to the

check the voltage of

Check the voltage

between terminals

when the setting of the speed control variable resistor is varied.

(8) and (9)

maximum setting, then

socket terminals (1) and (1).

the AC power.

from the socket, and apply

Socket-type speed controller

Solution

Check the connection of the speed

Check the connection of the speed

Check the RUN/STOP switch connection.

Check the connection of the speed

Check the connection of the speed

connection, and the connections of

Check the connection of the speed

Check the motor connection.

Check the motor connection.

Check the RUN/STOP switch

Check the motor connection.

Check the motor condenser

control variable resistor.

Check the connections of terminals (1) and (1).

Check whether the resistance value of the tachogenerator

Check the connection of the speed control variable resistor.

Check the RUN/STOP switch

Check that the resistance of the

speed control variable resistor varies between 0 and $2.0k\Omega$. Check the external resistance connection($10 \Omega, 10W$).

Check the RUN/STOP switch

terminals (1) and (1).

alone is $1.5k\Omega$.

connection.

connection.

connection.





Overview

Induction

Reversible

Unit type

Brake Packs

Options

Overview of socket-type speed control motors (Troubleshooting)

Problem location

If the motor operates, the speed controller or control uni

If the motor doesn't operate, the motor unit

If the motor operates, the speed controller

If the motor doesn't operate, the motor unit

If the motor operates, the speed controller

If the motor doesn't operate, the motor unit

If the motor stops, the speed controller

If the motor doesn't operate, the control unit

If the voltage is AC 20 V or more, the speed controller or control unit

If the voltage is less than AC 20 V,

If the voltage can be varied between

0 and DC 6 V, the speed control unit

If the voltage can't be varied between 0 and DC 6 V, the control unit

the tachogenerator unit

or control unit



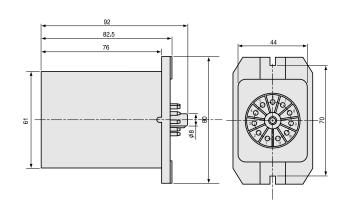


Overview of socket-type speed controllers (Dimensions)

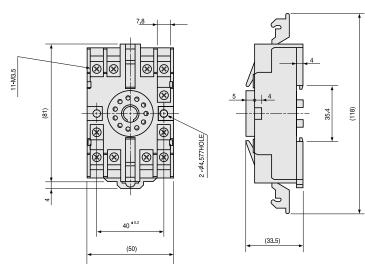
Socket-type speed controller dimensions

Controller





Socket (11pins)



Socket-type speed controller







Reversible

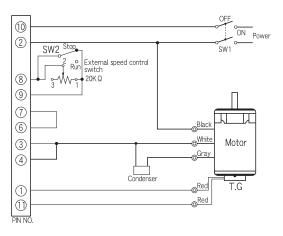
Brake Packs Options



Wiring diagram (Induction motors)

1-1. One-way running+Variable speed (6W ~ 40 W)

Wiring diagram (Induction motors)



For single-phase 220 to 240 VAC/50 Hz motor connections, use the brown wire instead of the gray wire in the diagram.

SW1	AC125V or AC250V 5A or large
SW2	DC20V 10mA

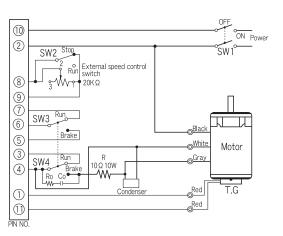
Note: The motor operation direction is clockwise (CW) as seen from

For counterclockwise (CCW) operation, switch the white and gray

Example of running operation

	l ← -RUN →	-l ∢ STOP →l-	← RUN →	-l < STOP→	SOFT START SOFT STOP	·STOP
SW1			10	٧		
SW2	RUN	STOP	RUN	STOP	RUN	STOP
					•	
MOTOR	cw	\ [CW	\	CW	\neg
					1	_

1-2. One-way running+Variable speed + Brake (6W~25W)



For single-phase 220 to 240 VAC/50 Hz motor connections, use the brown wire

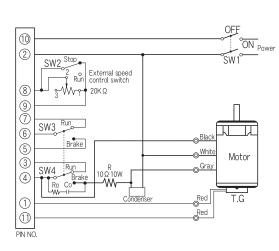
instead of the gray wire in the diagram.							
SW1,4	AC125V or AC250V 5A以上						
SW2,3	DC20V 10mA						
	Ro=10~200Ω(1/4W以上)						
Ro,Co	Co=0.1~0.2 μ F						
	(AC125WV, AC250WV)						
R:External resistance	10Ω, 10W以上						

Note: The motor operation direction is clockwise (CW) as seen from

For counterclockwise (CCW) operation, switch the white and gray motor lead wires.

E	xa	mple o BRĄK ⊀RUN-+ -	-		•		I STOP-→	Şı I Sı		RĄKE • STOP
SW	/1	,			, 0.0.	ON			01110101	
SW	_	F	RUN		STOP	RUN	STOP		RUN	STOP
SW		RUN	BRAKE			RUN				BRAK
мото	OR	CW		CW	\	CM /	\		CW	1

1-3. One-way running+Variable speed + Brake (40W)

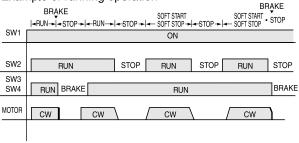


For single-phase 220 to 240 VAC/50 Hz motor connections, use the brown wire instead of the gray wire in the diagram.

instead of the gray whe in the diagram.							
SW1,4	AC125V or AC250V 5A以上						
SW2,3	DC20V 10mA						
	Ro=10~200Ω(1/4W以上)						
Ro,Co	Co=0.1~0.2 μ F						
	(AC125WV, AC250WV)						
R:External resistance	10Ω, 10W or large						

Note: The motor operation direction is clockwise (CW) as seen from For counterclockwise (CCW) operation, switch the white and gray motor lead wires.

Example of running operation



Functions

• Run/Stop function (1-1, 1-2, 1-3)

When SW2 in the wiring diagram is set to the RUN position, the motor operates at the speed set by the external

When SW2 is set to the STOP position, the motor stops naturally after losing its inertia.

Run/Brake function (1-2, 1-3)

When SW3 and SW4 are switched from the RUN to the BRAKE position with SW2 in the RUN position, the brake operates for about 0.5 second, stopping the motor instantly.

- Soft start/Soft stop functions (1-1, 1-2, 1-3)
 When the controller's SOFT START or SOFT STOP dial has been set, and SW2 is set to the RUN or STOP position, the motor gradually slows or speeds up for the set amount of time, to the speed set by the speed control
- The soft stop and soft start functions change the motor speed in a straight-line manner for the set amount of time. The time can be set in a range of 0.5 to 15 seconds (1,200 r/min).
- The soft stop function can't be used to stop the motor faster than a natural stop.

Note: When not using the equipment for an extended period, turn SW1 off to prevent the controller from heating up.

Socket-type speed controller





Overview

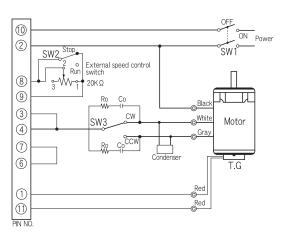
Reversible

Brake Packs

Options

Wiring diagram (Reversible motors)

2-1 Both-way running+Variable speed(6W~40W)



For single-phase 220 to 240 VAC/50 Hz motor connections, use the brown wire instead of the gray wire in the diagram

	gray time in the analysami.
SW1,3	AC125V or AC250V 5A or large
SW2	DC20V 10mA
	Ro=10~200 Ω (1/4W or large
	Co=0.1~0.2 μF
	(AC125WV, AC250WV)
	SW1,3 SW2 Ro,Co

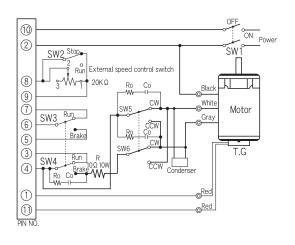
Note: The motor operation direction is clockwise (CW) as seen from the shaft end.

For counterclockwise (CCW) operation, switch the white and gray

Example of running operation

		- RUN STOP RUN STOP STOP - STOP - STOP					
SV	<i>N</i> 1	ON					
SV	N2	RUN STOP RUN STO			STOP	RUN	STOP
SV	NЗ	cw ccw					CW
МО	TOR	cw \ cw					
				ccw			

2-2 Both-way running+Variable speed + Brake(6W~25W)

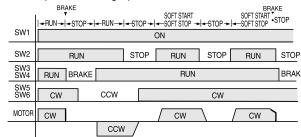


For single-phase 220 to 240 VAC/50 Hz motor connections, use the brown wire

instead of the gray wire in the diagram.					
SW1,4,5,6	AC125V or AC250V 5A or large				
SW2,3	DC20V 10mA				
	Ro=10~200 Ω (1/4W or large)				
Ro,Co	Co=0.1~0.2 μF				
	(AC125WV, AC250WV)				
R:External resistance	10Ω, 10W or large				

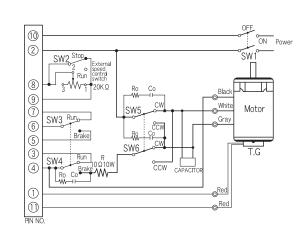
Note: The motor operation direction is clockwise (CW) as seen from the shaft end.
For counterclockwise (CCW) operation, switch the white and gray motor lead wires.

Example of running operation



Wiring diagram (Reversible motors)

2-3 Both-way running+Variable speed + Brake(40W)



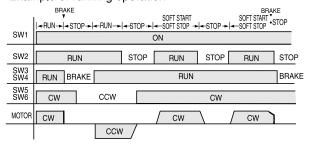
For single-phase 220 to 240 VAC/50 Hz motor connections, use the brown wire instead of the gray wire in the diagram

metead of the gray who in the diagram.				
SW1,4,5,6	AC125V or AC250V 5A以上			
SW2,3	DC20V 10mA			
	Ro=10~200Ω(1/4W以上)			
Ro,Co	Co=0.1~0.2 μ F			
	(AC125WV, AC250WV)			
R:External resistance	10Ω, 10W以上			

Note: The motor operation direction is clockwise (CW) as seen from

the shaft end. For counterclockwise (CCW) operation, switch the white and gray motor lead wires.

Example of running operation



Functions

• Run/Stop function (2-1, 2-2, 2-3)

When SW2 in the wiring diagram is set to the RUN position, the motor operates at the speed set by the external

When SW2 is set to the STOP position, the motor stops naturally after losing its inertia.

When SW3 and SW4 are switched from the RUN to the BRAKE position with SW2 in the RUN position, the brake operates for about 0.5 second, stopping the motor instantly.

- Soft Start/soft stop functions (2-1, 2-2,2-3)
 When the controller's SOFT START or SOFT STOP dial has been set, and SW2 is set to the RUN or STOP position, the motor gradually slows or speeds up for the set amount of time, to the speed set by the speed control
- The soft stop and soft start functions change the motor speed in a straight-line manner for the set amount of time. The time can be set in a range of 0.5 to 15 seconds (1,200 r/min).
 The soft stop function can't be used to stop the motor faster than a natural stop.

Note: When not using the equipment for an extended period, turn SW1 off to prevent the controller from heating up.

Reversible

Brake Packs Options

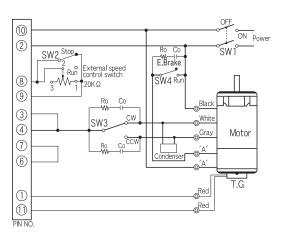
Socket-type speed controller





Wiring diagram (Motors with electromagnetic brakes)

3-1 Both-way running+Variable speed(6W~40W)



For single-phase 220 to 240 VAC/50 Hz motor connections, use the brown wire

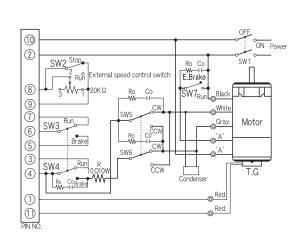
instead of the gray wife in the diagram.			
SW1,3,4	AC125V or AC250V 5A or large		
SW2	DC20V 10mA		
	Ro=10~200 Ω (1/4W or large)		
Ro,Co	Co=0.1~0.2 μF		
	(AC125WV, AC250WV)		

Voltage	Color of lead wire	"A"
Single-phase 100 \sim 110 VAC	Blue	
Single-phase 100 ~ 240 VAC	Orange	

Example of running operation

	BRAKE 	BRAKE SOFT START BRAKE MOTOR +HOLDING→
SW1		ON
SW2	RUN STOP RUN	STOP RUN STOP
SW3	cw ccw	CW
SW4	RUN BRAKE RUN	ELECTRO RUN ELECTRO BRAKE
MOTOR	CW	CW
	CCW	

3-2 Both-way running+Variable speed + Brake(6W~25W)



For single-phase 220 to 240 VAC/50 Hz motor

instead of the gray wire in the diagram.					
SW1,4,5,6,7	AC125V or AC250V 5A or large				
SW2,3	DC20V 10mA				
	Ro=10~200 Ω (1/4W or large)				
Ro,Co	Co=0.1~0.2 μF				
	(AC125WV, AC250WV)				
R: For braking	10.0 10.W ox loves				
External resistance	10Ω, 10W or large				

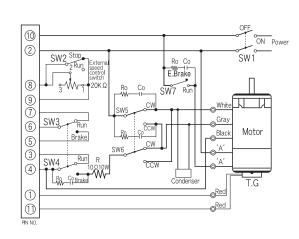
Voltage	Color of lead wire "A"
Single-phase 100 \sim 110 VAC	Blue
Single-phase 100 ~ 240 VAC	Orange

Example of running operation

	BRAKE BRAI ←RUN→ ←HOLD		BRAKE +HOLDING +		T BRAKE	 3► -	BF SOFT STAR SOFT STOR	RAKE T BRAKE I→HOLDING
SW1				ON				
SW2	RUN		STOP	RUN	STOP		RUN	STOP
SW3 SW4	RUN BRA	KE		RUI	V			BRAKE
SW5 SW6	CW	CCW			CW			
SW7	RUN	RUN		RUN			RUN	
MOTOR	CW			CW	\	\int	CW	
		CCW						

Electrical wiring diagram (Motors with electromagnetic brakes)

3-3 Both-way running+Variable speed + brake(40W)



For single-phase 220 to 240 VAC/50 Hz motor connections, use the brown wire instead of the gray wire in the diagram.

moreau or the gray time in the anagram				
SW1,4,5,6,7	AC125V or AC250V 5A or large			
SW2,3	DC20V 10mA			
	Ro=10~200 Ω (1/4W or large)			
Ro,Co	Co=0.1~0.2 μF			
	(AC125WV, AC250WV)			
R:External resistance	10Ω, 10W or large			

Voltage	Color of lead wire "A"
Single-phase 100 ∼ 110 VAC	Blue
Single-phase 100 ~ 240 VAC	Orange

Example of running operation

	→R		AKE * BRA →HOLI	AKE DING- -	⊢RUN- →	BRA I → HOLD	KE ING≁l-	\$0i ⊷\$0i	T STAF	IT o →	BRAH HOLDI	Œ-I-	SC ⊷SC	FT STA OFT STC	BRA IRT OP I	KE BF +10	AKE LDING
SW1								OI	V								
SW2			RUN	1		ST	OP	RL	JN	L	STOP		F	RUN		STC)P
SW3 SW4	RI	JN	BR	AKE					RU	N						BR	AKE
SW5 SW6		CV	/		ccw						CW						
SW7	RI	JN		[RUN]			RUN					RUN			
MOTOR	С	W	1					$\overline{\Gamma}$	CW	7		/	(CW	7		
					CCW												

Functions

• Run/Stop function (3-1, 3-2, 3-3)

When SW2 in the wiring diagram is set to the RUN position, the motor operates at the speed set by the external

When SW2 is set to the STOP position, the motor stops naturally after losing its inertia.

When SW3 and SW4 are switched from the RUN to the BRAKE position with SW2 in the RUN position, the brake operates for about 0.5 second, stopping the motor instantly.

- Soft Start/soft stop functions (3-1, 3-2,3-3)
 When the controller's SOFT START or SOFT STOP dial has been set, and SW2 is set to the RUN or STOP position, the motor gradually slows or speeds up for the set amount of time, to the speed set by the speed control
- The soft stop and soft start functions change the motor speed in a straight-line manner for the set amount of time. The time can be set in a range of 0.5 to 15 seconds (1,200 r/min).

 • The soft stop function can't be used to stop the motor faster than a natural stop.

Note: When not using the equipment for an extended period, turn SW1 off to prevent the controller from heating up.

Socket-type speed controller





Induction

Reversible

Brake Packs

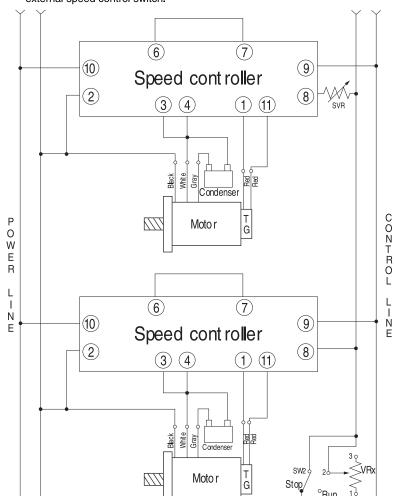
Options

Wiring diagram

Parallel operation

Wiring diagram

Parallel operation is possible, enabling multiple motors to be controlled to the same speed simultaneously using a single external speed control switch.



As shown in the wiring diagram on the left, the power unit (terminal Nos. 2 and 10) and control unit (terminal Nos. (8) and (9) should each be wired to the same

Parallel operation is also possible with other motor and controller combinations if the power unit and control unit are wired in the same way.

Caution

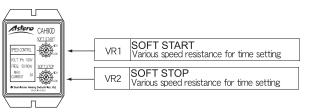
- · Wire power units and control units using the same numbers for each pin.
- · The capacity of the speed control variable resistor is given by the formula below.

 $VRx = 20/N k\Omega$, N/4 W (N: number of motors) Example: For 2 motors, the capacity is 10 k Ω , 1/2 W.

- Each motor will operate at almost the same speed. but load differences may sometimes create slight deviations.
- To prevent this problem, connect a fine-tuning variable resistor (SVR) to terminal No.®. Set the resistance value to between 5 and 10% of the value for the speed control variable resistor (VRx), with a capacity of 1/4 W.

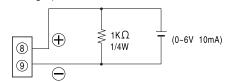
For single-phase 220 to 240 VAC/50 Hz motor connections, use the brown wire instead of the gray wire in the diagram

Operation panel



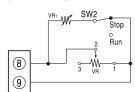
■Controlling the motor speed using an external DC voltage

To set the motor speed using an external DC voltage instead of an external speed control switch, connect the DC power supply and controller as shown below. (Be sure that the DC power supply output uses an AC input and is insulated, and the polarity doesn't change.)



■Decreasing the starting time

When the set motor speed is low, a greater amount of time elapses from when the RUN/STOP switch is set to RUN, until the motor starts operating. If the amount of time the motor takes to start during low-speed operation is a problem, connect variable resistor VRT (used to adjust the starting time) as shown below.

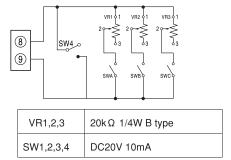


VR⊤	2KΩ 1/4W B type
SW2	DC20V 10mA

To stop the motor instantly, use the RUN/BRAKE switch and the circuit's RUN/STOP switch together. With the RUN/STOP switch in the STOP position, adjust the VRT until just before the motor starts.

Switching the motor speed among multiple settings

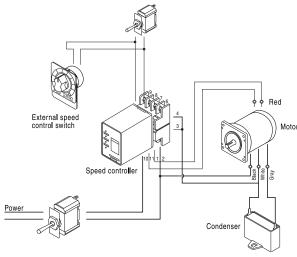
If the motor speed must be adjusted to multiple settings, you can connect VR1, VR2 and VR3 and use SWA, SWB, SWC, (etc.) to switch the speed. The switching timing of the switches should be made roughly equal to the time for opening/closing the relay contact (SW4).



Caution

Socket-type controllers have one external control switch. Purchase Sumitomo's external speed control switch (EAVR20) separately if

Wiring diagram of unit

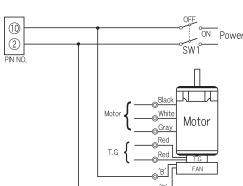


An external speed control switch can be used to adjust the motor speed continuously. When the switch is set to HIGH, the motor operates at high speed.

When set to LOW, the motor operates at low speed (or stops). The heavy line in the diagram above carries the motor's operation current.

The heavy unbroken lines in the diagram indicate wires with a cross-sectional area of about 0.75 mm². The thin lines indicate wires with a cross-sectional area of about 0.5 mm². For single-phase 220 to 240 VAC/50 Hz motor connections, use the brown wire instead of the gray wire in the diagram.

Wiring for motors with fans (60 W, 90 W)



Voltage	Color of lead wire 'B'
Single-phase 100 to 110 VAC	Brown
Single-phase 200 to 240 VAC	Yellow

Note: For the connections of components other than the fan, see the relevant wiring diagrams.

MEMO

Socket-type speed control motors. Induction moters



*Gear head and induction motor are sold separately.

Socket-type speed control motors Induction moters

- Product sets consisting of special induction motors, and socket-type speed controllers that can adjust the motor speed
- Speed controllers are compact and multifunctional.
- Controller, special motor and condenser must be wired externally.
- Speed range: 50 Hz: 90 to 1,400 r/min 60 Hz: 90 to 1,700 r/min
- Motors have built-in tachogenerators (TG).
- Motors can be stopped instantly using a builtin electronic brake function. (Optional external braking resistor must be attached.)
- Motor must be completely stopped before motor operation direction can be switched.
- Acceleration/deceleration time can be set, so motor can be accelerated/decelerated gradually (soft start, soft stop).
- Time rating: Continuous
- A single speed control switch can be used to operate multiple controllers simultaneously at the same speed setting.



129

□60mm

Socket-type speed control motors **Induction motors**



□60mm

6W

Induction

Brake Packs

Options

Overview

6W









Motor specification table

Frame			0	Malkana	F	ncv Speed range			Allowabi	e torque		Chartin		Over-		Candanas	
size	Motor Type	Controller Type	Poles	Output	Voltage	Frequency	Time ratiang	Speed range	At 120	00r/min	At 90	r/min	Starting	g torque	heating	Standard	Condenser
mm sq				(W)	(V)	(Hz)	radang	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)			(μF)
					1ph100	50		90-1400	0.045	0.45	0.030	0.30	0.032	0.32			
	A6HM06A	CAH90A	4	6	тріттоо	60	Cont.	90-1700	0.036	0.36	0.025	0.25	0.033	0.33	ZΡ	CE	2.5
					1ph110	60		90-1700	0.045	0.45	0.025	0.23	0.039	0.39			
60					1ph200	50		90-1400	0.045	0.45	0.030	0.30	0.032	0.32			
60	A6HM06C	CAH90C	4	6	TPHZUU	60	Cont.	90-1700	0.036	0.36	0.025	0.25	0.033	0.33	ZΡ	CE	0.7
					1ph220	60		90-1700	0.045	0.45	0.02	0.23	0.039	0.39			
	A6HM06D	CAH90D	4		1ph220	50	0	90-1400	0.045	0.45	0.000	0.28	0.045	0.45	ZΡ	٥-	0.7
	AOHIVIOOD	CAH90D	4	6	1ph240	50	Cont.	90-1400	0.056	0.56	0.028	0.28	0.049	0.49		CE	0.7
	·																

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- · The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and impedance-protected (ZP) types.

Gear head ty	/pe: G6⊡D													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Doting torque	N⋅m	0.13	0.15	0.21	0.26	0.31	0.38	0.42	0.53	0.63	0.76	0.76	0.95
	Rating torque	Kgf⋅cm	1.3	1.5	2.1	2.6	3.2	3.9	4.3	5.4	6.4	7.7	7.7	9.7
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Datinantanana	N⋅m	0.10	0.13	0.17	0.21	0.26	0.30	0.34	0.43	0.51	0.62	0.62	0.76
	Rating torque	Kgf⋅cm	1.0	1.3	1.7	2.1	2.6	3.1	3.5	4.4	5.2	6.3	6.3	7.8

Gear head ty	Gear head type: G6□D													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
50Hz	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
	Rating torque	N∙m	1.14	1.36	1.52	1.72	2.06	2.57	2.94	2.94	2.94	2.94	2.94	2.94
		Kgf∙cm	11.6	13.9	15.5	17.5	21.0	26.2	30.0	30.0	30.0	30.0	30.0	30.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Dating toward	N∙m	0.92	1.11	1.24	1.39	1.67	2.09	2.50	2.78	2.94	2.94	2.94	2.94
	Rating torque	Kgf⋅cm	9.4	11.3	12.6	14.2	17.0	21.3	25.5	28.4	30.0	30.0	30.0	30.0

- Intermediate gear heads are for use with gear heads having a reduction ratio of 30 or more. When an intermediate gear head is used, the rating torque is 1.96 N·m (20 kgf·cm) for a reduction ratio between 30 and 40, and 2.94 N·m (30 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.



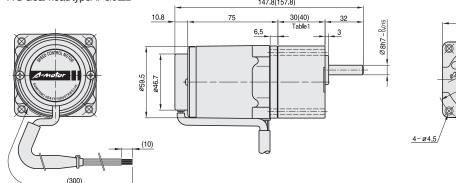
Motor type	Voltage	Capacity	Condenser type	W	Τ	Н
	(V)	(μF)	,,	(mm)	(mm)	(mm)
A6HM06A	1ph100	2.5	DMF-25255	36	16	25
AUTIMOUA	1ph110	2.5	DIVII -23233	50	10	2
A6HM06C	1ph200	0.7	DMF-45704	36	16	25
Adminioc	1ph220	0.7	DIVII =43704	30	10	25
A6HM06D	1ph220	0.7	DMF-45704	36	16	25
AOI IIVIOOD	1ph240	0.7	DIVII -43704	30	10	23

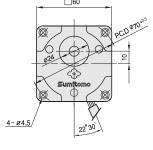
130

Dimensions

Gear motors

Motor type: A6HM06□ Å@GearheadtypeÅFG6□D





Gear head output shaft detail



Table1. Gear head length

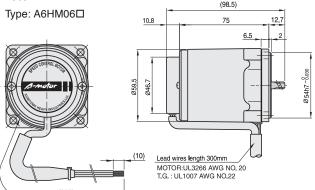
	- 5
Gear head size	Length(mm)
G63D~G618D	30
G620D~G6200D	40

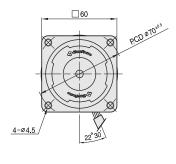
131

Table2. Weight

			Weight(kg)
Mot	tor		0.76
		G63D	0.24
ad	~	G618D	0.24
Gear head		G620D	0.30
ear	~	G640D	0.30
Ğ		G650D	0.33
	~	G6200D	0.55
Inte	rme	diate gear head	0.18

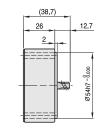


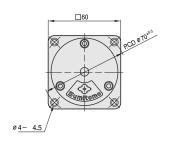




Intermediate gear head

Type: G6XH10





Related information

Selection procedure: p. 91	
Options: Induction. p. 169	
Standard specifications: p. 115	

Technical information: p. 175

□70mm

Socket-type speed control motors **Induction motors**

Astero

□70mm

15W

Motor specification table

Induction

Reversible

Unit type

Brake Packs

Options

15W

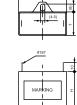
Fra	me				Output	Voltage	Eroguoney	Time ratiang	Speed range		Allowable	e torque		Starting torque		Over-		Condenser
siz		Motor Type	Controller Type	Poles	Output	voltage	riequency		opoca rango	At 120	00r/min	At 90	r/min	Startin	y torque	heating pro-	Ctondord	Condenser
mm	sq				(W)	(V)	(Hz)		(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	pro- tection		(μF)
						1ph100	50		90-1400	0.100	1.00			0.062	0.62			
	Α	A7HM15A	CAH90A	4	15	тритоо	60	Cont.	90-1700	0.075	0.75	0.030	0.30	0.055	0.55	TP	CE	5.0
						1ph110	60		90-1700	0.085	0.85			0.066	0.66			
7	$_{n}$					1ph200	50		90-1400	0.100	1.00			0.062	0.62			1
′	[∪] ⊿	7HM15C	CAH90C	4	15	60	60	Cont.	90-1700	0.075	0.75	0.030	0.30	0.055	0.55	TP	CE	1.2
						1ph220	60		90-1700	0.085	0.85			0.066	0.66			
	^	7HM15D	CAH90D	4	15	1ph220	50	Cont.	90-1400	0.090	0.90	0.035	0.35	0.065	0.65	ΤP	CE	0.9
		(711IVI13D	CALIBOD	4	15	1ph240	50	Cont.	90-1400	0.110	1.10	0.033	0.33	0.078	0.78	IF	CE	0.9

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- · The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head t	ype: G7∐K													
Frequency	Reduction ratio			3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	0.31	0.38	0.53	0.64	0.79	0.95	1.06	1.32	1.59	1.90	1.90	2.37
	riating torque	Kgf∙cm	3.2	3.9	5.4	6.5	8.1	9.7	10.8	13.5	16.2	19.4	19.4	24.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Dating targue	N∙m	0.29	0.35	0.50	0.60	0.75	0.89	0.99	1.25	1.49	1.79	1.79	2.24
	Rating torque	Kgf⋅cm	3.0	3.6	5.1	6.1	7.6	9.1	10.1	12.7	15.2	18.2	18.2	22.8

Gear head t	ype: G7∐K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N⋅m	2.85	3.42	3.81	4.28	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90
		Kgf∙cm	29.1	34.9	38.8	43.6	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Rating torque	N∙m	2.68	3.22	3.58	4.02	4.83	4.90	4.90	4.90	4.90	4.90	4.90	4.90
		Kgf∙cm	27.3	32.8	36.5	41.0	49.2	50.0	50.0	50.0	50.0	50.0	50.0	50.0

- \square in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 3.92 N·m (40 kgf·cm) for a reduction ratio between 25 and 40, and 4.90 N·m (50 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

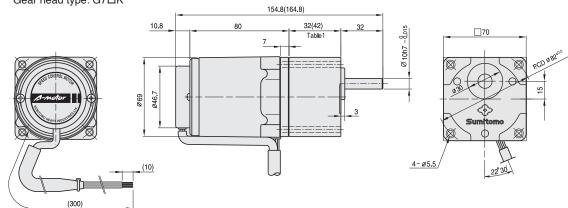


Motor type	Voltage	Capacity	Condenser type	W	Т	Н
	(V)	(μF)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(mm)	(mm)	(mm
A7HM15A	1 φ 100	5.0	DMF-25505	38	19	29
ATTIVITOR	1 φ 110	5.0	DIVII -23303	30	10	20
A7HM15C	1 φ 200	1.2	DMF-45125	36	16	25
ATTIVITO	$1 \phi 220$	1.2	DIVII -43123	50	10	2
A7HM15D	1 φ 220	0.9	DMF-45904	36	16	25
ATTIVITOD	1 4 2/10	0.9	DIVII -43904	30	10	23

Dimensions

Gear motors

Motor type: A7HM15□ Gear head type: G7□K



Gear head output shaft detail

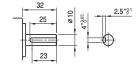
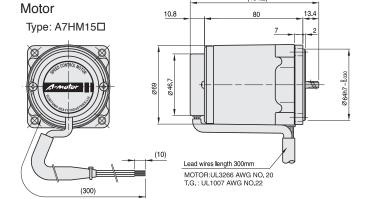


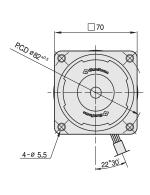
Table 1 Gear head length

Table L. Geal Head	riengin
Gear head size	Length(mm)
G73K~G718K	32
G720K~G7200K	42

Table2. Weight

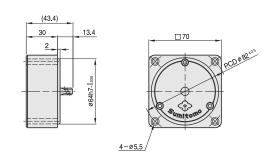
			Weight(kg)	
Mot	or		1.12	
		G73K	0.38	
ad	~	G718K	0.50	
Gear head		G720K	0.47	
eal	~	G740K	0.47	
٥		G750K	0.52	
	~	G7200K	0.32	
Inte	rmed	0.32		





Intermediate gear head

Type: G7XH10



Related information

133

Selec	tion procedure:	p). (91
Optio	ns: Induction.	p.	16	9
Stand	ard specifications:		D.	115

Technical information: p. 175

A8HM25A

A8HM25C

A8HM25D

Gear head type: G8 K

Gear head type: G8 K

Frequency

50Hz

Frequency

CAH90A

CAH90C

CAH90D

Reduction ratio

Ouput speed

Rating torque

Ouput speed

Rating torque

Reduction ratio

Ouput speed

Rating torque

Ouput speed

Rating torque

__80mm

(Hz)

60

60

50

· The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering

連続

連続

連続

1ph100

1ph220

500

0.52

600

30

48.2

3.86 4.64

417

0.63

500

0.43 0.51

300

0.87

360

0.72

40

6.29

250

0.85

50

7.12

36

200

240

1.31 | 1.57

13.4 | 16.0

1.07 1.28

10.9 | 13.1

60 | 75

7.84 7.84

80.0 80.0

6.99 7.84

25

30

166

200

20

24

150

1.74

180

1.43

14.6

90

16

20

7.84

39.4 | 47.3 | 52.6 | 59.4 | 71.3 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0

7.84 7.84

80.0 80.0

120

2.19

144

1.78

15

18

7.84

1ph110 60

25

The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage

All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

r/min

N·m

r/min

Kgf⋅cm

Kgf·cm

Kgf⋅cm

r/min

Socket-type speed control motors

Induction motors

At 90r/r

0.050

0.050

0.050

(N·m) (Kgf·cm

0.50

0.50





□80mm

25W

Induction

Overview

Motor specification table

80

Electromagnetic brakes

Speed contro**l**er (Overview)

Unit type

Brake Packs

Options

25W

At 1200r/min

(N·m) (Kgf·cm)

0.170 1.70

0.140 1.40

0.170 1.70

0.140 1.40

90-1400

90-1700

90-1700

90-1400

90-1700

90-1400

Starting torque

(N·m) (Kgf·cm)

0.085 0.85

0.075 0.75

0.093 0.93

0.085 0.85

0.075 0.75 0.093 0.93

15

100

2.62

120

12

15

7.84 7.84

83

100

100 | 120 | 150 | 180 | 200

2.15 2.57 2.58 3.22

7.84 7.84 7.84 7.84

80.0 80.0 80.0 80.0

7.84 7.84

75

3.15

90

72

CE

CE

CE

6.0

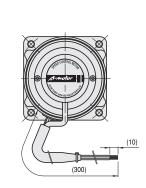
1.5

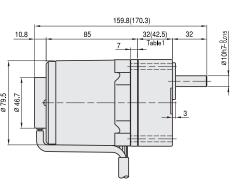
1.5

Dimensions

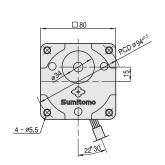
Gear motors

Motor type: A8HM25□ Gear head type: G8□K





Astero



Gear head output shaft detail

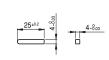


Table 1. Gear head length

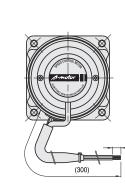
Gear	head size	Length (mm)
G83K	~ G818K	32
G820K	~ G8200K	42.5

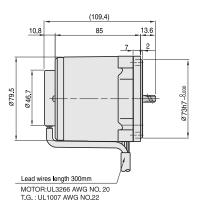
Table2. Weight

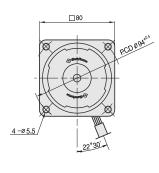
			Weight(kg)	
Mot	or	•	1.60	
		G83K	0.43	
ad	~ gd	G818K	0.43	
Gear head		G820K	0.57	
ear	~	G840K	0.57	
Q		G850K	0.61	
	~	G8200K	0.01	
Inte	rmed	0.43		

Motor

Type: A8HM25□







☐ in gear head type names indicates the reduction ratio Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 5.88 N·m (60 kgf·cm) for a reduction ratio between 25 and 40, and 7.84 N·m (80 kgf·cm) for a reduction ratio of 50 or more.

64.2 72.6

5.16 5.82

- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.



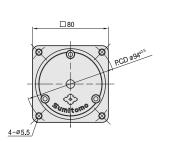


Motor type	Voltage	Capacity	Condenser type	W	Т	I
	(V)	(μF)	,,	(mm)	(mm)	(mm)
8HM25A	1ph100	6.0	DMF-25605	38	19	29
IOI IIVIZJA	1ph110	0.0	DIVII =23003	30	פּ	25
8HM25C	1ph200	1.5	DMF-45155	36	16	25
101 111/1230	1ph220	1.5	DIVII -43133	30	10	23
8HM25D	1ph220	1.5	DMF-45155	36	16	25
IOI IIVIZOD	1ph240	1.5	DIVII -45155	50	-0	23

Intermediate gear head

Type: G8XH10





Related information

135

Selection procedure: p. 91 Options: Induction. p. 169 Standard specifications: p. 115

Technical information: p. 175

Motor specification table

□90mm

Socket-type speed control motors **Induction motors**

Astero

□90mm

40W

Induction

Electromagnetic brakes

Unit type

Brake Packs

Options

Frame size mm so Motor Type (r/min) (N·m) (Kgf·cm) (N·m) (Kgf·cm A9HM40A CAH90A 40 CE 60 90-1700 0.240 2.40 0.145 1.45 90-1700 0.300 3.00 90-1400 0.280 2.80 0.055 0.55 1ph200 A9HM40C CAH90C 60 CE 2.5 0.145 1.45 0.158 1.58 1ph220 A9HM40D CAH90D 0.063 0.63 CE 2.0 90-1400

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage
- · The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head ty	/pe: G9A□K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	0.81	0.97	1.35	1.62	2.03	2.43	2.70	3.37	4.05	4.86	4.86	6.09
		Kgf∙cm	8.3	9.9	13.8	16.5	20.7	24.8	27.5	34.4	41.3	49.6	49.6	62.1
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Rating torque	N∙m	0.67	0.80	1.11	1.33	1.67	2.00	2.23	2.78	3.33	4.00	4.01	5.01
		Kgf⋅cm	6.8	8.2	11.3	13.6	17.0	20.4	22.7	28.4	34.0	40.8	40.9	51.1

Gear head ty	/pe: G9A⊟K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	7.30	8.76	9.73	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
		Kgf∙cm	74.5	89.4	99.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Rating torque	N∙m	6.01	7.21	8.02	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
		Kgf⋅cm	61.3	73.6	81.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

- ☐ in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torque is 9.80 N•m(100kgf•cm).
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.



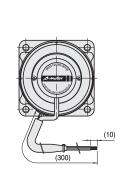


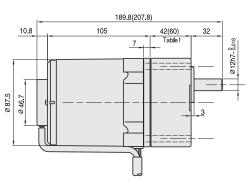
Motor type	Voltage	Capacity	Condenser type	W	Τ	Н
	(V)	(μF)	,,	(mm)	(mm)	(mm
A9HM40A	1 φ 100	10.0	DMF-251006	47	19	28
ASTIMITOA	1 φ 110	10.0	DIVII -231000	77	13	2
A9HM40C	1 φ 200	2.5	DMF-45255	47	19	28
A31 1101400	1 φ 220	2.5	DIVII -43233	47	13	٥
A9HM40D	1 φ 220	2.0	DMF-45205	38	19	29
ASI IIVI40D	1 φ 240	۷.۵	DIVII -43203	50	19	29

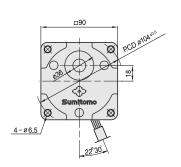
Dimensions

Gear motors

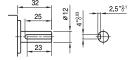
Motor type: A9HM40□ Gear head type: G9A□K







Gear head output shaft detail



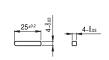
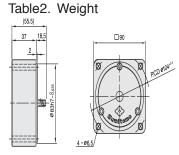
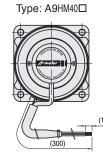


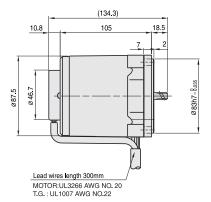
Table1. Gear head length

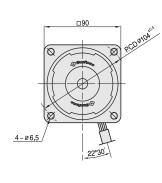
Gear head size	Length(mm
G9A3K~G9A18K	42
G9A20K~G9A200K	60





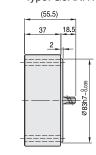


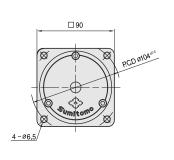




Intermediate gear head

Type: G9AXH10





Related information

137

Selection procedure: p. 91 Options: Induction. p. 169

Standard specifications: p. 115

Technical information: p. 175

Induction

Unit type

Brake Packs Options

Overview

Motor specification table

Frame	Motor Type	Controller Type	Poles	Output	Voltage	Eroguoney	_	Time ratiann Speed range Allowable torque Starting torque		a torquo	Over-		Condenser				
size				Output	Voltage	1 requericy	Time ratiang			1200r/min At 90r/min		r/min	Starting	y torque	heating pro-		Condenser
mm sq				(W)	(V)	(Hz)			(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)		
		CAH90A	4	60	1ph100	50	Cont.	90-1400	0.540	5.40	0.120	1.20	0.367	3.67			
	A9HM60AH				тритоо	60		90-1700	0.440	4.40	0.120	1.20	0.318	0.318 3.18	TP	CE	20. 0
					1ph110	60		90-1700	0.530	5.30	0.160	1.60	0.385	3.85			
90	A9HM60CH	CAH90C	4		1ph200 50 60		90-1400	0.540	5.40	0.120	1.20	0.367	3.67			1	
90				60		60	Cont.	90-1700	0.440	4.40	0.120	1.20	0.318	3.18	TP	CE	5.0
					1ph220	60		90-1700	0.530	5.30	0.160	1.60	0.385	3.85			
A9I	A9HM60DH	CAH90D	4	60	1ph220	50	0	90-1400	0.440	4.40	0.090	0.90	0.266	2.66	TP	CE	3.5
	ASUMOODU			30	1ph240	30	Cont.	30-1400	0.530	5.30	0.090	0.90	0.331	3.31	IF.	OE	5.5

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- · The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head type: G9B□KH														
Frequency	Frequency Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	1.20	1.43	1.99	2.38	2.99	3.58	3.97	4.47	5.37	6.44	7.15	8.09
		Kgf∙cm	12.2	14.6	20.3	24.3	30.4	36.5	40.5	45.6	54.8	65.7	73.0	82.5
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Doting toward	N∙m	0.95	1.15	1.59	1.90	2.38	2.86	3.18	3.58	4.29	5.16	5.72	6.47
	Rating torque	Kaf•cm	9.7	11.7	16.2	19.4	24.3	29.2	32.4	36.5	43.8	52.6	58.4	66.0

Gear head type: G 9 B ☐ K H														
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	9.70	11.66	12.94	16.17	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60
		Kgf•cm	99.0	119.0	132.0	165.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Rating torque	N∙m	7.76	9.31	10.39	12.94	15.48	17.35	19.60	19.60	19.60	19.60	19.60	19.60
		Kaf•cm	79.2	95.0	106.0	132.0	158.0	177 0	200.0	200.0	200.0	200.0	200.0	200.0

- in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torgue is 19.60 N•m(200kgf•cm).
- · Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- · Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.



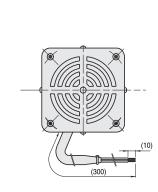
Motor type	Voltage Capac		Condenser type	W	Т	Ι	
	(V)	(μF)	,,	(mm)	(mm)	(mm)	
A9HM60AH	1ph100	20.0	DMF-252006	58	36	39	
ASTIMOUATT	1ph110	20.0	DIVII -232000	50	30		
A9HM60CH	1ph200	5.0	DMF-45505	50	25	40	
ASTINIOUCIT	1ph220	5.0	DIVII -43303	50	25	40	
A9HM60DH	1ph220	3.5	DMF-45355	48	21	33	
ASTIMOODIT	1ph240	5.5	DIVII -43333	40	۲۱	55	

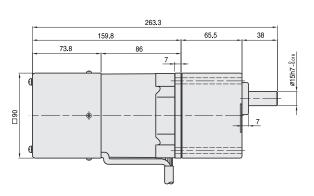
138

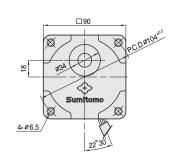
Dimensions

Gear motors

Motor type: A9 HM60□H Gear head type: G9B□KH







Gear head output shaft detail

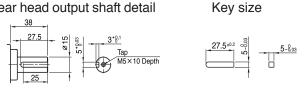
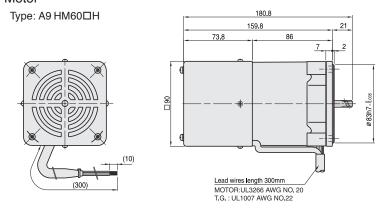
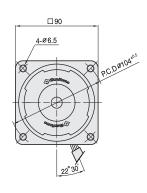


Table1. Weight

ub	abio i. Woigiit							
			Weight(kg)					
Mot	or		2.93					
		G9B3KH	1.21					
	?	G9B10KH	1,21					
Gear head	~	G9B12.5KH	1.30					
		G9B20KH	1.50					
		G9B25KH	1.40					
G	~	G9B60KH	1.40					
		G9B75KH	1.45					
	~	G9B200KH	1.45					
Inte	rmed	diate gear head	0.65					

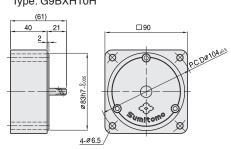
Motor





Intermediate gear head

Type: G9BXH10H



Related information

Selection procedure: p. 91
Options: Induction. p. 169
Standard specifications: p. 115
Technical information: p. 175

Motor specification table

Overview Induction

Reversible

Electromagnetic brakes

Unit type

Brake Packs Options

Technical Information

Overview

Socket-type speed control motors **Induction motors**

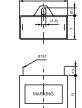
(μF) 90-1400 0.720 7.20 0.431 4.31 1ph100 A9HM90AH CAH90A 60 90-1400 7.20 90 A9HM90CH CAH90C 90-1700 0.540 5.40 0.371 3.71 CE 60 1ph220 60 90-1700 0.520 5.20 0.438 4.38 0.650 6.50 0.395 3.95 1ph220 CE CAH90D 50 90-1400 0.180 1.80 A9HM90DH

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- · The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head ty	ype: G9B⊡KH													
Frequency	ncy Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	N∙m	1.78	2.15	2.98	3.58	4.47	5.36	5.96	6.70	8.05	9.66	10.78	12.15	
	Rating torque	Kgf⋅cm	18.2	21.9	30.4	36.5	45.6	54.7	60.8	68.4	82.1	98.6	110.0	124.0
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	N⋅m	1.43	1.72	2.38	2.86	3.58	4.68	4.76	5.37	6.44	7.72	8.59	9.70	
	Rating torque	Kgf⋅cm	14.6	17.5	24.3	29.2	36.5	43.7	48.6	54.8	65.7	78.8	87.6	99.0

Gear head type: G9B□KH														
Frequency	ency Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	N∙m	14.60	17.44	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60	
	Rating torque	Kgf∙cm	149.0	178.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Rating torque	N∙m	11.66	14.01	15.48	19.40	19.60	19.60	19.60	19.60	19.60	19.60	19.60	19.60
		Kgf⋅cm	119.0	143.0	158.0	198.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0

- \square in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torgue is 19.60 N•m(200kgf•cm).
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.



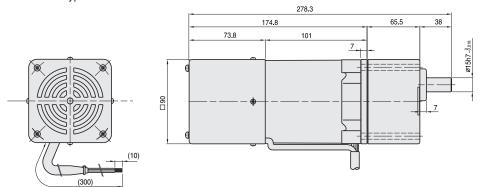
Motor type	Voltage	Capacity	Condenser type	W	Τ	Н	
	(V)	(μF)	,	(mm)	(mm)	(mm	
A9HM90AH	1ph100	24.0	DMF-252406	58	36	39	
ASITIVISOATT	1ph110	24.0	DIVII =232400	50	30	00	
A9HM90CH	1ph200	7.0	DMF-45705	50	25	40	
ASI IIVISOCI I	1ph220	7.0	DIVII -43703	30	25	†	
A9HM90DH	1ph220	5.0	DMF-45505	50	25	40	
ASHMAODH F	1ph240	5.0	DIVII -40000	50	23	40	

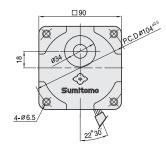
140

Dimensions

Gear motors

Motor type: A9HM90□H Gear head type: G9B□KH





Gear head output shaft detail

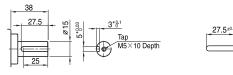
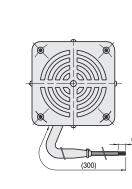


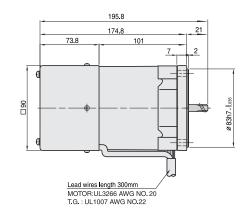
Table1. Weight

			Weight(kg)
Moto	or		3.53
		G9B3KH	1.21
	?	G9B10KH	1.21
ad		G9B12.5KH	1.30
he	~	G9B20KH	1.50
Gear head		G9B25KH	1.40
Ğ	?	G9B60KH	1.40
		G9B75KH	1.45
	?	G9B200KH	1.45
Inter	med	liate gear head	0.65

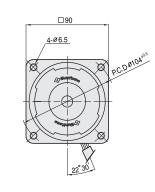
Motor

Type: A9HM90□H



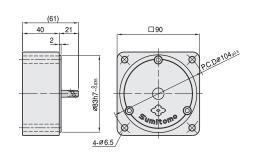


141



Intermediate gear head

Type: G9BXH10H



Related information

Selection procedure: p. 91
Options: Induction. p. 169
Standard specifications: p. 115
Technical information: p. 175

MEMO

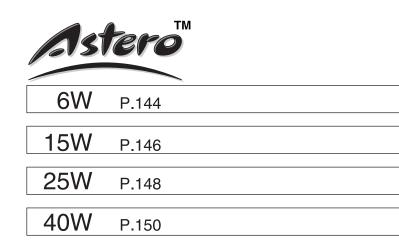
Soket-type speed controllers (Reversible moters)



* Gear head and reversible moter motor are sold separately.

Socket-type speed controllers Rebersible motors

- Product sets consisting of special induction motors, and socket-type speed controllers that can adjust the motor speed
- Speed controllers are compact and multifunctional.
- Controller, special motor and condenser must be wired externally.
- Speed range: 50 Hz: 90 to 1,400 r/min 60 Hz: 90 to 1,700 r/min
- Motors have built-in tachogenerators (TG).
- Motors can be stopped instantly using a builtin electronic brake function. (Optional external braking resistor must be attached.)
- Motor must be completely stopped before motor operation direction can be switched.
- Acceleration/deceleration time can be set, so motor can be accelerated/decelerated gradually (soft start, soft stop).
- Time rating: Short-time (30minutes)
- A single speed control switch can be used to operate multiple controllers simultaneously at the same speed setting.



143

Induction

Unit type

Overview 6W

Motor specification table

Fra	ame				Output	Voltage	Eroguonou	requency Time Speed range			Allowable torque			Starting torque		Over-		Condenser
	ize	Motor Type	Controller Type	Poles	Output	voltage	riequency	Time ratiang	Speed range	At 120	00r/min	At 90	r/min	·			Standard	Condenser
mr	n sq				(W)	(V)	(Hz)	radang	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
						1ph100	50		90-1400	0.036	0.36	0.032	0.32	0.030	0.30			
		A6HR06A	CAH90A	4	6	тріттоо	60	30Min.	90-1700	0.028	0.28	0.025	0.25	0.023	0.23	ZΡ	CE	3.0
						1ph110	60		90-1700	0.036	0.36	0.032	0.32	0.026	0.26			
6	0					1ph200	50		90-1400	0.036	0.36	0.032	0.32	0.030	0.30			
0		A6HR06C	CAH90C	4	6	1011200	60	30Min.	90-1700	0.028	0.28	0.025	0.25	0.023	0.23	ZΡ	CE	0.8
						1ph220	60		90-1700	0.036	0.36	0.032	0.32	0.026	0.26			
		A6HR06D	CAH90D	4	6	1ph220	50	30Min.	90-1400	0.030	0.30	0.030	0.30	0.028	0.28	ZP	CE	0.7
		AOTINOOD	CALIBOD	4	0	1ph240	50	SUMITI.	90-1400	0.045	0.45	0.033	0.33	0.040	0.40	ZP	CE	0.7

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- · All the motor types in the table above are CE Mark and impedance-protected (ZP) types.

Gear head ty	/pe: G6⊡D													
Frequency	Frequency Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	N∙m	0.13	0.15	0.21	0.26	0.31	0.38	0.42	0.53	0.63	0.76	0.76	0.95	
	Rating torque	Kgf⋅cm	1.3	1.5	2.1	2.6	3.2	3.9	4.3	5.4	6.4	7.7	7.7	9.7
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz		N∙m	0.10	0.13	0.17	0.21	0.26	0.30	0.34	0.43	0.51	0.62	0.62	0.76
	Rating torque	Kgf⋅cm	1.0	1.3	1.7	2.1	2.6	3.1	3.5	4.4	5.2	6.3	6.3	7.8

Gear head ty	/pe: G6⊡D													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	N∙m	1.14	1.36	1.52	1.72	2.06	2.57	2.94	2.94	2.94	2.94	2.94	2.94	
	Rating torque	Kgf∙cm	11.6	13.9	15.5	17.5	21.0	26.2	30.0	30.0	30.0	30.0	30.0	30.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz Rating torque	N∙m	0.92	1.11	1.24	1.39	1.67	2.09	2.50	2.78	2.94	2.94	2.94	2.94	
	Hating torque	Kgf⋅cm	9.4	11.3	126	14 2	17.0	21.3	25.5	28 4	30.0	30.0	30.0	30.0

- \square in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 30 or more. When an intermediate gear head is used, the rating torque is 1.96 N·m (20 kgf·cm) for a reduction ratio between 30 and 40, and 2.94 N·m (30 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.





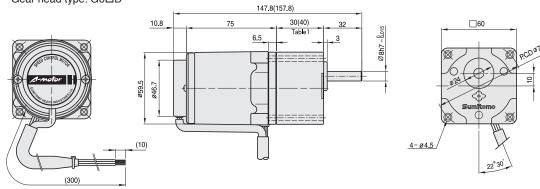
Motor type	Voltage	Capacity	Condenser type	W	Τ	Н
	(V) (μF)		**	(mm)	(mm)	(mm
A6HR06A	1ph100	3.0	DMF-25305	36	16	25
AUTINUUA	1ph110	3.0	DIVII -25505	30	10	23
A6HR06C	1ph200	0.8	DMF-45804	36	16	25
AUTHUUC	1ph220	0.6	DIVIF-43604	30	10	20
A6HR06D	1ph220	0.7	DMF-45704	36	16	25
AOHHOOD	1ph240	0.7	DIVIT-43704	30	10	25

144

Dimensions

Gear motors

Motor type: A6HR06□ Gear head type: G6□D



Gear head output shaft detail

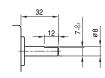
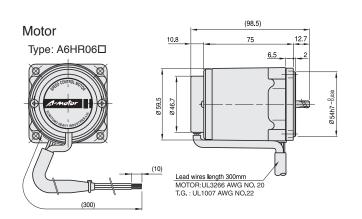


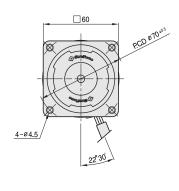
Table1. Gear head length

	- 5
Gear head size	Length(mm)
G63D~G618D	30
G620D~G6200D	40
	•

Table2. Weight

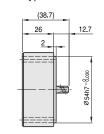
			Weight(kg)
Moto	or	0.76	
		G63D	0.24
ad	~	G618D	0.24
Gear head		G620D	0.30
ea	~	G640D	0.30
9		G650D	0.33
	~	0.33	
Inter	medi	0.18	

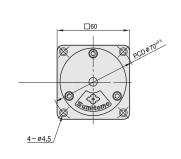




Intermediate gear head

Type: G6XH10





Related information

Selection procedure: p. 91 Options: Induction. p. 169 Standard specifications: p. 115

Technical information: p. 175

Motor specification table

Motor Type

A7HR15A

A7HR15C

A7HR15D

Gear head rating torque table

Gear head type: G7 K

Gear head type: G7 K

Reduction ratio

Ouput speed

Rating torque

Ouput speed

Rating torque

Reduction ratio

Ouput speed

Rating torque

Ouput speed

Rating torque

☐ in gear head type names indicates the reduction ratio

Frequency

50Hz

60Hz

Frequency

CAH90A

CAH90C

CAH90D

□70mm

Socket-type speed control motors

(N·m) (Kgf·cm) (N·m) (Kgf·cm) (N·m) (Kgf·cm)

0.045

0.048

0.046

0.46

Allowable torque

At 1200r/min At 90r/min

0.090 0.90

0.100

0.120

0.120 1.20

0.090 0.90

0.090 0.90

1.20







Induction

Electromagnetic brakes

Frame size mm so

70

Unit type

Brake Packs

Options

Technical Information

Overview

15W

1ph100

1ph110

1ph200

1ph220

1ph220

1ph240

500

600

0.31 0.38

0.29 0.35

417

500

300

360

0.50

40

2.68 3.22 3.58 4.02 4.83

Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.

A7HR15C

A7HR15D

Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 3.92 N·m (40 kgf·cm) for

6.0

1.5

1.2

146

DMF-45155

DMF-45125

250

0.64

300

50

43.6

36

0.60 0.75

4.28 4.90

200

240

60

50.0

30

0.79

166

0.95

9.7

200

0.89

20

4.90

50.0

24

4.90

150

1.06

10.8

180

90

16

50.0

20

4.90

4.90 4.90

0.99 1.25

120

1.32

13.5

144

100

50.0

18

4.90 4.90

15

15

The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage

All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

r/min

N·m

r/min

a reduction ratio between 25 and 40, and 4.90 N·m (50 kgf·cm) for a reduction ratio of 50 or more.

Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

60

60

60

50

30Min

· The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering

90-1700

90-1700

90-1400

90-1700

90-1400

Reversible motors

(μF)

1.2

CE

CE

TP CE

0.057 0.57

0.075 0.75

0.057 0.57

15

100

1.59

120

1.49

120

4.90

50.0

15

83

1.90

100

50.0

12

1.79 1.79

1.90 2.37

72

90







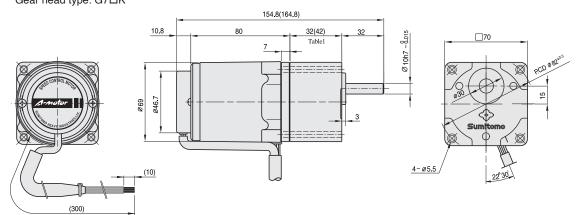
□70mm

15W

Dimensions

Gear motors

Motor type: A7HR15□ Gear head type: G7□K



Gear head output shaft detail

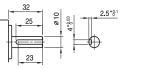


Table 1. Gear head length

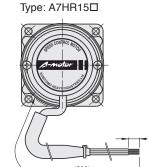
147

Gear head size G73K~G718K G720K~G7200K

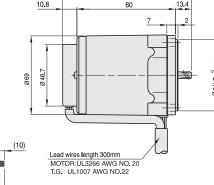
Table2. Weight

			Weight(kg)
Mot	or		1.12
		G73K	0.38
ad	~	G718K	0.30
Gear head		G720K	0.47
ear	~	G740K	0.47
Ğ		G750K	0.52
	~	G7200K	0.32
Inter	med	0.32	

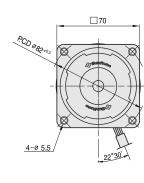
150 | 180 | 200 4.90 4.90 4.90 4.90 4.90 4.90 Kgf·cm | 27.3 | 32.8 | 36.5 | 41.0 | 49.2 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0



Motor

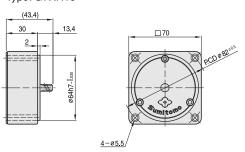


Key size



Intermediate gear head

Type: G7XH10



Related information

Selection procedure: p. 91 Options: Induction. p. 169 Standard specifications: p. 115 Technical information: p. 175

□80mm

Socket-type speed control motors **Reversible motors**







□80mm

25W

Electromagnetic brakes

Unit type

Options

25W

Motor specification table

Frame				Output	Voltage	e Frequency Time		Speed range		Allowable	e torque		Starting	torque	Over-		Condenser
size	Motor Type	Controller Type	Poles	Output	voltage	riequency	ratiang	opeca range	At 120	00r/min	At 90	r/min			heating pro-	Standard	Condenser
mm sq				(W)	(V)	(Hz)		((r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
					1ph100	50		90-1400	0.230	2.30	0.070	0.70	0.135	1.35			
	A8HR25A	CAH90A	4	25	тріттоо	60	30Min.	90-1700	0.200	2.00	0.070	0.70	0.110	1.10	TP	CE	10. 0
					1ph110	60		90-1700	0.230	2.30	0.076	0.76	0.140	1.40			
80					1ph200	50		90-1400	0.230	2.30	0.070	0.70	0.135	1.35			
80	A8HR25C	CAH90C	4	25	1011200	60	30Min.	90-1700	0.200	2.00	0.070	0.70	0.110	1.10	TP	CE	2. 5
					1ph220	60		90-1700	0.260	2.60	0.076	0.76	0.140	1.40			
A8HR25I		ED CALIOOD		25	1ph220	50	30Min.	90-1400	0.220	2.20	0.072	0.72	0.135	1.35	TP	CE	2.0
	AOI INZOD	CAH90D	4	25	1ph240	30Min.	/iin. 90-1400	0.260	2.60	0.072	0.72	0.190	1.90	٦٢	S	۷.0	

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- · The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- · All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head ty	ype: G8⊡K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Doting torque	N⋅m	0.52	0.63	0.87	1.05	1.31	1.57	1.74	2.19	2.62	3.15	3.15	3.94
	Rating torque	Kgf⋅cm	5.3	6.4	8.9	10.7	13.4	16.0	17.8	22.3	26.7	32.1	32.1	40.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz		N⋅m	0.43	0.51	0.72	0.85	1.07	1.28	1.43	1.78	2.15	2.57	2.58	3.22
	Rating torque	Kgf⋅cm	4.4	5.2	7.3	8.7	10.9	13.1	14.6	18.2	21.9	26.2	26.3	32.9

Gear head ty	ype: G8⊡K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	4.72	5.66	6.29	7.12	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84
	hatting torque	Kgf∙cm	48.2	57.8	64.2	72.6	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Doting torque	N∙m	3.86	4.64	5.16	5.82	6.99	7.84	7.84	7.84	7.84	7.84	7.84	7.84
	Rating torque	Kaf·cm	30 4	473	52.6	50 4	71 3	80 O	80 N	80 O	80 N	80 N	80.0	80 O

- $\hfill \square$ in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 5.88 N·m (60 kgf·cm) for a reduction ratio between 25 and 40, and 7.84 N·m (80 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.





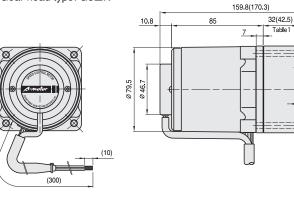
Motor type	Voltage	Capacity	Condenser type	W	Τ	Н
	(V)	(μF)	,,	(mm)	(mm)	(mm
A8HR25A	1ph100	10.0	DMF-251006	47	19	28
AOTINZSA	1ph110	10.0	DIVII -231000	47	19	۵
A8HR25C	1ph200	2.5	DMF-45255	47	19	28
AOTINZSC	1ph220	2.5	DIVII =43233	47	19	20
A8HR25D	1ph220	2.0	DMF-45205	38	19	29
AOLINZSD	1ph240	2.0	DIVII -43203	30	19	29

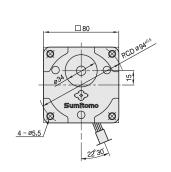
148

Dimensions

Gear motors

Motor type: A8HR25□ Gear head type: G8□K





Gear head output shaft detail

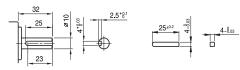


Table 1 Gear head length

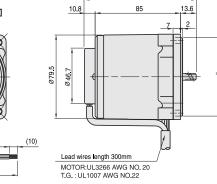
rable i.	Gear nead	riengin
Gear	head size	Length (mm)
G83K	~ G818K	32
G820K	~ G8200K	42.5

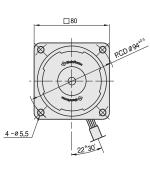
Table2. Weight

			Weight(kg)
Mote	or		1.60
		G83K	0.43
ad	~	G818K	0.43
Gear head		G820K	0.57
ear	~	G840K	0.57
Ğ		G850K	0.61
	~	G8200K	0.01
Inter	med	iate gear head	0.43



Motor

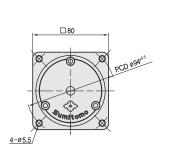




Intermediate gear head

Type: G8XH10





Related information

Selection procedure: p. 91
Options: Induction. p. 169
Standard specifications: p. 115
Technical information: p. 175

□90mm

Socket-type speed control motors Reversible motors







□90mm

40W

Induction

Unit type

Overview

Motor specification table

Frame				Output	t Voltage	Fraguancy		Speed range		Allowable	e torque		Starting	torque	Over-		Condenser
size		Controller Type	Poles	Output	vollage	1 lequelloy	Time ratiang	opcod range	At 12	00r/min	At 90)r/min			heating pro-	Standard	Condenser
mm sq				(W)	(V)	(Hz)	J	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)
					1ph100	50		90-1400	0.360	3.60	0.080	0.80	0.235	2.35			
	A9HR40A	CAH90A	4	40	тріттоо	60	30Min.	90-1700	0.300	3.00	0.080	0.80	0.200	2.00	TΡ	CE	15.0
					1ph110	60		90-1700	0.360	3.60	0.084	0.84	0.270	2.70			
90					1ph200	50		90-1400	0.360	3.60	0.080	0.80	0.235	2.35			
90	A9HR40C	CAH90C	4	40	Τριίζου	60	30Min.	90-1700	0.300	3.00	0.000	0.00	0.200	2.00	TΡ	CE	4. 0
					1ph220	60		90-1700	0.300	3.00	0.084	0.84	0.270	2.70			
	A9HR40D	CAH90D	4	40	1ph220	50	30Min.	90-1400	0.340	3.40	0.083	0.83	0.200	2.00	TP	CE	3.0
	ASI IN40D	CALIBOD	+	40	1ph240	30	JOIVIII.	30-1400	0.400	4.00	0.000	0.00	0.280	2.80	I IP		5.0

- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head ty	/pe: G9A⊟K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Doting torque	N∙m	0.81	0.97	1.35	1.62	2.03	2.43	2.70	3.37	4.05	4.86	4.86	6.09
	Rating torque	Kgf⋅cm	8.3	9.9	13.8	16.5	20.7	24.8	27.5	34.4	41.3	49.6	49.6	62.1
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Rating torque	N∙m	0.67	0.80	1.11	1.33	1.67	2.00	2.23	2.78	3.33	4.00	4.01	5.01
		Kgf⋅cm	6.8	8.2	11.3	13.6	17.0	20.4	22.7	28.4	34.0	40.8	40.9	51.1

Gear head ty	rpe: G9A⊡K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N∙m	7.30	8.76	9.73	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
	rialing lorque	Kgf∙cm	74.5	89.4	99.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Pating torque	N∙m	6.01	7.21	8.02	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
	Rating torque	Kgf∙cm	61.3	73.6	81.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

- \square in gear head type names indicates the reduction ratio.
- When an intermediate gear head is used, the rating torque is 9.80 N•m(100kgf•cm).
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.





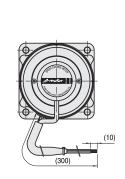
Motor type	Voltage	Capacity	Condenser type	W	Т	Ι
	(V)	(μF)		(mm)	(mm)	(mm
A9HR40A	1ph100	15.0	DMF-251506	50	25	40
ASTINAUA	1ph110	15.0	DIVIT -231300	50	25	‡
A9HR40C	1ph200	4.0	DMF-45405	48	21	33
A9HH40C	1ph220	4.0	DIVIF-45405	40	21	33
A9HR40D	1ph220	3.0	DMF-45305	47	19	28
A9I IN40D	1ph240	3.0	DIVIT -45505	47	19	20

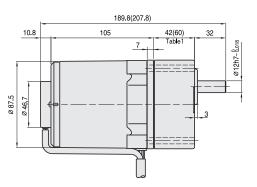
150

Dimensions

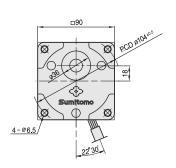
Gear motors

Motor type: A9 HR40□ Gear head type: G9A□K





Key size



Gear head output shaft detail

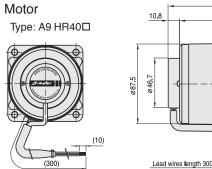
32		
25	2.5*81	-
	├	
23 5		

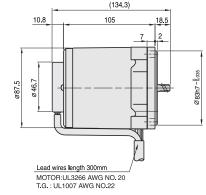
Table 1. Gear head length

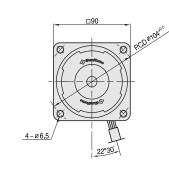
Table II. Godi II. Gd	iongui
	Length(mm
G9A3K~G9A18K	42
G9A20K~G9A200K	60

Table2. Weight

			Weight(kg)						
Moto	or		2.42						
		G9A3K	0.73						
ad	~	G9A18K	0.73						
Gear head		G9A20K	1.03						
ear	~	G9A40K	1.00						
Ğ		G9A50K	1.13						
	~	G9A200K	1.10						
Inter	medi	ate gear head	0.60						

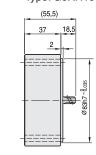


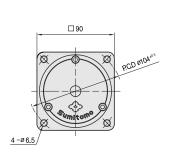




Intermediate gear head

Type: G9XH10





Related information

Selection procedure: p. 91 Options: Induction. p. 169 Standard specifications: p. 115 Technical information: p. 175

MEMO

Socket-type speed controllers (W/Electromagnetic brake motors)



W/Electromagnetic brake motors

- Product sets consisting of special motor with electromagnetic brake and socket-type speed controllers that can adjust the motor speed.
- Speed controllers are compact and multifunctional.
- Controller, special motor and condenser must be wired externally.
- Speed range:
- 50 Hz: 90 to 1,400 r/min 60 Hz: 90 to 1,700 r/min
- Motors have built-in tachogenerators (TG).
- Motors can be stopped instantly using a built-in electronic brake function. (Optional external braking resistor must be attached.)
- Motor must be completely stopped before motor operation direction can be switched.
- Acceleration/deceleration time can be set, so motor can be accelerated/decelerated gradually (soft start, soft stop).
- Time rating: Short-time (30minutes)
- External wiring is requited for condenser attachment and electromagnetic brake comection.
- A single speed control switch can be used to operate multiple controllers simultaneously at the same speed setting.



6W	P.154
15W	P.156
25W	P.158
40W	P.160

153

Induction

Unit type

Overview

6W

Socket-type speed control motors **Electromagnetic brakes motors**









6W

Motor specification table

Frame					Output	Voltage	Frequency	Time Speed range			Allowable	e torque		Ctartin	g torque	Over-		Condenser
Ш	size		Controller Type	Poles	Output	voltage	riequelicy	Time ratiang	iiie -		At 1200r/min		r/min	Starting	y torque	heating pro-	Standard	Condenser
	mm sq				(W)	(V)	(Hz)		(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	pro- tection		(μF)
						1ph100	50		90-1400	0.050	0.50			0.039	0.39			
Ш		A6HR06AB	CAH90A	4	6	тріттоо	60	30min.	90-1700	0.038	0.38	0.030	0.30	0.036	0.36	ZΡ	CE	3.0
Ш						1ph110	60		90-1700	0.050	0.50			0.044	0.44			
Ш	60					1ph200	50		90-1400	0.050	0.50			0.039	0.39			
П	00	A6HR06CB	CAH90C	4	6	1011200	60	30min.	90-1700	0.038	0.38	0.030	0.30	0.036	0.36	ZΡ	CE	0.8
Ш						1ph220	60		90-1700	0.050	0.50			0.044	0.44			
		A6HR06DB	CAH90D	1	6	1ph220	50	30min.	90-1400	0.045	0.45	0.030	0.30	0.045	0.45	Ъ	CE	0.7
		AUTINUODE	CALIBUD	+	0	1ph240	30	JUIIIII.	30 - 1400	0.056	0.56	0.030	0.30	0.049	0.49	7	5	0.7

- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- · All the motor types in the table above are CE Mark and impedance-protected (ZP) types.

Gear head ty	rpe: G6⊡D													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N∙m	0.13	0.15	0.21	0.26	0.31	0.38	0.42	0.53	0.63	0.76	0.76	0.95
		Kgf∙cm	1.3	1.5	2.1	2.6	3.2	3.9	4.3	5.4	6.4	7.7	7.7	9.7
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Dating town	N∙m	0.10	0.13	0.17	0.21	0.26	0.30	0.34	0.43	0.51	0.62	0.62	0.76
	Rating torque	Kgf⋅cm	1.0	1.3	1.7	2.1	2.6	3.1	3.5	4.4	5.2	6.3	6.3	7.8

Gear head type: G6 D														
Frequency Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200	
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N⋅m	1.14	1.36	1.52	1.72	2.06	2.57	2.94	2.94	2.94	2.94	2.94	2.94
		Kgf∙cm	11.6	13.9	15.5	17.5	21.0	26.2	30.0	30.0	30.0	30.0	30.0	30.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Dating taxava	N∙m	0.92	1.11	1.24	1.39	1.67	2.09	2.50	2.78	2.94	2.94	2.94	2.94
	Rating torque	Kgf⋅cm	9.4	11.3	12.6	14.2	17.0	21.3	25.5	28.4	30.0	30.0	30.0	30.0

- \square in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 30 or more. When an intermediate gear head is used, the rating torque is 1.96 N·m (20 kgf-cm) for a reduction ratio between 30 and 40, and 2.94 N·m (30 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- · Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.





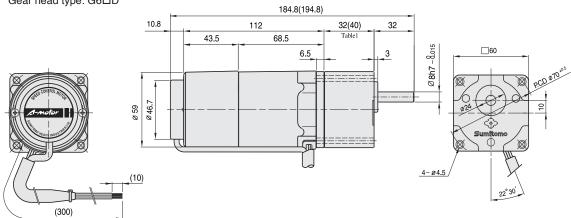
Motor type	Voltage	Capacity	Condenser type	W	Τ	I	
	(V)	(μF)	,	(mm)	(mm)	(mm)	
A6HR06AB	1ph100	3.0	DMF-25305	36	16	25	
AUTHOUAD	1ph110	3.0	DIVIT -25505	30	10	25	
A6HR06CB	1ph200	0.8	DMF-45804	36	16	25	
AOHHUUC B	1ph220	0.6	DIVIT-45604	30	10	25	
A6HR06DB	1ph220	0.7	DMF-45704	36	16	25	
APHROPDR	1ph240	0.7	DIVII -45704	50	10	دے	

154

Dimensions

Gear motors

Motor type: A6HR06□B Gear head type: G6□D



Gear head output shaft detail

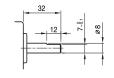
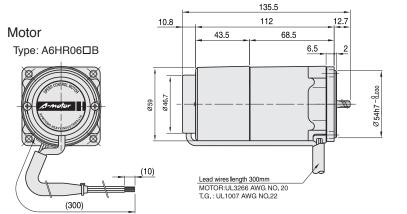


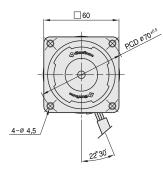
Table1. Gear head length

Table II. Gloat Hoad	
Gear head size	Length(mm)
G63D~G618D	30
G620D~G6200D	40

Table2. Weight

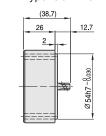
			Weight(kg)
Mot	or		1.00
		G63D	0.24
ad	~	G618D	0.24
Gear head		G620D	0.30
ear	~	G640D	0.30
Ğ		G650D	0.33
	?	G6200D	0.33
Inter	medi	ate gear head	0.18

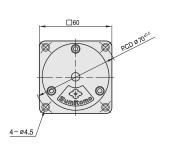




Intermediate gear head

Type: G6XH10





Related information

Selection procedure: p. 91 Options: Induction. p. 169 Standard specifications: p. 115

Technical information: p. 175







□70mm

Induction

15W







15W

Motor specification table

Frame					Output	Voltage	Frequency		Speed range		Allowable	e torque		Startin	g torque	Over-		Condenser
si	ze	Motor Type	Controller Type	Poles	Output	voltage	riequency	Time ratiang	.,	At 12	00r/min	At 90r/min		Otal ting torquo		heating pro-	Ctondord	Condenser
mr	n sq				(W)	(V)	(Hz)	ranarig	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	pro- tection		(μF)
						1ph100	50		90-1400	0.110	1.10			0.078	0.78			
		A7HR15AB CAH90A	CAH90A	4	15		60	30min.	90-1700	0.085	0.85	0.045	0.45	0.068	0.68	TP	CE	6.0
					1ph110	60		90-1700	0.110	1.10			0.080	0.80				
7	70					1ph200	50		90-1400	0.110	1.10			0.078	0.78			
/	١	A7HR15CB	CAH90C	4	15		60	30min.	90-1700	0.085	0.85	0.045	0.45	0.068	0.68	TP	CE	1.5
						1ph220	60		90-1700	0.110	1.10			0.080	0.80			
	A7HR15DB	CAH90D	H90D 4	15	1ph220	50	30min.	90-1400	0.100	1.00	0.045	0.45	0.077	0.77	TP	CE	1.2	
		A/HK15DB		CAH90D	15	1ph240	h240 50	30min.	30-1400	0.120	1.20	0.045	0.45	0.099	0.99	IF	CE	1.2

- The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage.
- · The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head t	ype: G7∐K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Rating torque	N⋅m	0.31	0.38	0.53	0.64	0.79	0.95	1.06	1.32	1.59	1.90	1.90	2.37
	Halling lorque	Kgf∙cm	3.2	3.9	5.4	6.5	8.1	9.7	10.8	13.5	16.2	19.4	19.4	24.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz	Rating torque	N∙m	0.29	0.35	0.50	0.60	0.75	0.89	0.99	1.25	1.49	1.79	1.79	2.24
	namy torque	Kgf⋅cm	3.0	3.6	5.1	6.1	7.6	9.1	10.1	12.7	15.2	18.2	18.2	22.8

Gear head t	ype: G7∐K													
Frequency			30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N⋅m	2.85	3.42	3.81	4.28	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90
		Kgf∙cm	29.1	34.9	38.8	43.6	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz	Dating targue	N∙m	2.68	3.22	3.58	4.02	4.83	4.90	4.90	4.90	4.90	4.90	4.90	4.90
	Rating torque	Kgf∙cm	27.3	32.8	36.5	41.0	49.2	50.0	50.0	50.0	50.0	50.0	50.0	50.0

- Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 3.92 N·m (40 kgf·cm) for a reduction ratio between 25 and 40, and 4.90 N·m (50 kgf·cm) for a reduction ratio of 50 or more.
- · Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.





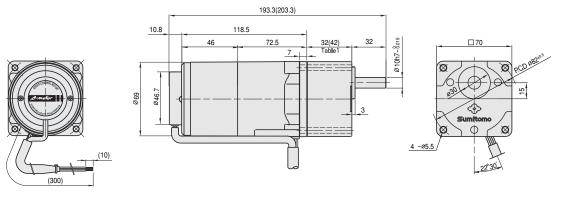
Motor type	Voltage	Capacity	Condenser type	W	Τ	Н
	(V)	(μF)		(mm)	(mm)	(mm
A7HR15AB	1ph100	6.0	DMF-25605	38	19	29
	1ph110					
A7HR15CB	1ph200	1.5	DMF-45155	36	16	25
	1ph220					
A7HR15DB	1ph220	1.2	DMF-45125	36	16	25
	1ph240					1

156

Dimensions

Gear motors

Motor type: A7HR15□B Gear head type: G7□K



Gear head output shaft detail

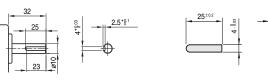
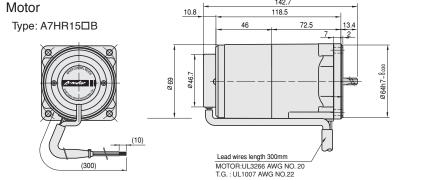


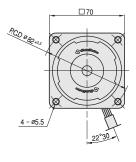
Table1. Gear head length

abie ii Geal iieae	
Gear head size	Length(mm)
G73K~G718K	32
G720K~G7200K	42

Table2. Weight

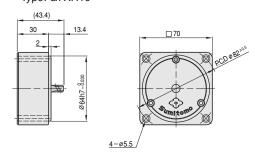
			Weight(kg)
Mot	or	1.35	
		G73K	0.38
head	~	G718K	0.56
		G720K	0.47
Gear	~	G740K	0.47
Ğ		G750K	0.52
	~	G7200K	0.52
Inter	medi	0.32	





Intermediate gear head

Type: G7XH10



Related information

Selection procedure: p. 91
Options: Induction. p. 169
Standard specifications: p. 115
Technical information: p. 175

□80mm

Socket-type speed control motors **Electromagnetic brakes motors**







□80mm

25W

Induction

25W

Motor specification table

Antor Type				Voltage Frequency			Speed range		Allowable torque			Starting torque		Over-		Condenser										
violoi Type	Motor Type Controller Type		Controller Type	Controller Type	Controller Type	Controller Type	Controller Type	Controller Type	Controller Type	Controller Type	Controller Type	Poles	Output	Voltage	riequency	Time ratiang	opeca range	At 12	00r/min	At 90r/min				heating pro-	Standard	Condenser
			(W)	(V)	(Hz)	3	(r/min)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	(N·m)	(Kgf·cm)	tection		(μF)										
A8HR25AB CAH90A				1nh100	50	30min.	90-1400	0.220	2.20			0.141	1.41													
	4	4	25	тріттоо	60		90-1700	0.160	1.60	0.070 0.70	0.119	1.19	TP	CE	10.0											
			1ph110	60		90-1700	0.200	2.00			0.144	1.44														
				1nh200	50		90-1400	0.220	2.20			0.141	1.41													
8HR25CB	CAH90C	4	25	1011200	60	30min.	90-1700	0.160	1.60	0.070	0.70	0.119	1.19	TP	CE	2.5										
				1ph220	60	60	90-1700	0.200	2.00			0.144	1.44													
A8HR25DB CAH90D	PHRAEDB CAHOOD	CAHOOD 4) 4	4	25	1ph220	F0 20~	30min	90-1400	0.210	2.10	0.060	0.60	0.150 1.50	1.50	то	05	2.0								
	DHR23DB CAH90D	CANSUD 4		20	1ph240	30	30111111.	Jiliii. 30-1400	0.250	2.50	0.000	0.50	0.194	1.94	IF	CE	2.0									
8H 8H	HR25AB	HR25AB CAH90A HR25CB CAH90C	HR25AB CAH90A 4 HR25CB CAH90C 4	HR25AB CAH90A 4 25 HR25CB CAH90C 4 25	HR25AB CAH90A 4 25 1ph100 1ph110 1ph200 1ph220 1ph220 4 25 1ph220	HR25AB CAH90A 4 25 1ph100 50 60 1ph110 60 1ph220 60 1ph220 60 1ph220 60 1ph220 50	(W) (V) (Hz) Hallering HR25AB CAH90A 4 25 1ph100 50 60 30min. HR25CB CAH90C 4 25 1ph200 60 1ph	(W) (V) (Hz) (tr/min) (tr/min) (100 10	(W) (V) (Hz) (r/min) (N·m) (Hz54B CAH90A 4 25 1ph100 50 30min. 90-1700 0.200 1ph20 60 30min. 90-1400 0.210 1ph20 1ph	(W) (V) (Hz) (t/min) (N·m) (Kgf·cm) (Hz55AB CAH90A 4 25 1ph100 50 1ph110 60 90-1700 0.200 2.20 1ph20B 60 30min. 90-1700 0.160 1.60 1ph220 60 30min. 90-1700 0.160 1.60 1ph220 60 90-1700 0.200 2.00 1ph220 60 1ph220 60 90-1700 0.200 2.00 1ph220 60 1ph220 60	(W) (V) (Hz) (I/min) (N·m) (Kgf·cm) (N·m) (N·m) (Kgf·cm) (N·m) (Rgf·cm) (Rgf·cm) (Rgf·cm) (Rgf·cm) (Rgf·cm) (Rgf·cm) (Rgf·cm) (Rgf·cm) (Rgf·cm) (Rgf·cm) (Rgf·cm) (Rgf·cm) (Rgf·cm) (Rgf·	(W) (V) (Hz) (r/min) (N·m) (Kgf·cm) (N·m) (Kgf·cm) (Kgf·cm) (Hz) (Hz) (Hz) (Hz) (Hz) (Hz) (Hz) (Hz) (Hz) (Hz) (Hz)	(W) (V) (Hz) (Ir/min) (N·m) (Kgf·cm) (N·m) (Kgf·cm) (N·m) (Kgf·cm) (N·m) (N·m) (Kgf·cm) (N·m)	R25AB CAH90A 4 25 1ph100 50 60 30min. 90-1400 0.210 2.10 0.060 0.60 0.150 1.5	R25AB CAH90A 4 25 1ph100 50 60 30min. 90-1400 0.220 2.20 2.20 0.070 0.119 1.19 TP	CAH90D 4 25 1ph200 60 1ph220 1ph220 1ph220 1ph220 1ph220 1ph220										

- The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.
- All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

Gear head ty	ype: G8⊡K													
Frequency	Reduction ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
	Ouput speed	r/min	500	417	300	250	200	166	150	120	100	83	75	60
50Hz	Dating towns	N⋅m	0.52	0.63	0.87	1.05	1.31	1.57	1.74	2.19	2.62	3.15	3.15	3.94
	Rating torque	Kgf⋅cm	5.3	6.4	8.9	10.7	13.4	16.0	17.8	22.3	26.7	32.1	32.1	40.2
	Ouput speed	r/min	600	500	360	300	240	200	180	144	120	100	90	72
60Hz		N⋅m	0.43	0.51	0.72	0.85	1.07	1.28	1.43	1.78	2.15	2.57	2.58	3.22
	Rating torque	Kgf⋅cm	4.4	5.2	7.3	8.7	10.9	13.1	14.6	18.2	21.9	26.2	26.3	32.9

Gear head ty	ype: G8⊡K													
Frequency	Reduction ratio		30	36	40	50	60	75	90	100	120	150	180	200
	Ouput speed	r/min	50	41	37	30	25	20	16	15	12	10	8	7.5
50Hz	Rating torque	N⋅m	4.72	5.66	6.29	7.12	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84
	Hatting torque	Kgf∙cm	48.2	57.8	64.2	72.6	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
	Ouput speed	r/min	60	50	45	36	30	24	20	18	15	12	10	9
60Hz Rating torque	D - 1 1	N∙m	3.86	4.64	5.16	5.82	6.99	7.84	7.84	7.84	7.84	7.84	7.84	7.84
	Kgf⋅cm	39.4	47.3	52.6	59.4	71.3	80.0	80.0	80.0	80.0	80.0	80.0	80.0	

- $\hfill \square$ in gear head type names indicates the reduction ratio.
- Intermediate gear heads are for use with gear heads having a reduction ratio of 25 or more. When an intermediate gear head is used, the rating torque is 5.88 N·m (60 kgf·cm) for a reduction ratio between 25 and 40, and 7.84 N·m (80 kgf·cm) for a reduction ratio of 50 or more.
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation.
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.



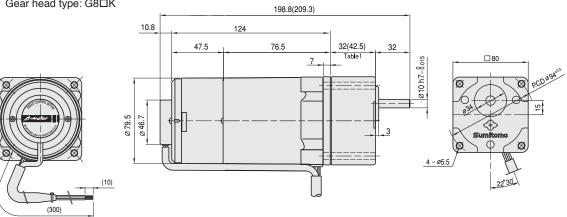
Motor type	Voltage	Capacity	Condenser type	W	Τ	Н
	(V)	(μF)		(mm)	(mm)	(mm
A8HR25AB	1ph100	10.0	DMF-251006	47	19	28
	1ph110	10.0	DIVIT -231000	+	13	۵
A8HR25CB	1ph200	2.5	DMF-45255	47	19	28
AOHN23C B	1ph220	2.5	DIVIF-43233	47	19	۵
A8HR25DB	1ph220	2.0	DMF-45205	38	19	29
	1nh240	2.0	DIVII -43203	30	13	23

158

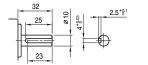
Dimensions

Gear motors

Motor type: A8HR25□B Gear head type: G8□K



Gear head output shaft detail



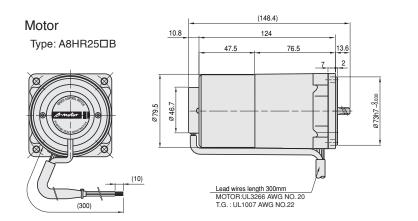
Key size

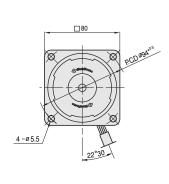
Table 1. Gear head length

Gear head size	
	Length (mm)
G83K ~ G818K	32
G820K ~ G8200K	42.5

Table2. Weight

			Weight(kg)
Moto	or		2.00
		G83K	0.43
Gear head	~	G818K	0.43
		G820K	0.57
ar	~	G840K	0.57
Ge		G850K	0.61
	~	G8200K	0.01
Inter	medi	0.43	

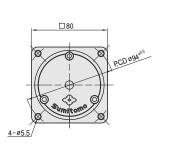




Intermediate gear head

Type: G8XH10





Related information

	Selection procedure: p. 91
[Options: Induction. p. 169
	Standard specifications: p. 115
	Technical information: p. 175

1ph100

1ph110

1ph220

500

50

6.01 7.21

417

36

300

37

8.02

40

The capacitor condenser depends on the voltage in use. Be sure to use the correct capacity for the voltage

· All the motor types in the table above are CE Mark and thermal protected (TP) is built in the coil.

r/min

N·m

r/min

r/min

Kgf⋅cm

Kgf·cm

r/min

Kgf⋅cm

At 1200r/min At 90r/min (N·m) (Kgf·cm) (N·m) (Kgf·cm)

0.090

0.090

0.090

3.80

90-1700 0.290 2.90

90-1700 0.360 3.60

90-1400 | 0.380 | 3.80

90-1700 0.290 2.90

90-1700 0.360 3.60 0.350 3.50

200

25

100.0

30

9.80

300

0.67 | 0.80 | 1.11 | 1.33 | 1.67 | 2.00 | 2.23

100.0

9.80

166

2.03 2.43 2.70

240 200 180

20.4

75

20

24

13.8 | 16.5 | 20.7 | 24.8 | 27.5 | 34.4

150

16

9.80

100.0 100.0 100.0

9.80 9.80 9.80

61.3 | 73.6 | 81.8 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0

120

144

2.78

100

15

9.80

90-1400

· The use of an incorrect condenser capacity can cause malfunctions. To ensure that you order the correct model, check the voltage in use before ordering.

0.90

0.90

0.90

0.242 2.42

0.297 2.97

0 274 2 74

0.242 2.42

0.249 2.49

15

100

4.05

120

3.33

120

9.80

100.0

9.80

4.00

100.0

9.80

(μF)

4.0

3.0

CE

CE

CE

75

4.01

4.86 6.09

180 | 200

100.0 100.0

9.80

60







□90mm

40W

Motor specification table

Motor Type

A9HR40AB

A9HR40CB

A9HR40DB

Gear head type: G9A□K

Gear head type: G9A K

50Hz

60Hz

Frequency

50Hz

60Hz

Reduction ratio

Ouput speed

Rating torque

Ouput speed

Rating torque

Reduction ratio

Ouput speed

Rating torque

Ouput speed

Rating torque

CAH90A

CAH90C

CAH90D

size mm sq

Electromagnetic brakes

Induction

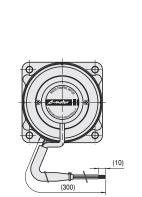
Unit type

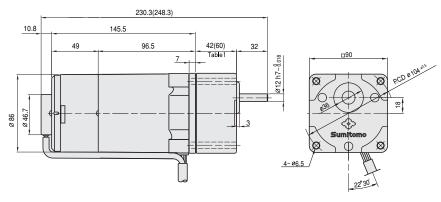
Brake Packs

Options

Gear motors

Motor type: A9HR40□B Gear head type: G9A□K





Gear head output shaft detail

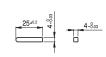
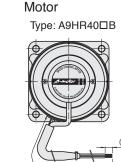


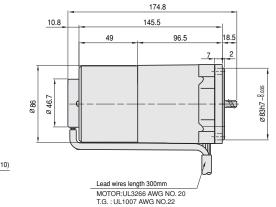
Table1. Gear head length

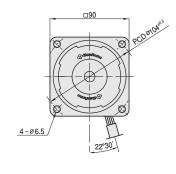
Gear head size	Length(mm)
G9A3K~G9A18K	42
G9A20K~G9A200K	60
•	-

Table2. Weight

				weight(kg)
	Moto	or		2.87
			G9A3K	0.73
	ad	~	G9A18K	0.73
	Gear head		G9A20K	1.03
		Gear	G9A40K	1.03
			G9A50K	1.13
		~	G9A200K	1.13
	Inter	med	0.60	







in gear head type names indicates the reduction ratio

- When an intermediate gear head is used, the rating torque is 9.80 N·m(100kgf·cm).
- Rotation direction in shaded boxes are in the same direction as the motor rotation. Direction in unshaded boxes are in the opposite direction as the motor rotation
- Rotation speed don't include motor slippage. The actual values will be between 2 and 20% lower, depending on the load.

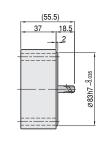


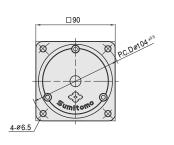


Motor type	Voltage	Capacity	Condenser type	W	Т	Н
	(V)	(μF)	,	(mm)	(mm)	(mm)
A9HR40AB	1ph100	15.0	DMF-251506	50	25	40
A9111140A D	1ph110	15.0	DIVIT -231300	30	25	40
A9HR40CB	1ph200	4.0	DMF-45405	48	21	33
A9I IN40C B	1ph220	4.0	DIVII =43403	40	۱ ک	
A9HR40DB	1ph220	3.0	DMF-45305	47	19	28
ASI IN40D B	1ph240	3.0	DIVII -45505	47	19	20

Intermediate gear head

Type: G9XH10





161

Related information

Selection procedure: p. 91 Options: Induction. p. 169 Standard specifications: p. 115

Technical information: p. 175

MEMO

Brake packs



Brake packs

- Sumitomo's brake packs are non contact types that can instantly stop induction motors or reversible motors by electronic braking.
 To control a motor using brake packs, a DC power supply for the signal is required (12~14DVDC, 0.1A or larger).



Overview	P.164
Specification, Dimensions	P.165
Panel display and switches, Motors, System configurations	P.166
Input signal and motor operation, Coutions	P.167

163

Induction

Overview

Reversible

Electromagne brak

boxes

Spee controlle (Overview

Spee controlle (Induction

controlle (Reversible

agnetic brake

Technica Informatio

Overvi

Dimensio

and display

Overview of brake pack (Characteristics)

1. Brake pack characteristics

Sumitomo's brake packs are non contact types that can instantly stop induction motors or reversible motors by electronic braking. The motor alone can be stopped in less than about 0.1 second. A braking current is applied to the motor for about 0.4 second, then the motor's input power supply is automatically shut off. Unlike electromagnetic brakes, brake packs don't store torque. Since they have no parts to generate mechanical friction, they have long lives. To control a motor using brake packs, a DC power supply for the signal is required (12~14DVDC, 0.1A or larger).

2. Using brake packs

1) Switching the motor's operation direction

Before switching the motor's operation direction, always check that the motor has completely stopped. For an instant stop, the braking current is applied for about 0.4 second. If you try to switch the motor's operation direction during this time interval, the relay contacts generate a large spark, shortening the product life. Don't try to switch the motor's operation direction in the 0.5-second interval after an instant motor stop.

2) Fuses

When connecting a fuse to the power unit, check the motor's braking current value to select the proper fuse capacity. The motor's braking current value is given in the specifications table.

3) Motor temperature rise and continuous operation time

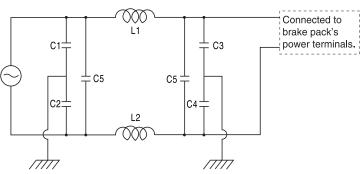
The motor's instant stop operation works properly when the brake pack is used with a short motor operation cycle. However, the shorter the operation cycle is made, the more the motor temperature rises, and the shorter the amount of continuous operation time possible. This problem occurs because the current applied when the motor brakes or starts is several times the amount during rated operation, increasing the temperature rise.

When using a short motor operation cycle, be sure the surface temperature of the motor case doesn't exceed 90 C.

4) Preventing noise

Brake packs come with a noise filter built into the power line. Components such as thyristors may malfunction when the equipment is used in areas of loud external noise. Vibrations may also be generated when the motor stops. Noise sources include equipment such as high-power motors, solenoids and electric welding equipment. To counteract external noise, attach a noise filter to the brake pack's power line as shown below.

When using a brake pack to stop the motor instantly, the braking current is phase-controlled, so some radio noise is generated. This noise won't significantly affect other equipment, but it can be effectively eliminated by connecting a noise filter as shown below.



3. Cautions for use of brake packs

1) Wiring cautions

Use the sockets for connections. Don't solder anything to the main unit's pins directly. When connecting sockets, check the terminal numbers. Before inserting the controller into the socket's groove, turn off the power and check the pin numbers. When connecting a noise filter, install the brake pack as close as possible to it, and be sure to connect it to the ground terminal. The RUN/BRAKE signal line should be short, and kept as far from motor lead lines and other power lines as possible.

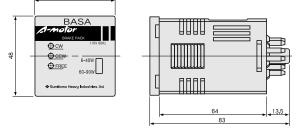
2) Operation caution

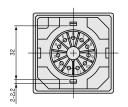
Don't let the surface temperature of the motor case exceed 90 C during operation with a load. Turn the power OFF when the motor is not in use for extended periods. Don't start or stop the motor by turning the AC power supply ON/OFF, as surge voltage from the switch may cause product damage.

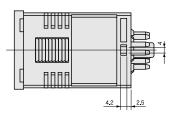
164

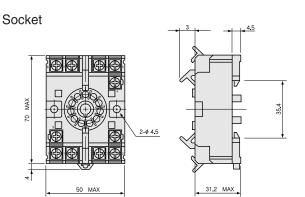
Brake packs (Standard specifications, wiring diagram)

Brake pack main unit









BASA, BASC and BASD are non contact brake packs for use with induction motors or reversible motors.

Item	ВА	SA	BAS	SC SC	BASD			
Voltage	Signal-phase 100V Signal-phase 110V		Signal-phase 200V	Signal-phase 220V	Single-phase 220∼240V			
Frequency	50/60Hz 60Hz		50/60Hz	60Hz	50Hz			
Applicable motors	Induction motors, Reversible motors (6 ~ 90W)							
Input signals	Photocoupler input 12~24VDC (±10%), CW/CCW/FREE							
Ambient temperature			-10 to	+40 C				
Ambient humidity		85% max. (no condensation)						
Insulation resistance	At least $100M\Omega$ when measured with a DC500V megger between the brake pack's power terminal and signal input terminal, at normal temperature and humidity when the brake pack has reached its rated operation.							
Insulation with stand voltage	power termina	No malfunction when a 1500V, 50/60Hz current is applied between the brake pack's power terminal and signal input terminal for 1 minute at normal temperature and humidity when the brake pack has reached its rated operation.						

Socket type

Overview of brake packs (Panel display, wiring diagram)

■Panel display and switches

Input signal display

Inpat digit	ai diopiay		
CW	Lights when CW signal is input.		
CCW	Lights when CCW signal is input.		BASA
FREE	Lights when FREE signal is input.	ון	A-motor BRAKE PACK 110V 60Hz
			— <u>⊕ cc</u> w
Motor out	out switches	_	⊕ FREE 60-90W
6~40W ■	Set to the 6~40W position when a		◆ Sumitomo Heavy Industries, Ltd.
60~90W	6, 15, 25 or 40W motor is connected.		
6~40W	Set to the 60~90W position when a		

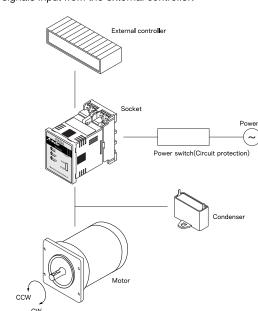
Type	Voltage	Applicable motors		
BASA	1ph 100V	Induction motors 6W~90W		
DASA	Tpii 100V	Revercible motors 6W~90W		
BASC	1ph 200V	Induction motors 6W~90W		
DASC	1pn 200v	Revercible motors 6W~90W		
BASD	1ph 220V~240V	Induction motors 6W~90W		
DASD	Tpi1 2200192400	Revercible motors 6W~90W		

60~90W 60 or 90W motor is connected.

The switch is set to the 60~90W position at shipment.

System configuration

The non contact brake packs control the motor's RUN/STOP status in response to signals input from the external controller.



■Cautions for use

Frequent instant motor stops and starts will increase the temperature rise of the brake pack and motor. Use the operation cycle figures below. keep the surface temperature of the motor case exceed 90°C during operation.

Motor output	Operation cycle
6 ~ 25W	At least 2 seconds
40 ~ 90W	At least 4 seconds

A 2-second cycle means the motor runs for 1 second and stops for 1 second.

A 4-second cycle means the motor runs for 2 seconds and stops for 2 seconds.

■Capacity of protective equipment

When the motor is stopped instantly, a large half-wave rectification current is output for between roughly 0.2 and 0.4 second. When connecting a protective element (circuit protector) to the line that carries this braking current, refer to the table below to select the proper circuit protector capacity.

Brake current (Peak)

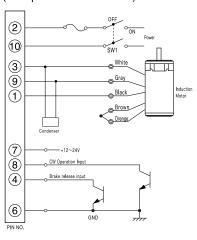
blake current (1 eak)									
	Motor output	100V 50Hz 100V 60Hz 200		200V 50Hz	200V 60Hz	220/240V 50Hz			
	6W	1.2	1.2	0.5	0.4	0.6			
	15W	3.1	3.1	1.7	1.5	1.7			
	25W	7.4	7.4	3.4	3.2	3.5			
	40W	12.2	12.2	5.4	4.2	6.6			
	60W	14.2	11.6	8.1	6.2	8.4			
	90W	17.4	16.4	10.4	8.0	10.6			

166

Overview of brake packs (Wiring diagram)

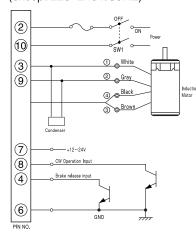
■ Brake packs BASA, BASC

 15~90W Induction motor with lead wire (except 220~240V/50HZ)

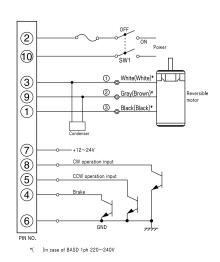


■ Brake packs BASA, BASC

- 6W Induction motor with lead wire (except 220~240V/50HZ)
- 6~90W Induction motor with terminal box (except 220~240V/50HZ)



Brake pack BASA, BASC6~90W Reversible motor



■Input signal and motor operation

- 1) Clockwise (CW) operation input (induction motors) When the CW operation input is turned ON, the motor shaft rotates clockwise. When turned OFF, the motor stops instantly. Induction motors operate using the CW operation input. When connected as shown in the diagram, the motor operates in the clockwise direction. To operate the motor counterclockwise, switch the gray and brown motor lead wires (the white and brown wires for a 220 to 240V/50Hz motor).
- 2) Counterclockwise (CCW) operation input (reversible motors) When the CCW operation input is turned ON, the motor shaft rotates counterclockwise. When turned OFF, the motor stops instantly. If the CW and CCW operation inputs are both turned ON at the same time, CW is given priority.
- 3) Brake release input (induction motors, reversible motors) When the brake release input is turned ON, the electronic brake won't operate. If the CW or CCW input is turned OFF in this condition, the motor stops naturally after losing its inertia. If the brake release input is turned OFF, the electronic brake will operate. If the CW or CCW input is turned OFF in this condition, the motor stops instantly.

■Wiring connection cautions

- · Use the shortest possible distance when wiring the motor and brake pack, and brake pack and external controller.
- Use wires with a cross-sectional area of at least 0.75mm for the motor wiring and AC power wiring.
- Don't bundle the motor wiring/AC power wiring (terminal Nos. 1, 2, 3, 9 and 10) with the signal wiring (terminal Nos. 4, 5, 6, 7, and 8).
 Install the two sets of wiring at least 10cm apart.
- · Don't solder anything to the brake pack's terminal pins directly.
- · Turn the power OFF before inserting the brake pack into the socket. Insert the brake pack securely.
- · Always ground the terminal of pin No. 6. if motor operation will include instant stops.

Overview

Induction

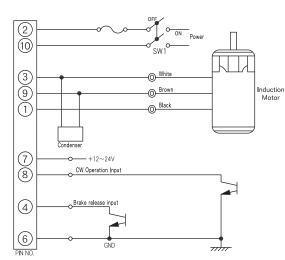
Reversible

Brake packs

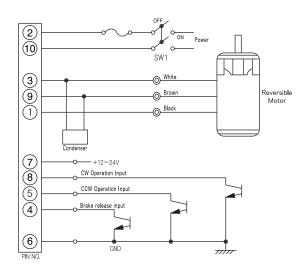
Overview of brake packs (Wiring diagram)

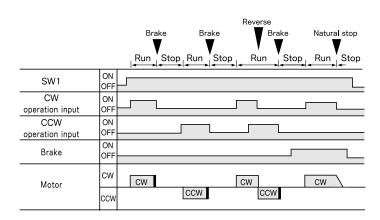
■ Brake packs BASD

6~90W Induction motor(220~240V/50HZ) with lead wire & terminal box



• 6~90W Reversible motor(220~240V/50HZ) with lead wire & terminal box





168

Options



Mounting plate for motors & gear heads	P.170
Extension cable	P.172
CR circuits for surge voltage absorber	P.172
External speed control switch	P.173
External resistor for braking	P.173

Astero

Induction

Overview

Reversible

Options. Mounting plate for motor & gear head

The mounting plate is the adapter used to secure the Astero gear motor to the floor or other surface parallel to the

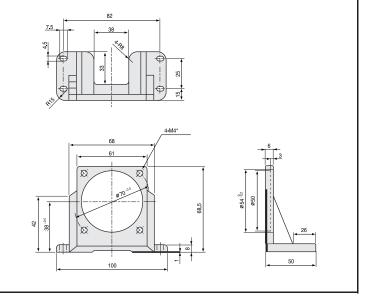
To attach the mounting plate and gear motor, use the bolts, nuts and washers provided with the gear head. No screws are provided for attaching the plate to your machinery, so should be obtained separately.





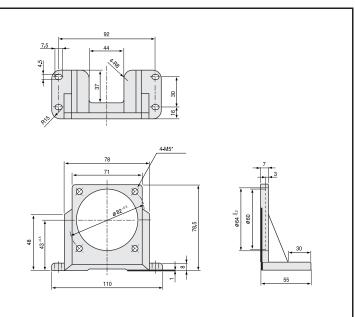
60mm sq. flange motor(6w) & gear head

Type G 6 F M Weight Material **Aluminum**



70mm sq. flange motor(15w) & gear head

G7FM Type 7 5 g Weight Aluminum Material

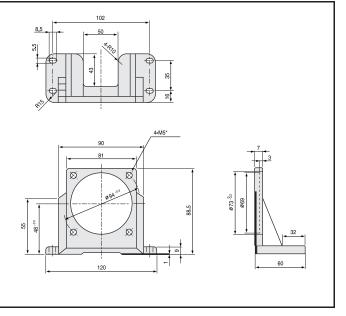


Options. Mounting plate for motor & gear head

80mm sq. flange motor(25w) & gear head

G8FM Type Weight 1 2 0 g

Material **Aluminum**

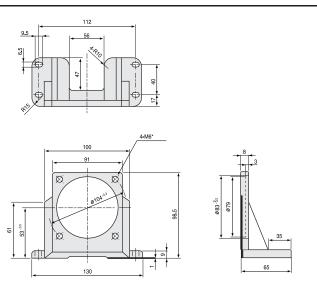


90mm sq. flange motor(40w) & gear head

Type G9AFM

Weight 1 4 0 g

Material Aluminum

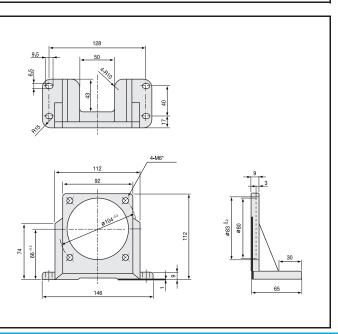


90mm sq. flange motor(60w,90w) & gear head

G9BFM Type

Weight 2 7 0 g

Material Aluminum



Overview

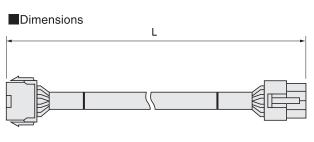
Reversible

Socket type

Special extension cable used to connect unit-type speed controllers to the induction motors used with them. The special 0.5 m wire that comes with the controller main unit can also be used to extend the range.



Options. Extersion cable



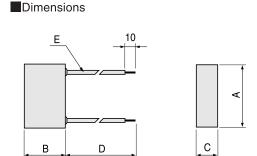
Type	L (Length)
EAWE05	0.5 m
EAWE10	1.0 m
EAWE15	1.5 m
EAWE20	2.0 m

Options. CR Circuits for surge voltage absorber

Options for socket-type speed controllers. Used to protect relay and switch contacts when using a speed controller for motor braking or operation direction switching.

See the socket-type speed controller wiring diagram for more information.





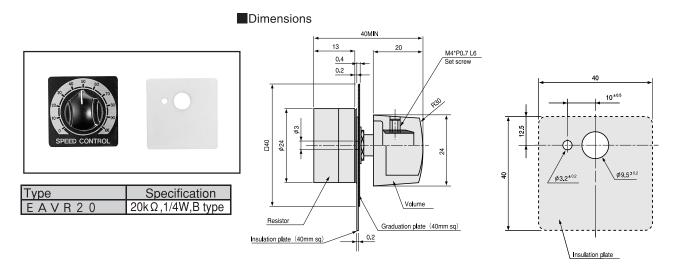
Туре	Voltage	Resistance	Condenser		Dimension (mm)			Е
•				Α	В	С	D	Lead wires
EACR25	AC250V	1 2 0 Ω	0.2 μ F	26	16.5	8.5	200	UL1007 AWG #22
EACR50	AC500V	1 2 0 Ω	0.2 μ F	36	25	16	200	UL1007 AWG #22

172

Options. External speed control switch

An option for socket-type speed controllers.

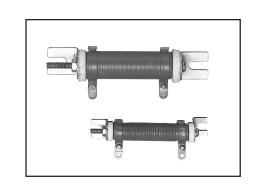
Since socket-type speed controllers come with an external speed control switch, this option is only needed for applications requiring more than one speed control switch, such as multiple-speed operation.

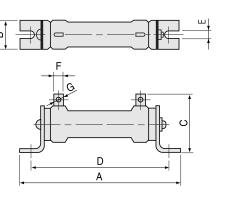


Options. External resistor for braking

An option for socket-type speed controllers.

Used for controller-driven instant braking. See the socket-type speed controller wiring diagram for more information.





Type Resistance Raiting power Dimension (mm)						Controller	Time to use				
Type	(Ω)	(W)	Α	В	С	D	Е	F	G	type	Time to use
EABR10H10	10	10	77	14	26	67	3.5	5	2.2	CAH90 🗆	Braking

MEMO

Technical Information



*Gear head and motor are sold separately.



Technical Information: Motors

1. Ratings	P. 176
2. Torque and motor speed	P. 176
3. Ambient temperature	P. 177
4. Measuring the motor temperature rise	P. 177
5. Overheating protectors	P. 178
6. Making ground connections	P. 178
7. Compliance of Sumitomo products with standards in each country	P. 178
8. Power requirements in each countries	P. 179

Technical Information: Gear Heads

9. Gear head size	P. 180
10. Reduction ratio	P. 180
11. Maximum allowable torque	P. 180
12. Service factor	P. 180
13. Gear head transmission efficiency	P. 180
14. Shaft radial load and thrust load	P. 181
15. Combining motors and gear heads	P. 181
16. Combining motors and intermediate gear heads	P. 181
17. Gear head shaft rotation speed and direction	P. 182
18. Attaching a motor and gear head	P. 182
19. Affixing a load transmission mechanism	P. 182

175

Motors

Reversible

Brake Packs

Options

Technical Information: Motors

Ratings

Motors are designed for a pre-determined temperature rise range. The operation limit Table 1. Time ratings guaranteed within this range is called the rating. Ratings are either continuous ratings or short-time ratings. Ratings determine the operation limit for a given torque, as well as values such as voltage, current, motor speed and frequency. (These values are known as the rating torque, rated voltage, rated current, rated motor speed, and rated

A continuous rating specifies that the motor can operate continuously without problems, at the rating torque and within the specified temperature rise range.

A short-time rating specifies that the motor can operate without problems for a specified amount of time at the rating torque and within the specified temperature rise

2. Torque and motor speed

A motor's torque is the rotational force needed to turn its load. Torque is expressed in units of N·m or kgf·cm.

1) Starting torque (Fig.1-1)

The rotational force the motor generates at the instant it starts. Also called startup torque. If a load larger than this rotational force is applied to the motor, the motor can't

2) Stopping torque (Fig.1-2)

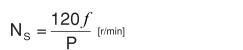
The maximum rotational force the motor can generate. If a load larger than the stopping torque is applied to the motor during operation, the motor stops.

3) Rating torque (Fig.1-3)

The torque generated when a current of the rating voltage and frequency is applied to the motor, and the motor continually generates the rating output. The torque generated when the motor operates at the rating motor speed.

4) Synchronous motor speed (Fig.1-4)

The motor speed when the motor's slippage is 0. The synchronous motor speed number of motor poles, and power frequency are related by the formula below.



Ns: Synchronous motor speed (r/min)

P: Number of motor poles
f: Power frequency (Hz)

Example: When the power frequency is 60 Hz, and the number of motor poles is 4

$$N_{s} = \frac{120 \times 60}{4}$$
 = 1800 [r/min]

5) No-load motor speed (Fig.1-5)

The motor speed when no load is applied. For induction motors and reversible motors, this value is about 20 to 80 r/min less than the synchronous motor speed.

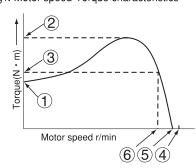
6) Rated motor speed (Fig.1 -6)

The motor speed when the rated torque is applied to the motor and it generates the rated output. The optimum speed for operation.

When a load is applied to the motor, the motor speed becomes lower than the synchronous motor speed. The slippage indicates how much the motor speed has dropped from the synchronous motor speed, relative to the value of the synchronous motor speed. It is expressed by the formula below.

Time rating
Continuous
Short-time (30 minutes)
Single-phase: Short-time (30 minutes) 3-phase: Continuous
Continuous
Short-time (30 minutes)
Short-time (30 minutes)

Fig1. Motor speed-Torque characteristics



Technical Information: Motors

$$S = \frac{N_S - N}{N_S} \quad \text{[r/min]} \quad \text{or} \quad N = N_S \times (1 - S) \text{[r/min]} \quad NS : \text{Synchronous motor speed (r/min)} \\ NS : \text{Motor speed with load (r/min)} \\ SS : \text{Slippage}$$

Example: When slippage (S) is 0.1 for a 4-pole, 60 Hz induction motor

$$N = \frac{120 \times 60}{4} (1-S) = 1800 \times (1-0.1) = 1620 [r/min]$$

8) Stored torque

The torque generated when an electromagnetic brake or simple built-in brake operates (engages) and the load is stored. Also known as static friction torque.

9) Allowable torque

The maximum torque that can be used when the motor operates. Determined by the rated torque of the motor itself, the temperature rise, and the torque of the combined gear heads.

The amount of motor shaft rotation from the instant the motor's power is shut off until the motor comes to a complete stop. Expressed as an angle (number of rotations).

3. Ambient temperature

Motors should be used in an ambient temperature of -10 to +40°C. If the motor is used above the upper-limit ambient temperature, the temperature rise generated by motor operation will add to the ambient temperature, causing coil insulation deterioration and significantly reducing the life of the ball bearings. If used below the lower-limit ambient temperature, the viscosity of the gear head lubrication grease and ball bearing grease will increase, causing greater frictional torque and making the motor difficult or impossible to start.

4. Measuring the motor temperature rise

Attach a thermocouple to the center of the motor case, operate the motor and measure the temperature when it has become stable. The difference between this value and the ambient temperature is known as the temperature rise. Generally, the coil is the highest-temperature motor part. The coil's maximum allowable temperature is specified according to the type of insulation material used. The formula for calculating the coil temperature rise is given below.

$$\Delta T = \frac{R_2 - R_1}{R_1} \times (234.5 - T_1) - (Ta - T_1)$$

$$R_1: Coil resistance before temperature rise was measured R_2: Coil resistance when temperature has become stable T_1: Ambient temperature when R1 was measured T_2: Ambient temperature when R1 was measured T_3: Ambient temperature when R1 wa$$

Ta: Ambient temperature when R2 was measured

Cautions

- The motor's temperature rise will increase if the motor is often started/stopped, its operation direction is often changed, or it is often stopped instantly using a brake pack or similar
- · During motor operation, the surface temperature of the motor case becomes quite high, and in some cases it can reach nearly 90!!C. This temperature rise is normal. To avoid accidents,

Technical Information: Motors

5. Overheating protectors

Motors with UL or CE-mark certification come with equipment to protect against overheating when the motor becomes overloaded or stops unexpectedly during operation. Motors of \$\subseteq 70\$, \$\subseteq 80\$ and \$\subseteq 90\$ mm attachment sizes come with thermal protectors.

60 mm motors come with impedance protection.

1) Motors with thermal protectors

A thermal protector (TP: a device to protect against excessive temperatures) is built into the motor's coil unit. Thermal protectors use a bimetallic strip to detect heat. If the coil reaches an abnormally high temperature, the circuit is released. The thermal protectors used in Sumitomo's motors are the auto-restore type that restore the circuit if the temperature subsequently drops back to within the normal range. Motors with built-in thermal protectors display 'TP' on the name plate. (Thermal protector operation temperatures: Release120 ±5°C, Restore77 ±5°C)

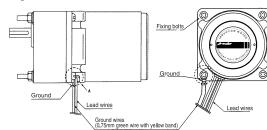
2) Motors with impedance protectiors

Motors with impedance protection have larger coil resistances and are designed so that if the motor becomes immobilized, the current (input) is limited to a low value so that the coil temperature doesn't rise above the maximum allowable value. The allowable temperature for an immobilized UL type A motor is 150°C (Sumitomo's UL-certified motors are type A). Motors with impedance protectiors display 'ZP' on the name plate.

6. Making ground connections

For motors with lead wires or terminal boxes, connect the ground terminal and fixing bolt in the attachment hole near the ground display. When connecting the ground terminal, remove the paint on the housing surface under the fixing bolt. Note that the ground will be less effective if not enough paint is removed.

Fig 2. Ground connections



7. Compliance of Sumitomo products with standards in each country

EC directives, CE Marking

The CE Mark is placed on products that comply with EC directives. It certifies the product's quality and safety, to guarantee that the product can be freely distributed to any country in the EU (European Union).

Directives for mechanical products (EC directives)

There are three directives applying to normal mechanical products.

Table 2. EC directives

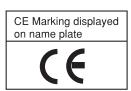
Description EC directive	Applies to	Description of directive
Machinery Directive	Items assembled from parts and containing moving parts (mainly industrial machinery)	Specifies essential conditions for machinery safety. Machinery incorporating mainly electrical hazards must also comply with requirements for low voltage.
Low Voltage Directive	Products driven by a 50 to 1,000 VAC or 75 to 1,500 VDC power supply	Only products in compliance with standards may be sold.
Electromagnetic Compatibility Directive	All types of products that could generate signal interference (electromagnetic radiation), or with functions that could be interfered with ambient signals.	EMI: Must not generate electromagnetic interference to outside. EMS: Must be able to withstand electromagnetic interference from outside.

178

Technical Information: Motors

Compliance of Astero gear motors with EC directives and CE Marking

Astero gear motors are CE Mark-compliant, and comply with the EC directives pertaining to induction motors: The Machinery Directive (issued January 1995), and Low Voltage Directive (issued January 1997, CE Mark added). The Electromagnetic Compatibility Directive (issued January 1996) doesn't apply to induction motors.



UL (Underwriters Laboratories) standard

Underwriters Laboratories is a private US testing institute that conducts scientific studies, research and experimentation in the areas of safety, fires and disasters, and has created an institutional safety standard for hazard prevention. While UL certification is not required throughout the US, some states and cities do require it, and UL-standard products are more trusted by US consumers.

Differences of UL-standard products

- Terminal symbols
- UL mark on name plate
- Motors can only be manufactured or altered in certified plants.

8. Power requirements in each countries

Table 3. Power requirements in different countries

	Country/Area	Frequency	Voltage(1-phase)	Voltage(3-phase)			
	Japam	50Hz/60Hz	100V/200V	200V/400V			
North America	America	60Hz	115V/230V	230V			
Ame Ame	Canada	60Hz	120V/347V	208V/240V/600V			
	Korea	60Hz	110V/220V	220V/380V			
	Taiwan	60Hz	110V/220V	200V/220V/380V			
	Houg Kong	50Hz	200V/220V	346V/380V			
	China	50Hz	220V	220V/380V			
B	Philippines	60Hz	220V	380V			
Asia	Thailand	50Hz	220V	220V/380V			
_	Singapore	50Hz	230V	415V			
	Malaysia	50Hz	240V	415V			
	Indonesia	50Hz	220V	380V			
	India	50Hz	240V	240V/415V			
	Bangladesh	50Hz	230V	400V			
Oceania	Australia	50Hz	240V	415V			
	Guam	60Hz	120V	240V/480V			
	New Zealand	50Hz	230V	230V/415V			
	Austria	50Hz	230V	400V			
	Belgium	50Hz	230V	400V			
	Bulgaria	50Hz	220V	380V			
	Denmark	50Hz	230V	400V			
	Finland	50Hz	230V	400V			
	France	50Hz	230V	400V			
	Germany	50Hz	230V	400V			
Φ	Greece	50Hz	230V	400V			
Europe	Hungary	50Hz	220V	380V			
ä	Italy	50Hz	220V	380V			
ш	Luxembourg	50Hz	230V	400V			
	Netheriands	50Hz	230V	400V			
	Norway	50Hz	220V/230V	380V			
	Portugal	50Hz	230V	400V/480V			
	Romania	50Hz	220V	380V			
	Spain	50Hz	127V/220V	220V/380V			
	Sweden	50Hz	230V/400V	400V/690V			
	Switzerland	50Hz	230V	400V			
	United Kingdom	50Hz	230V	400V			

The voltages above may vary in different regions or cities within the same country.

Single-phase 115 V is the standard voltage in the US and Canada, but 120 V is generally displayed.

Gear heads

Induction

Reversible

Brake Packs

Options

Technical Information: Gear heads

9. Gear head size

Gear heads come in four sizes: □60, 70, 80 and 90 mm.

10. Reduction ratio

The ratio by which the gear head reduces the motor speed.

Example: If the motor's output speed (Nm) is 1,500 r/min, and the gear head's output speed (Ng) is 50 r/min, the speed reduction ratio (i) is 1,500/50 = 30. For compatibility with 50 and 60 Hz areas, two sets of gear head reduction ratios are available: 3, 5, 7.5, 12.5, 15... and 3.6, 6, 9, 15, 18... (1.2 times larger than the first set). The reason the second set of ratios are 1.2 times the first set is that a synchronous motor speed of 1,500 RPM in a 50 Hz area would be 1,800 RPM in a 60 Hz area, a ratio of 1.2.

Example: If a gear head output speed of 500 r/min is required, the following speed reduction ratio should be used:

In 50 Hz area: 3 In 60 Hz area: 3.6

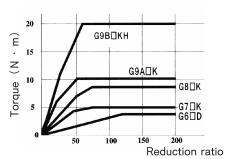
Naturally, all gear heads can be used in both 50 and 60 Hz areas.

There are 24 reduction ratios (ranging from 3 to 200) for gear heads attached to motors. If you need a reduction ratio over 200, use an intermediate gear head with a speed reduction ratio of 10.

11. Maximum allowable torque

The maximum load torque that can be applied to the gear head. Determined by the mechanical strength of the gears, shaft, casing, bearings and other components used in the gear head, so varies according to the gear head size, reduction ratio and type. Fig.3 shows the relationship between the gear head's reduction ratio and maximum allowable torque.

Fig3. Maximum allowable torque of gear heads



12. Service factor

Used when determining the gear head's life and radial load. See Table 4 for more information. For example, with a uniform load for 8 hours a day, the service factor is 1.0, and the gear head's life is 5,000 hours. Note: All Astero gear head models use ball bearings

Table 4. Example service factors and loads

Load type	Load example	Service factor
Uniform load	Continuous load in one direction	1.0
Moderate shock load	Frequent starts/stops	1.5
Shock load	Instant changes of motor direction	2.0

13. Gear head transmission efficiency

When a gear head is connected to a motor, losses are generated by factors such as the heat, noise, vibrations and lubricant agitation generated by the gear head. The loss ratio subtracted from 100% is the gear head transmission efficiency. The transmission efficiency varies depending on the number of speed reduction gears in the gear head. In case of single reduction, the transmission efficiency is 90%, in case double reduction, it's 81%, and in case of triple reduction It's 73%. Table 5 shows the relationship between the speed reduction ratio and transmission efficiency.

Table 5. Gear head transmission efficiency																									
	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200	Int. Gear heads
G6∐D																									
G7□K		81%							73%								66%								
G8□K	01%							1 73%						00 /0						59%					
G9A□K																									
G9B□KH																					59%	₆ —			/I

180

Technical Information: Gear heads

14. Shaft radial load and thrust load

The shaft radial load is the load that operates orthogonally to the direction of the gear head's output shaft. The allowable shaft radial load is the maximum shaft radial load that can be applied to the gear head. The shaft radial load is expressed by the formula below.

 $Pr = P_{\ell} Cf \times S.F. / R$ [N]

'---- C I and connection factor(Cf)

able 6. Load connection factor(Cf)	
Drive method	Cf
Chain, sprocket	1.0
Gear	1.25
Pulley	1.5

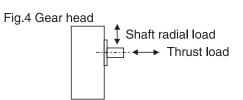
Pr : Shaft radial load (N)

PI : Actual torque transmitted by gear head's output shaft (N!!m)

Cf: Load connection factor (see Table 6)

S.F.: Service factor (see Table 4)

R: Radius of gear, pulley or other drive component (m)



Note that if the gear head is used in excess of the shaft radial load allowable value shown in Table 7, the bearings could quickly become damaged, the output shaft could bend, and fatigue damage could result from repeated loads. When attaching gears that create thrust load (such as helical gears) on gear head output shaft, make sure the shaft radial load and thrust load don't exceed their allowable values. Table 7 shows the allowable values for radial and thrust loads.

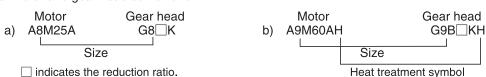
Table 7. Allowable radial loads, allowable thrust loads

Table 7.7 (IIOWabi	e radiai loads, alic					
Model	Reduction ratio	Max allowable torque(N·m)	Allowable radial load(N)	Allowable thrust load(N)		
Ce□D	3~18	0.10~0.60	60	, ,		
G6□D	20~200	0.60~2.90	150	30		
G7□K	3~18	0.30~1.80	100	40		
G/∐K	20~200	2.00~4.90	200	40		
G8□K	3~18	0.20~2.50	120	50		
Go⊟K	20~200	2.90~7.80	240	30		
G9A□K	3~18	0.40~3.90	290	100		
G9A_R	20~200	3.90~9.80	360	100		
	3~10	0.80~3.90	440			
G9B□KH	12.5~20	3.90~7.80	510	150		
СЭБ□КП	25~60	4.90~19.60	590	130		
	75~200	4.30.919.60	590			

15. Combining motors and gear heads

The number after the first letter of the model name indicates the size. Only motors and gear heads for which this number is the same can be combined. The last letter of the model name indicates the heat treatment. Only motors and gear heads for which this letter is the same

Example: Motor and gear head combination



16. Combining motors and intermediate gear heads

By using an intermediate gear head between the motor and gear head, the gear head's reduction ratio is increased by a factor of 10. However, even though the speed reduction ratio is increased, the gear head's allowable torque is a constant value that can't be exceeded.

Technical Information

Gear heads

Induction

Overview

Reversible

Electromagne brak

> Termina boxe

contro**ll**e (Overview)

Socket type

Technical Information: Gear Heads

 $N_g = N_m/i_{[r/min]}$

17. Gear head shaft rotation speed and direction

The rotation speed when a motor and gear head are combined without an intermediate gear head is expressed by the formula below.

Ng: Gear head's rotation speed (r/min)

Nm: Motor speed (r/min)

i : Reduction ratio

The rotation direction of the gear head's output shaft can be the same direction as the motor shaft, or the opposite direction, depending on the reduction ratio. See Table 8 for more information. For an intermediate gear head, the rotation direction is the same as the motor shaft's rotation direction.

Table 8. Rotation direction of the gear head's output

				•			•		9				- 0											
	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200
G6 🗆 D														!										
G7□ K																								
G8□ K																								
G9A □ K											١.													
G9B ☐ KH																								

: Same direction as motor shaft : Opposite direction of motor shaft

18. Attaching a motor and gear head

To attach a motor and gear head, align the contact surface as shown in Fig5, and turn the gear head gradually. When making the attachment, don't apply excessive force to the motor shaft, or knock the motor shaft on the inside of the gear head. The gears could be damaged, causing abnormal noise and lowering the product life.

Fig 5. Attaching a motor and gear head

Name plates

19. Set screw

	Model	Reduction ratio	Set screw size
Γ,		3~ 18	M4 (P0.7) Length 50mm
	G6□D	20~200	M4 (P0.7) Length 60mm
	G6×H10	10	M4 (P0.7) Length 90mm
	07 U	3~ 18	M5 (P0.8) Length 55mm
	G7□K	20~200	M5 (P0.8) Length 65mm
	G7×H10	10	M5 (P0.8) Length100mm
	20 🗆 🗸	3~ 18	M5 (P0.8) Length 55mm
	G8□ K	20~200	M5 (P0.8) Length 65mm
	G8×H10	10	M5 (P0.8) Length100mm
	G9 A □ K	3~ 18	M6 (P1.0) Length 75mm
	G9 A L K	20~200	M6 (P1.0) Length 85mm
	G9A×H10	10	M6 (P1.0) Length122mm
	G9B□KH	3~200	M6 (P1.0) Length 95mm
	G9B×H10H	10	M6 (P1.0) Length130mm

20. Affixing a load transmission mechanism

To affix a load transmission mechanism onto the gear head output shaft, a D-cut has been provided for □60 mm flange sizes, and a key way has been provided for other sizes. For a D-cut shaft, affix the load transmission mechanism using bolts.

For a key way shaft, cut another key way on the load transmission mechanism, and use the key provided to affix the mechanism. Avoid knocking the components when affixing the transmission mechanism to the gear head shaft. The gear head could get damaged, shortening the product life.



General

- The gear head and motor should be operated only within its name plate and catalogue; otherwise, electric shock, injury or damage to a system may occur.
- Keep hands and all foreign objects from the internal moving part of the gear unit and motor; otherwise, electric shock, injury, fire or damage to a system may occur.
- Damaged units should be taken off-line; otherwise injury or fire may occur.
- Do not remove the name plate.
- · Any modifications or alterations of any kind, to the unit, will void the warranty and all subsequent claims.

Transport

• Exercise ample care not to drop the unit and fall during transport.

Installation

- Do not place any inflammables around the gear head and motor; otherwise, fire may result,
- Do not place any objects that will hinder ventilation around motor; otherwise, cooling effect is reduced, and may lead to a possible fire hazard and burn due to excessive heat built-up.
- Do not touch the key way at the shaft end or on the inside of the gear unit and motor; otherwise, injury may result.
- When the unit is used in food processing applications vulnerable to oil contamination, install an oil pan or other such device to cope with rate oil leaking. Otherwise, oil leakage may damage products.

Coupling with other machines

- Install appropriate guard devices around rotation parts; otherwise, injury may result.
- Confirm the direction of rotation before coupling the unit with its driven machine. Defference in the direction of rotation may cause injury or damage to the system.

Wiring

. Do not touch lead wire when measuring the insulation resistance. Electric shock may result.



Wiring

- Connect a power cable to the motor according to the connection diagram or maintenance manual; otherwise, electric shock or fire may result. (Without terminal box, exercise insulation in the connecting part.
- Do not forcibly curve, pull or clamp the power cable and lead wires otherwise, electric shock may result
- Correctly ground the grounding bolt; otherwise, electric shock may result.
- Use power source stated in the nameplate; otherwise, motor's burning or fire may result.

Operation

- Never approach or touch any rotating parts (shaft, etc.) during operation; otherwise, loose clothing caught in these rotation parts may result in severe injury.
- When the power supply is interrupted, be sure to turn off the power switch. Unexpected resumption of power may cause injury or damage to the equipment.

Daily inspection and maintenance

• Never approach or touch any rotating parts (shaft, etc.) during maintenance; otherwise, loose clothing caugth in these rotating parts may result in severe injury.

Inspection upon delivery

• Verity that the unit received is in fact the one ordered. When a different product is installed, injury or damage to the system may result.

POWER TRANSMISSION & CONTROLS GROUP



ASTERO Business Center
6-1, Asahi-cho, Ohbu City Aichi 474-8501, Japan
Tel: (81)562-48-5139 Fax: (81)562-48-5238 E-Mail: ptc_astero@shi.co.jp
Specifications, dimensions and other items in the catalog are subject to change without notice.

Distributed By: