

-Three phase power supply with stable speed demand

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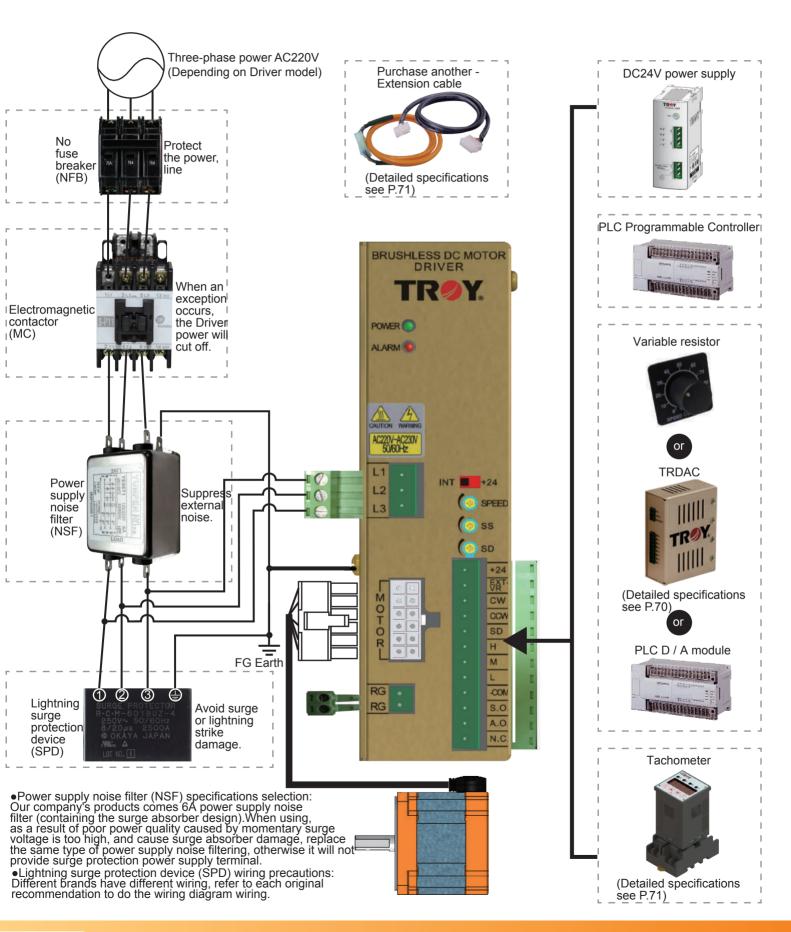
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DC brushless Motor-BMS series

■ System wiring diagrams



■ Specifications and characteristics of Motor/Driver

■ Spe	cifications and c	haracterist	ics of Moto	r/Driver			TRøy-			
	tput power	30W	50W	85W	150W	200W				
Round sh	naft Motor (M: E/M brake type)	6BM030S-3(M)	6BM050S-3(M)	9BM085S-3(M)	9BM150S-3(M)	9BM200S-3(M)	Chara of			
Pinion sha	aft Motor (M: E/M brake type)	6BM030P-3(M)	6BM050P-3(M)	9BM085PD-3(M)	9BM150PD-3(M)	9BM200P-3(M)	acteris Motor			
Motor spe	ecification certificates		, A c Us	RoHS @ IP5	i 4	-3(M) 9BM200S-3(M) 9BM200P-3(M) 50-3 BMD200-3 1.5 1.3 1 1 0.8 4 113 DC24 7.5 0.5 33 95 250~2500 Dad. D0r/min), no load. d.				
Driver		BMD030-3	BMD050-3	BMD085-3	BMD150-3	BMD200-3	roduct			
Driver sp	ecification certificates		, A c Us	CE E RoHS) ©	I	index			
	vpe 3 Phase Max. Current (A)	1.2	1.2	1.2	1.3	1.5	Produc			
voltage 50/6	20~230V 0 HZ Rated Current (A)	0.3	0.5	0.7	1	1.3	ct name			
Starting To	orque (Nm)	0.13	0.22	0.37	0.64	1	es Pro			
Rated Tord	que (Nm)	0.1	0.17	0.28	0.49	0.8	duct v			
Allowable	load inertia GD²(Kgcm²)	7.85	12.8	18.7	31.4	113	veight			
* - 0	Input line voltage(V)	DC	D24	DC	C24	DC24				
* Only E/M brake series have E/M brake E/M Brake	Consumption power(W)	6	.5	7	.5	7.5	Gea			
y E/M brake ser	Maintenance(Nm)	0	.3	0	.5	0.5	Gearhead			
ke serie	Attraction time(ms)		30		3					
S	Release time(ms)	8	37	ę	95	95	Inst			
Speed con	ntrol range(r/min)		250~	-3000		250~2500	ad Installation			
	To load	±0.05%Max. at 3	3000r/min(200W: a	at 2500r/min), no lo	ad~rated load.					
Speed var	· ·		tage variation ±15	%, at 3000r/min(20	00W: at 2500r/min)	, no load.	Certifi			
	To Temperature	- Ж								
Slow start/	Slow down time set up	30~150W:0 5~15coc Motor from 0~3000r/min or from 0~3000r/min								
		Control from exteri	nal variable resistor (resistance 20KΩ) •		0	Model naming			
Speed cor	ntrol method	 Control from intern (also work with ext speed switch contr 	al variable resistor ernal variable resisto ol)	or for 2 sections	(DC0~5V/1 mA abo Work with D/A speed (Option)	,	ning			
		●Photo coupler inpu	ıt interface				M S			
Signal inpu	ut/output methods	•Transistor Open C	ollector output interfa	ace			В			
		 Within speed conti 	rol range, motor sets		type I/O module					
Function		 Instant brake stop, Slow up/Slow down Can operate in parallel 150/200W have regenerative resistor connection terminals, can based on customers' load condition to select external resettable resistors to consume regenerated energy (regenerated energy) 								
		absorption prote	ction : start operatior	at up down, Coiling	or inertial load opera	tion)	B S			
		·	•	ors stop automatically activate torque for m	y, Driver alarm signals	s output	D B			
		•		er internal heat sink o			S			
Protection	function	Over voltage prote	ction: (1) starts wher (2) starts whe	n up down, coiling or n driver input AC volt	over inertial load age appears transien	nt high voltage	Ассе			
		•Transient over curr for Power on, ea		n driver AC input pow	er connects in paralle		Accessories			
		•Lack of phase prot	-		s bad connection, bro	oken cable or				
Insulation	impedance			t, power, F.G grounding	g, I/O terminal resistan	ice value is over 100MΩ	Motor selection			
Insulation	high voltage	Power and F.G conconnectors pass with	nect to ground, termi th 3KV/60Hz high vo	nals pass with 1.8KV Itage for 1 minute, no	/60Hz high voltage, postportion	power and I/O	ection			
Ambient te	emperature/Humidity range	0~+40°C, under 85°	% relative humidity (a	avoid dust and erosio	n, combustion gas)					



■ Gearhead specifications & allowable speed range/allowable torque/allowable inertia load (GD²)

Gear	ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
Speed range	High speed	1000	883	600	500	400	333	300	240	200	166	150	120	100
(r/min)	Low speed	83.4	69.5	50	41.7	33.4	27.8	25	20	16.7	13.9	12.5	10	8.4
Allowable orque (Nm)	6BM030P-3(M) + 6D□	0.27	0.32	0.45	0.54	0.68	0.81	0.9	1.1	1.4	1.6	1.8	2.2	2.6
Allowable iner	tia load GD ² (kgcm ²)	3.53	5.09	9.81	14.1	22.1	31.8	39.3	61.3	88.3	127	157	245	353
Allowable orque (Nm)	6BM050P-3(M) + 6D□	0.45	0.54	0.74	0.89	1.1	1.3	1.5	1.9	2.2	2.7	3	3.5	4.3
Allowable iner	tia load GD² (kgcm²)	5.77	8.31	16.0	23.1	36.1	52.0	64.2	100	144	208	257	401	577
Allowable orque (Nm)	9BM085PD-3(M) + 9D□	0.76	0.91	1.3	1.5	1.9	2.3	2.5	3.2	3.8	4.5	5	6	7.2
Allowable iner	tia load GD ² (kgcm ²)	30.0	43.2	83.2	120	187	270	333	520	749	1079	1332	2081	2997
Allowable orque (Nm)	9BM150PD-3(M) +9D□	1.3	1.6	2.2	2.6	3.3	4	4.4	5.5	6.6	7.9	8.8	10.5	12.6
Allowable inert	tia load GD² (kgcm²)	50.2	72.3	139	201	314	452	558	871	1254	1806	2230	3484	5018
	High speed	833	694	500	416	333	277	250	200	166	138	125	100	83
Speed range (r/min)	Low speed	83.4	69.5	50	41.7	33.4	27.8	25	20	16.7	13.9	12.5	10	8.4
Allowable orque (Nm)	9BM200P-3(M) + 9D□H	2.2	2.6	3.6	4.3	5.4	6.5	7.2	9	10.8	13	14.4	17.2	20.6
Allowable iner	rtia load GD² (kgcm²)	181	260	501	722	1128	1624	2006	3134	4512	6498	8022	12534	18050

Gea	r ratio	36	50	60	75	90	100	120	150	180	200	250	300	360
Speed range	High speed	83	60	50	40	33	30	25	20	16	15	12	10	8
(r/min)	Low speed	7	5	4.2	3.4	2.8	2.5	2.1	1.7	1.4	1.3	1	0.9	0.7
Allowable torque (Nm)	6BM030P-3(M) + 6D□	3.1	4.3	5.2		6.5		6.5						
Allowable inert	tia load GD ² (kgcm ²)	509			625					625				
Allowable torque (Nm)	6BM050P-3(M) + 6D□	5.1			6.5			6.5						
Allowable inerti	ia load GD ² (kgcm ²)			62	25			625						
Allowable torque (Nm)	9BM085PD-3(M) +9D□	8.7	12	14.4	18.1	21.7	24.1	27.2	34	40				
Allowable inerti	ia load GD ² (kgcm ²)	4320	8320		110	00					11000			
Allowable torque (Nm)	9BM150PD-3(M) +9D□	15.2	21.1	25.3	31.6	37.9	40				40			
Allowable inert	tia load GD² (kgcm²)	7230			11000						11000			
		00	50	41	20	07	05	00	40	40	40	40	0	0
Speed range (r/min)	High speed	69	50		33	27	25	20	16	13	12	10	8	6
(1/111111)	Low speed	7	5	4.2	3.4	2.8	2.5	2.1	1.7	1.4	1.3	1	0.8	0.7
Allowable torque (Nm)	9BM200P-3(M) + 9D□H	24.8	34.4	41.3		50		50						
Allowable iner	tia load GD² (kgcm²)	25991			45000						45000			

^{*}Gearhead 6D□/9D□/9D□H, please fill gear ratio in □.

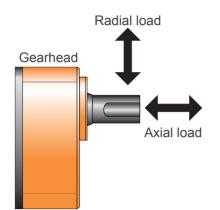
^{*} In above table stands for after installation of Gearhead, the axis rotation direction is reversed with Motor axis direction; without marking stands for the same direction as Motor axis rotation.

^{*1}Nm = 10.197Kgcm.

^{*} The Gearheads of all series have ROHS @ certificate.

^{*}Also available orthogonal Gearhead: hollow shaft type $9VD\Box(H)$, the solid single shaft type $9VD\Box A(H)$, the solid biaxial shaft type $9VD\Box B(H)$, and size please refer to P.10.

■ Motor allowable radial load/axial load



- (1) Radial load (hanging load): loading is vertical to gearhead axis power output
- (2) Axial load (thrust load): loading is in the direction of gearhead axis power output

◆ Round shaft type

Model	Permissible overhun	Permissible thrust load			
Model	10mm from output shaft front	20mm from output shaft front	(Unit: Kg f)		
6BM030S-3(M)	8	9	Permissible axial loading, not more than 1/2 of motor weight.		
6BM050S-3(M)	8	9	But please try to avoid applying force in the horizontal direction		
9BM085S-3(M)	13	15	(axial) of motor shaft, when exceeds that will reduce motor service life.		
9BM150S-3(M)	16	17	If axial loading is needed, we recommend applying indirect		
9BM200S-3(M)	16	17	transmission, such as: couplings, belts, chains, etc		

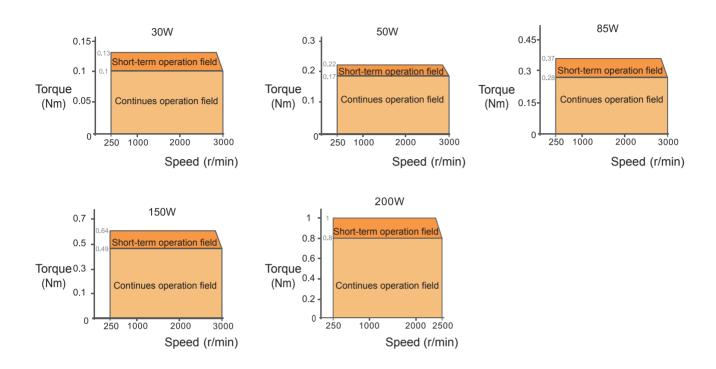
◆ Pinion shaft type (Gearhead attached)

		Permissible overhu	ing load (Unit: Kg f)	Permissible thrust load	
Model	Gear ratio	10mm from output shaft front	20mm from output shaft front	(Unit: Kg f)	
6BM030P-3(M)	3, 3.6, 5	10	15		
+ 6D□ 6BM050P-3(M)	6, 7.5, 9, 10, 12.5, 15,18, 20	15	20	4	
+ 6D□	25, 30, 36, 50, 60, 75,90,100,120, 150, 180,200, 250, 300, 360	20	30		
9BM085PD-3(M)	3, 3.6, 5	30	40		
+ 9D□ 9BM150PD-3(M)	6, 7.5, 9, 10, 12.5, 15,18, 20	40	50	15	
+ 9D□	25, 30, 36, 50, 60, 75,90,100,120, 150, 180,200, 250, 300, 360	50	65	.	
	3, 3.6, 5	30	40		
9BM200P-3(M) + 9D□H	6, 7.5, 9, 10, 12.5, 15,18, 20	40	50	15	
	25, 30, 36, 50, 60, 75,90,100,120, 150, 180,200, 250, 300, 360	50	65		

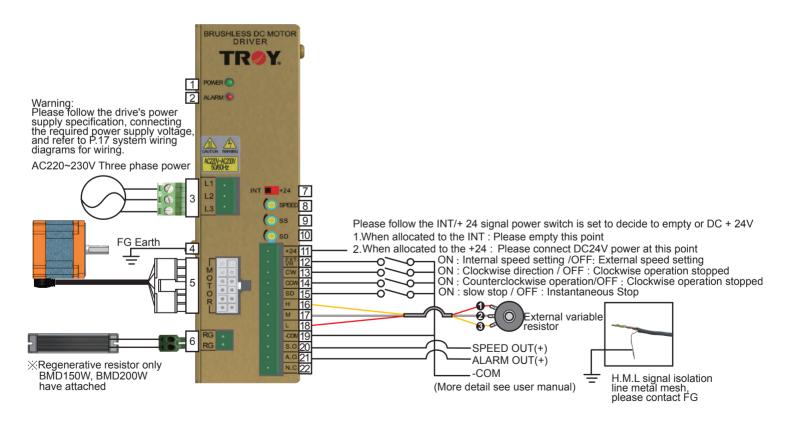
^{*}Gearhead 6D□/9D□/9D□H, please fill gear ratio in □.



■ Speed - Torque characteristic diagrams



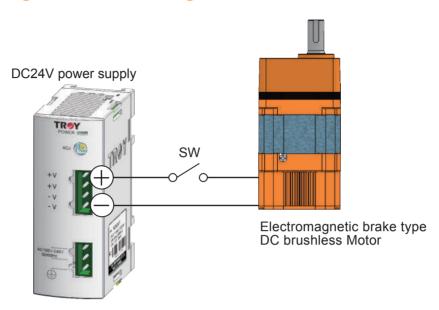
■ Driver panel functions and wiring instructions



Number	Panel marked	Function	Explanation
1	POWER	Power indicator	When input power LED (green) lights
2	ALARM	Unusual indicator	Overload, overheating, overvoltage, instantaneous overcurrent, under equal any protective function will activate LED (red) lights
3	L1 L2 L3	Power voltage input terminal	AC power voltage input connecting L1, L2, L3 : three-phase power type
4	FG	Power ground terminal	Power ground connecting
5	MOTOR	Motor wiring connector	Motor and Driver connecting
6	RG	No connecting Regenerative resistor connection terminal	30/50/85W: do not make any link (no effect) 150/200W: According to customer load conditions selected external regenerative resistance, regenerative energy consumption
7	INT/+24	Signal power switch	INT: When Driver is controlled using the internal power supply DC24V (for relays, switches and control applications) +24: When using an external power supply DC24V control (PLC control applicable to the case)
8	SPEED	Internal speed setting button	30~150W speed control range : 250~3000r/min 200W speed control range : 250~2500r/min
9	SS	Slow start time setting button	30~150W: 0.5~15sec 200W: 0.8~15sec
10	SD	Slow stop time setting button	30~150W: 0.5~15sec 200W: 0.8~15sec
11	+24	Signal input power DC24V	When an external DC24V power control, external DC24V power connects to the terminal
12	EXT-VR	Speed setting switch to select the input mode	External/Internal speed setting mode switch selection
13	CW	Clockwise operation input	Clockwise operation/stop switch input
14	CCW	Counterclockwise operation input	Counterclockwise operation/stop switch input
15	SD	Stop mode switch to select the input	Slow (depending on SD button to set the time for the slow stopped)/instantaneous stop mode select switch
16	Н	•	An external connection terminal variable resistor or external DC voltage (0 ~ 5V) control of
17	М	External speed setting input	30~150W speed control range : 250~3000r/min
18	L		200W speed control range : 250~2500r/min
19	-COM	Control signal grounding	GND contact inputs and outputs a control signal common ground line, and the external power DC24V
20	S.O.	Speed signal output	Detecting Motor speed using : 30 ~ 200W digital signal output 24 pulse/rev
21	A.O.	Abnormal warning signal output	Overload, overheating, overvoltage, overcurrent moment, when any one of the less equal protection function is activated, Motor will stop naturally, and outputs an abnormality warning signal
22	N.C.	No connection	Do not make any connection



■ Motor electromagnetic brake wiring instructions



Operation instruction

Motor start/Motor stop with external electromagnetic brake operating procedures: Motor start: Must energize external electromagnetic brake before the Motor starts

Step:	External electromagnetic brake power ON
	External clostrollagificito brake power orv
	Attracting waiting time (This is the time of the external electromagnetic brake actuation, the purpose: to keep the force is released)
	Motor Driver starting signal ON
	Motor starts running
Motor Stop :	The Motor is stopped before the operation do not yet fully external electromagnetic brake power.
Step:	Motor Driver stop signal ON
	Wait 0.2sec (reference value, this is the operation of the Motor to a complete stop time)
	,
	External electromagnetic brake power is turned OFF
	Waiting for the release time (This is the external electromagnetic brake actuation time, purpose: To generate holding force)
	Motor stopped (a holding force)

Precautions

- 1. This series of external electromagnetic brake using the brake power is part of the hold-type.

 2. External electromagnetic brake is designed to allow the Motor stops when the holding force has to be used as a safety brake, electromagnetic brake, do not use this as a Motor positioning or emergency brake applications.
- or emergency brake applications.

 3. Always to pull the Motor before starting the external electromagnetic brake energized (means no brakes); Motor stopped before the operation do not yet fully external electromagnetic brake power (expressed brakes).
- 4.External electromagnetic brake suction time and release time value refer to the product specification.
 5.Motor brakes to stop for about 0.2sec (test conditions in the Motor no-load speed 3000r / min, the electromagnetic brake is energized, the brake actuator signal ON time of the Driver, this time as a reference base, but the actual length of time will stop according to the inertia load or frictional load ... different load patterns and has fluctuated.

Weight: 1470g+W

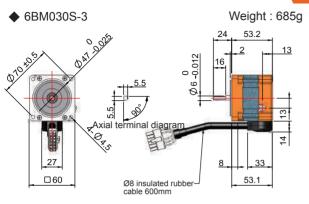
Unit: mm

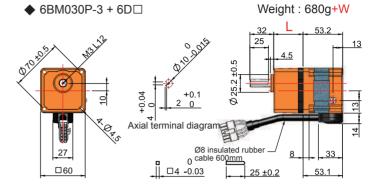
Round shaft type

■ Dimensions - Motor/Gearhead

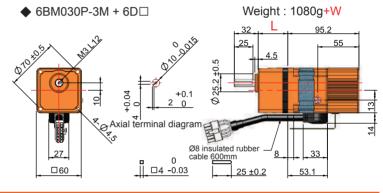
Pinion shaft type

30W/□60mm



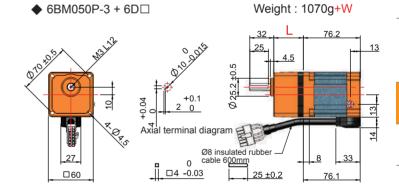


6BM030S-3M Weight:1085g 970,195 □60 Ø8 insulated rubber cable 600mm 53.1



50W/□60mm

Weight: 1080g ◆ 6BM050S-3 970,1013 Axial terminal diag 27 □ 60 76.1 Ø8 insulated rubber cable 600mm



6BM050P-3M + 6D□

6BM050S-3M Weight: 1480g 118.2 070,1013 0-0.015 27 Ø8 insulated rubber cable 600mm

3 Axial terminal diagran Ø8 insulated rubber cable 600mm 4 -0.03

* Figure above dimensions tolerance values are not labeled a general machining tolerances, the control mode, refer to P.12, others have marked tolerance values according to the drawing labeled based.

* 6BM pinion shaft type 6D3-6D360, Gearhead length L and weight W specification as following:

Gearhead	Model	6D3~6D20	6D25~6D100	6D120~6D360
	Length L (mm)	39.5	39.5	43.5
	Weight W (g)	300	325	365



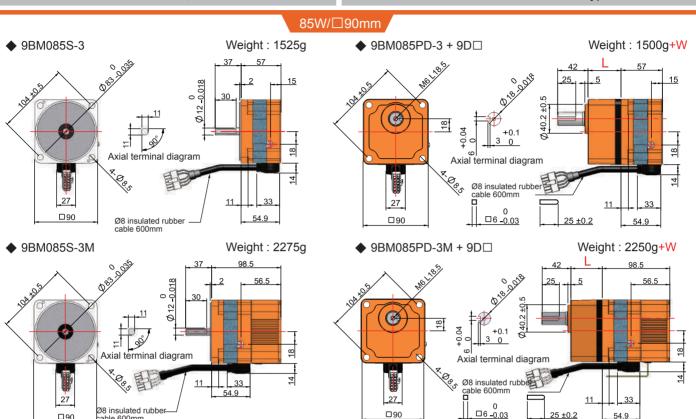
■ Dimensions - Motor/Gearhead

Unit: mm

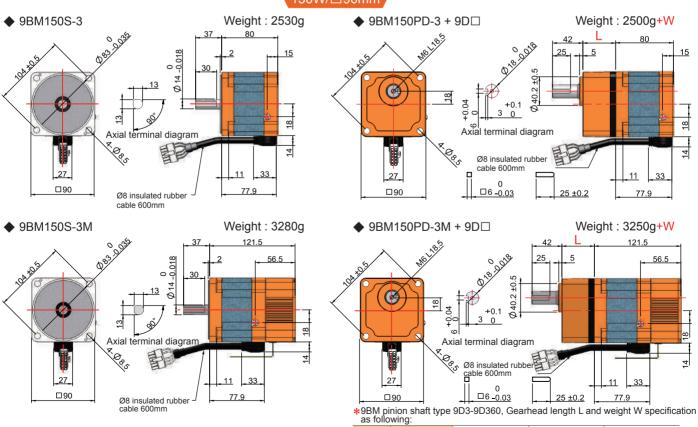
Round shaft type

Pinion shaft type

25 ±0.2



150W/□90mm



* Figure above dimensions tolerance values are not labeled a general machining tolerances, the control mode, refer to P.12, others have marked tolerance values according to the drawing labeled based.

9D3~9D20 Model 9D25~9D100 9D120~9D360 45.5 58.5 64.5 Gearhead Length L (mm 860 1125 1265 Weight W (g)

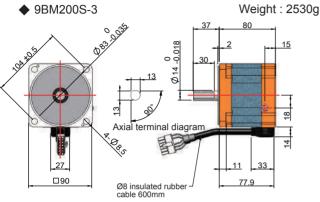
Unit: mm

Weight: 840g

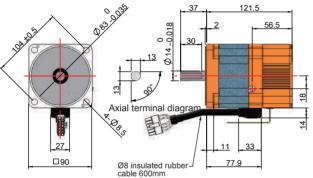
■ Dimensions - Motor/Gearhead

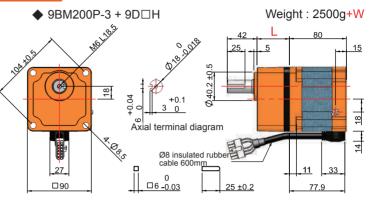
Round shaft type Pinion shaft type

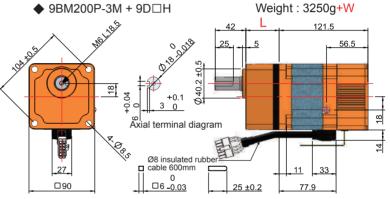
200W/□90mm



◆ 9BM200S-3M Weight: 3280g







* 9BM pinion shaft type 9D3-9D360, Gearhead length L and weight W specification as following:

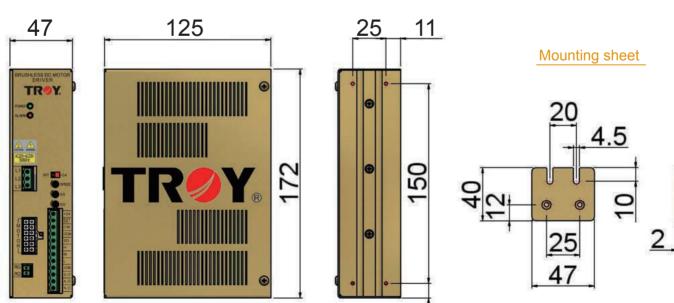
	40 10110	9.			
	Gearhead	Model	9D3H~9D20H	9D25H~9D100H	9D120H~9D360H
		Length L (mm)	45.5	58.5	64.5
		Weight W (g)	860	1125	1265

■ Dimensions - Driver

Names: BMD030-3 / BMD050-3

BMD085-3 / BMD150-3 / BMD200-3

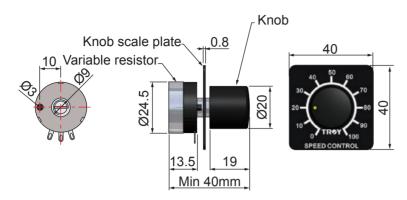
Dimensions are common



* Figure above dimensions tolerance values are not labeled a general machining tolerances, the control mode, refer to P.12, others have marked tolerance values according to the drawing labeled based.



■ Dimensions - Variable resistor



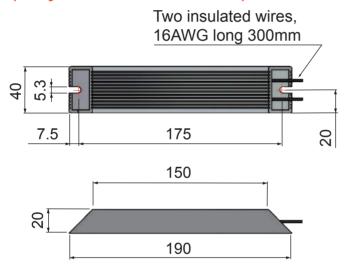
■ Dimensions - Regenerative resistance dimensions (Only 150 / 200W attached)

Weight: 260g

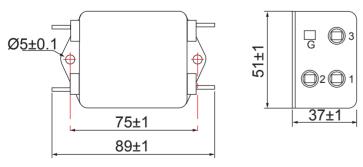
Weight: 170g

Weight: 30g

Unit: mm



■ Dimensions - Power supply noise filter



* Figure above dimensions tolerance values are not label on general maching tolerances, the control mode refer to P.12, others have marked tolerance values according to the drawing labeled based.

■ Machanism: 【Opera	iting of larg	je index tab	ole]		Date dd / mm / yy			
Company name:	Co	ntact persor	1:		Departr	ment/Ti	tle:	
TEL:	FAX:		Application	:		Use a	rea:	
Power input: □Single -ph	nase AC:	_V □Three	-phase AC:	V	□DC:	V	Frequency:	Hz
□Single stop t □Clock Stop:	llated speed e direction retime: Sec wise/counte	(Range: un \ stop \ ru cond/Sequen er clockwise (Sequence \	rpm ~ rpr	m) (Activation total (CW:	ated tim Sequ Seco	e: S uence / ond/Sec		ence,
□DBS \$	e shless motor Series	∵ □BMS Ser		ries [lMagnetic bra ⊐UBS Series	
[Mechanism reference]			se sketch yo of mechanisr		ual trans	smissic	on	
Object W	LT							
Drive mechanism and	operating da	ıta]						
Object r	nass		W	=	kg			
Index ta	ble diamete	r	Dт	=	cm			
Width			Lт	=	cm			
Materia			ρ	=				
Position	ing angle	*(note)	θ	=	deg			
Position	ning time	*(note)	То	=	sec			
Stoppin	g accuracy			±	mm			
*(note)F	lease enter	the max spe	ed					
Recommendation produc	ts (Selecte	d specs) :						

After complete above information, please fax it to nearby regional business office, we will select

applicable product for you as soon as possible

■ Machanism: 【Le	ad screw]		Date dd / mm / yy					
Company name:		Contact person:	D	epartment/Tit	tle:			
TEL:	FAX:		Application:	Use ar	rea:			
Power input: □Single	-phase AC:	V □Three	-phase AC:V	□DC: <u>V</u>	Frequency:	Hz		
□9 s □0 9	Regulated sp lingle direction top time: Blockwise/co litop: Seco	eed (Range: on run \ stop \ ru Second/Sequen unter clockwise	•	ated time: \$ Sequence Second/Se	/Minutes)	ence,		
DC □D	orque brushless m BS Series	otor: □BMS Ser	□Reversible □Sp ies □BS Series □ ohase □5 phase		•			
Mechanism referer W DB PB	Object Level	W a	【Please sketch y part of mechani		ansmission			
Work+Table mass Screw angle Screw shaft diame Screw Length Screw pitch Material Screw efficiency Internal frictional of	eter	W =	Positioning dista Positioning time Push / Pull force Stopping accura	nce *(note) *(note) cy	FA =k ±n	sec (g		
pilot pressure nut			*(note)Please er	nter the max s	speed			

 $\label{lem:commendation} \textbf{Recommendation products} \ (\, \textbf{Selected specs} \,) \ :$

^{*} After complete above information, please fax it to nearby regional business office, we will select applicable product for you as soon as possible

■ Machanism:	y					Date dd / mm / yy			<i>I</i> уу		
Company name:			Contact _I	person		[Departn	nent/Ti	tle:		
TEL:		FAX:			Application:			Use a	rea:		
Power input: □S	ingle -ph	nase AC:	V 🗆	Three	-phase AC:	V	□DC:	_ <u>V</u>	Frequenc	y:	Hz
Activated mode:	□Regui □Singli stop	llated spe e directio time: \$ kwise/cou : Seco	eed (Ran n run · s Second/S inter cloc	ge: top \ ru Sequen kwise ence \	ntinuously → rpm ~rpr un · stop → (ce; Run, stop repeated → (CCW:Se	m) (Activ o total (CW:	ated tin Seq Sec	ne: uence ond/Se	/Minutes)	equ€	ence
Required motor:	□Torque DC brus □DBS \$	e shless mo Series	otor: □BN	MS Ser	□Reversible ries □BS Se phase □5 ph	ries [
(Mechanism ref	Object W	Belt W evel	Motor	_	ase sketch yet of mechanis		ctual tra	ansmis	sion		
[Drive mechanis	sm and	operating	data]								
Work + Table - Screw angle Pulley diamete Width Material Pulley diamete	er	$\alpha = $	deg cm cm	friction Position Position Push	pulley efficient nal coefficient oning distance oning time *(r / Pull force ing accuracy	t of sl e *(no	Ū	ırfaces	η = μ = L = Το= FA=	cn se kg	ec J
Width		L _P 2 =	cm		•						

$\label{lem:Recommendation products} \mbox{ (Selected specs) } \mbox{ : }$

Material

*(note)Please enter the max speed

^{**} After complete above information, please fax it to nearby regional business office, we will select applicable product for you as soon as possible

■ Machanism:	[Others]				Date dd/mm/yy
Company name:		Contact person:		Departmen	t/Title:
	FAX:		Application:	Us	e area:
Power input: □S	ingle -phase AC	:V □Three	-phase AC:V	□DC: _	
Activated mode:	☐Regulated sp☐Single direct stop time: ☐Clockwise/cc Stop:Sec	ion operating con beed (Range: ion run \ stop \ ru Second/Sequen bunter clockwise i cond/Sequence \ quence/Minute)	rpm ~rpm) in · stop → (Acti ce; Run, stop tota repeated → (CW	ivated time: alSequer /:Second	I/Sequence \$
Required motor:	□Torque DC brushless n □DBS Series		ies □BS Series	□SBS Seri	ol □Magnetic brake es □UBS Series
	•	ng data】:Use thating conditions r	•	o draw the c	outline of your drive

Recommendation products (Selected specs):

^{*} After complete above information, please fax it to nearby regional business office, we will select applicable product for you as soon as possible