CATALOG

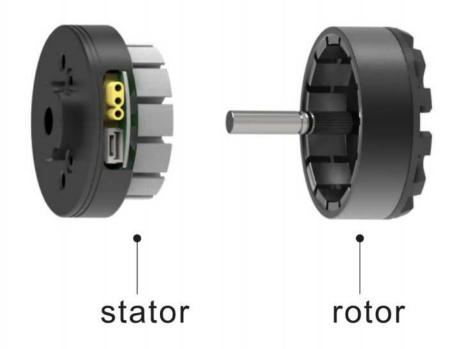
OUTRUNNER MOTOR 外转子无刷电机 GEAR MOTOR 减速电机

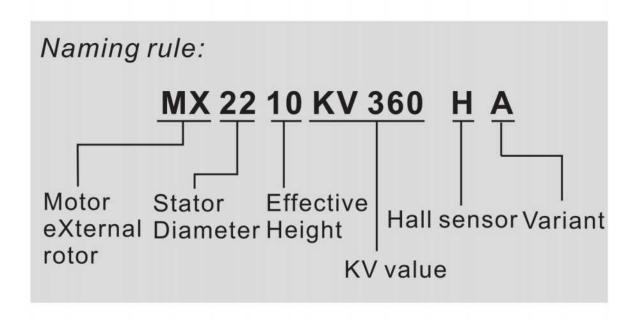


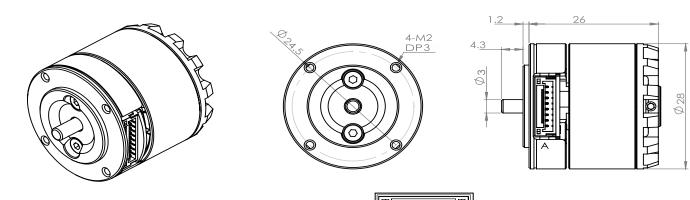
www.nbdoncen.com

sales@nbdoncen.com

OUTRUNNER BLDC MOTOR







Pin definition(left to right):

Unit:mm

Connector: GH1.25-F-8P

Cable: GH8P-M-28AWG-15cm 1.HW 2.HV 3.HU 4.GND 5.VCC 6.W 7.V 8.U

General Characterisites					
Motor Configuration	Unit			Unit	
Mechanical structure		outrunner	Ingress protection		IP 54
Number of pole pairs		7	Speed constant	KV	360
Number of phases		3	Torque constant	mNm/A	23
Winding connection		star	Single phase resistance	mOhm	750
Total weight	g	52	DQ inductance	uН	100
Rotor inertia	uNm*s ²	0.75	Friction	uN*m*s	0.5

Thermal Data Thermal resistance houing -ambient 6.1K/W Thermal resistance winding-housing 9.4K/W Ambient temperature -40 °C - 100 °C Maximal winding temperature 120 °C

Maximal winding temp	erature		120 °C
Nominal & Stall	Unit		
Nominal voltage	V	12	24
No load speed	rpm	4300	8600
No load current	mA	150	260
Nominal speed	rpm	3300	7200
Nominal torque	mNm	33	45
Nominal current	А	1.3	1.7
Maximal power	W	15	45
Maximal efficiency		83%	84%
Stall torque	mNm	105	210
Stall current	А	4.5	8

Sensoric

Sensor type	bipolar self-locking hall
Number of halls	3
Supply voltage	5V
Electrical angle	120 degrees

Hall sequence regards to back EMF

tested in CCW direction

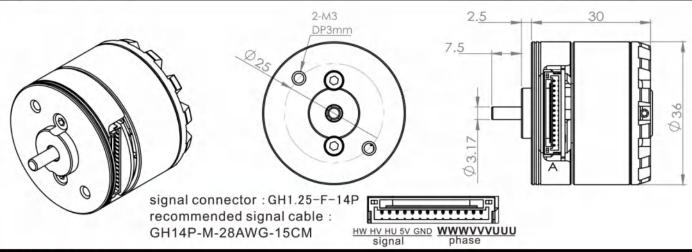
BEMF U V

0 120 240

HU

HWI

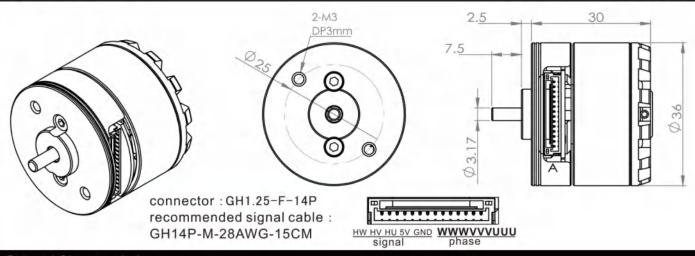
Pull-up resistance yes



General Characteristics:

Motor Configuration	Motor	Confi	gura	tion
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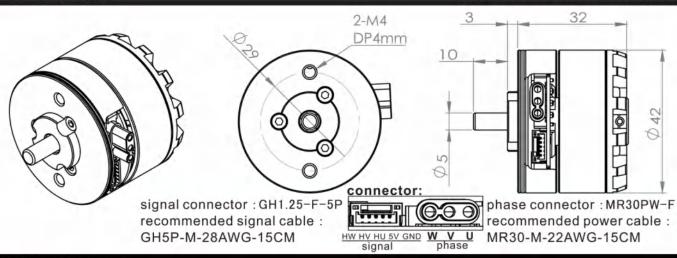
Mechanical structure		outru	ınner	Ingress protection		IP 44
Number of pole pairs			7	Speed constant	KV	150
Number of phases			3	Torque constant	mN/A	52
Winding connection			star	Single phase resist.	Ohm	2
Total weight		gram	90	DQ inductance	uН	400
Rotor inertia		uNm*s²	1.6	Friction	uN*m*s	0.5
Thermal Data				Sensoric		
Thermal resistance housing-ambient			5.4K/W	Sensor type	bipolar	self-locking hall
Thermal resistance winding-housing			7.9K/W	Number of halls		3
Ambient temperature -40		~100 °C	Supply voltage		5V	
Max. winding temperature 120 °C			120 °C	Electrical angle		120 degrees
Nominal & Stall				Hall sequence reg	ards to ba	ck EMF
Nominal voltage	V	12	24	Tested in CCW direction		
No load speed	rpm	1800	3600	BEMF U	V	W
Noload current	mA	110	120	0 1 1201	1 24	i
Nominal speed	rpm	1150	2400	1		+
Nominal torque	mNm	47	77	1 1	_	1 1
Nominal current	А	0.9	1.4	HU i		
Max. power	W	6	22	HV	-	
Max. efficiency		63%	70%	HW I	Ĺ	
Stall torque	mNm	120	180			
Stall current	А	2.2	3.5	Pull-up resistance		yes



General Characteristics:

Motor	Configu	uration
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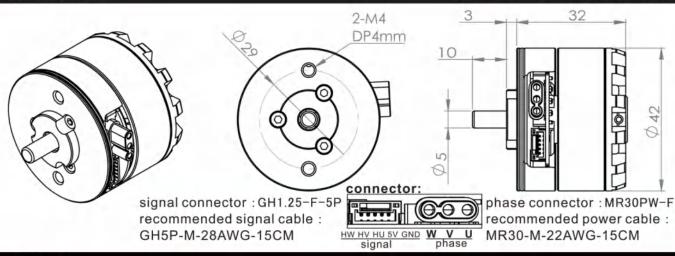
motor comingulatio						
Mechanical structure		outr	unner	Ingress protection		IP 44
Number of pole pairs			7	Speed constant	KV	200
Number of phases			3	Torque constant	mN/A	48
Winding connection			star	Single phase resist.	Ohm	1.3
Total weight		gran	n 90	DQ inductance	uН	260
Rotor inertia		uNm*s	1.6	Friction	uN*m*s	0.5
Thermal Data		Sensoric				
Thermal resistance housing-ambient 5.4K/W			Sensor type	bipolar	self-locking hal	
Thermal resistance wind	ermal resistance winding-housing 7.9K/W Number		Number of halls		3	
Ambient temperature		-40	0~100 °C Supply voltage		5\/	
Max. winding temperature 120 °C			120 °C	Electrical angle		120 degrees
Nominal & Stall				Hall sequence reg	ards to ba	ick EMF
Nominal voltage	V	12	24	Tested in CCW direction		
No load speed	rpm	2400	4800	BEMF U	V	W
Noload current	mA	150	180	0 1 1201	2	i 401
Nominal speed	rpm	1800	3400	-		+
Nominal torque	mNm	47	92	1 1	\rightarrow	1 1
Nominal current	А	1	1.9	HU		-
Max. power	W	12	38	HV	-	
Max. efficiency		83%	86%	HW I	Í	1
Stall torque	mNm	160	230			
Stall current	А	3.5	5.5	Pull-up resistance		yes



Conora	Charac	teristics:
General	Cilalac	teristics.

Motor	Config	jura	tion
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Mechanical structure			outru	nner	Ingress protection		IP 44
Number of pole pairs				7	Speed constant	KV	125
Number of phases 3		Torque constant	mN/A	45			
Winding connection				star	Single phase resist.	Ohm	1.75
Total weight			gram	130	DQ inductance	uH	450
Rotor inertia			uNm*s²	2.7	Friction	uN*m*s	0.5
Thermal Data					Sensoric		
Thermal resistance hou	ısing-ambi	ent		4.8K/W	Sensor type	bipolar se	lf-locking hall
Thermal resistance winding-housing			7.1K/W	Number of halls		3	
Ambient temperature		-40~	·100 °C	Supply voltage		5V	
Max. winding temperature 120 °C			Electrical angle		120 degrees		
Nominal & Stall					Hall sequence reg	ards to bac	k EMF
Nominal voltage	V	12	24	48	Tested in CCW direction		
No load speed	rpm	1500	3000	6000	BEMF U	V	W
Noload current	mA	90	150	300	0 1 1201	240	
Nominal speed	rpm	1100	2100	4200		240	
Nominal torque	mNm	54	117	200		_	1
Nominal current	А	0.8	1.6	3	HU		—
Max. power	W	8	30	110	HV	1	
Max. efficiency		80%	82%	85%	HW I	Ĺ	i
Stall torque	mNm	300	320	500			
Stall current	А	3.5	4.5	8.4	Pull-up resistance		yes



Conora	Charact	OFIC	ice.
General	Cilalaci	GI ISI	ILOS.

Motor Configuration				
Mechanical structure	outrunner	Ingress protection		IP 44
Number of pole pairs	7	Speed constant	KV	200
Number of phases	3	Torque constant	mN/A	45
Winding connection	star	Single phase resist.	mOhm	600
Total weight	gram 130	DO industance		140

Rotor inertia	uNm*s²	2.7	Friction	uN*m*s	0.5
Total weight	gram	130	DQ inductance	ин	140

4.8K/W

Sensor type

Thermal Data	Sensoric

Thermal resistance winding-housing	7.1K/W
Ambient temperature	-40~100 °C

Thermal resistance housing-ambient

Ambient temperature	-40-100 6
Max. winding temperature	120 °C

Nominal & Stall	Hall sequence regard

Nominal & Stan				
Nominal voltage	V	12	24	48
No load speed	rpm	2400	4800	9600
Noload current	mA	150	270	320
Nominal speed	rpm	1500	3400	7800
Nominal torque	mNm	100	180	350
Nominal current	Α	2.2	3.7	7.2
Max. power	W	20	70	240
Max. efficiency		80%	86%	86%
Stall torque	mNm	300	400	740
Stall current	А	3.5	5.5	9.8

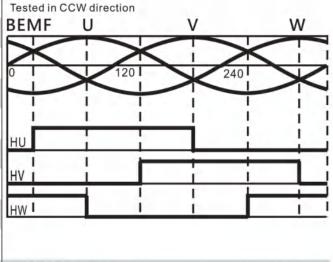
Number of halls	3
Supply voltage	5V

bipolar self-locking hall

yes

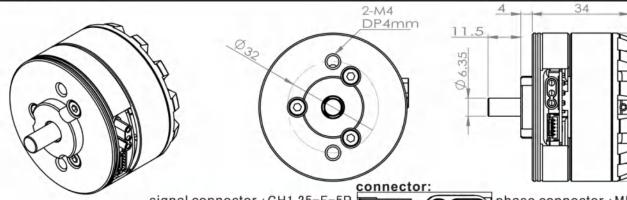
Electrical angle 12	0 degrees
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s to back EMF



ATTENTION: Stall operation is not recommended. Please do necessary protection to avoid irreparable damage.

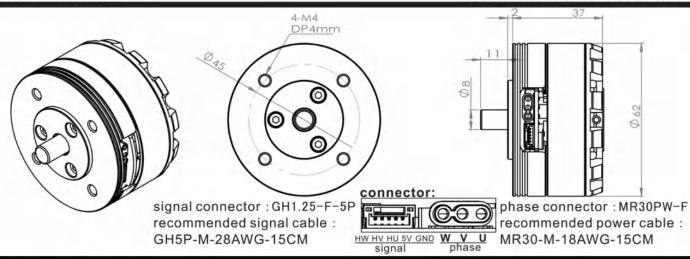
Pull-up resistance



signal connector : GH1.25-F-5P recommended signal cable : GH5P-M-28AWG-15CM

phase connector : MR30PW-F recommended power cable : MR30-M-20AWG-15CM

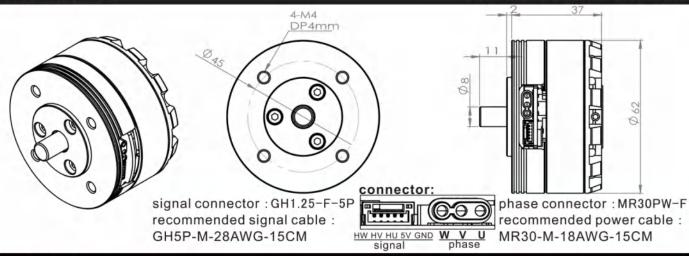
General Characteristics: Motor Configuration Ingress protection Mechanical structure outrunner **IP 44** KV 150 Number of pole pairs Speed constant Torque constant mN/A Number of phases 65 Winding connection star Single phase resist. mOhm 410 Total weight gram 220 DQ inductance uH 200 uNm*s2 Rotor inertia 6.5 Friction uN*m*s 0.5 **Thermal Data** Sensoric Thermal resistance housing-ambient 4.5K/W Sensor type bipolar self-locking hall 6.8K/W Number of halls 3 Thermal resistance winding-housing -40~100 °C 5V Ambient temperature Supply voltage 120°C Max, winding temperature Electrical angle 120 degrees Nominal & Stall Hall sequence regards to back EMF Nominal voltage 24 48 Tested in CCW direction BEMF No load speed rpm 3600 7200 Noload current mA 225 300 120 Nominal speed 2550 3100 rpm Nominal torque mNm 280 560 Nominal current A 4.2 8.4 Max. power W 74 256 HW I Max. efficiency 85% 86% Stall torque 670 1300 mNm Stall current 25 A 11.5 Pull-up resistance yes



Gonora	Characteristics:
General	Characteristics.

Motor	Confi	gura	tion
-------	-------	------	------

Mechanical structure		outrunner		Ingress protection		IP 44
Number of pole pairs 7		Speed constant	KV	100		
Number of phases			3	Torque constant	mN/A	44
Winding connection			star	Single phase resist.	mOhm	400
Total weight		gran	300	DQ inductance	uН	200
Rotor inertia		uNm*s	8.2	Friction	uN*m*s	0.6
Thermal Data		Sensoric				
Thermal resistance housing-ambient 4.9K/V		4.9K/W	Sensor type	bipolar s	elf-locking hall	
Thermal resistance winding-housing 3.8K/W		Number of halls		3		
Ambient temperature		-40~100 °C		Supply voltage		5V
Max. winding temperature 120 ° C			Electrical angle 120 degree		120 degrees	
Nominal & Stall				Hall sequence reg	ards to ba	ck EMF
Nominal voltage	V	24	48	Tested in CCW direction		
No load speed	rpm	2450	4900	BEMF U	V	W
Noload current	mA	230	500	0 1 1201	1 24	
Nominal speed	rpm	3600	7200			+
Nominal torque	mNm	500	1000	1 1 1		1 1
Nominal current	А	1.2	2.4	HU		\Rightarrow
Max. power	W	100	380	HV	- [
Max. efficiency		82%	83%	HW I	ſ	
Stall torque	N	1.45	2.8			
Stall current	А	14	30	Pull-up resistance		yes



General Characteristics: Motor Configuration Ingress protection Mechanical structure outrunner **IP 44** Speed constant KV 200 Number of pole pairs Torque constant mN/A Number of phases 44 200 Winding connection star Single phase resist. mOhm 1000 Total weight gram 300 DQ inductance uH uNm*s2 Rotor inertia 8.2 Friction uN*m*s 0.6 **Thermal Data** Sensoric Thermal resistance housing-ambient 4.9K/W Sensor type bipolar self-locking hall 3.8K/W Number of halls 3 Thermal resistance winding-housing -40~100 °C 5V Ambient temperature Supply voltage 120°C Max, winding temperature Electrical angle 120 degrees Nominal & Stall Hall sequence regards to back EMF Nominal voltage 24 48 Tested in CCW direction BEMF No load speed rpm 4800 9600 Noload current mA 550 700 120 Nominal speed 3600 7200 rpm Nominal torque mNm 500 1000 Nominal current A 1.2 2.4 Max. power W 400 1500 HW I Max. efficiency 82% 85% Stall torque 1.2 2.3 N

ATTENTION: Stall operation is not recommended. Please do necessary protection to avoid irreparable damage.

45

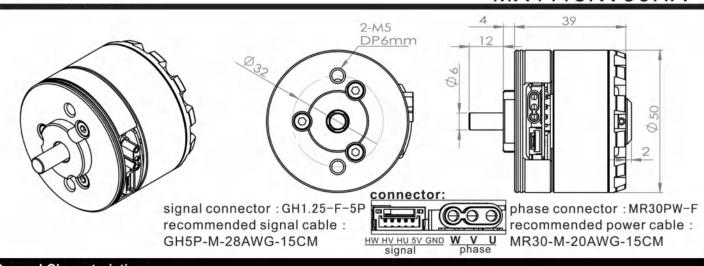
Pull-up resistance

yes

22

A

Stall current



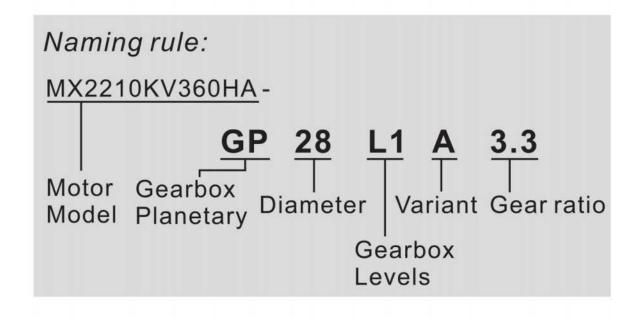
General Characteristics:	
Motor Configuration	

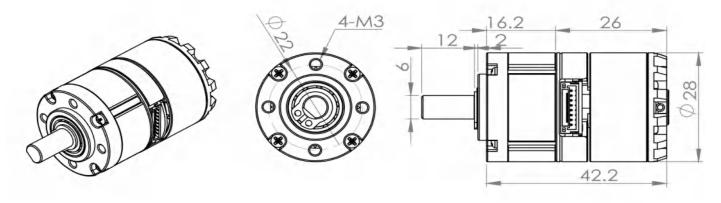
Motor Configuration					
Mechanical structure	out	runner	Ingress protection		IP 44
Number of pole pairs		7	Speed constant	KV	90
Number of phases		3	Torque constant	mN/A	100
Winding connection		star	Single phase resist.	mOhm	
Total weight	gram	250	DQ inductance	uН	200
Rotor inertia	uNm*s²	7.8	Friction	uN*m*s	0.6
Thermal Data			Sensoric		
Thermal resistance housing-ambient	4	1.3K/W	Sensor type	bipolar se	elf-locking hall
Thermal resistance winding-housing	6	6.2K/W	Number of halls		3
Ambient temperature	-40~	100 °C	Supply voltage		5V
Max. winding temperature		120 °C	Electrical angle		120 degrees
Nominal & Stall			Hall sequence reg	gards to bac	k EMF
Nominal voltage	V	24	Tested in CCW direction		
No load speed	rpm	2160	BEMF U	V	W
Noload current	mA	250	0 1 1201	240	
Nominal speed	rpm	1700			
Nominal torque	mNm	210			1 1
Nominal current	А	2.2	HU		=
Max. power	W	57	HV		<u> </u>
Max. efficiency		73%	HW I		i
Stall torque	mNm	800			
Stall current	А	7	Pull-up resistance		yes
					and the same of th

OUTRUNNER BLDC GEARMOTOR



outrunner motor planetary gearbox







Connector:

GH1.25-F-8P

Cable:

GH8P-M-28AWG-15cm

Pin definition(left to right):

1.HW 2.HV 3.HU 4.GND 5.VCC 6.W 7.V 8.U

General Characteris los					
Basic Dimensions	Unit		Motor Features		Unit
Diametier	O'me	28	Motor type		OTHE
Body length	mm	42.2	Motor model		
Output shaft diameter	mm	6	Pole pairs		
Output shaft lenghth	mm	12	Number of phases		
			*For more motor featur	es ple	ase
Gearbox Features	Unit		Nominal & Stall	Unit	
			Gearbox ratio	K	
Gearbox model		GP28L1A	Nominal voltage	V	
Gearbox type		Planetary	Noload speed	rpm	
Gearbox ratio	K	3.3	Nominal speed	rpm	
Gearbox levels		1	Nominal torque	mNm	
Gearbox diameter	mm	28	Nominal current	А	
Gearbox length	mm	16.2	Maximal power	W	
Gearbox efficiency		90%	Maximal efficiency		7
Operating torque	kg*cm	5	Stall torque	mNm	34
Brakeing torque	kg*cm	15	Stall current	А	4.

^{*}Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!

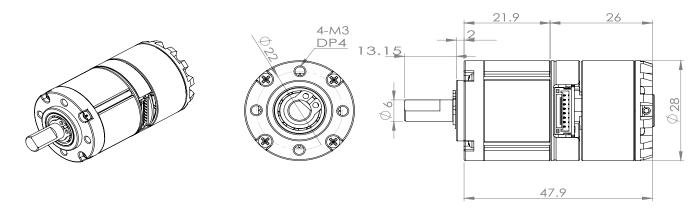
1.9

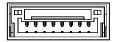
42.8

76%

4.5

8





Connector:

GH1.25-F-8P

Cable:

GH8P-M-28AWG-15cm

Pin definition(left to right):

1.HW 2.HV 3.HU 4.GND 5.VCC 6.W 7.V 8.U

1.4

75%

4.5

Nm 1.2

Α

W

Α

1.4

75%

1.6

4.5

1.4

75%

2.3

4.5

14.3 14.3 14.3 42.8

1.9

76%

2.4

8

1.9

42.8

76%

3.3

8

General Characteris

Basic Dimensions	Unit		Motor Features	Unit						
Diameter	mm	28	Motor type					BLD	C outr	unner
Body length	mm	47.9	Motor model					MX22	10KV3	60HA
Output shaft diameter	mm	6	Pole pairs							7
Output shaft length	mm	13.15	Number of phases							3
			For more motor featu	ires ple	ase re	fer data	asheet	"MX22	10KV3	60HA"
Gearbox Features	Unit		Nominal & Stall	Unit			*			*
			Gearbox ratio	K	11.2	15.5	21.5	11.2	15.5	21.5
Gearbox model		GP28L2A	Gearbox ratio Nominal voltage	K V	11.2 12	15.5 12	21.5 12	11.2 12	15.5 12	21.5 12
Gearbox model Gearbox type		GP28L2A Planetary		V						
	K		Nominal voltage	V	12	12	12	12	12	12

Nominal current

Maximal power

Stall torque

Stall current

Maximal efficiency

mm

mm

kg*cm

kg*cm

Gearbox diameter

Gearbox efficiency

Operating torque

Braking torque

Gearbox length

28

21.9

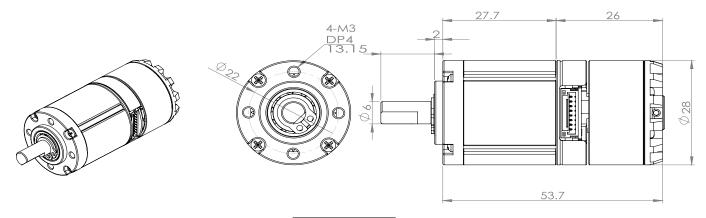
90%

10

30

^{*}Ratio 21.5 is in prototype phase.

^{*}Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!



Connector:

GH1.25-F-8P

Cable:

GH8P-M-28AWG-15cm

Pin definition(left to right):

1.HW 2.HV 3.HU 4.GND 5.VCC 6.W 7.V 8.U

General Characteris

Gearbox Features

Basic Dimensions	Unit		l
Diametier	mm	28	I
Body length	mm	53.7	I
Output shaft diamete	mm	6	ı
Output shaft lenghth	mm	13.15	I

Gearbox reatures	Offic	
Gearbox model		GP28L3A
Gearbox type		Planetary
Gearbox ratio	K	37.7/52.1/72*
Gearbox levels		2
Gearbox diameter	mm	28
Gearbox length	mm	27.7
Gearbox efficiency		82%
Operating torque	kg*cm	25
Brakeing torque	kg*cm	75

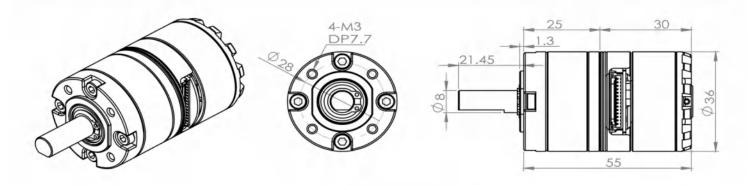
wotor reatures	Unit	
Motor type		BLDC outrunner
Motor model		MX2210KV360HA
Pole pairs		7
Number of phases		3

*For more motor features please refer datasheet "MX2210KV360HA".

Unit			*			*
K	37.7	52.1	72	37.7	52.1	72
V	12	12	12	24	24	24
rpm	114	83	60	228	24	119
rpm	95	69	50	191	138	100
mNm	829	1146	1584	1697	2345	3240
Α	1.0	1.0	1.0	1.9	1.9	1.9
W	13.5	13.5	13.5	49.5	49.5	49.5
	68%	68%	68%	69%	69%	69%
Nm	4.0	5.5	7.6	7.9	10.9	15.1
Α	1.5	1.5	1.5	3	3	3
	K V rpm rpm mNm A W	K 37.7 V 12 rpm 114 rpm 95 mNm 829 A 1.0 W 13.5 68% Nm 4.0	K 37.7 52.1 V 12 12 rpm 114 83 rpm 95 69 mNm 829 1146 A 1.0 1.0 W 13.5 13.5 68% 68% Nm 4.0 5.5	K 37.7 52.1 72 V 12 12 12 rpm 114 83 60 rpm 95 69 50 mNm 829 1146 1584 A 1.0 1.0 1.0 W 13.5 13.5 13.5 68% 68% 68% Nm 4.0 5.5 7.6	K 37.7 52.1 72 37.7 V 12 12 12 24 rpm 114 83 60 228 rpm 95 69 50 191 mNm 829 1146 1584 1697 A 1.0 1.0 1.0 1.9 W 13.5 13.5 13.5 49.5 68% 68% 68% 69% Nm 4.0 5.5 7.6 7.9	K 37.7 52.1 72 37.7 52.1 V 12 12 12 24 24 rpm 114 83 60 228 24 rpm 95 69 50 191 138 mNm 829 1146 1584 1697 2345 A 1.0 1.0 1.9 1.9 W 13.5 13.5 13.5 49.5 49.5 Nm 4.0 5.5 7.6 7.9 10.9

^{*}Ratio 72 is in prototype phase.

^{*}Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!



Motor Features

Unit:mm

Connector:

GH1.25-F-14P

Cable:

GH14P-M-28AWG-15cm

Unit

Pin definition(left to right):

HW HV HU 5V GND W W W V V V U U U

Unit

A

3.5

Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!

3.5

5.5

5.5

General Characteris

Basic Dimensions

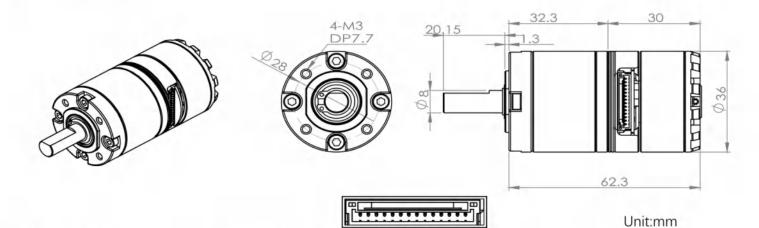
Brakeing torque

Diametier	mm	36	Motor type				BLDC	outrunner	
Body length	mm	55	Motor model	Motor model			MX2810KV200HA		
Output shaft diameter	mm	8	Pole pairs					7	
Output shaft lenghth	mm	21.45	Number of phases					3	
			*For more motor featu	ıres please	refer da	tasheet "	'MX2810K	V200HA".	
Gearbox Features	Unit		Nominal & Stall	Unit					
			Gear ratio	K	3.7	5.2	3.7	5.2	
Gearbox model		GP36L1A	Nominal voltage	V	12	12	24	24	
Gearbox type		Planetary	Noload speed	rpm	649	462	1297	923	
Gear ratio	K	3.7/5.2	Nominal speed	rpm	486	346	919	654	
Gearbox levels		1	Nominal torque	mNm	174	244	340	478	
Gearbox diameter	mm	36	Nominal current	Α	1	1	1.9	1.9	
Gearbox length	mm	25	Maximal power	W	12	12	38	38	
Gearbox efficiency		90%	Maximal efficiency		75%	75%	77%	77%	
Operating torque	kg*cm	10	Stall torque*	mNm	592	832	851	1196	
A 44									

Stall current

30

kg*cm



Connector:

GH1.25-F-14P

Cable:

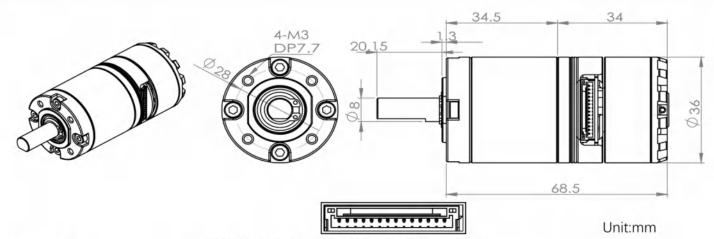
GH14P-M-28AWG-15cm

Pin definition(left to right):

HW HV HU 5V GND W W W V V V U U U

necessary protection to avoid irreparable damage!

General Characteris los	1									
Basic Dimensions	Unit		Motor Features	Unit						
Diametier	mm	36	Motor type					BLE	OC out	runner
Body length	mm	62.3	Motor model					MX2	810KV	200HA
Output shaft diameter	mm	6	Pole pairs							7
Output shaft lenghth	mm	13.15	Number of phases							3
			*For more motor fea	itures pl	ease re	efer dat	tasheet	"MX28	10KV20	00HA".
Gearbox Features	Unit		Nominal & Stall	Unit						
			Gear ratio	K	13.7	19.2	26.9	13.7	19.2	26.9
Gearbox model		GP28L3A	Nominal voltage	V	12	12	12	24	24	24
Gearbox type		Planetary	Noload speed	rpm	175	125	89	350	250	178
Gear ratio	K	37.7/52.1/72	Nominal speed	rpm	131	94	67	248	177	126
Gearbox levels		2	Nominal torque	mNm	644	902	1264	1260	1766	2475
Gearbox diameter	mm	36	Nominal current	Α	1	1	1	1.9	1.9	1.9
Gearbox length	mm	27.7	Maximal power	W	10.8	10.8	10.8	34.2	34.2	34.2
Gearbox efficiency		90%	Maximal efficiency		75%	75%	75%	77%	77%	77%
Operating torque	kg*cm	20	Stall torque*	Nm	2.2	3.1	4.3	3.2	4.4	6.2
Brakeing torque	kg*cm	60	Stall current	Α	3.5	3.5	3.5	5.5	5.5	5.5
			Attention: Stall	operati	on is r	not rec	comme	ended,	please	do



Connector:

GH1.25-F-14P

Cable:

GH14P-M-28AWG-15cm

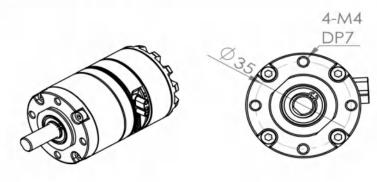
Pin definition(left to right):

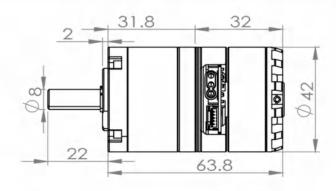
HW HV HU 5V GND W W W V V V U U U

General Characteris

Unit		Motor Features Unit	
mm	36	Motor type	BLDC outrunner
mm	68.5	Motor model	MX2810KV200HA
mm	8	Pole pairs	7
mm	20.15	Number of phases	3
		*For more motor features please re	fer datasheet "MX2810KV200HA",
	mm mm mm	mm 36 mm 68.5 mm 8	mm 36 Motor type mm 68.5 Motor model mm 8 Pole pairs mm 20.15 Number of phases

Gearbox Features	Unit		Nominal & Stall	Unit		
			Gear ratio	K	50.9	50.9
Gearbox model		GP28L3A	Nominal voltage	V	12	24
Gearbox type		Planetary	Noload speed	rpm	47	94
Gear ratio	K	50.9	Nominal speed	rpm	35	67
Gearbox levels		3	Nominal torque	mNm	2392	4683
Gearbox diameter	mm	36	Nominal current	Α	1	1.9
Gearbox length	mm	34.5	Maximal power	W	10.8	34.2
Gearbox efficiency		90%	Maximal efficiency	y	75%	77%
Operating torque	kg*cm	50	Stall torque*	Nm	8.1	11.7
Brakeing torque	kg*cm	150	Stall current	Α	3.5	5.5
					is not recomme to avoid irrepar	ended, please do able damage!





Unit:mm

Signal connector: GH1.25-F-5P

Signal cable: GH5P-M-28AWG-15cm Phase connector: MR30PW-F

Phase cable: MR30-M-22AWG-15cm

Pin definition(left to right): HW HV HU 5V GND W V U

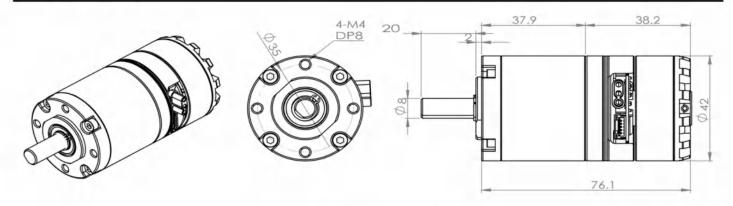
FEATURES

General Features	Unit		Motor Features Unit	
Diametier	mm	42	Motor type	BLDC outrunner
Body length	mm	63.8	Motor model	MX3310KV200HA
Output shaft diameter	mm	8	Pole pairs	7
Output shaft lenghth	mm	22	Number of phases	3
			*For more motor features please re	efer datasheet "MX3310KV200HA".

Gearbox Features	Unit	
Gearbox model		GP42L1A
Gearbox type		Planetary
Gear ratio	K	3.7
Gearbox levels		1
Gearbox diameter	mm	42
Gearbox length	mm	31.8
Gearbox efficiency		90%
Operating torque	kg*cm	20
Brakeing torque	kg*cm	60

Nominal & Stall	Unit			
Gear ratio	K	3.7	3.7	3.7
Nominal voltage	V	12	24	48
Noload speed	rpm	649	1297	2595
Nominal speed	rpm	405	919	2108
Nominal torque	mNm	370	666	1295
Nominal current	А	2.2	3.7	7.2
Maximal power	W	20	70	240
Maximal efficiency		72%	77%	77%
Stall torque*	mNm	1110	1480	2738
Stall current	А	3.5	5.5	9.8
Attention: Stall or	peration is no	nt recommen	ded nle	oh ese

Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!



Signal connector: GH1.25-F-5P

Signal cable: GH5P-M-28AWG-15cm Phase connector: MR30PW-F

Phase cable: MR30-M-22AWG-15cm

Pin definition(left to right): HW HV HU 5V GND W V U Unit:mm

FEATURES

General Features	Unit	
Diametier	mm	42
Body length	mm	76.1
Output shaft diameter	mm	8
Output shaft lenghth	mm	20

Motor Features Unit

Motor type	BLDC outrunner
Motor model	MX3310KV200HA
Pole pairs	7
Number of phases	3
*For more motor features please refer d	latasheet "MX3310KV200HA".

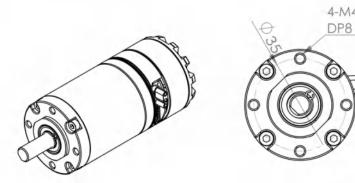
Caarba	x Features	Unit
CHAIDO	x realities	Unn

Gearbox model		GP42L2A
Gearbox type		Planetary
Gear ratio	K	10.2/13.7/19.2
Gearbox levels		2
Gearbox diameter	mm	42
Gearbox length	mm	37.9
Gearbox efficiency		90%
Operating torque	kg*cm	n 60
Brakeing torque	kg*cm	180

Nominal & Stall Unit

Gearbox ratio	K	10.2	10.2	10.2	13.7	13.7	13.7	19.2	19.2	19.2
Nominal voltage	V	12	24	48	12	24	48	12	24	48
Noload speed	rpm	235	471	941	175	350	701	125	250	500
Nominal speed	rpm	147	333	765	109	248	569	78	177	406
Nominal torque	mNm	1.0	1.8	3.6	1.4	2.5	4.8	1.9	3.5	6.7
Nominal current	Α	2.2	2.2	3.7	7.2	2.2	2.2	3.7	7.2	2.2
Maximal power	W	20	20	70	240	20	20	70	240	20
Maximal efficience	:y	72%	77%	77%	72%	77%	77%	72%	77%	77%
Stall torque*	Nm	3.1	4.1	7.5	4.1	5.5	10	5.8	7.7	14
Stall current	Α	3.5	3.5	5.5	9.8	3.5	3.5	5.5	9.8	3.5
Attention: Stall	opera	ation	is n	ot re	com	men	ded	nles	ase d	0

Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!



4-M4 20 48.2 38.2 DP8 B6.4 Unit:mm

Signal connector: GH1.25-F-5P

Signal cable: GH5P-M-28AWG-15cm Phase connector: MR30PW-F

Phase cable: MR30-M-22AWG-15cm

Pin definition(left to right): HW HV HU 5V GND W V U

FEATURES

General Features	Unit	
Diametier	mm	42
Body length	mm	86.4
Output shaft diameter	mm	8
Output shaft lenghth	mm	20

Motor Features Unit

Motor type	BLDC outrunner
Motor model	MX3310KV200HA
Pole pairs	7
Number of phases	3
*For more motor features please re	efer datasheet "MX3310KV200HA".

Gearbox Features Unit

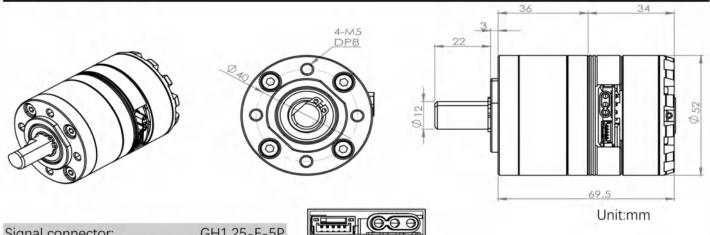
Gearbox model		GP42L2A
Gearbox type		Planetary
Gear ratio	K 32.5	5/50.9/71.2
Gearbox levels		3
Gearbox diameter	mm	42
Gearbox length	mm	48.2
Gearbox efficiency		90%
Operating torque	kg*cm	120
Brakeing torque	kg*cm	360

Nominal & Stall Unit

Gear ratio	K	32.5	32.5	32.5	50.9	50.9	50.9	71.2	71.2	71.2
Nominal voltage	٧	12	24	48	12	24	48	12	24	48
Noload speed	rpm	74	148	295	47	94	189	34	67	135
Nominal speed	rpm	46	105	240	29	67	153	21	48	110
Nominal torque	mNm	3.3	5.9	###	5.1	9.2	###	7.1	###	###
Nominal current	Α	2.2	2.2	3.7	7.2	2.2	2.2	3.7	7.2	2.2
Maximal power	W	20	20	70	240	20	20	70	240	20
Maximal efficience	:y	72%	77%	77%	72%	77%	77%	72%	77%	77%
Stall torque*	Nm	9.8	13	24	15	20	38	21	28	53
Stall current	Α	3.5	3.5	5.5	9.8	3.5	3.5	5.5	9.8	3.5
Attention: Stall	opera	ation	is n	ot re	com	men	ded,	plea	se d	0

necessary protection to avoid irreparable damage!

MX4210KV150HA-GP52L1A



Signal connector:

GH1.25-F-5P GH5P-M-28AWG-15cm

Signal cable : Phase connector:

MR30PW-F

Phase cable:

MR30-M-18AWG-15cm

Unit

Motor Features

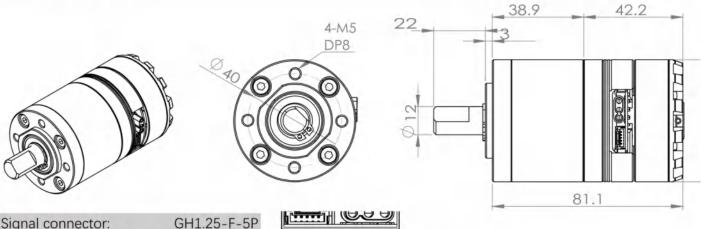
Pin definition(left to right): HW HV HU 5V GND W V U

Unit

General Characteris

Basic Dimensions

Diametier	mm	52	Motor type				BLDC	outrunner		
Body length	mm	69.5	Motor model			MX4210KV150HA				
Output shaft diameter	mm	12	Pole pairs							
Output shaft lenghth	mm	22	Number of phases					3		
			*For more motor featu	ires please	e refer da	itasheet "	MX4210K	V150HA".		
Gearbox Features	Unit		Nominal & Stall	Unit						
			Gear ratio	K	3.7	5.2	3.7	5.2		
Gearbox model		GP52L1A	Nominal voltage	V	24	24	48	48		
Gearbox type		Planetary	Noload speed	rpm	973	692	1946	1385		
Gear ratio	K	3.7/5.2	Nominal speed	rpm	689	490	838	596		
Gearbox levels		1	Nominal torque	mNm	1036	1456	2072	2912		
Gearbox diameter	mm	52	Nominal current	Α	4.2	4.2	8.4	8.4		
Gearbox length	mm	36	Maximal power	W	74	74	256	256		
Gearbox efficiency		90%	Maximal efficiency		77%	77%	77%	77%		
Operating torque	kg*cm	30	Stall torque*	mNm	2479	3484	4810	6760		
Brakeing torque	kg*cm	90	Stall current	Α	11.5	11.5	25	25		
7			Attention: Stall or necessary pro							



Signal connector: GH1.25-F-5P Signal cable: GH5P-M-28AWG-15cm

Phase connector:

MR30PW-F

Phase cable: MR30-M-18AWG-15cm

Pin definition(left to right):

HW HV HU 5V GND W V U

General Characteris

Basic Dimensions	Unit	Moto

Diametier	mm	52
Body length	mm	81.1
Output shaft diamet	mm	12
Output shaft lenghth	mm	22
S. S		

Motor Features Unit

Motor type	BLDC outrunner
Motor model	MX4210KV150HA
Pole pairs	7
Number of phases	3
*For more motor features please refer	datasheet "MX4210KV150HA".

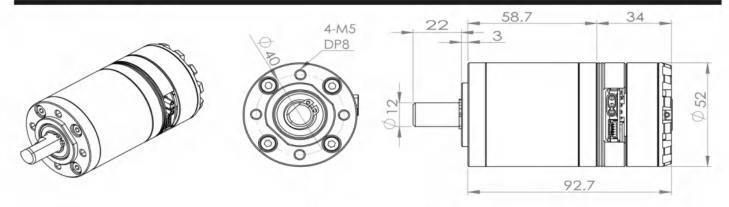
Gearbox Features Unit

Gearbox model		GP52L2A
Gearbox type		Planetary
Gear ratio	K	13.7/19.2/26.9
Gearbox levels		2
Gearbox diameter	mm	52
Gearbox length	mm	38.9
Gearbox efficiency		90%
Operating torque	kg*cm	n 80
Brakeing torque	kg*cm	240

Nominal & Stall Unit

Gear ratio	K	13.7	19.2	26.9	13.7	19.2	26.9
Nominal voltage	V	24	24	24	48	48	48
Noload speed	rpm	263	188	134	526	375	268
Nominal speed	rpm	186	133	95	226	161	115
Nominal torque	Nm	3.8	5.4	7.5	7.7	10.8	15.1
Nominal current	Α	4.2	4.2	4.2	8.4	8.4	8.4
Maximal power	W	74	74	74	256	256	256
Maximal efficiency		77%	77%	77%	77%	77%	77%
Stall torque*	Nm	9.2	12.9	18.0	17.8	25.0	35.0
Stall current	Α	11.5	11.5	11.5	25	25	25

Attention: Stall operation is not recommended, please do necessary protection to avoid irreparable damage!



Signal connector:

GH1.25-F-5P

Signal cable:

GH5P-M-28AWG-15cm

Phase connector:

MR30PW-F

Phase cable:

MR30-M-18AWG-15cm

Unit



Motor Features

Pin definition(left to right):

HW HV HU 5V GND W V U

Unit

General Characteris

Basic Dimensions

Diametier	mm	52	Motor type BLDC outrus			
Body length	mm	92.7	Motor model MX4210KV			210KV150HA
Output shaft diameter	mm	12	Pole pairs			
Output shaft lenghth	mm	22	Number of phases			3
			*For more motor features	s please refer da	tasheet "MX42	10KV150HA".
Gearbox Features	Unit		Nominal & Stall	Unit		
			Gear ratio	K	84.5	84.5
Gearbox model		GP52L1A	Nominal voltage	V	24	48
Gearbox type	ı	Planetary	Noload speed	rpm	43	85
Gear ratio	K	84.5	Nominal speed	rpm	30	37
Gearbox levels		1	Nominal torque	mNm	23660	47320
Gearbox diameter	mm	52	Nominal current	Α	4.2	8.4
Gearbox length	mm	58.7	Maximal power	W	74	256
Gearbox efficiency		90%	Maximal efficiency		77%	77%
Operating torque	kg*cm	30	Stall torque*	mNm	56615	109850
Brakeing torque	kg*cm	90	Stall current	Α	11.5	25
			Attention: Stall open necessary protect			