B Hybrid rotary stepper motor

Dings' supply hybrid stepper motor of seven sizes - from 20 mm to 86 mm. Each size has different stack lengths. Planetary gearbox and encoder are available. For all motors Also special customization is available, such as special shaft, water proof and etc.

Part Number Construction

17 H 2 061 - 120 - 4 B T - GR - 01

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

(1) Frame Size (mm)

CODE	08	11	14	17	23	24	34
MOTOR SIZE (mm)	20	28	35	42	57	60	86

(2) Basic Structure
- H = normal
- P = IP54
- W = Enchanced

(3) Step Aangle (°)
- 1 = 3
- 2 = 1.8
- 3 = 1.2
- 4 = 0.9
- 5 = 0.72

(4) Body Length (truncated) (mm)

(5) Rated Current×100 (A)

(6) Wiring Number

(7) Shaft Configuration
- A = single shaft
- B = dual shaft

(8) Wiring Method
- L = discrete flying wire
- T = integrated connector
- C = cable

(9) Option
- GR = planetary gearbox ready
- BR = brake ready
- ER = encoder ready
- PG = planetary gearbox
- FB = power off brake
- EK = encoder

(10) Customer Sequence Number

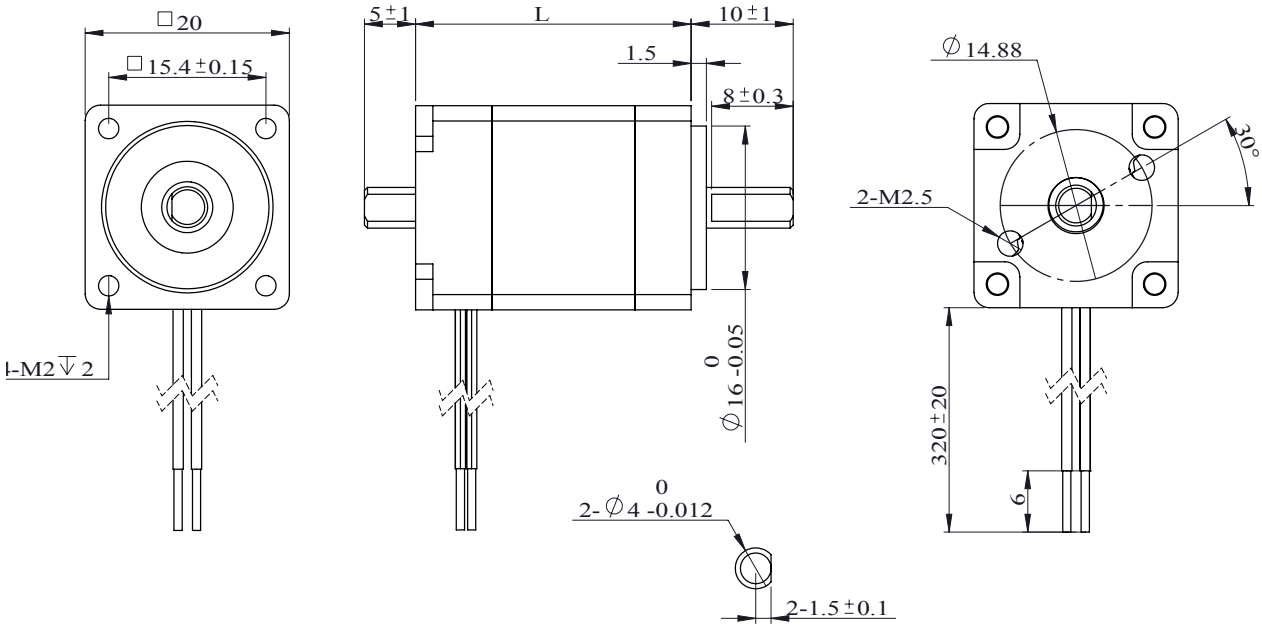
Example

Naming code	17H2061-120-4BT-GR-01
Description	Size 42 mm Normal structure Step angle 1.8° Motor body length 61 mm Rated current 1.2 A Dual shaft Wiring method integrated connector Gearbox ready 4 wiring leads Customization sequence code 01

Product Overview

Part number	current (A)	resistance (Ω)	Inductance (mH)	Holding torque (N·m)	Rotorinertia (g·cm²)	motor length (mm)	Mass (g)
08H2028	0.5	5.1	1.5	0.014	2.7	28.5	60
08H2038	0.5	8.8	2.7	0.02	3.3	38	80
11H2032	1	2.1	1.5	0.06	9	33.5	110
11H2045	1	4.1	4.0	0.1	13	45	200
11H2052	1	4.7	4.6	0.14	18	52	280
14H2027	0.5	20	23	0.15	19	28	100
14H2033	1	4	6	0.18	24	34	140
14H2037	1.5	2	3.2	0.2	28	38	180
17H2034	0.5	15	21	0.25	25	34	230
17H2041	1	4	8	0.4	54	41	300
17H2049	1.5	2	3.85	0.48	77	49	360
17H2061	2	1.8	3.7	0.72	110	61	500
23H2042	1	4.2	11	0.6	140	42.5	460
23H2051	2	1.5	4.4	1	240	51.5	640
23H2065	3	0.9	3.6	1.7	350	65.5	860
23H2076	4	0.6	2.4	2	480	76.5	1060
24H2047	2	1.5	3.9	0.9	240	47	600
24H2056	3	0.8	3	1.3	340	56	800
24H2068	4	0.6	2.5	2.2	490	68	1000
24H2085	5	0.4	1.8	2.5	690	85	1300
34H2060	3	1	6	2.6	1100	60.5	1600
34H2075	4.5	0.6	6	4.5	1800	75	2100
34H2098	6	0.5	5.5	7.2	2800	98	2900

Dimensional Drawing



Parameters

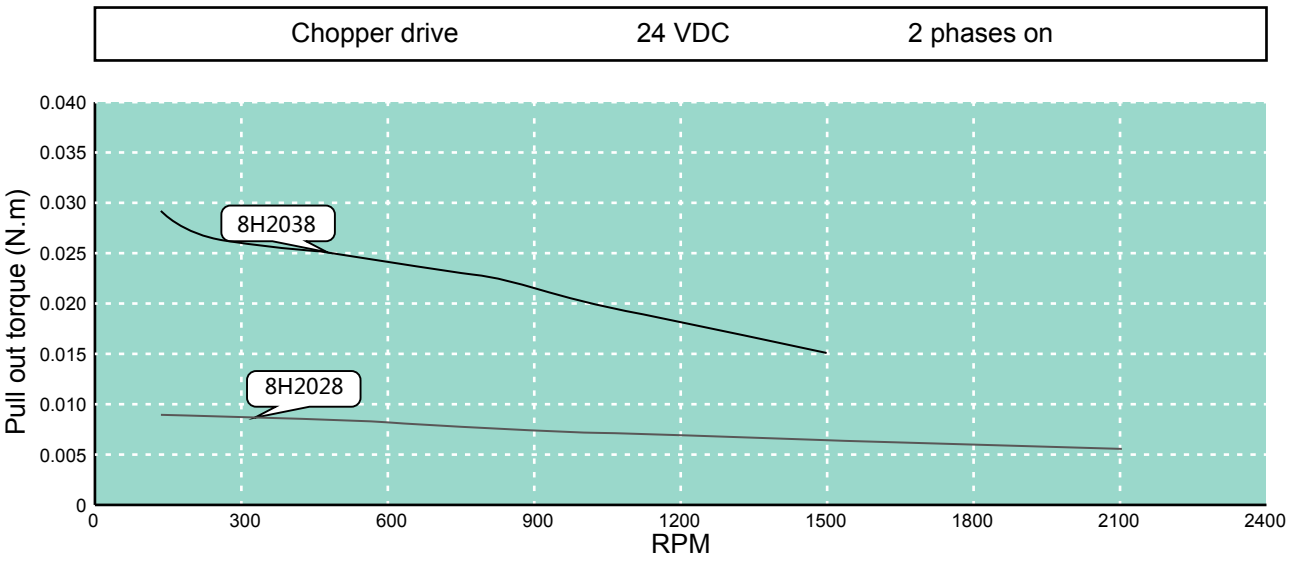
General		
Accuracy	Step angle	1.8°±5%
	Resistance	±10% / 20 C
	Inductance	±20% / 1KHz
Insulation class		B
Duty type		S1
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s
Insulation resistance		100 MΩ / 500 VDC

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
08H2028	0.5	5.1	1.5	0.014	2.7	27.2	60
08H2038	0.5	8.8	2.7	0.02	3.3	38	80

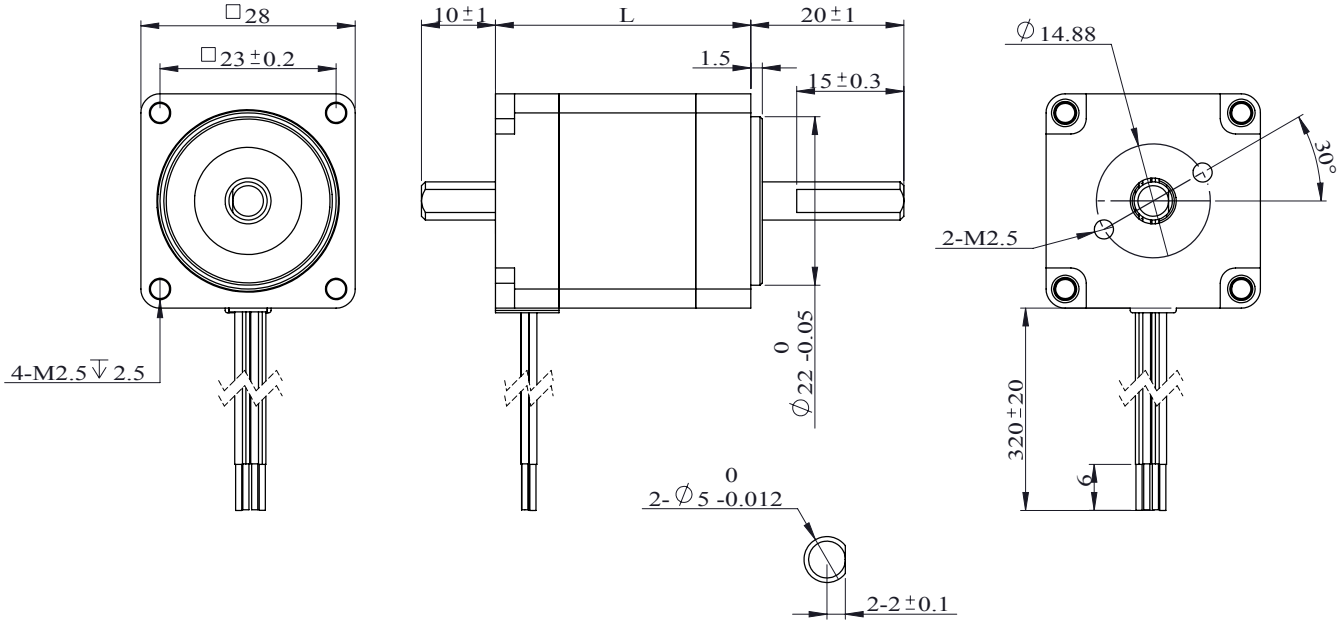
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265，28 AWG

Size 8 (20 mm) Series

Torque Performance Curves



Dimensional Drawing



Parameters

General		
Accuracy	Step angle	1.8°±5%
	Resistance	±10% / 20 C
	Inductance	±20% / 1KHz
Insulation class		B
Duty type		S1
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s
Insulation resistance		100 MΩ / 500 VDC

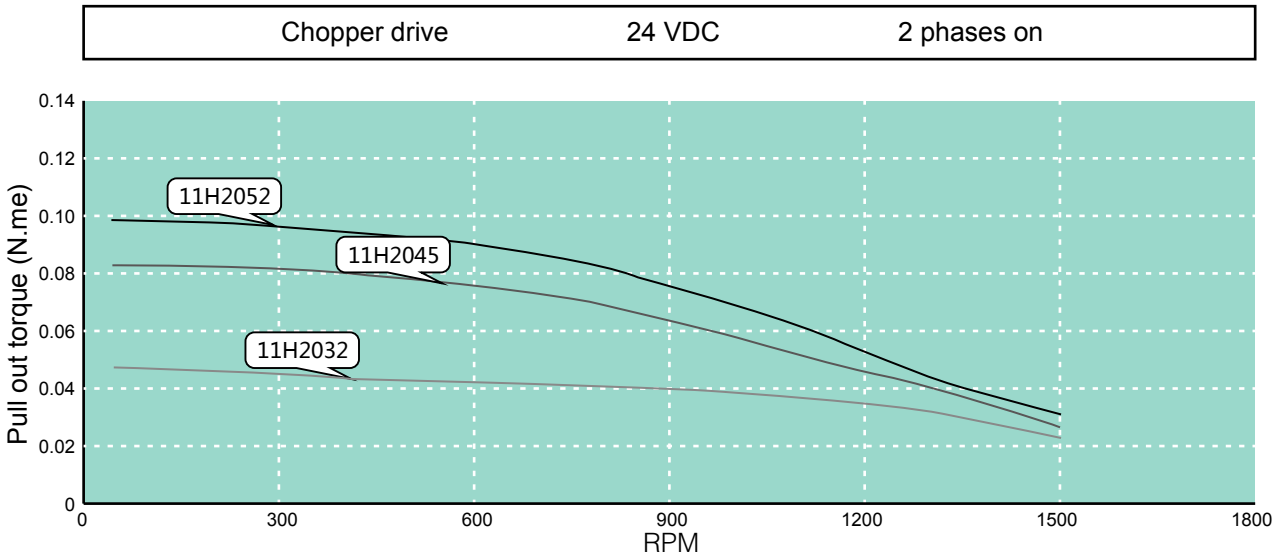
Parameter

Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
11H2032	1	2.1	1.5	0.06	9	33.5	110
11H2045	1	4.1	4.0	0.1	13	45	200
11H2052	1	4.7	4.6	0.14	18	52	280

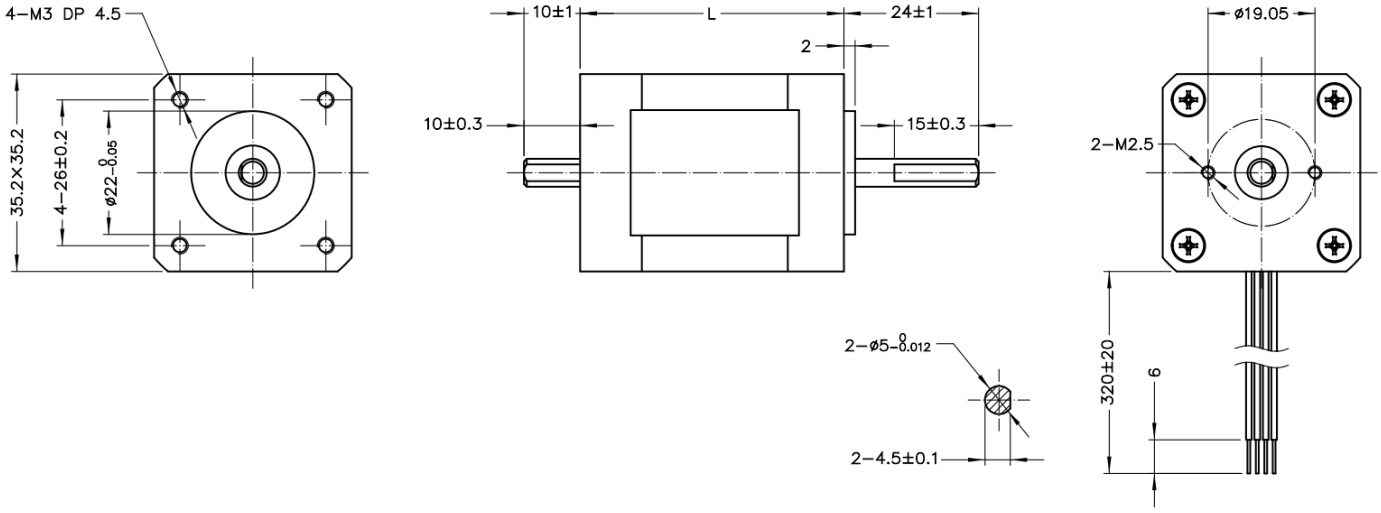
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265，26 AWG

Size 11 (28 mm) Series

Torque Performance Curves



Dimensional Drawing



Parameters

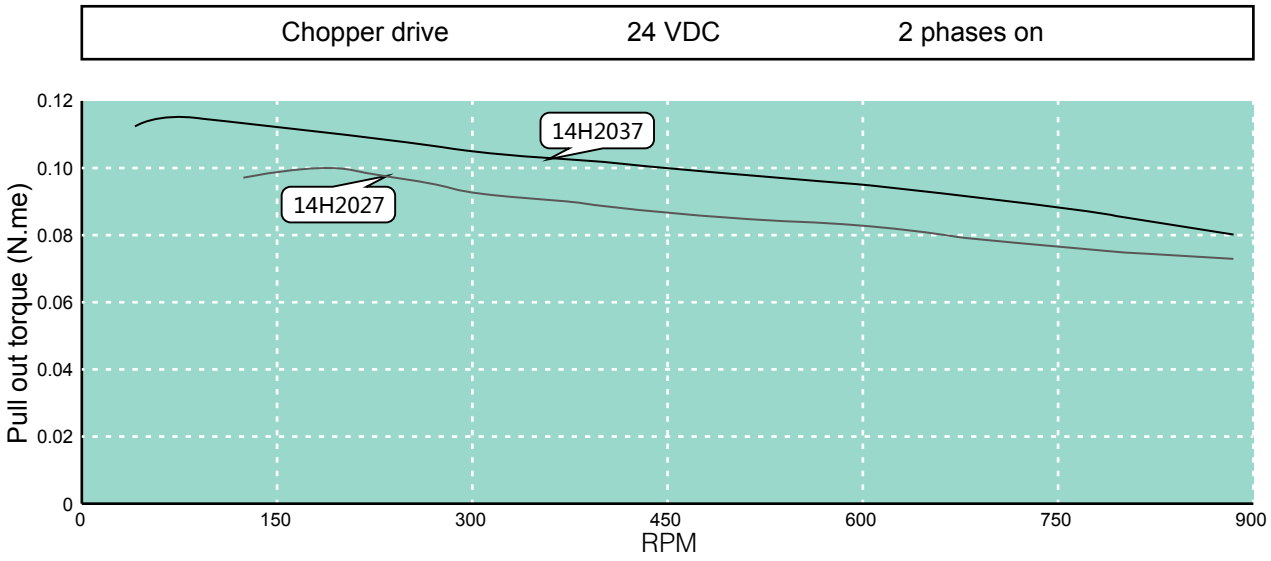
General		
Accuracy	Step angle	1.8°±5%
	Resistance	±10% / 20 C
	Inductance	±20% / 1KHz
Insulation class		B
Duty type		S1
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s
Insulation resistance		100 MΩ / 500 VDC

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
14H2027	0.5	20	23	0.15	19	28	100
14H2033	1	4	6	0.18	24	34	140
14H2037	1.5	2	3.2	0.2	28	38	180

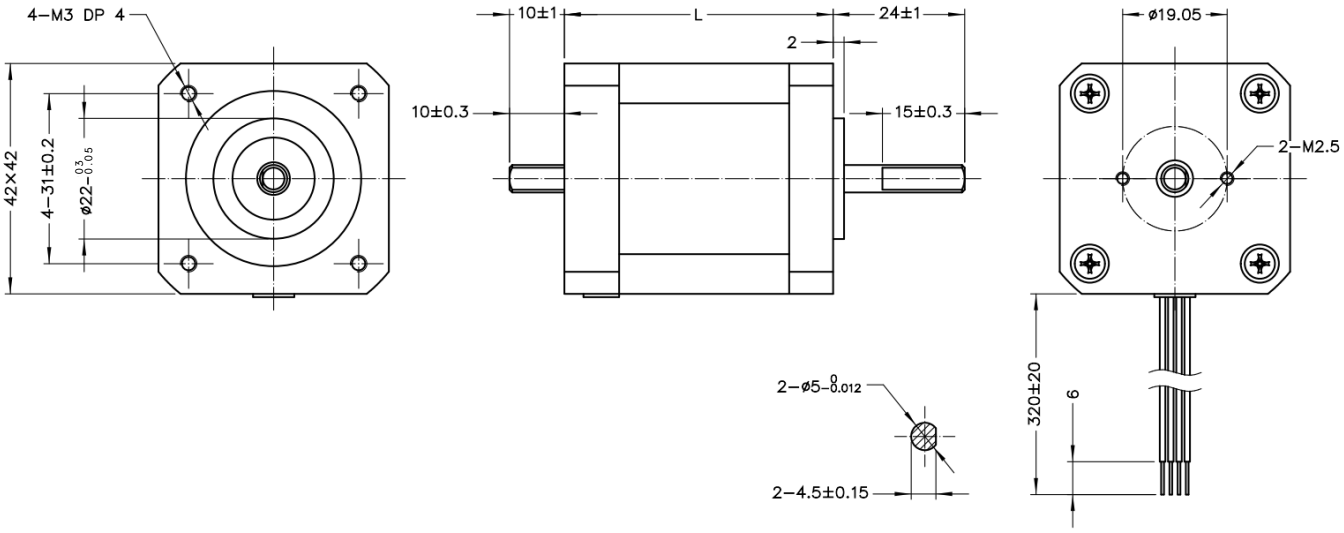
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265，26 AWG

Size 14 (35 mm) Series

Torque Performance Curves



Dimensional Drawing



Parameters

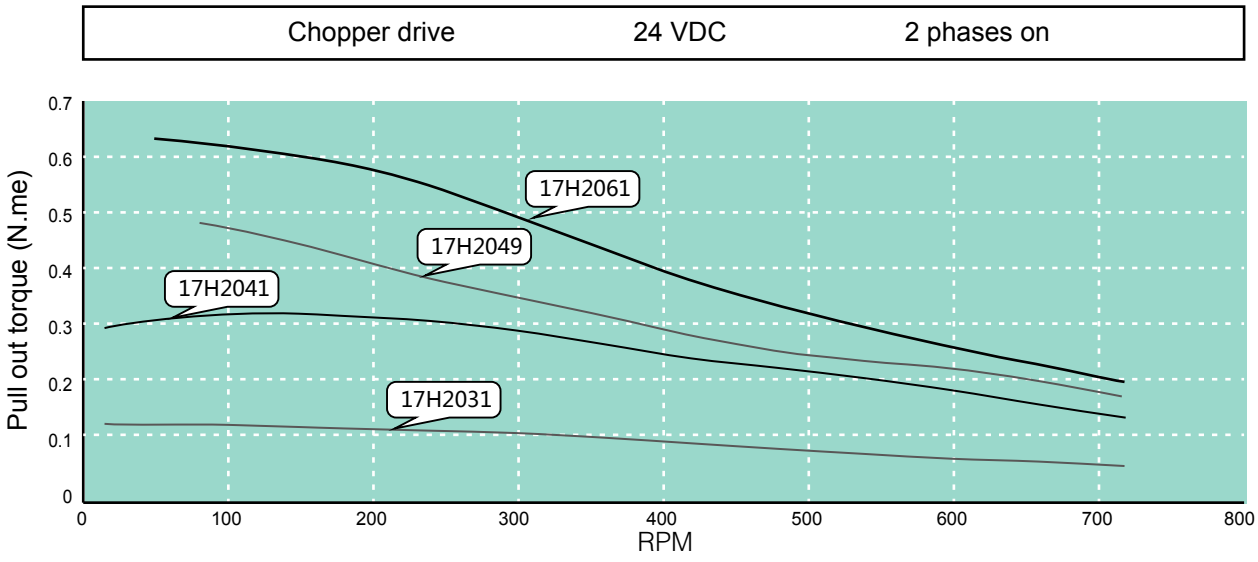
General		
Accuracy	Step angle	1.8°±5%
	Resistance	±10% / 20 C
	Inductance	±20% / 1KHz
Insulation class		B
Duty type		S1
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s
Insulation resistance		100 MΩ / 500 VDC

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
17H2034	0.5	15	21	0.25	25	34	230
17H2041	1	4	8	0.4	54	41	300
17H2049	1.5	2	3.85	0.48	77	49	360
17H2061	2	1.8	3.7	0.72	110	61	500

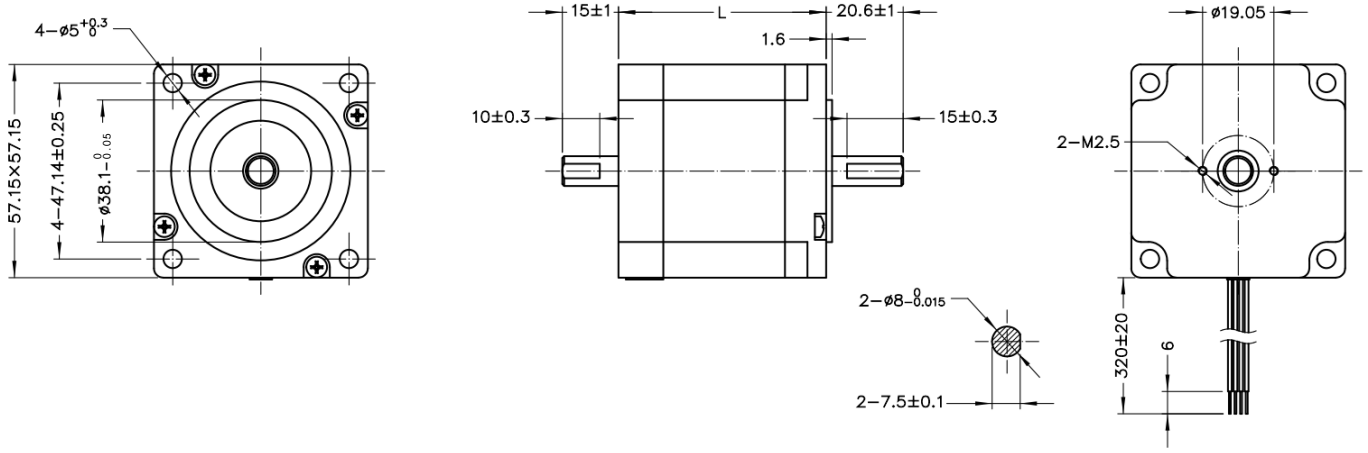
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265, 28 AWG

Size 17 (42 mm) Series

Torque Performance Curves



Dimensional Drawing



Parameters

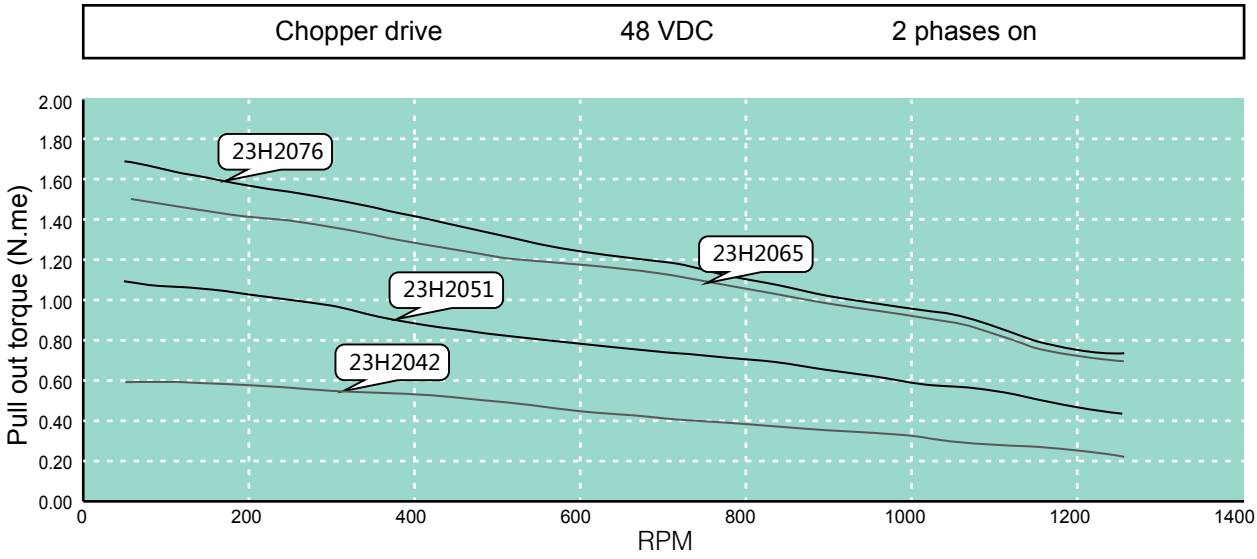
General		
Accuracy	Step angle	1.8°±5%
	Resistance	±10% / 20 C
	Inductance	±20% / 1KHz
Insulation class		B
Duty type		S1
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s
Insulation resistance		100 MΩ / 500 VDC

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
23H2042	1	4.2	11	0.6	140	42.5	460
23H2051	2	1.5	4.4	1	240	51.5	640
23H2065	3	0.9	3.6	1.7	350	65.5	860
23H2076	4	0.6	2.4	2	480	76.5	1060

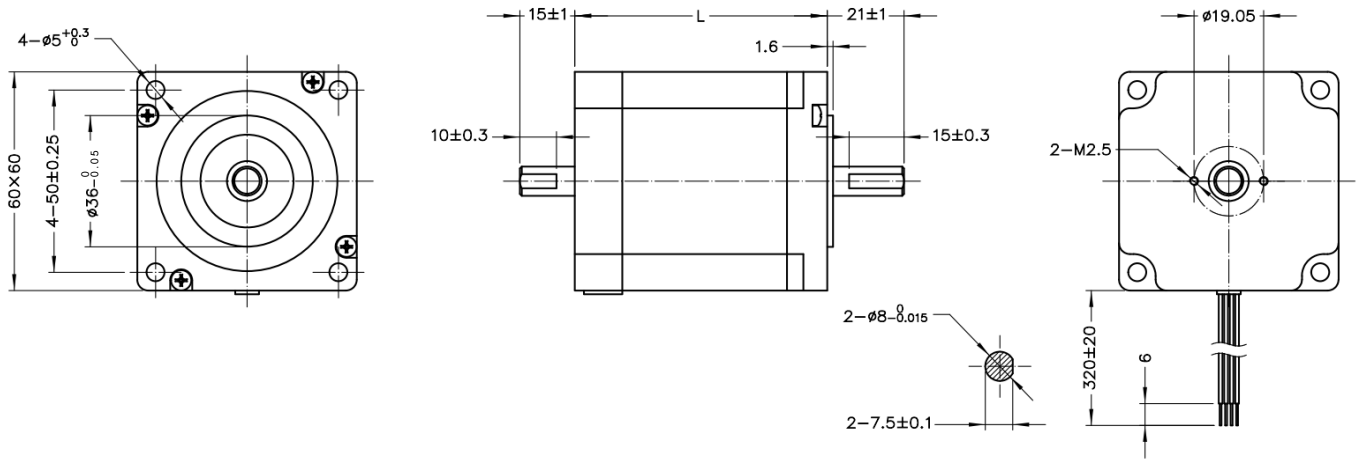
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265，22 AWG

Size 23 (57 mm) Series

Torque Performance Curves



Dimensional Drawing



Parameters

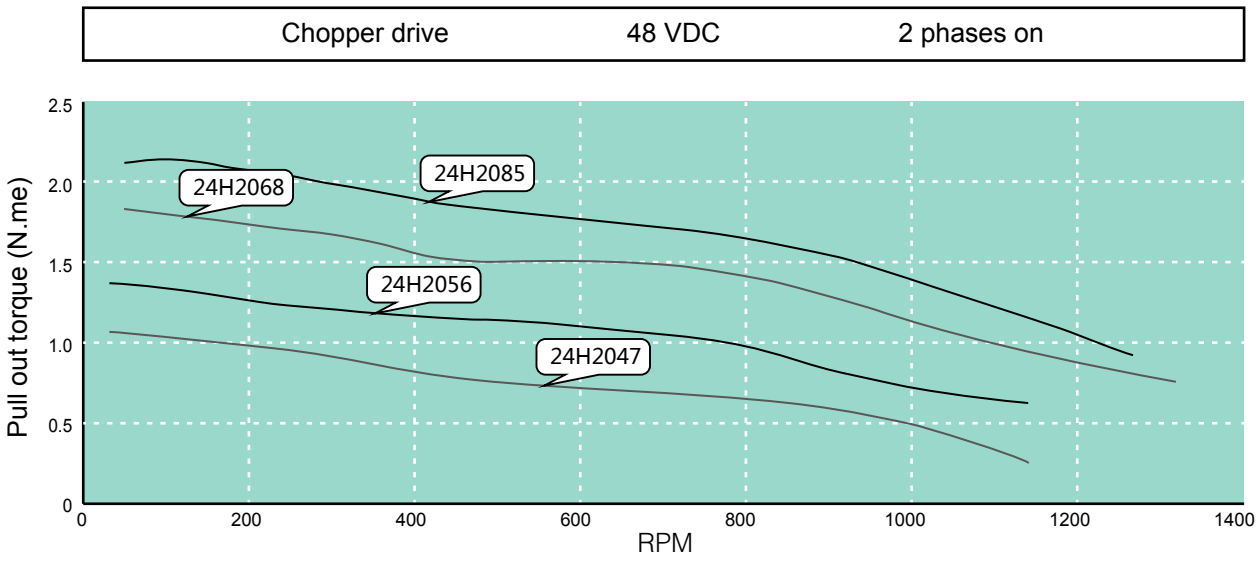
General		
Accuracy	Step angle	1.8°±5%
	Resistance	±10% / 20 C
	Inductance	±20% / 1KHz
Insulation class		B
Duty type		S1
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s
Insulation resistance		100 MΩ / 500 VDC

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
24H2047	2	1.5	3.9	0.9	240	47	600
24H2056	3	0.8	3	1.3	340	56	800
24H2068	4	0.6	2.5	2.2	490	68	1000
24H2085	5	0.4	1.8	2.5	690	85	1300

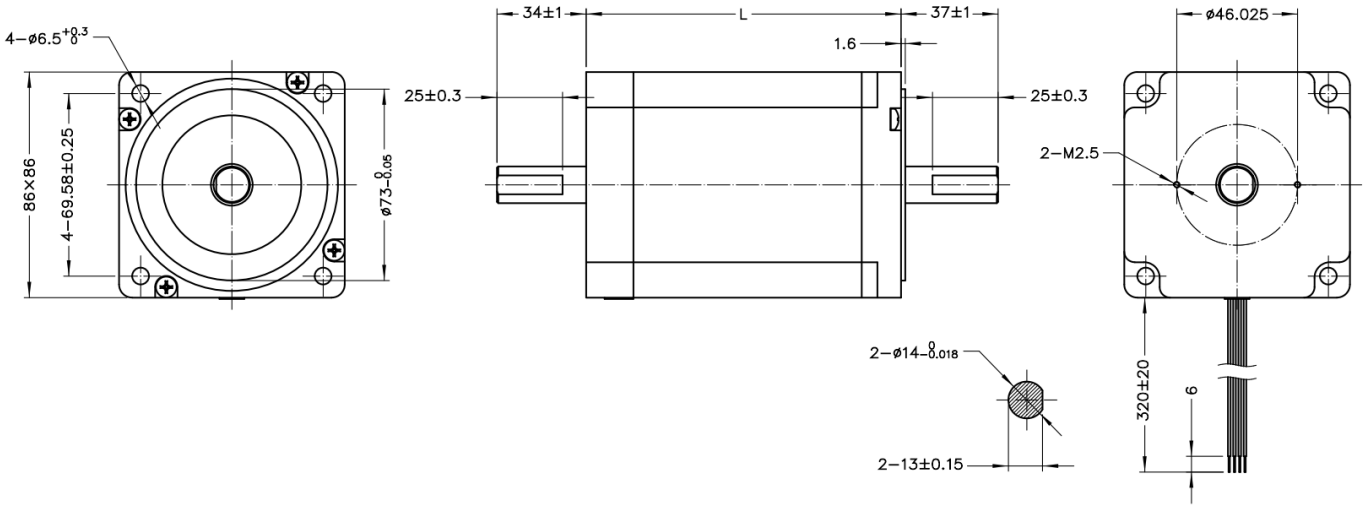
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265，20 AWG

Size 24 (60 mm) Series

Torque Performance Curves



Dimensional Drawing



Parameters

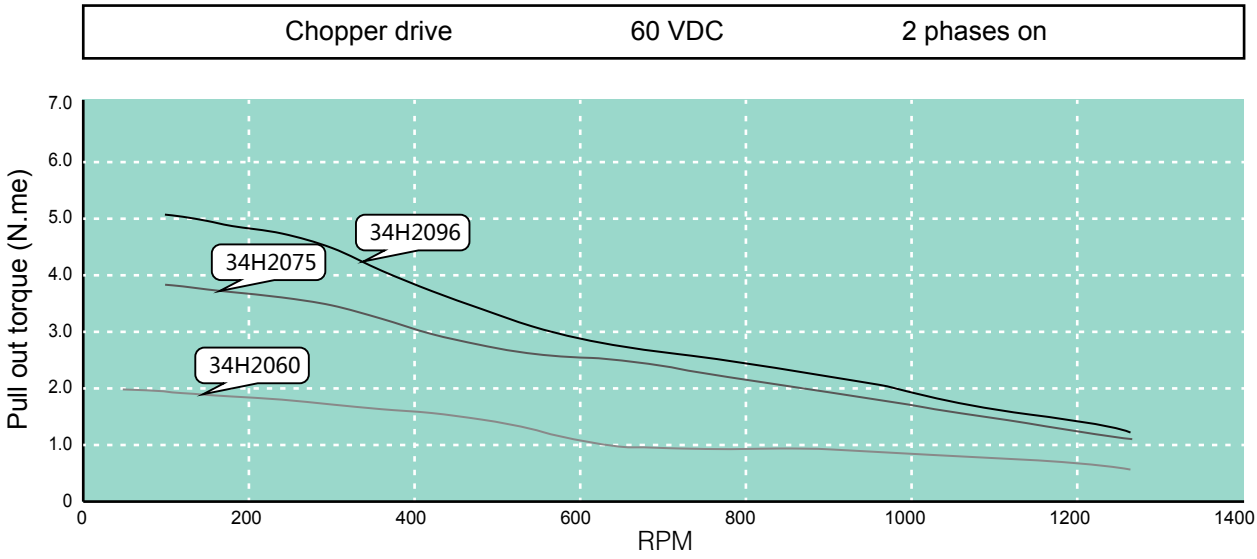
General		
Accuracy	Step angle	1.8°±5%
	Resistance	±10% / 20 C
	Inductance	±20% / 1KHz
Insulation class		B
Duty type		S1
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s
Insulation resistance		100 MΩ / 500 VDC

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
34H2060	3	1	6	2.6	1100	60.5	1600
34H2075	4.5	0.6	6	4.5	1800	75	2100
34H2098	6	0.5	5.5	7.2	2800	98	2900

Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265, 18 AWG

Size 34 (86 mm) Series

Torque Performance Curves



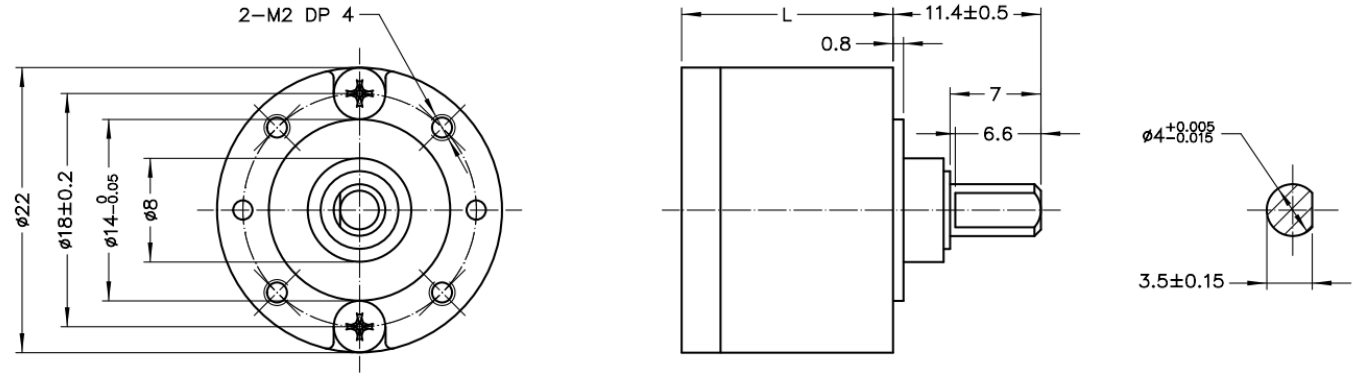
Planetary Gearbox

Overview

Frame size	Ratio	Rated torque (Kgf·cm)	Limit torque (Kgf·cm)	Stages	Efficiency (%)	Length (mm)	Mass (g)	Corresponding motor
22 mm	4	0.3	0.9	1	81	16.3	29.1	20 mm
	15	0.5	1.5	2	66	16.3	30.1	
	20							
	107	1	3	3	53	19.5	36	
28 mm	3.3	5	15	1	90	21.2	87	28 mm
	4.6							
	11.2	10	30	2	81	26.9	91	
	15.5							
	21.5							
	37.7	25	75	3	73	32.7	100	
	72							
32 mm	3.3	5	15	1	90	16.2	90	35 mm
	4.6							
	11.2	10	30	2	81	21.9	115	
	15.5							
	21.5							
	37.7	25	75	3	73	27.7	140	
	72							
42 mm	3.7	10	30	1	90	30.6	260	42 mm
	5.2							
	13.7	20	60	2	81	41.9	350	
	19.2							
	26.9							
	50.9	50	150	3	73	53.2	440	
	71.2							
	99.5							
57 mm	5	60	120	1	95	53	800	57 mm
	10							
	15	250	400	2	90	70	1100	
	20							
	25							
60 mm	5	60	120	1	95	53	900	60 mm
	10							
	15							
	20	250	400	2	90	70	1200	
	25							

Accessories and Options

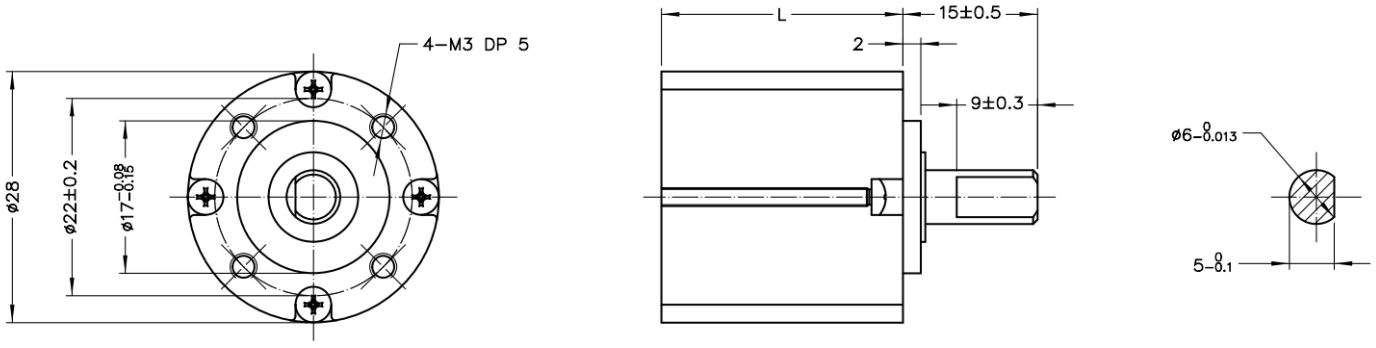
- **22 mm Frame Planetary Gearbox**
- **Dimensional Drawing**



- **Parameters**

House material			Metal			
No load backlash			1°			
Bearing			Sleeve bearing			
Ratio	**Rated torque (Kgf·cm)**	**Limit torque (Kgf·cm)**	**Stages**	**Efficiency (%)**	**Length (mm)**	**Mass (g)**
4	0.3	0.9	1	81	16.3	29.1
15	0.5	1.5	2	66	16.3	30.1
20						
107	1	3	3	53	19.5	36

- **28 mm Frame Planetary Gearbox**
- **Dimensional Drawing**

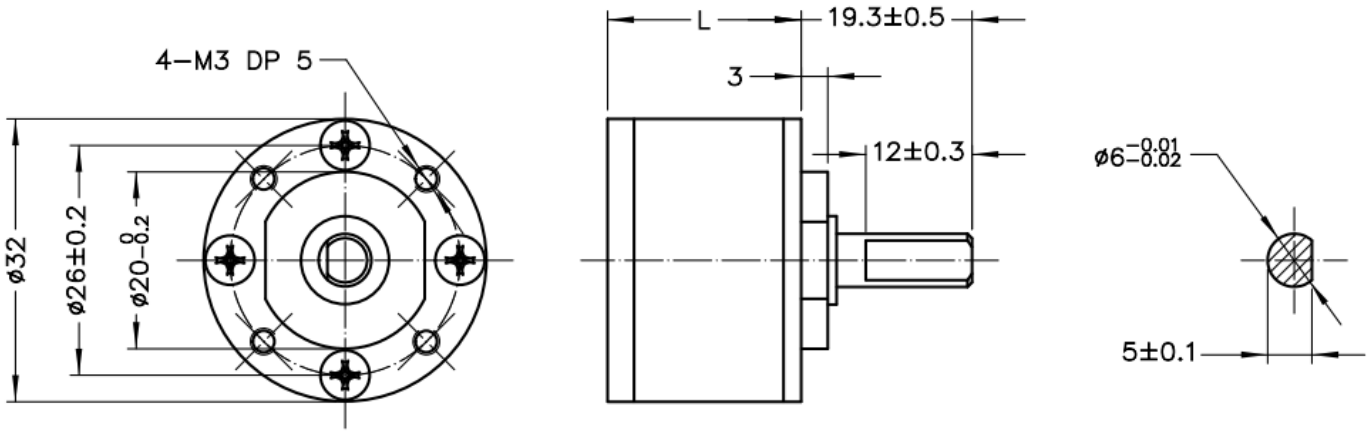


- **Parameters**

House material			Metal			
No load backlash			1°			
Bearing			Ball bearing			
Ratio	**Rated torque (Kgf·cm)**	**Limit torque (Kgf·cm)**	**Stages**	**Efficiency (%)**	**Length (mm)**	**Mass (g)**
3.3	5	15	1	90	21.2	87
4.6						
11.2	10	30	2	81	26.9	91
15.5						
21.5						
37.7	25	75	3	73	32.7	100
72						

Accessories and Options

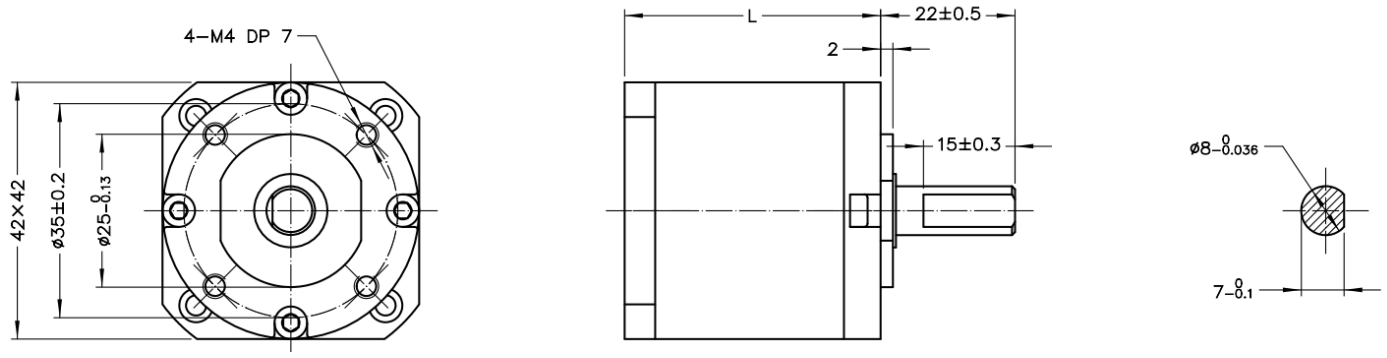
- **32 mm Frame Planetary Gearbox**
- **Dimensional Drawing**



- **Parameters**

House material			Metal			
No load backlash			1°			
Bearing			Ball bearing			
Ratio	**Rated torque (Kgf·cm)**	**Limit torque (Kgf·cm)**	**Stages**	**Efficiency (%)**	**Length (mm)**	**Mass (g)**
3.3	5	15	1	90	16.2	90
4.6						
11.2	10	30	2	81	21.9	115
15.5						
21.5						
37.7	25	75	3	73	27.7	140
72						

- **42 mm Frame Planetary Gearbox**
- **Dimensional Drawing**

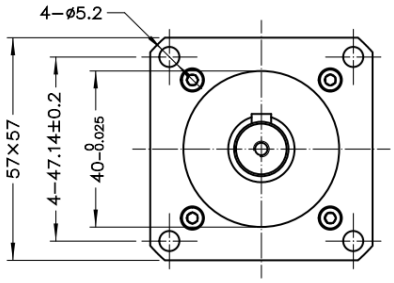


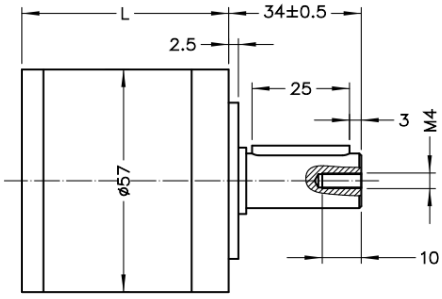
- **Parameters**

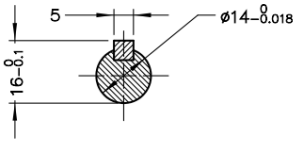
House material			Metal			
No load backlash			1.2°			
Bearing			Ball bearing			
Ratio	**Rated torque (Kgf·cm)**	**Limit torque (Kgf·cm)**	**Stages**	**Efficiency (%)**	**Length (mm)**	**Mass (g)**
3.7	10	30	1	90	30.6	260
5.2						
13.7	20	60	2	81	41.9	350
19.2						
26.9						
50.9	50	150	3	73	53.2	440
71.2						
99.5						

Accessories and Options

- **57 mm Frame Planetary Gearbox**
- **Dimensional Drawing**



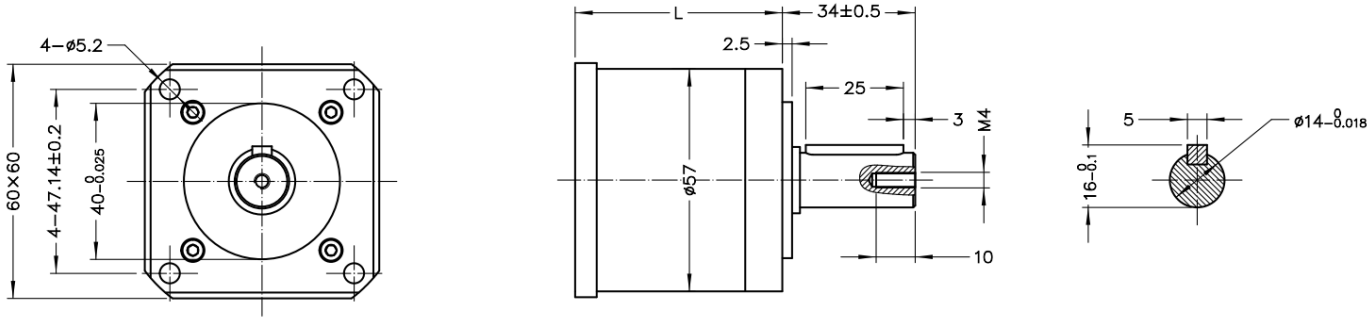




- **Parameters**

House material			Metal			
No load backlash			One stage 15 arcmin, two stages 25 arcmin			
Bearing			Ball bearing			
Ratio	**Rated torque (Kgf·cm)**	**Limit torque (Kgf·cm)**	**Stages**	**Efficiency (%)**	**Length (mm)**	**Mass (g)**
5	60	120	1	95	53	800
10						
15	250	400	2	90	70	1100
20						
25						

- **60 mm Frame Planetary Gearbox**
- **Dimensional Drawing**

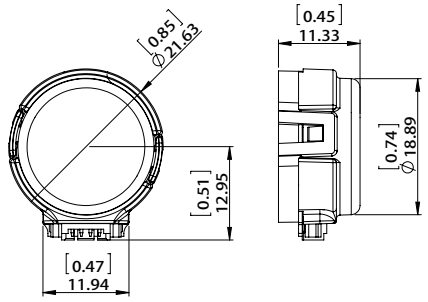


- **Parameters**

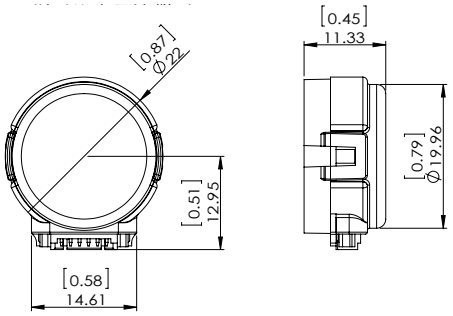
House material			Metal			
No load backlash			One stage 15 arcmin, two stages 25 arcmin			
Bearing			Ball bearing			
Ratio	**Rated torque (Kgf·cm)**	**Limit torque (Kgf·cm)**	**Stages**	**Efficiency (%)**	**Length (mm)**	**Mass (g)**
5	60	120	1	95	53	900
10						
15	250	400	2	90	70	1200
20						
25						

Accessories and Options

Optional Encoder



EK1 Encoder – single ended output

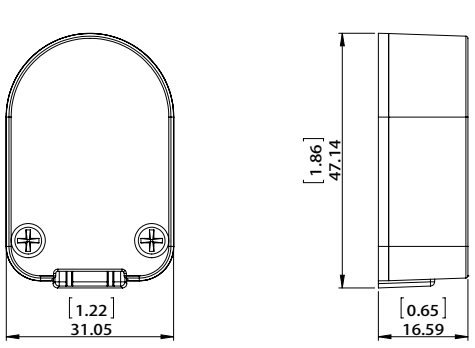


EK1 Encoder – differential output

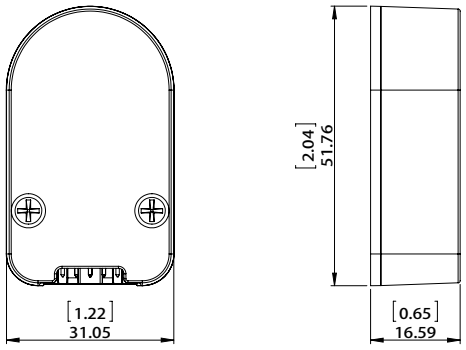
- **EK1 Encoder (Used for Size 8, 11, 14, 17 Motor)**

Resolution	100	108	120	125	128	200	250	256	300	360	400	500
Single ended output	0	1	2	3	4	5	6	7	8	9	10	11
Differential output	A	B	C	D	E	F	G	H	I	J	K	L

Optional Encoder



EK2 Encoder – single ended output



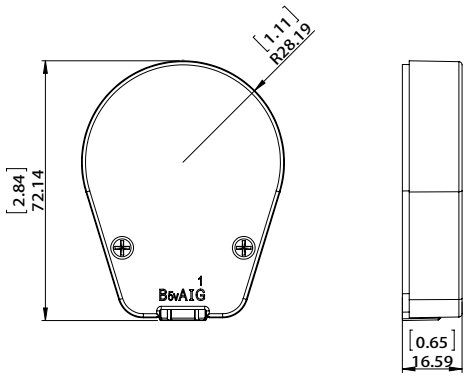
EK2 Encoder – differential output

- **EK2 Encoder (Used for Size 14, 17, 23 Motor)**

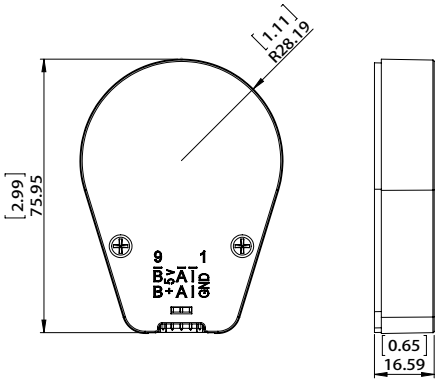
Resolution	50	100	192	200	250	256	360	400	500	720	900	1000	1250	2000	2500	4000	5000
Single ended output	0	1	2	3	4	5	6	7	8	9	10	11	12				
Differential output	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q

Accessories and Options

Optional Encoder



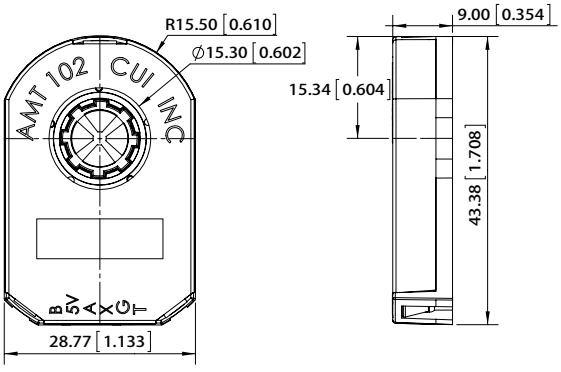
EK3 Encoder – single ended output



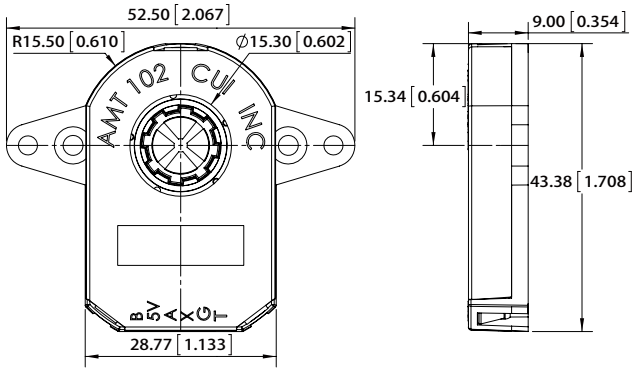
EK3 Encoder – differential output

- **EK3 Encoder (Used for Size 23, 34 Motor)**

Resolution	64	100	200	500	1000	1800	2000	2500	3600	4000	5000	7200	8000	10000
Single ended output	0	1	2	3	4	5	6	7	8					
Differential output		A	B	C	D	E	F	G	H	I	J	K	L	M



EK4 Encoder-single ended output (size14,17)



EK4 Encoder-single ended output (size23)

- **EK4 Encoder (Used for Size 14, 17, 23 Motor)**

Resolution	48	96	100	125	192	200	250	256	384	400	500	512	800	1000	1024	2048
Single ended output	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Differential output	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-