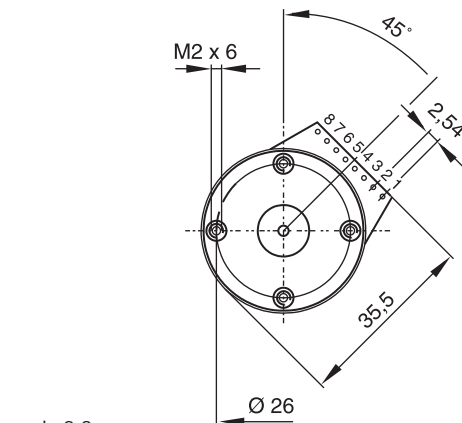
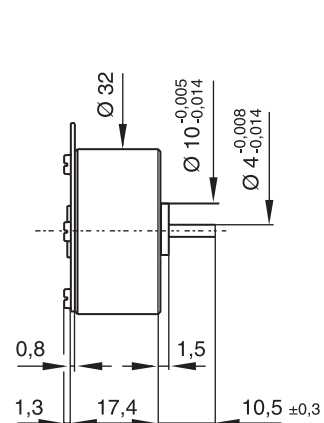
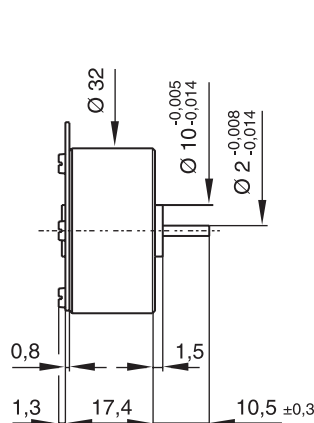


Suitable for microstep operation

60 steps/revolution
6° step angle



scale 2:3
dimensions in mm
mass : 40g



P310-158 - [] • 09

P310-158 - [] • 10

Windings available



170

170

005

005

coils in series

coils in parallel

coils in series

coils in parallel

Coil dependent parameters

		typ	typ	typ	typ
1	Phase resistance	ohm	332	83	10.5
2	Phase inductance (1 kHz)	mH	184	46	6.4
3	Nominal phase current (2 ph. on)	A	0.06	0.12	0.36
4	Nominal phase current (1 ph. on)	A	0.09	0.17	0.51
5	Back-EMF amplitude	V/kst/s	18	9	3.2

Coil independent parameters ¹⁾

min

typ

max

Torque parameters

6	Holding torque (nominal current)	mNm (oz-in)	11.5 (1.6)	14 (2)	16.5 (2.4)
7	Holding torque (1.5 x nominal current) ²⁾	mNm (oz-in)	23 (3.8)	28 (4)	33 (4.8)
8	Detent torque amplitude and friction	mNm (oz-in)	1.4 (0.2)	2.5 (0.3)	3 (0.4)

Thermal parameters

9	Thermal resistance coil-ambient ³⁾	°C/W		25	
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Angular accuracy

10	Absolute accuracy (2 ph. on full-step mode)	% full-steps		±3.5	±5
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Mechanical parameters

11	Rotor inertia	kgm ² .10 ⁻⁷		0.86	
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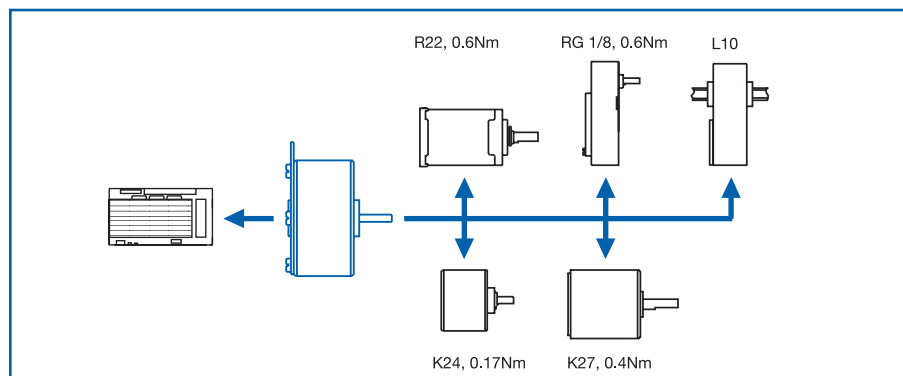
Other parameters

12	Natural resonance frequency (nominal current)	Hz		230	
13	Electrical time constant	ms		0.6	
14	Angular acceleration (nominal current)	rad/s ²		140 000	

- Max. rated coil temperature : 130°C
- Recom. ambient temperature range : -20 °C to +50 °C

- Radial shaft play (3N)⁴⁾ : 35 µm
- Axial shaft play (3N)⁴⁾ : 100 µm
- Max. radial load⁵⁾ in N : 1 (10)*
- Max. axial load⁶⁾ in N : 0.5 (20)*

- Test voltage (1 min) 500 V_{RMS}
- "Power rate" (nominal current) 1.7 kW/s



¹⁾ Bipolar driver.

²⁾ The maximum coil temperature must be respected.

³⁾ Motor unmounted.

⁴⁾ Sleeve bearing version.

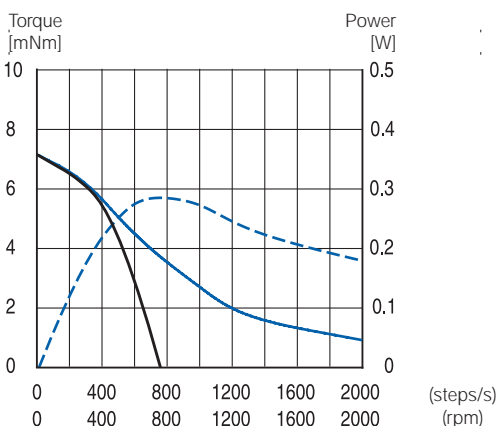
⁵⁾ Sleeve bearing version. Load applied at 8 mm from mounting face.

⁶⁾ Sleeve bearing version. Shaft must be supported for press-fitting a pulley or pinion.

* Fitted with ball bearings.

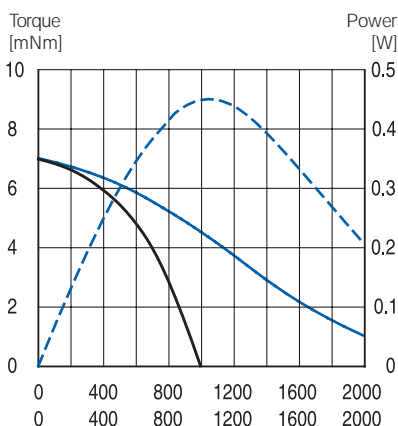
P310-158-005

Coils in series
Voltage driver type L/R
0Ω series resistor, 7V



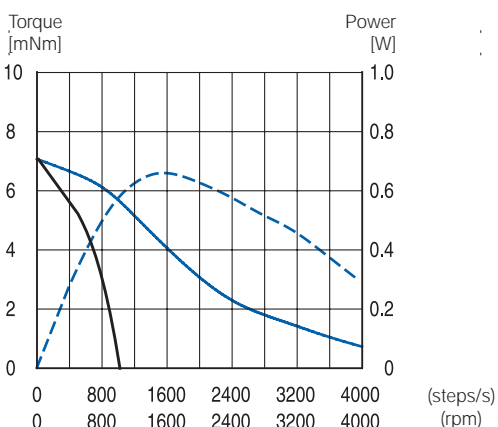
P310-158-170

Coils in series
Voltage driver type L/R
56Ω series resistor, 24V



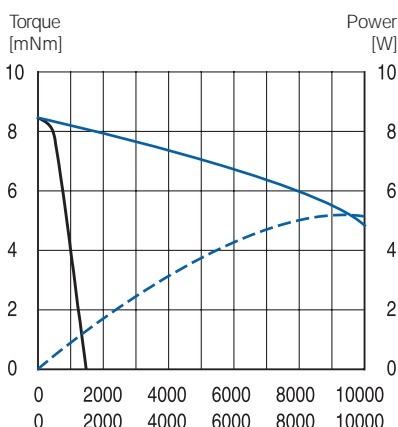
P310-158-170

Coils in parallel
Voltage driver type L/R
120 ohm series resistor, 24V



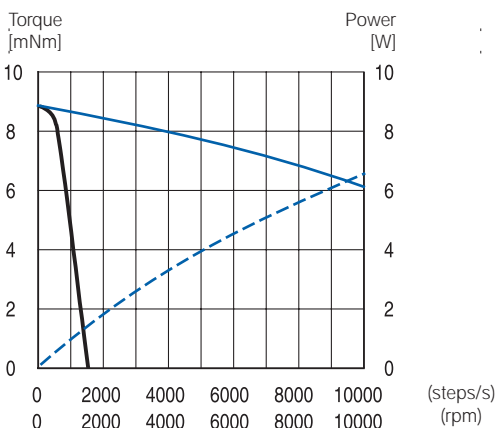
P310-158-170

Coils in parallel
escap® EDM-453,
I = 1A, U = 24V



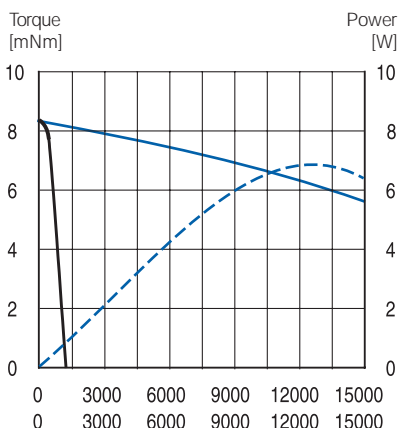
P310-158-005

Coils in parallel
escap® ESD-1200,
I = 1A, U = 24V



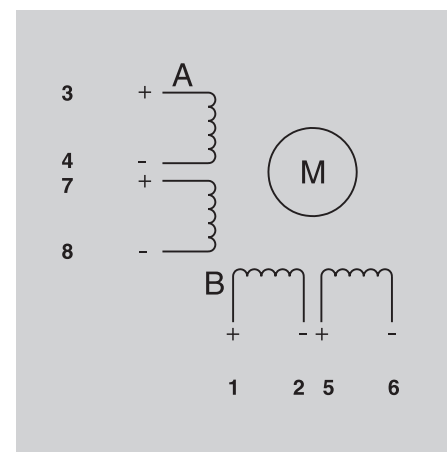
P310-158-005

Coils in series
escap® ESD-1200,
I = 0.5A, U = 45V



— Pull-in range
— Pull-out range
- - - Power output

Pull-in is measured with a load inertia equal to the rotor inertia.



Motor connections

Executions available from stock :

- 09 sleeve bearings, diameter 2
- 10 bearings, diameter 4
- 09 & L10, K24, K27, R22, RG 1/8

Particular versions include options such as series or parallel connections prewired on the PC board, special shafts (hollow shaft), windings, and so forth.

Notes

The high power/size ratio and high peak speed dedicate this motor to the most demanding fields of applications.

Its extended pull-in range and excellent efficiency are benefits for straight forward battery driven operation.

The motor is energised with nominal current unless otherwise specified.

The following escap® drive circuits are recommended with the P310 motor, depending on the drive mode and the dynamic performance required: EDM-453 (p.96), ESD-1200 (p.97).

Availability: see enclosed document at the end of the catalogue

Specifications subject to change without prior notice