



► Slimline stepper motors

6415



MINIATURIZATION



LOW NOISE



HIGH VIBRATION

- **Nominal Torque** 3.2 / 25 mNm
- **Max Speed** 1000 / 200 degrees / s
- **Weight** 13 / 16 g

The 6415 Dual Stepper Motor is a geared low noise slimline product with high power density designed for high performance and automotive applications.

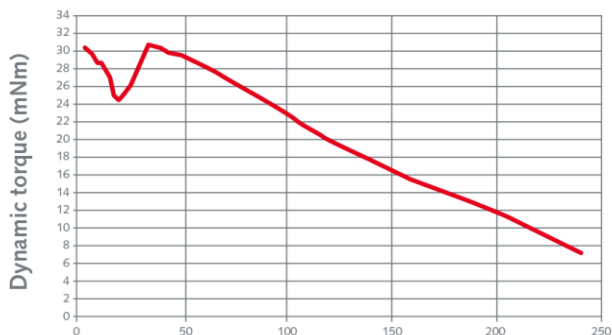
► Technical data

Part N°	Nominal torque	Max speed	Weight	Output interface	Gear ratio
6415R008	25 mNm @ 5 V @ 50° / sec	200 degree/sec	16 g	Brass pinion	1:90
				Ø 1.6 ⁰ / _{-0.010} mm	
6415R009	3.2 mNm @ 5 V @ 400° / sec	200 degree/sec	13 g	Brass pinion	1:10
				Ø 1.6 ⁰ / _{-0.010} mm	

► Dynamic characteristics

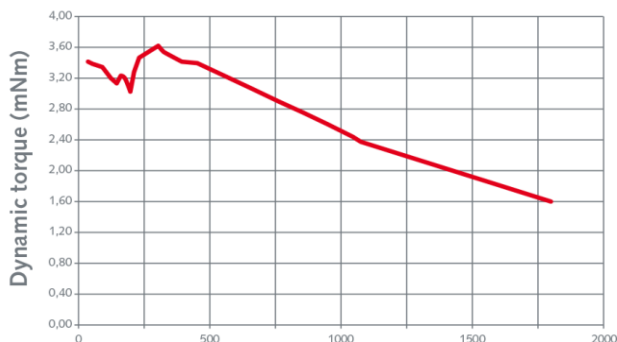
• 6415R008

Dynamic torque at 22°C, coil voltage 5.3V
Full step mode



• 6415R009

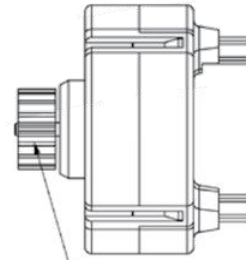
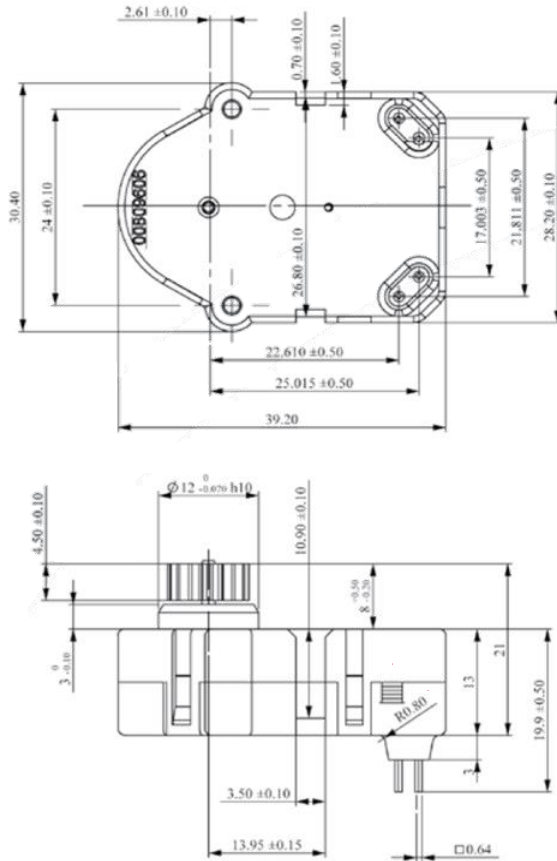
Dynamic torque at 22°C, coil voltage 5.3V
Full step mode



► Dimensions

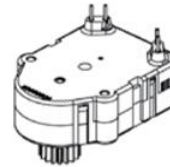
Drawing not to scale. All dimensions in mm.

• 6415R008

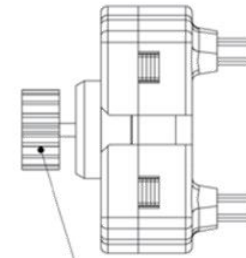
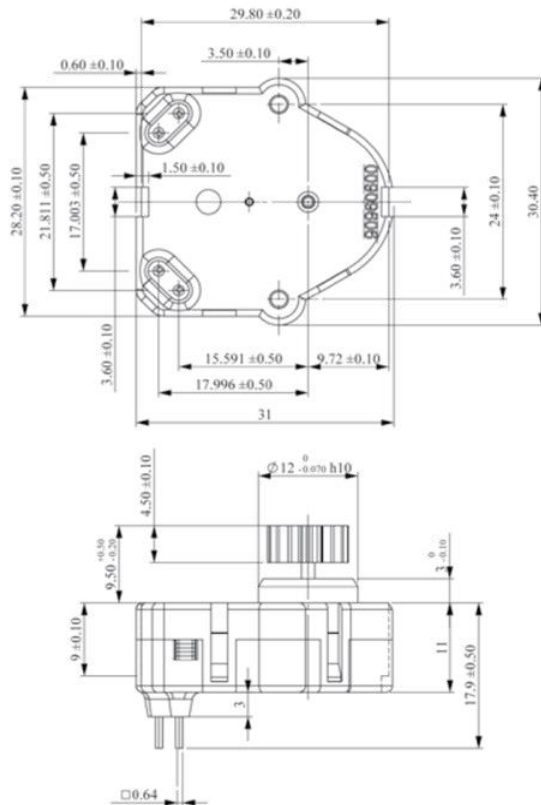


Output pinion:

Z=17
m=0.5
d=9.82
-0.076
-0.150

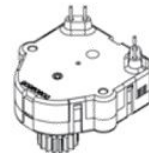


• 6415R009



Output pinion:

Z=17
m=0.5
d=9.82
-0.076
-0.150

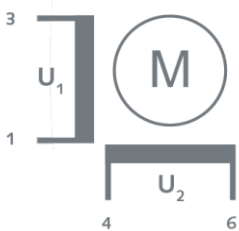


* Refer to drawing

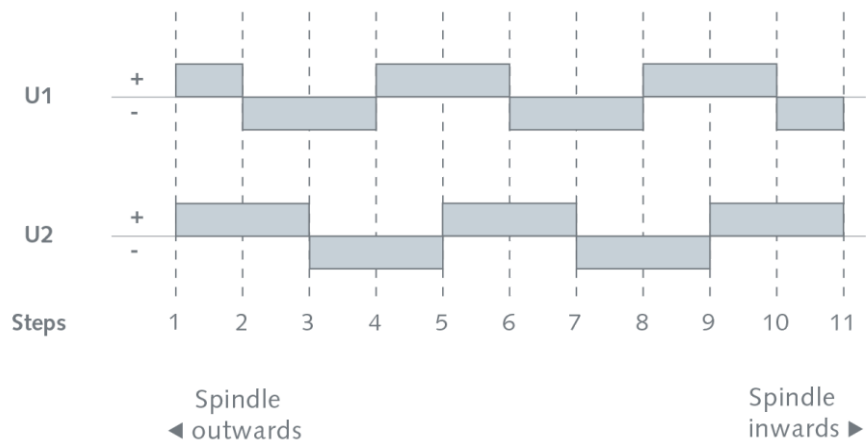
► Electrical / Mechanical Characteristics

Variables :							
<ul style="list-style-type: none"> Ambient temperature $T_a = 22^\circ \text{C}$ Voltage at the coils $U = 5 \text{ V} \pm 0.1 \text{ V}$ 							
Part Number	6415R008			6415R009			Unit
Parameter	Min	Typical	Max	Min	Typical	Max	
Rotor Step per revolution	-	20	-	-	20	-	-
Rotor step angle	-	18	-	-	18	-	Degree
Gear ratio	-	1:90	-	-	1:10	-	-
Gear play	0.2	0.5	1.0	0.5	1	1.5	Degree
Dynamic torque @ 50 degree / sec (Nominal speed) @ 120 degree / sec @ 400 degree / sec (Nominal speed)	20 10	25 15	-	2.5	3.2	-	mNm mNm mNm
Holding torque (with current)	40	-	-	4	-	-	mNm
Static torque	-	4	-	-	0.5	-	mNm
Noise level at 5 cm from the reference face (nominal speed)	-	32	40	-	32	40	dB (A)
Speed	-	-	200	-	-	1000	°/s
Operating temperatur	- 40	-	85	- 40	-	85	°C
Coil resistance	160	175	190	160	175	190	Ω
Coil inductance	65	77	85	65	77	85	mH
Operating current	-	30	-	-	30	-	mA
Operating voltage RL	-	5.3	9	-	5.3	9	V

► Electrical Interface and Step sequence



• Full step mode



Any microstepping driving mode is applicable by defining the U1 and U2 signal based on the sin & cos functions

* Refer to drawing