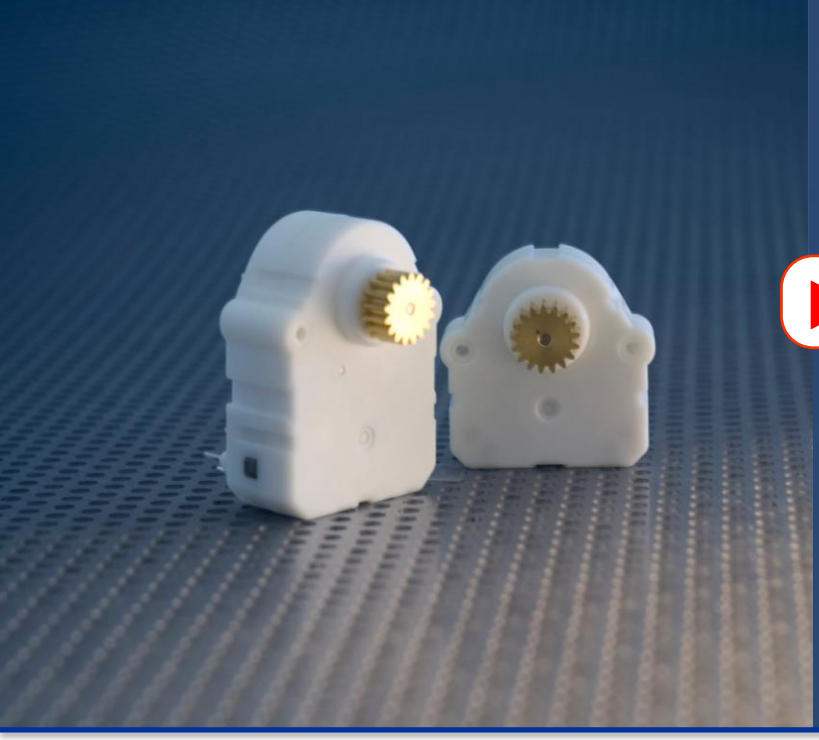

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# ▶ Slimline stepper motors

## 6415

- **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.**

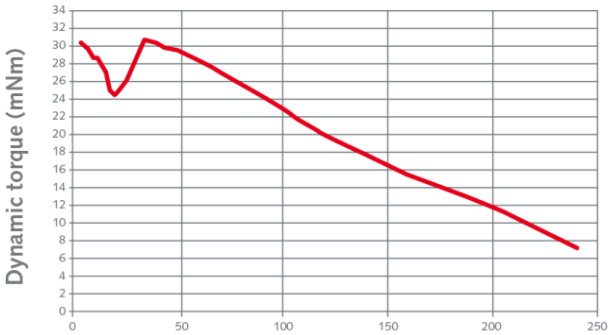
## ▶ Technical data

| Part N° | Nominal torque | Max speed | Weight | Output interface | Gear ratio |
|---|---|---|---|---|---|
| **6415R008** | 25 mNm<br>@ 5 V @ 50° / sec | 200 degree/sec | 16 g | Brass pinion<br>Ø 1.6 $^{0}/_{-0.010}$ mm | 1:90 |
| **6415R009** | 3.2 mNm<br>@ 5 V @ 400° / sec | 1000 degree/sec | 13 g | Brass pinion<br>Ø 1.6 $^{0}/_{-0.010}$ mm | 1:10 |

## ▶ Dynamic characteristics

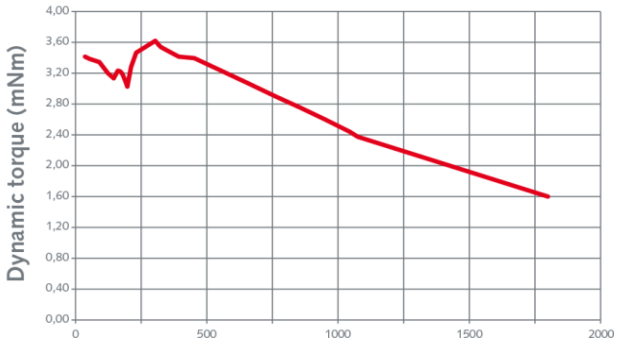
- **6415R008**

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




- **6415R009**

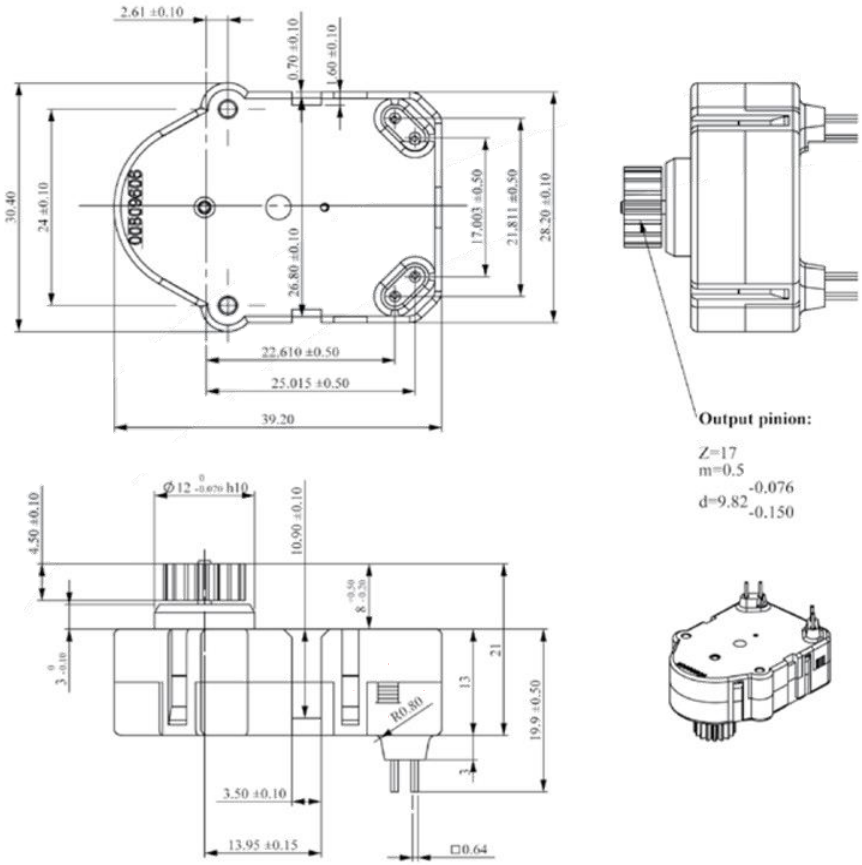
Dynamic torque at 22°C, coil voltage 5.3V
Full step mode



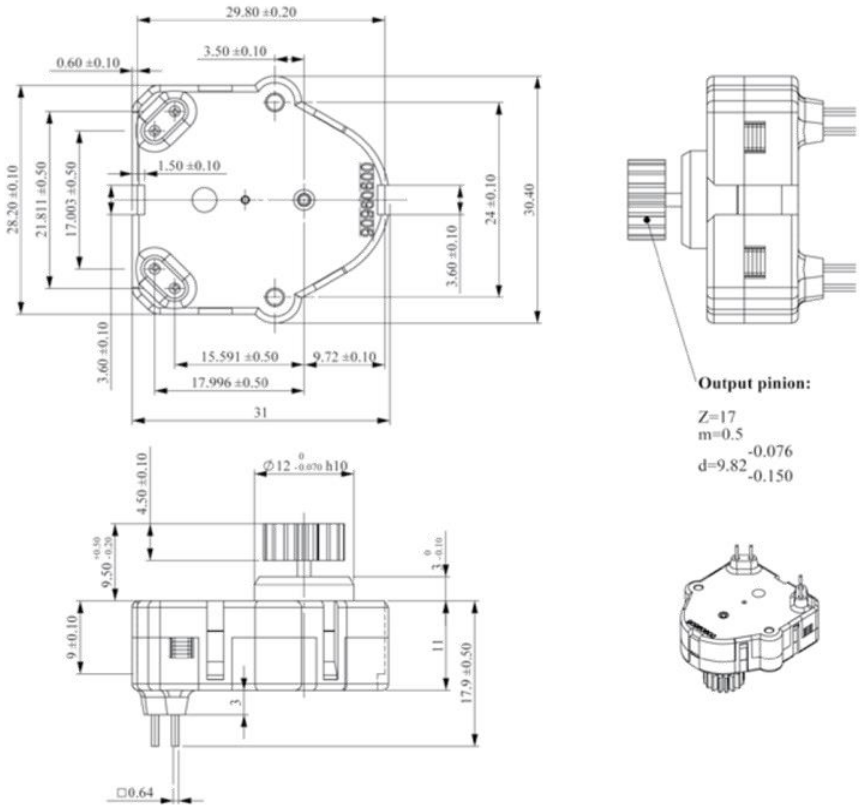
## ▶ Dimensions

*Drawing not to scale. All dimensions in mm.*

- 6415R008




- 6415R009




** Refer to drawing*

*Special requirements upon customer specifications. Right to change reserved.* <2.0>

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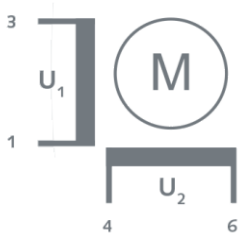
## ▶ Electrical / Mechanical Characteristics

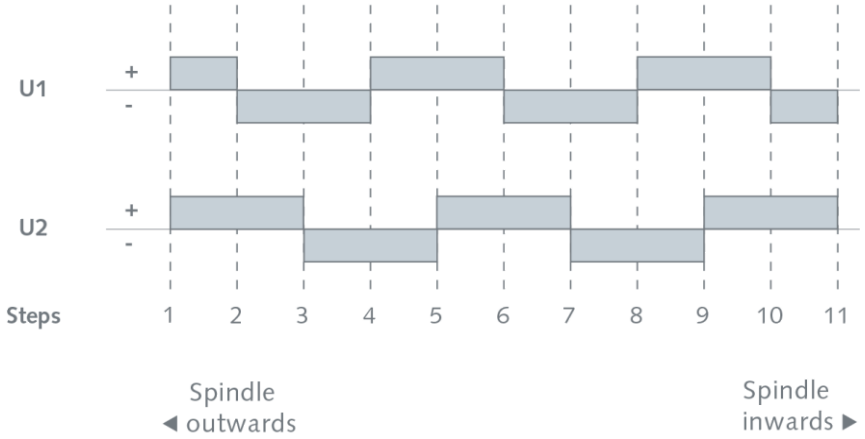
**Variables :**
- **Ambient temperature Ta = 22° C**
- **Voltage at the coils U = 5 V±0.1 V**

| 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<br>@ 50 degree / sec (Nominal speed)<br>@ 120 degree / sec<br>@ 400 degree / sec (Nominal speed) | <br>20<br>10 | <br>25<br>15 | - | <br><br><br>2.5 | <br><br><br>3.2 | | <br>mNm<br>mNm<br>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*
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