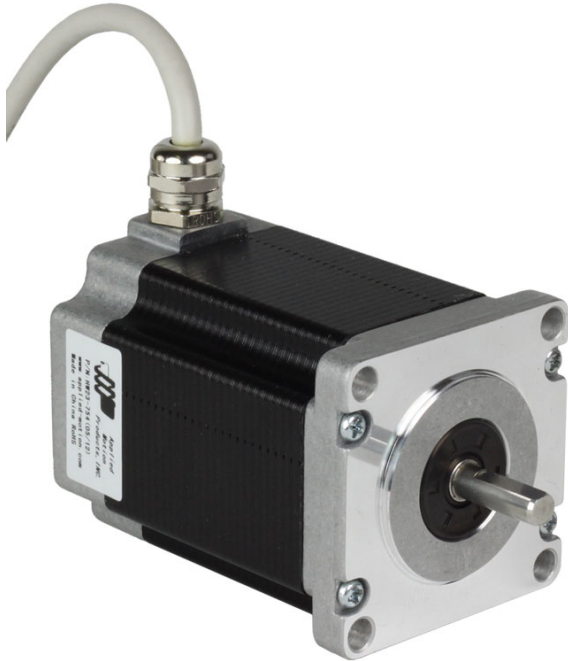


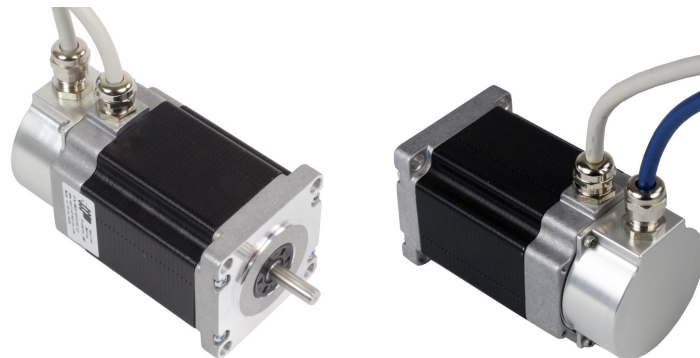
## HW23-601

IP65 Rated, NEMA 23 High Torque Step Motor



### Product Features

- 2-phase hybrid step motor
- Rated IP65 for wet and dusty environments
- High torque design
- Standard NEMA 23 dimensions
- Integral 10 ft shielded cable w/ cable gland
- Sealed laminations
- Front shaft seal
- Single shaft version standard
- Double shaft version with encoder available



### Description

The HW23-601 two-phase stepper motor is suitable for a wide range of motion control applications including wet factory environments and outdoor use. The IP65 rating means the motor is dust proof and resistant to lower pressure water jets. Key features of this rating include an integral 10 ft shielded cable, a nickel plated brass cable gland, sealed laminations and a front shaft contact seal. This motor also has an internal corrosion-resistant film coating, further protecting it in wet and humid environments.








A double-shaft version with encoder is available, part number HW23-601D-ZAC.

IP65 specifies a product that is dust tight (no ingress of dust; complete protection against contact) and protected against water jets (water projected by a nozzle from any direction shall have no harmful effects). To see our motor design operating in a rain simulation chamber check out this [video](#).

|                                    |                                  |
|------------------------------------|----------------------------------|
| <b>Part Number</b>                 | HW23-601                         |
| <b>Frame Size</b>                  | NEMA 23                          |
| <b>Motor Type</b>                  | High torque                      |
| <b>Part Number w/Double Shaft</b>  | NA                               |
| <b>Part Number w/Encoder</b>       | HW23-601D-ZAC                    |
| <b>Motor Length</b>                | 3.21 inches                      |
| <b>Number of Lead Wires</b>        | 8                                |
| <b>Lead Wire Configuration</b>     | shielded cable, no connector     |
| <b>Lead Wire/Cable Length</b>      | 10 ft                            |
| <b>Lead Wire Gauge</b>             | 22 AWG                           |
| <b>Unipolar Holding Torque</b>     | 191 oz-in                        |
| <b>Bipolar Holding Torque</b>      | 269 oz-in                        |
| <b>Step Angle</b>                  | 1.8 deg                          |
| <b>Bipolar Series Current</b>      | 2.12 A/phase                     |
| <b>Bipolar Series Resistance</b>   | 2.2 Ohms/phase                   |
| <b>Bipolar Series Inductance</b>   | 6.8 mH/phase                     |
| <b>Bipolar Parallel Current</b>    | 4.24 A/phase                     |
| <b>Bipolar Parallel Resistance</b> | 0.7 Ohms/phase                   |
| <b>Bipolar Parallel Inductance</b> | 1.7 mH/phase                     |
| <b>Unipolar Current</b>            | 3.00 A/phase                     |
| <b>Unipolar Resistance</b>         | 1.1 Ohms/phase                   |
| <b>Unipolar Inductance</b>         | 1.7 mH/phase                     |
| <b>Rotor Inertia</b>               | 6.51 E-03 oz-in-sec <sup>2</sup> |
| <b>Integral Gearhead</b>           | No                               |
| <b>Weight</b>                      | 2.2 lbs                          |
| <b>Storage Temperature</b>         | -30 to 70 °C                     |
| <b>Operating Temperature</b>       | -20 to 50 °C                     |
| <b>Insulation Class</b>            | Class B (130 °C)                 |
| <b>Maximum Radial Load</b>         | NA                               |
| <b>Maximum Thrust Load</b>         | NA                               |
| <b>Shaft Run Out</b>               | 0.002 inch T.I.R. max            |
| <b>Radial Play</b>                 | 0.0008 inch max w/ 1.1 lb load   |
| <b>End Play</b>                    | 0.003 inch max w/ 2.2 lb load    |

|                         |              |
|-------------------------|--------------|
| <b>Perpendicularity</b> | 0.004 inches |
| <b>Concentricity</b>    | 0.002 inches |

## Downloads

|                            |   |
|----------------------------|---|
| <b>Datasheet</b>           |  <a href="#">HW-099-Errata.pdf</a><br> <a href="#">StepMotorWiring-8-lead-cabled-stripped.pdf</a> |
| <b>2D Drawing</b>          |  <a href="#">HW23-601_RevD.pdf</a><br> <a href="#">HW23-601D-ZAC_RevC.pdf</a>                     |
| <b>3D Drawing</b>          |  <a href="#">HW23-601.igs</a><br> <a href="#">HW23-601D-ZAC.igs</a>                               |
| <b>Speed-Torque Curves</b> |  <a href="#">StepMtrAppData_HW23-601_RevA.pdf</a>  |
| <b>Agency Approvals</b>    | There are no related agency approval documents at this time.  |
| <b>Application Notes</b>   | There are currently no Application Notes available for this product.  |