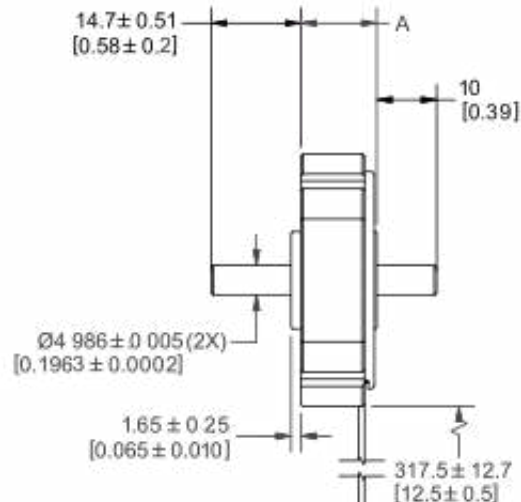
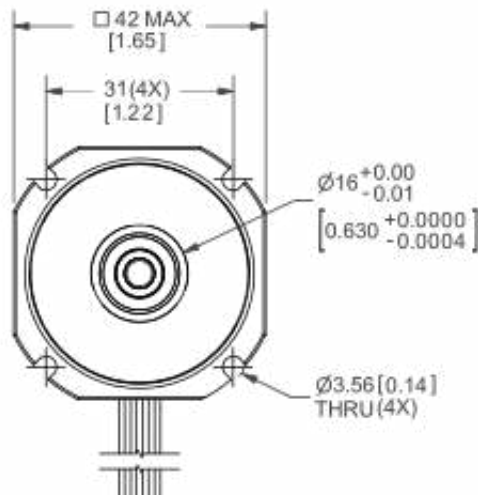


## MOTOR SPECIFICATIONS



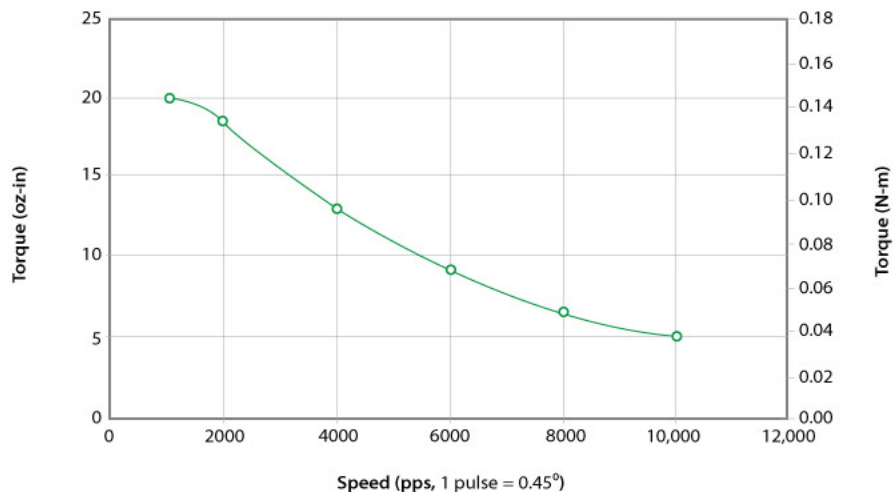
## DIMENSIONS

|                      |                         |
|----------------------|-------------------------|
| Part Number          | <b>WO-4109R-08</b>      |
| Step Angle           | 0.9°                    |
| Frame Size           | NEMA 17                 |
| Body Length (Dim. A) | 1.1 in (28 mm)          |
| Current              | 0.6 Amps/Phase          |
| Holding Torque       | 22 oz-in (0.16 Nm)      |
| Resistance           | 11.6 Ohms/Phase         |
| Rotor Inertia        | 0.11 oz-in <sup>2</sup> |
| Number of Leads      | 4                       |
| Connection           | Bipolar                 |
| Weight               | 0.41 lbs (0.19 kg)      |



## PERFORMANCE CURVE

4109R-08 24VDC, 0.6 Amps/Phase, Bipolar, 1/2 Stepping



## OPERATING SPECIFICATIONS

|  |                             |
|--|-----------------------------|
| Radial Play                                | 0.001" max @ 1 lbs load     |
| End Play                                   | 0.003" max @ 2 lbs load     |
| Shaft Run Out                              | 0.002" TIR                  |
| Concentricity of Mounting Pilot to Shaft   | 0.003" TIR                  |
| Perpendicularity of Shaft to Mounting Face | 0.003" TIR                  |
| Max Axial Load                             | 6 lbs                       |
| Maximum Case Temperature                   | 80 C                        |
| Ambient Temperature                        | -20° to 50° C               |
| Storage Temperature                        | -20° to 100° C              |
| Humidity Range                             | 85% or less, non-condensing |
| Magnet Wire Insulation                     | Class B 130° C              |
| Insulation Resistance                      | 100MΩ at 500 VDC            |
| Dielectric Strength                        | 500 VAC for 1 minute        |

## WIRING TABLE

| COLOR | FUNCTION  |
|-------|-----------|
| Red   | A+ Phase  |
| Blue  | A- Phase  |
| Green | B + Phase |
| Black | B- Phase  |

## OPERATION & USAGE TIPS



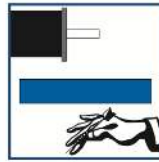
**Do not** disassemble motors; a significant reduction in motor performance will occur.



**Do not** machine shafts; this will have a negative effect on shaft run out and perpendicularity.



**Do not** disconnect motor from drive while in operation.



**Do not** use holding torque/detent torque of motor as a fail safe brake.



**Do not** hold motor by lead wires.



**Do not** exceed the rated current; this will burn the motor.

FAILURE TO COMPLY WITH THESE RECOMMENDATIONS WILL VOID ALL WARRANTY TERMS

## RECOMMENDED



Microstepping Driver  
**R208**



Single Axis Controller  
+ Driver  
**R256-RO**

# Motion Control, **Solved.**

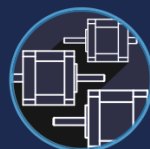
## MOTOR ENGINEERING & MANUFACTURING



Optimized  
For Your  
Application



Quick  
Prototype  
Turnaround



Small Batch  
to OEM Volume  
Production



US Based  
Support &  
Manufacturing