

Stepper Motors

Two phases, 24 steps per revolution

For combination with:
 Gearheads: 15/A, 15/5, 15/8, 16A & 16/7
 Encoder: HE
 Drive Electronics: AD VL M, AD VM M, AD CM M

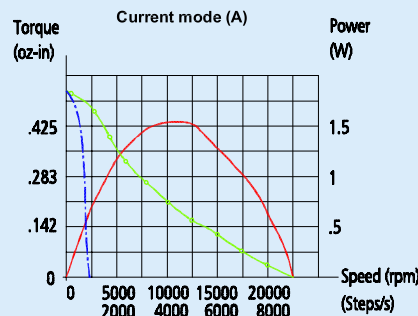
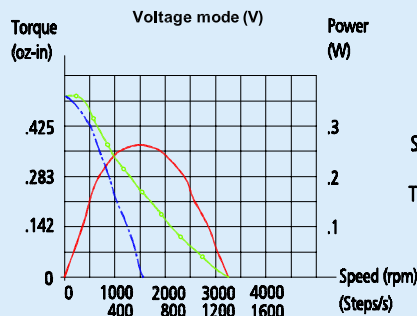
Series AM 1524

See beginning of the Stepper Motor Section for Ordering Information

| | Voltage mode | | | | Current mode | |
|--|------------------------------------|------|-------------------------------------|-------|--------------|------------------------|
| | V 3 | V 6 | V 12 | V 24 | A 0.25 | A |
| 1 Nominal supply voltage U_N | 3 | 6 | 12 | 24 | 12.5 | V DC |
| 2 Phase resistance at 20°C (68°F) | 10 | 35 | 150 | 590 | 12.5 | Ω |
| 3 Phase inductance (1kHz) | 4.25 | 15 | 65 | 239 | 5.5 | mH |
| 4 Nominal current per phase (both phases ON) | 0.28 | 0.15 | 0.075 | 0.037 | 0.25 | A |
| 5 Back EMF amplitude | 3.1 | 6 | 12 | 24 | 3.5 | V/k steps/s |
| 6 Holding torque ¹⁾ (with nominal current in both phases) | 0.850 | | | | | oz-in |
| 7 Holding torque ¹⁾ (with twice the nominal current) | 1.416 | | | | | oz-in |
| 8 Residual and friction torque | 0.127 | | | | | oz-in |
| 9 Thermal resistance winding-ambient air | 37 | | | | | °C/W |
| 10 Maximum winding temperature | 130 (266) | | | | | °C (°F) |
| 11 Ambient temperature range | -40 to +70 (-40 to +158) | | | | | °C (°F) |
| 12 Thermal time constant | 220 | | | | | s |
| 13 Full step angle | 15 | | | | | degree |
| 14 Angular accuracy ²⁾ | ± 10 | | | | | % of full step |
| 15 Rotor inertia | $6.4 \cdot 10^{-6}$ | | | | | oz-in-sec ² |
| 16 Shaft bearings | sintered bronze sleeves (standard) | | ball bearings, preloaded (optional) | | | |
| 17 Shaft load, max.: | | | | | | |
| - radial (3 mm (0.118 in) from bearing) | 1.8 | | 21.6 | | | oz |
| - axial | 1.8 | | 10.8 | | | oz |
| 18 Shaft play, max.: | | | | | | |
| - radial (0.720 oz) | $0.59 \cdot 10^{-3}$ | | $0.47 \cdot 10^{-3}$ | | | in |
| - axial (0.720 oz) | $5.9 \cdot 10^{-3}$ | | ~0 | | | in |
| 19 Weight | 0.42 | | | | | oz |
| 20 Isolation test voltage | 200 | | | | | V DC |
| 21 Resonance frequency | 120 | | | | | Hz |
| 22 Electrical time constant | 0.4 | | | | | ms |

¹⁾ with bipolar driver

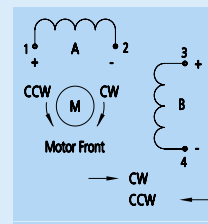
²⁾ 2 phases ON, balanced phase current



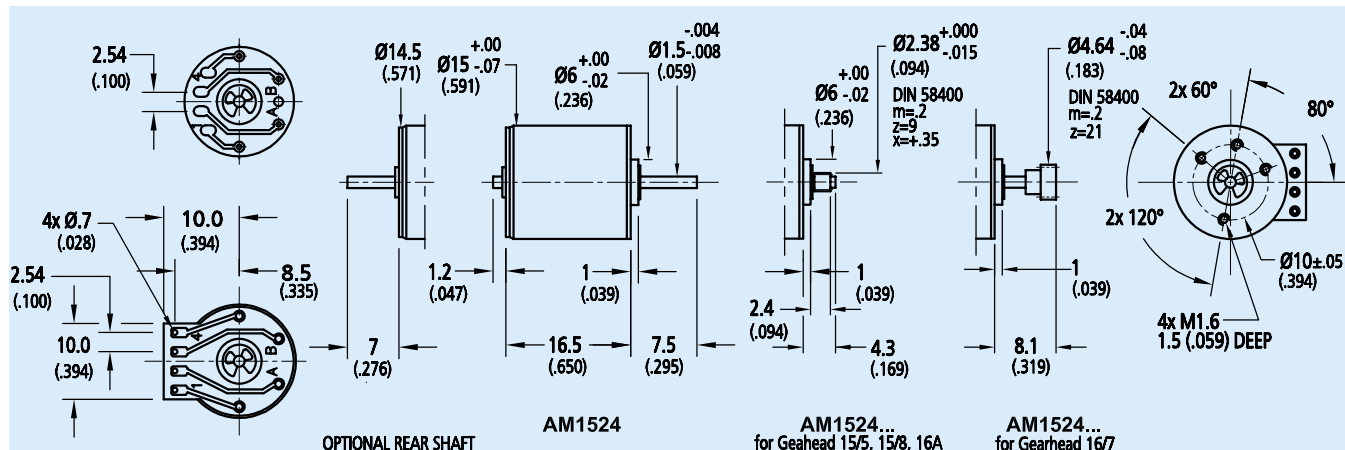
Torque / speed curves measured with a load inertia of 1.416×10^{-6} oz-in-sec²

Cable Connection

Driving sequence



| Step | 1 | 2 | 3 | 4 |
|---------|---|---|---|---|
| Phase A | + | - | - | + |
| Phase B | + | + | - | - |



For notes on technical data refer to "Technical Information". Specifications subject to change without notice. MME1102