

Stepper Motors

22 mNm

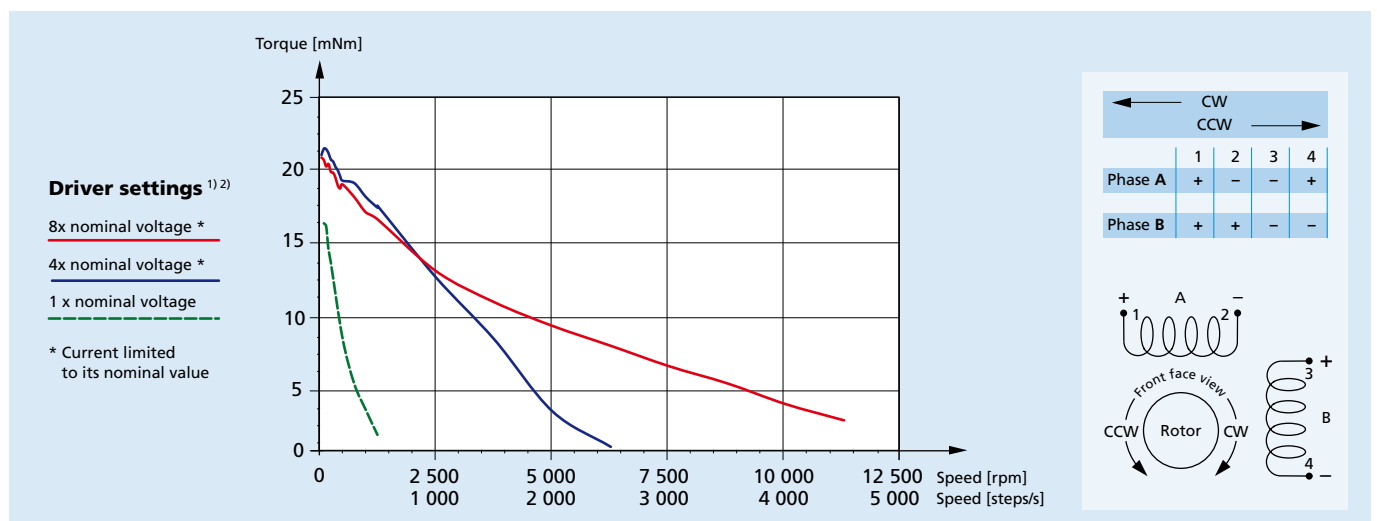
Two phase, 24 steps per revolution
PREClstep® Technology

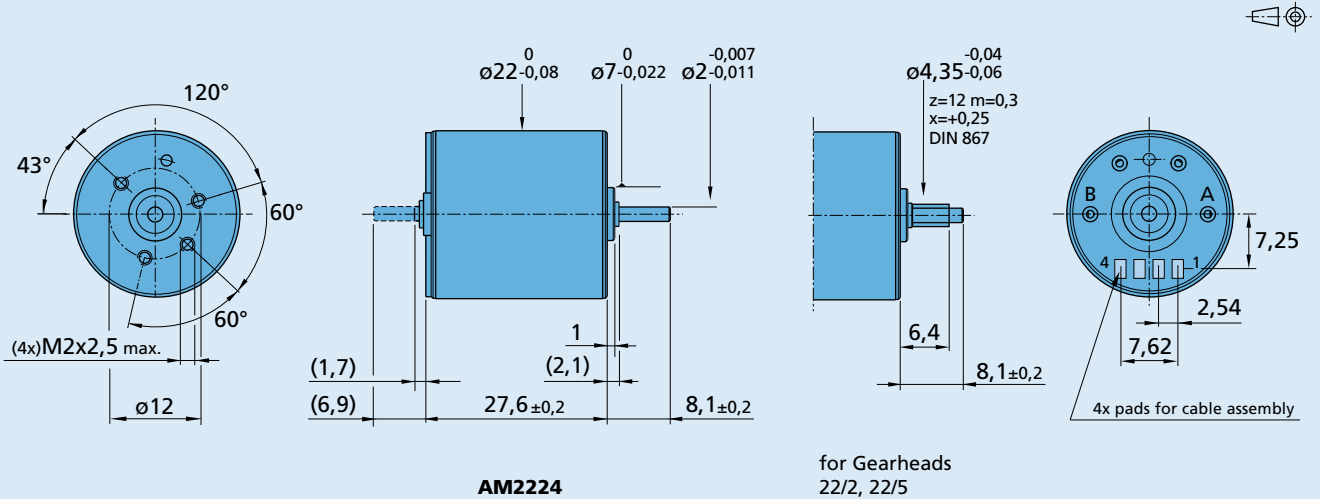
AM2224-ww-ee

| | ww = | | AV-0,9 | | AV-4,8 | | AV-18 | | V-12-75 | | Drive mode |
|--|---------|--|---------|---------|---------|-------------------------------------|---------|---------|---------|---------|------------------------------------|
| | Current | Voltage | Current | Voltage | Current | Voltage | Current | Voltage | Current | Voltage | |
| 1 Nominal current per phase (both phases ON) ¹⁾ | 1,0 | – | 0,5 | – | 0,25 | – | 0,125 | – | – | – | A |
| 2 Nominal voltage per phase (both phases ON) ¹⁾ | – | 1,4 | – | 3 | – | 6 | – | 12 | – | – | V DC |
| 3 Phase resistance (at 20°C) | | 0,9 | | 4,8 | | 18 | | 75 | | – | Ω |
| 4 Phase inductance (1kHz) | | 0,9 | | 4,3 | | 16,3 | | 65,6 | | – | mH |
| 5 Back-EMF amplitude | | 3,8 | | 8,3 | | 16,3 | | 32,7 | | – | V/k step/s |
| 6 Holding torque (at nominal current in both phases) | | 22 | | | | | | | | | mNm |
| 7 Holding torque (at twice the nominal current) | | 37 | | | | | | | | | mNm |
| 8 Step angle (full step) | | 15 | | | | | | | | | degree |
| 9 Angular accuracy ¹⁾ | | ± 10 | | | | | | | | | % of full step |
| 10 Residual torque, max. | | 2 | | | | | | | | | mNm |
| 11 Rotor inertia | | 253 | | | | | | | | | ·10 ⁻⁹ kgm ² |
| 12 Resonance frequency (at no load) | | 100 | | | | | | | | | Hz |
| 13 Electrical time constant | | 1,7 | | | | | | | | | ms |
| 14 Ambient temperature range | | –35 ... +70 | | | | | | | | | °C |
| 15 Winding temperature tolerated, max. | | 130 | | | | | | | | | °C |
| 16 Thermal resistance winding-ambient air | | 28 | | | | | | | | | °C/W |
| 17 Thermal time constant | | 600 | | | | | | | | | s |
| 18 Shaft bearings | | sintered bronze sleeves (standard with 2 mm shaft) | | | | ball bearings, preloaded (optional) | | | | | |
| 19 Shaft load, max.: | | | | | | | | | | | |
| – radial (3 mm from bearing) | | 1,5 | | | | 8,0 | | | | | N |
| – axial | | 0,5 | | | | 4,0 | | | | | N |
| 20 Shaft play, max.: | | | | | | | | | | | |
| – radial (0,2N) | | 30 | | | | 15 | | | | | µm |
| – axial (0,2N) | | 200 | | | | –0 | | | | | µm |
| 21 Isolation test voltage | | 200 | | | | | | | | | V DC |
| 22 Weight | | 43 | | | | | | | | | g |

¹⁾ Relevant for 2 phases ON only. On PWM drivers with chopper (current mode), the current is set to the nominal value and the supply voltage is typically 3 to 5x higher than the nominal voltage.

²⁾ Curves measured with a load inertia of 600 · 10⁻⁹ kgm², in half-step mode for the “1 x nominal voltage” curve, in 1/4 micro-stepping mode for the other curves.



Dimensional drawing

Combinations

| Drive Electronics | Encoders | Cables | Gearheads / Lead screws |
|--------------------------|----------------------|-------------------------------|---|
| Available on request | PE 22-120 | List available on request | 22E 22EKV 22/2 22/5* 22/7 23/1 |

* Zero Backlash Gearheads

Ordering information

Example: **AM2224-2R-AV-18-10**

| Motor type | Bearings (rr) | Winding (wv) | Motor execution (ee) | | |
|---|--|--|--|--|--|
| | | | Only front output shaft | With double output shaft | Front output shaft |
| AM = Motor design 22 = Motor diameter (mm) 24 = Steps per revolution AM2224 | Special lubricant options available - (sleeve bearings) -2R (2 ball bearings) | -AV-0,9 -AV-4,8 -AV-18 -V-12-75 | -10 -12 -14 | -11 -13 -15 -16 -17 -18 | Plain shaft, L=8,1 mm $\varnothing 2$ mm for 22/7, 23/1 Plain shaft, L=6,6 mm $\varnothing 1,5$ for 22E, 22EKV Pinion 22/2, 22/5 Plain shaft for 22/7, 23/1, encoder PE22-120 Plain shaft for 22E, encoder PE22-120 Pinion 22/2, 22/5, encoder PE22-120 |