

# Stepper Motors

## 26 mNm

Two phases, 24 steps per revolution

### AM2224-ww-ee

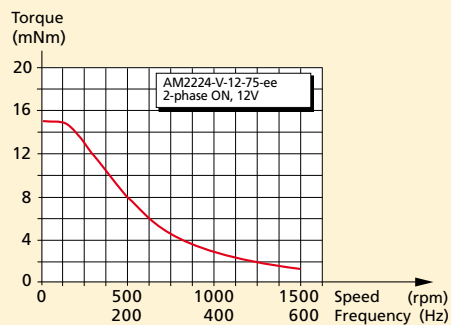
	ww =		AV-0,9		AV-4,8		AV-18		V-12-75		Drive mode
	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current	
1 Nominal voltage Un	1,4	–	3	–	6	–	12	–	V DC		
2 Nominal current per phase (both phases ON)	–	1,0	–	0,5	–	0,25	–	0,125	A		
3 Phase resistance (at 20°C)		0,9		18		56		75	Ω		
4 Phase inductance (1kHz)		1,2		5,2		16		61	mH		
5 Back-EMF amplitude		4,1		8,3		16,7		33	V/k step/s		
6 Holding torque <sup>1)</sup> (at nominal current in both phases)		26							mNm		
7 Holding torque <sup>1)</sup> (at twice the nominal current)		45							mNm		
8 Step angle (full step)		15							degree		
9 Angular accuracy <sup>2)</sup>		± 10							% of full step		
10 Residual torque		2							mNm		
11 Rotor inertia		228							· 10 <sup>-9</sup> kgm <sup>2</sup>		
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 sleeves bearings (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				3,0			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 Motor dimensions:											
– diameter		22							mm		
– length		27,5							mm		
– shaft diameter		2							mm		
23 Weight		43							g		

1) with bipolar driver

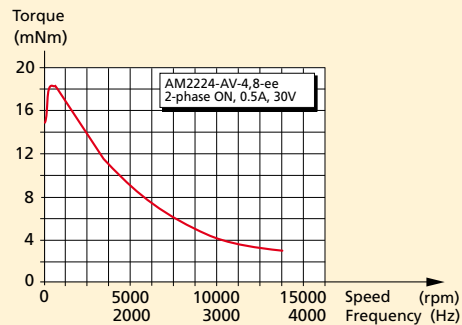
2) 2 phases ON, balanced phase current

3) Curves measured with a load inertia of  $3 \cdot 10^{-7}$  kgm<sup>2</sup>

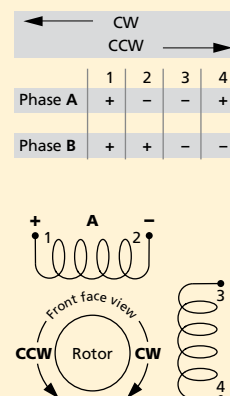
4) Testing the motor at lower supply voltages in the current mode will result in a decrease in torque, even with the same current setting.



Voltage mode (V) <sup>3)</sup>  
Driver AD VM M15

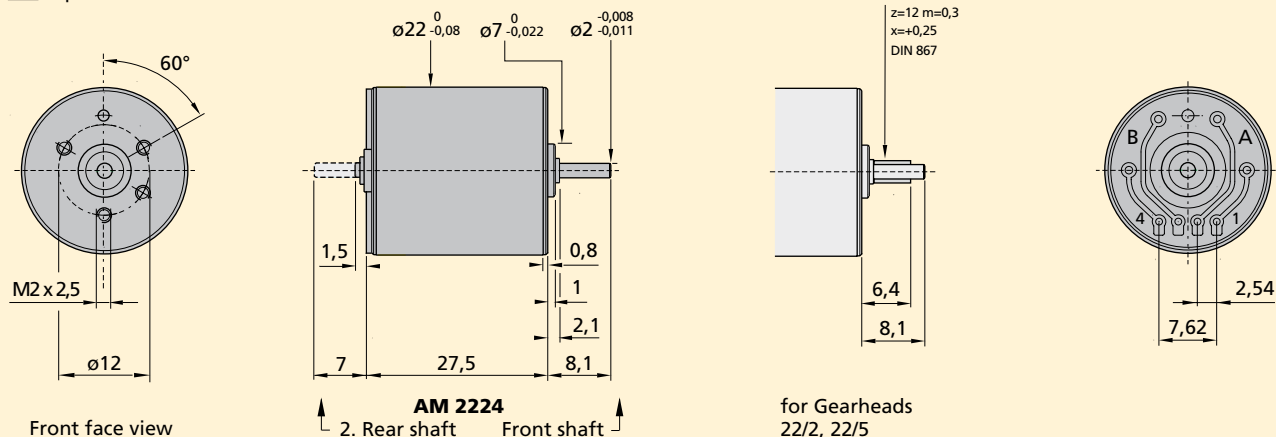


Current mode (A) <sup>3) 4)</sup>  
Driver AD CM M15

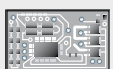
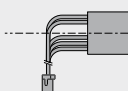
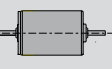
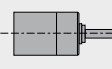


### Dimensional drawing

standard  
 optional



### Combinations

Drive Electronics	Encoders	Stepper Motors	Precision Gearheads
			
AD VM M_S	IE2	AM2224	22E
AD CM M_S			22/2
			22/5*
			23/1
			* Zero Backlash Gearheads

### Ordering information

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

Motor type	Bearings (rr)	Winding (ww)	Motor execution (ee)		
			Only front output shaft	With double output shaft	Front output shaft
AM = ARSAPE Motor	Standard, sintered sleeve bearings (no indication)				
22 = Motor diameter (mm)					
24 = Steps per revolution					
<b>AM2224</b>	- (sleeve bearings)	<b>-AV-0,9</b>	<b>-10</b>	<b>-11</b>	Plain shaft, L=8,1 mm <sup>2)</sup>
	<b>-2R</b> (2 ball bearings)	<b>-AV-4,8</b>	<b>-12</b>	<b>-13</b>	Plain shaft, L=8,1 mm <sup>3)</sup>
		<b>-AV-18</b>	<b>-14</b>	<b>-15</b>	Pinion 22/2, 22/5
		<b>-V-12-75</b>			
		<b>-V-24-590<sup>1)</sup></b>			

- 1) Non-standard windings, for data please inquire with your point of sales.
- 2) Designations for assembly with gearhead 23/1
- 3) Designations for assembly with gearhead 22E (shaft  $\phi$  1,5 mm)