

# Stepper Motors

0,65 mNm

Two phase, 20 steps per revolution  
PRECiStep® Technology

## AM0820-ww-ee

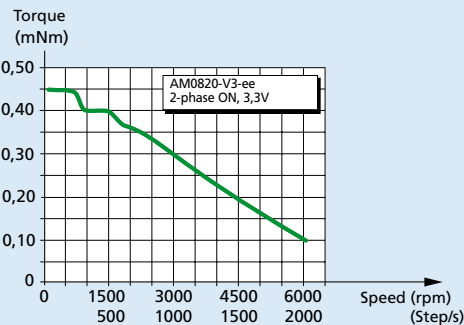
ww =		V-3-18		V-5-56		A-0,225-7				
		Voltage	Current	Voltage	Current	Voltage	Current	Drive mode		
1	Nominal voltage	3	–	5	–	2	–	V DC		
2	Nominal current per phase (both phases ON)	–	0,15	–	0,08	–	0,225	A		
3	Phase resistance (at 20°C)	18		56		7,3		Ω		
4	Phase inductance (1kHz)	3,9		12,6		1,4		mH		
5	Back-EMF amplitude	1,3		2,4		0,8		V/k step/s		
6	Holding torque <sup>1)</sup> (at nominal current in both phases)	0,65							mNm	
7	Holding torque <sup>1)</sup> (at twice the nominal current)	1							mNm	
8	Step angle (full step)	18							degree	
9	Angular accuracy <sup>2)</sup>	± 10							% of full step	
10	Residual torque	0,06							mNm	
11	Rotor inertia	2,75							·10 <sup>-9</sup> kgm <sup>2</sup>	
12	Resonance frequency (at no load)	170							Hz	
13	Electrical time constant	0,21							ms	
14	Ambient temperature range	–30 ... +70							°C	
15	Winding temperature tolerated, max.	130							°C	
16	Thermal resistance winding-ambient air	76							°C/W	
17	Thermal time constant	180							s	
18	Shaft bearings	sintered bronze sleeves (standard)			ball bearings, preloaded (optional)					
19	Shaft load, max.:									
	– radial (3 mm from bearing)	0,3			3,0					N
	– axial	0,2			1,5					N
20	Shaft play, max.:									
	– radial (0,2N)	15			12					µm
	– axial (0,2N)	140			–0					µm
21	Isolation test voltage	200							V DC	
22	Weight	3,3							g	

<sup>1)</sup> with bipolar driver

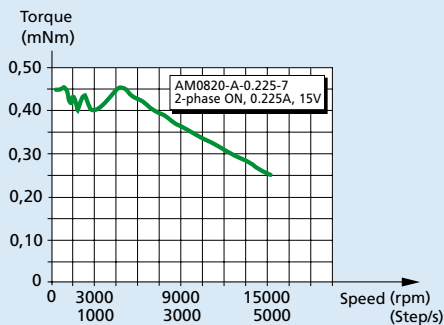
<sup>2)</sup> 2 phases ON, balanced phase currents

<sup>3)</sup> Curves measured with a load inertia of 10 · 10<sup>-9</sup> kgm<sup>2</sup>

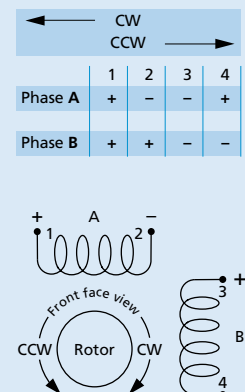
<sup>4)</sup> Testing the motor at lower supply voltages in current mode will result in a decrease in torque at higher speed, even with the same current setting



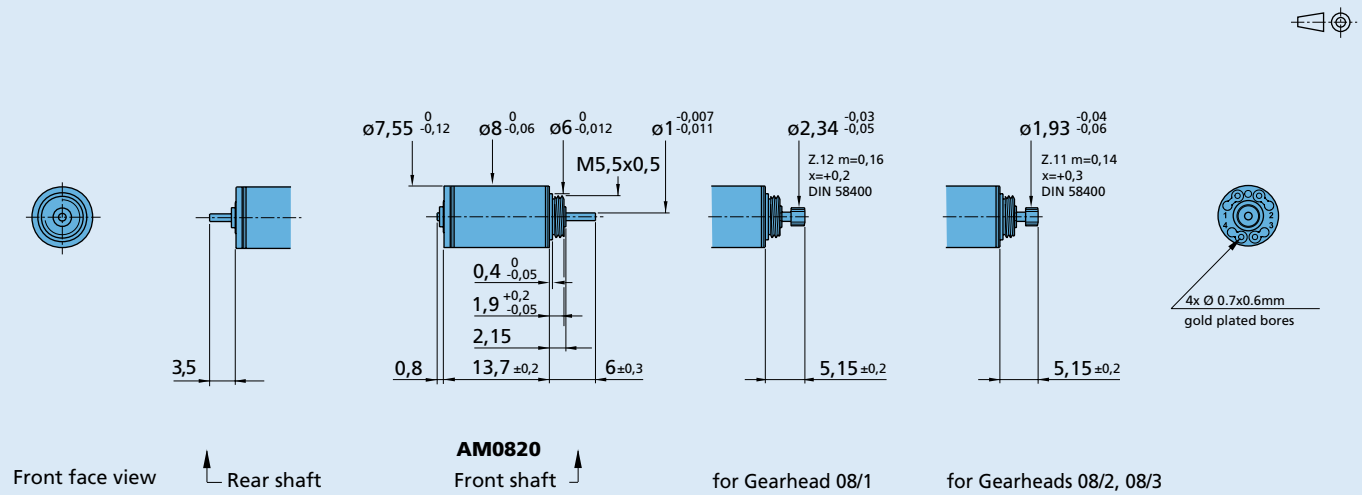
Voltage mode (V) <sup>3)</sup>  
Driver AD VL M1S



Current mode (A) <sup>3) 4)</sup>  
Driver AD CM M1S



### Dimensional drawing



### Combinations

Drive Electronics	Encoders	Stepper Motors	Gearheads / Lead screws
 <b>AD VL M_S</b> <b>AD CM M_S</b>		<b>AM0820</b>	<b>08/1</b> <b>08/2</b> <b>08/3*</b> <b>10/1</b> <b>Lead screws M1,2 - M1,6</b> <b>Lead screws M2 - M2,5 - M3</b>

\* Zero Backlash Gearheads

### Ordering information

Example: **AM0820-2R-V-3-18-08**

Motor type	Bearings (rr)	Winding (wvw)	Motor execution (ee)		
AM = Motor design	Special lubricant options available		Only front output shaft	With double output shaft	Front output shaft
08 = Motor diameter (mm)					Plain shaft
20 = Steps per revolution					Pinion 08/1
<b>AM0820</b>	- (sleeve bearings)	<b>-V-3-18</b>	<b>-01</b>	<b>-00</b>	Pinion 10/1
	<b>-2R</b> (2 ball bearings)	<b>-V-5-56</b>	<b>-08</b>	<b>-09</b>	Pinion 08/2, 08/3
		<b>-A-0,225-7</b>	<b>-10</b>	<b>-11</b>	Shaft for lead screw M1,2
			<b>-12</b>	<b>-13</b>	Shaft for lead screw M2 - M2,5 - M3
			<b>-21</b>	<b>-20</b>	Shaft for lead screw M1,6
			<b>-23</b>	<b>-22</b>	
			<b>-25</b>	<b>-24</b>	