

## Stepper Motors

2,4 mNm

Two phase, 20 steps per revolution

### ADM1220-ww-ee

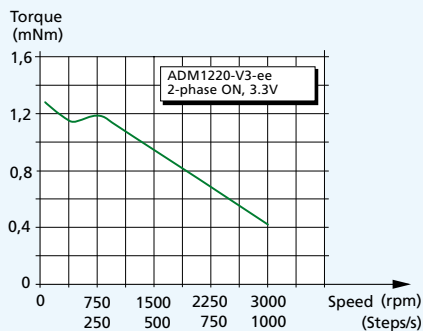
	V2		V3		V6		V12		Drive mode	
	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current		
1 Nominal voltage	2	–	3	–	6	–	12	–	V DC	
2 Nominal current per phase (both phases ON)	–	0,3	–	0,2	–	0,09	–	0,055	A	
3 Phase resistance (at 20°C)		4,4		13		48		156	Ω	
4 Phase inductance (1kHz)		2,6		3,8		7,2		13	mH	
5 Back-EMF amplitude		1,5		2,2		4,2		7,4	V/k step/s	
6 Holding torque <sup>1)</sup> (at nominal current in both phases)		2,4							mNm	
7 Holding torque <sup>1)</sup> (at twice the nominal current)		4,1							mNm	
8 Step angle (full step)		18							degree	
9 Angular accuracy <sup>2)</sup>		± 5							% of full step	
10 Residual torque		0,3							mNm	
11 Rotor inertia		7,6							· 10 <sup>-9</sup> kgm <sup>2</sup>	
12 Resonance frequency (at no load)		187							Hz	
13 Electrical time constant		0,3							ms	
14 Ambient temperature range		–35 ... +70							°C	
15 Winding temperature tolerated, max.		130							°C	
16 Thermal resistance winding-ambient air		62							°C/W	
17 Thermal time constant		205							s	
18 Shaft bearings		sintered sleeve bearings (standard)			ball bearings, preloaded (optional)					
19 Shaft load, max.:										
– radial (3 mm from bearing)		0,5			6,0					N
– axial		0,5			3,0					N
20 Shaft play, max.:										
– radial (0,2N)		15			12					µm
– axial (0,2N)		~0			~0					µm
21 Isolation test voltage		200								V DC
22 Motor dimensions:										
– diameter		12								mm
– length		17,4								mm
– shaft diameter		1,5								mm
23 Weight		9								g

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

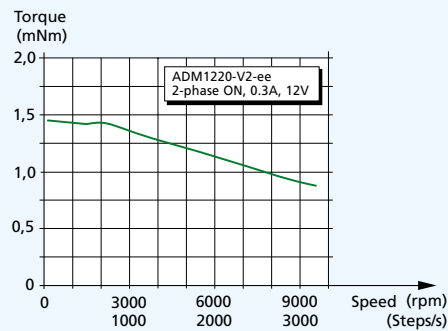
<sup>2)</sup> 2-phase ON, balanced phase currents

<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 M15



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

