

Stepper Motors

2,4 mNm

Two phase, 20 steps per revolution

microstepping motor (low residual torque), PRECstep® Technology

ADM1220S-ww-ee

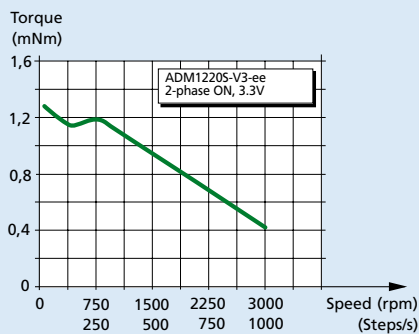
	V2		V3		V6		V12		Drive mode
	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current	
1 Nominal voltage	2	–	3	–	6	–	12	–	V DC
2 Nominal current per phase (both phases ON)	–	0,3	–	0,2	–	0,09	–	0,055	A
3 Phase resistance (at 20°C)	5,4		13		48		164		Ω
4 Phase inductance (1kHz)	1,3		3,5		13		57		mH
5 Back-EMF amplitude	1,7		2,6		5,0		10,0		V/k step/s
6 Holding torque ¹⁾ (at nominal current in both phases)	2,4								mNm
7 Holding torque ¹⁾ (at twice the nominal current)	4,1								mNm
8 Step angle (full step)	18								degree
9 Angular accuracy ²⁾	± 3								% of full step
10 Residual torque	0,07								mNm
11 Rotor inertia	18,5								·10 ⁻⁹ kgm ²
12 Resonance frequency (at no load)	128								Hz
13 Electrical time constant	0,28								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 bronze sleeves (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 Weight	9								g

¹⁾ with bipolar driver

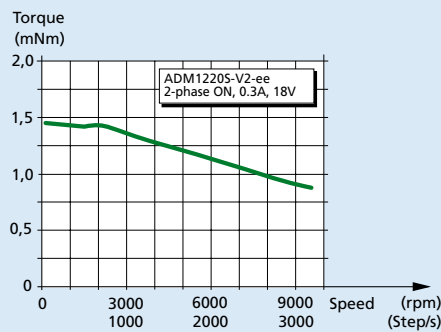
²⁾ 2 phases ON, balanced phase currents

³⁾ Curves measured with a load inertia of 10 · 10⁻⁹ kgm²

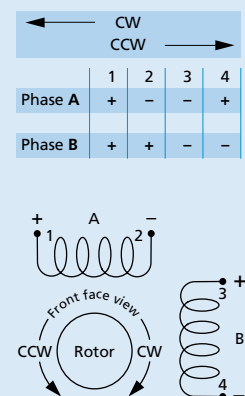
⁴⁾ Testing the motor at lower supply voltages in current mode will result in a decrease in torque at higher speed, even with the same current setting



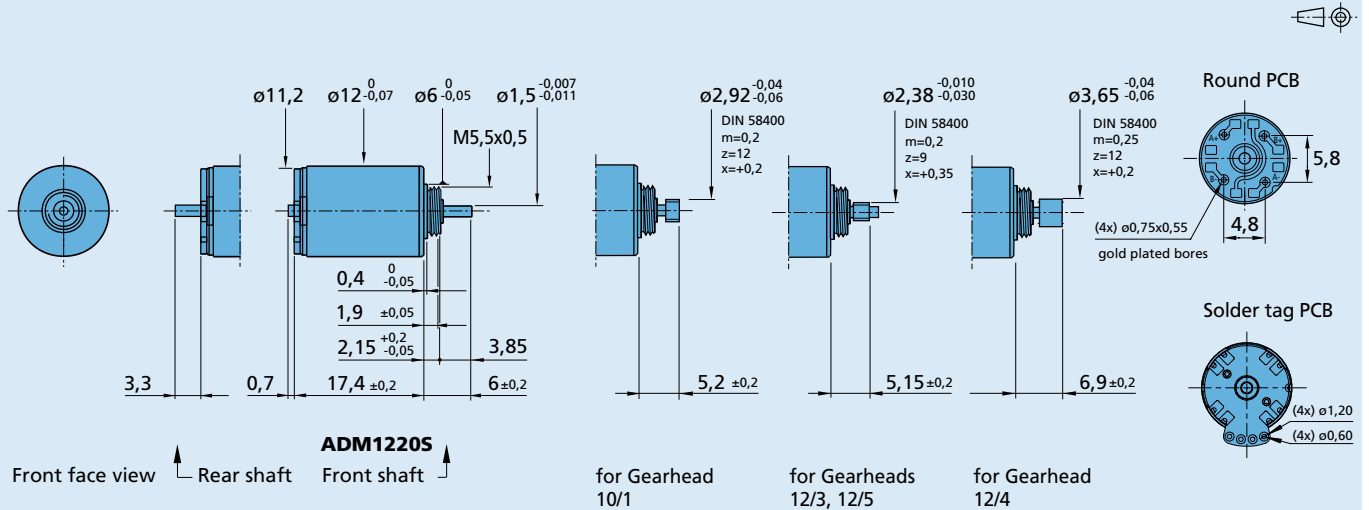
Voltage mode (V) ³⁾
Driver AD VL M1S



Current mode (A) ^{3) 4)}
Driver AD CM M1S



Dimensional drawing



Combinations

Drive Electronics	Encoders	Stepper Motors	Gearheads / Lead screws
AD VL M_S AD VM M_S AD CM M_S		ADM1220S	10/1 12/3 12/4 12/5* Lead screws M2 - M2,5 - M3

* Zero Backlash Gearheads

Ordering information

Example: **ADM1220S-2R-V2-51**

Motor type	Bearings (rr)	Winding (ww)	Motor execution (ee)		
ADM = Motor design 12 = Motor diameter (mm) 20 = Steps per revolution	Special lubricant options available		Only front output shaft	With double output shaft	Front output shaft
ADM1220S	- (sleeve bearings) -2R (2 ball bearings)	-V2 -V3 -V6 -V12	-51 (Round PCB) -55 (Round PCB) -57 (Round PCB) -59 (Round PCB) -83 (Round PCB) -31 (Solder tag PCB) -35 (Solder tag PCB) -37 (Solder tag PCB) -39 (Solder tag PCB) -53 (Solder tag PCB)	-50 (Round PCB) -56 (Round PCB) -58 (Round PCB) -60 (Round PCB) -82 (Round PCB) -30 (Solder tag PCB) -34 (Solder tag PCB) -36 (Solder tag PCB) -38 (Solder tag PCB) -52 (Solder tag PCB)	Plain shaft Pinion 10/1 Pinion 12/3, 12/5 Pinion 12/4 Plain shaft for lead screw M2 - M2,5 - M3 Plain shaft Pinion 10/1 Pinion 12/3, 12/5 Pinion 12/4 Plain shaft for lead screw M2 - M2,5 - M3