

Stepper Motors

2,4 mNm

Two phase, 20 steps per revolution

microstepping motor (low residual torque), PRECstep® Technology

ADM1220S-ww-ee

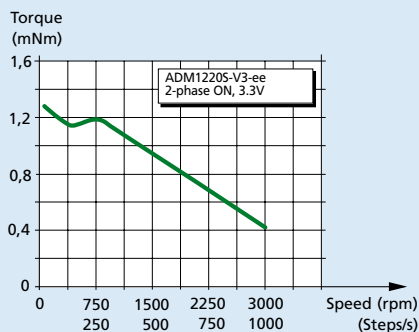
	V2		V3		V6		V12		Drive mode	
	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current		
1 Nominal voltage per phase (both phases ON) ¹⁾	2	–	3	–	6	–	12	–	V DC	
2 Nominal current per phase (both phases ON)	–	0,3	–	0,2	–	0,09	–	0,055	A	
3 Phase resistance (at 20°C)	5,4		13		48		164		Ω	
4 Phase inductance (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 (at nominal current in both phases)	2,4									mNm
7 Holding torque (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, max.	0,15									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	3,0				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⁾ Nominal voltage specified for voltage mode operation only

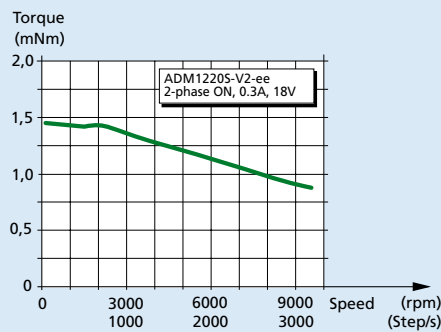
²⁾ 2 phases ON, balanced phase currents

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

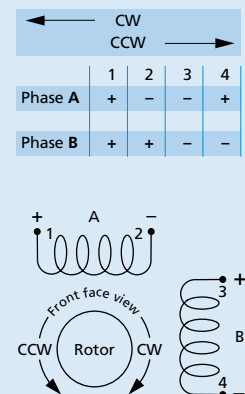
⁴⁾ Testing the motor at lower supply voltages in current mode will result in a decrease in torque at higher speed, even with the same current setting



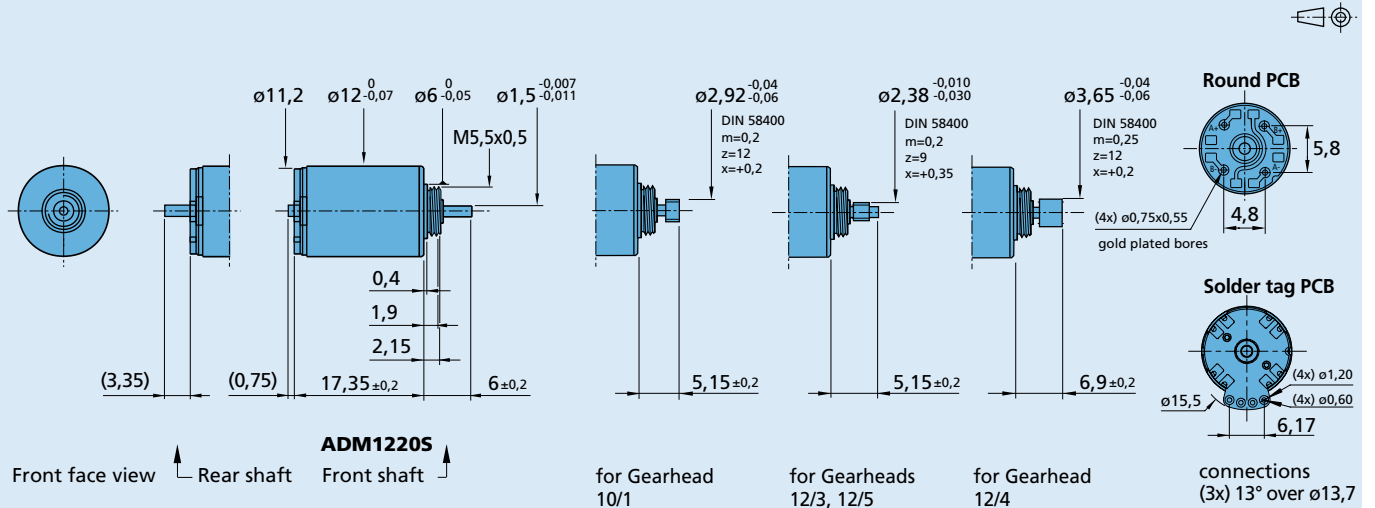
Voltage mode (V) ³⁾
Driver AD VL M1S



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 (wvw)	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)	-50 (Round PCB) -56 (Round PCB) -58 (Round PCB) -60 (Round PCB) -82 (Round PCB)	Plain shaft, plain shaft for lead screw M3 Pinion 10/1 Pinion 12/3, 12/5 Pinion 12/4 Plain shaft for lead screw M2 - M2,5 Plain shaft, plain shaft for lead screw M3 Pinion 10/1 Pinion 12/3, 12/5 Pinion 12/4 Plain shaft for lead screw M2 - M2,5
			-31 (Solder tag PCB) -35 (Solder tag PCB) -37 (Solder tag PCB) -39 (Solder tag PCB) -53 (Solder tag PCB)	-30 (Solder tag PCB) -34 (Solder tag PCB) -36 (Solder tag PCB) -38 (Solder tag PCB) -52 (Solder tag PCB)	