

Stepper Motors

2,4 mNm

Two phase, 20 steps per revolution

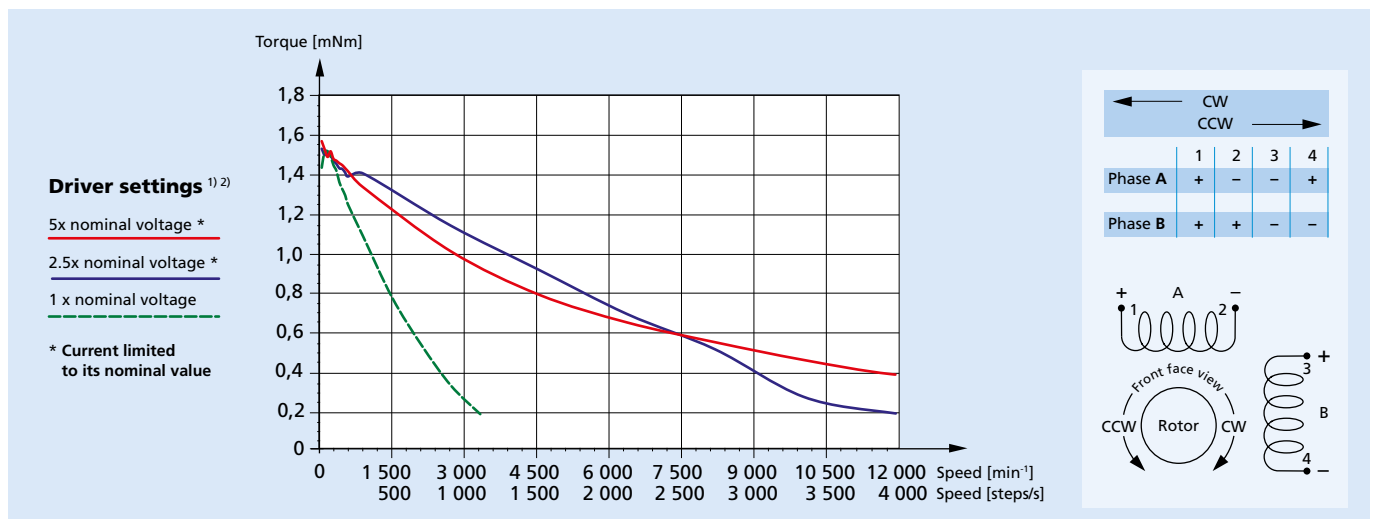
microstepping motor (low residual torque), PRECstep® Technology

ADM1220S-ww-ee

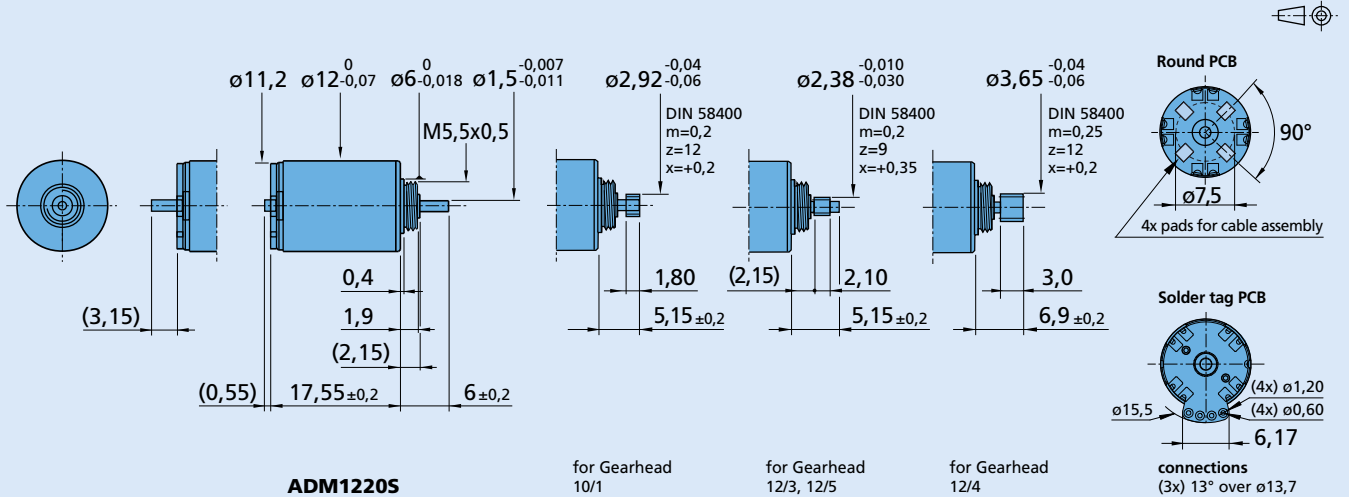
	ww =	V2		V3		V6		V12		Drive mode
		Current	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	
1 Nominal current per phase (both phases ON) ¹⁾		0,33	–	0,22	–	0,11	–	0,055	–	A
2 Nominal voltage per phase (both phases ON) ¹⁾		–	2	–	3	–	6	–	12	V DC
3 Phase resistance (at 20°C)			4,5		10,4		41		168	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 ¹⁾		± 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	<i>Rth1 / Rth2</i>	11,9 / 46,5								°C/W
17 Thermal time constant	<i>τw1 / τw2</i>	5 / 300								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		3,0				3,0				N
20 Shaft play, max.:										
– radial (0,2N)		15				12				μm
– axial (0,2N)		~0				~0				μm
21 Mass		9								g

¹⁾ Relevant for 2 phases ON only. On PWM drivers or chopper (current mode), the current is set to the nominal value and the supply voltage is typically 3 to 5x higher than the nominal voltage.

²⁾ Curves measured with a load inertia of 20 · 10⁻⁹ kgm², in half-step mode for the "1 x nominal voltage" curve, in 1/4 micro-stepping mode for the other curves.



Dimensional drawing



Combinations

Drive Electronics	Encoders	Cables	Gearheads / Lead screws
MCST3601		List available on request	10/1 12/3 12/4 12/5* Lead screws M2 - 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, plain shaft for lead screw M3 Pinion 10/1 Pinion 12/3, 12/5 Pinion 12/4 Plain shaft for lead screw M2 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