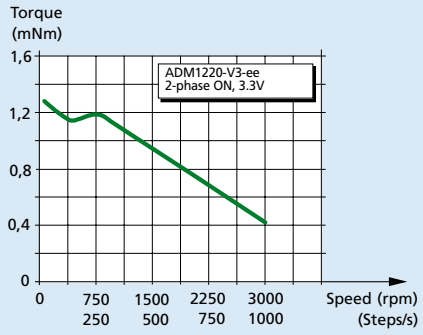
Stepper Motors 2,4 mNm

Two phase, 20 steps per revolution
PRECIstep® Technology

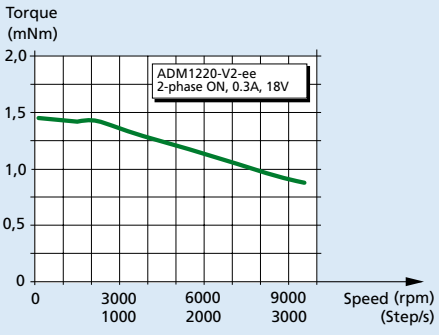
ADM1220-ww-ee

	ww =	V2		V3		V6		V12		
		Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current	Drive mode
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)	1,4		4,1		11,8		49,1		mH
5	Back-EMF amplitude	1,5		2,5		4,5		9,1		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]	± 5								% of full step
10	Residual torque	0,3								mNm
11	Rotor inertia	7,6								$\cdot 10^{-9}$ kgm^2
12	Resonance frequency (at no load)	187								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

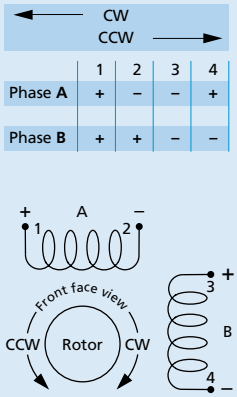
[1] with bipolar driver
[2] 2 phases ON, balanced phase currents
[3] Curves measured with a load inertia of 10 $\cdot 10^{-9}$ kgm^2
[4] Testing the motor at lower supply voltages in current mode will result in a decrease in torque at higher speed, even with the same current setting



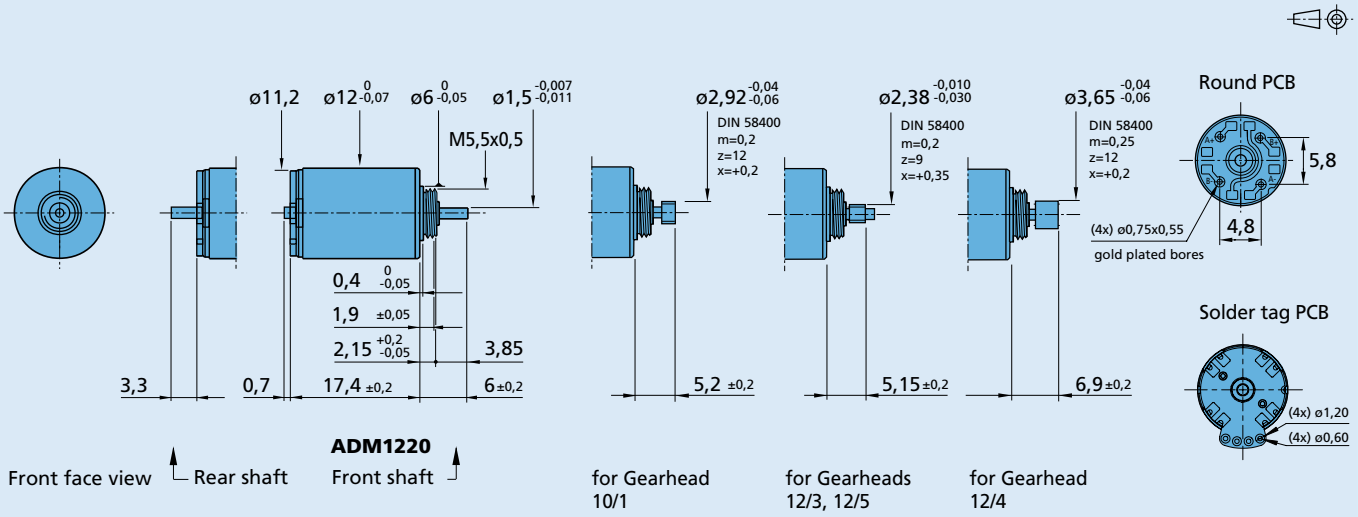
Voltage mode (V) [3]
Driver AD VL M1S



Current mode (A) [3] [4]
Driver AD CM M1S



Dimensional drawing



Combinations

Drive Electronics	Encoders	Stepper Motors	Gearheads / Lead screws
AD VL M_S		**ADM1220**	**10/1**
AD VM M_S			**12/3**
AD CM M_S			**12/4**
			12/5*
			Lead screws M2 - M2,5 - M3

* Zero Backlash Gearheads

Ordering information

Example: **ADM1220-2R-V2-01**

Motor type ADM = Motor design 12 = Motor diameter (mm) 20 = Steps per revolution	**Bearings** (rr) Special lubricant options available	**Winding** (ww)	**Motor execution** (ee) Only front output shaft	With double output shaft	Front output shaft
ADM1220	**-** (sleeve bearings)	**-V2**	**-01** (Round PCB)	**-00** (Round PCB)	Plain shaft
	-2R (2 ball bearings)	**-V3**	**-05** (Round PCB)	**-06** (Round PCB)	Pinion 10/1
		-V6	**-07** (Round PCB)	**-08** (Round PCB)	Pinion 12/3, 12/5
		-V12	**-09** (Round PCB)	**-10** (Round PCB)	Pinion 12/4
			-23 (Round PCB)	**-22** (Round PCB)	Plain shaft for lead screw M2 - M2,5 - M3
			-21 (Solder tag PCB)	**-20** (Solder tag PCB)	Plain shaft
			-25 (Solder tag PCB)	**-24** (Solder tag PCB)	Pinion 10/1
			-27 (Solder tag PCB)	**-26** (Solder tag PCB)	Pinion 12/3, 12/5
			-29 (Solder tag PCB)	**-28** (Solder tag PCB)	Pinion 12/4
			-43 (Solder tag PCB)	**-42** (Solder tag PCB)	Plain shaft for lead screw M2 - M2,5 - M3