

Stepper Motors

1,6 mNm

Two phase, 20 steps per revolution
PRECiStep® Technology

AM1020-ww-ee

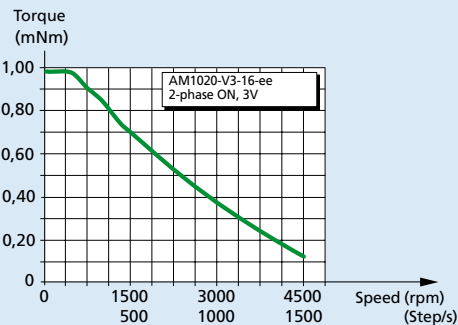
ww =	V-3-16		V-6-65		V-12-250		A-0,25-8		Drive mode		
	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current			
1 Nominal voltage	3	–	6	–	12	–	2	–	V DC		
2 Nominal current per phase (both phases ON)	–	0,18	–	0,09	–	0,045	–	0,25	A		
3 Phase resistance (at 20°C)	16		65		250		8		Ω		
4 Phase inductance (1kHz)	5,2		21,4		80,1		2,4		mH		
5 Back-EMF amplitude	2,6		5,3		10,5		1,8		V/k step/s		
6 Holding torque ¹⁾ (at nominal current in both phases)	1,6									mNm	
7 Holding torque ¹⁾ (at twice the nominal current)	2,4									mNm	
8 Step angle (full step)	18									degree	
9 Angular accuracy ²⁾	± 10									% of full step	
10 Residual torque	0,2									mNm	
11 Rotor inertia	9									·10 ⁻⁹ kgm ²	
12 Resonance frequency (at no load)	140									Hz	
13 Electrical time constant	0,32									ms	
14 Ambient temperature range	–35 ... +70									°C	
15 Winding temperature tolerated, max.	130									°C	
16 Thermal resistance winding-ambient air	73									°C/W	
17 Thermal time constant	90									s	
18 Shaft bearings	sintered sleeve bearings (standard)					ball bearings, preloaded (optional)					
19 Shaft load, max.:											
– radial (3 mm from bearing)	0,3					4,0					N
– axial	0,3					3,0					N
20 Shaft play, max.:											
– radial (0,2N)	15					12					µm
– axial (0,2N)	150					–0					µm
21 Isolation test voltage	200									V DC	
22 Weight	5,5									g	

¹⁾ with bipolar driver

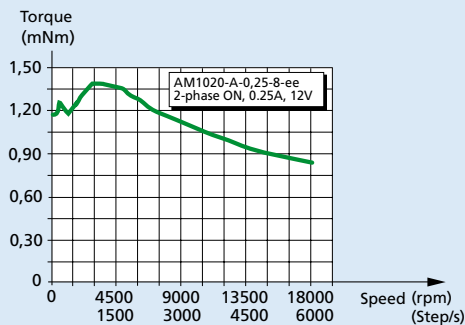
²⁾ 2 phases ON, balanced phase currents

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

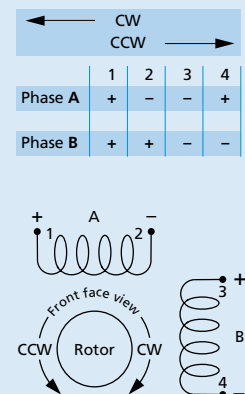
⁴⁾ Testing the motor at lower supply voltages in current mode will result in a decrease in torque at higher speed, even with the same current setting



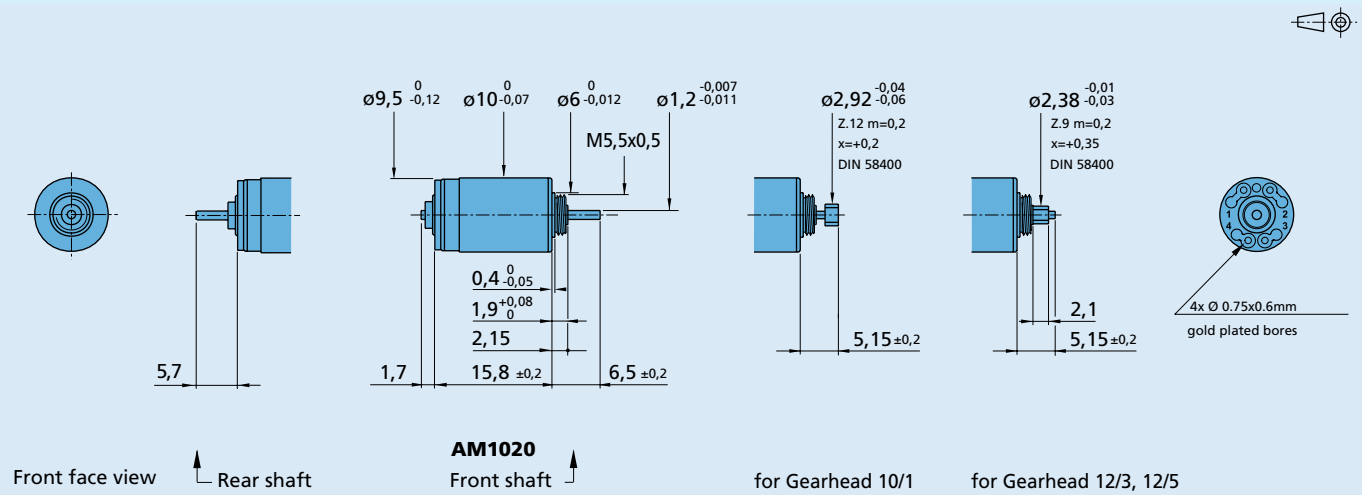
Voltage mode (V) ³⁾
Driver AD VL M1S



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 CM M_S	AE 30B19	AM1020	10/1 12/3 12/5* Lead screws M1,2 M1,6 Lead screws M2 - M2,5 - M3
			* Zero Backlash Gearheads

Ordering information

Example: **AM1020-2R-V-3-16-08**

Motor type	Bearings (rr)	Winding (wvw)	Motor execution (ee)		
AM = Motor design 10 = Motor diameter (mm) 20 = Steps per revolution	Special lubricant options available		Only front output shaft	With double output shaft	Front output shaft
AM1020	- (sleeve bearings) -2R (2 ball bearings)	-V-3-16 -V-6-65 -V-12-250 -A-0,25-8	-01 -08 -10	-00 -09 -11 -12 -13 -14	Plain shaft Pinion 10/1 Pinion 12/5 Plain shaft, Rear = 3,7mm for AE 30B19 Pinion 10/1, Rear = 3,7mm for AE 30B19 Pinion 12/5, Rear = 3,7mm for AE 30B19 Plain shaft for lead screw M1,2 Plain shaft for lead screw M2 - M2,5 Plain shaft for lead screw M1,6
			-21 -23 -25	-20 -22 -24	