

Stepper Motors

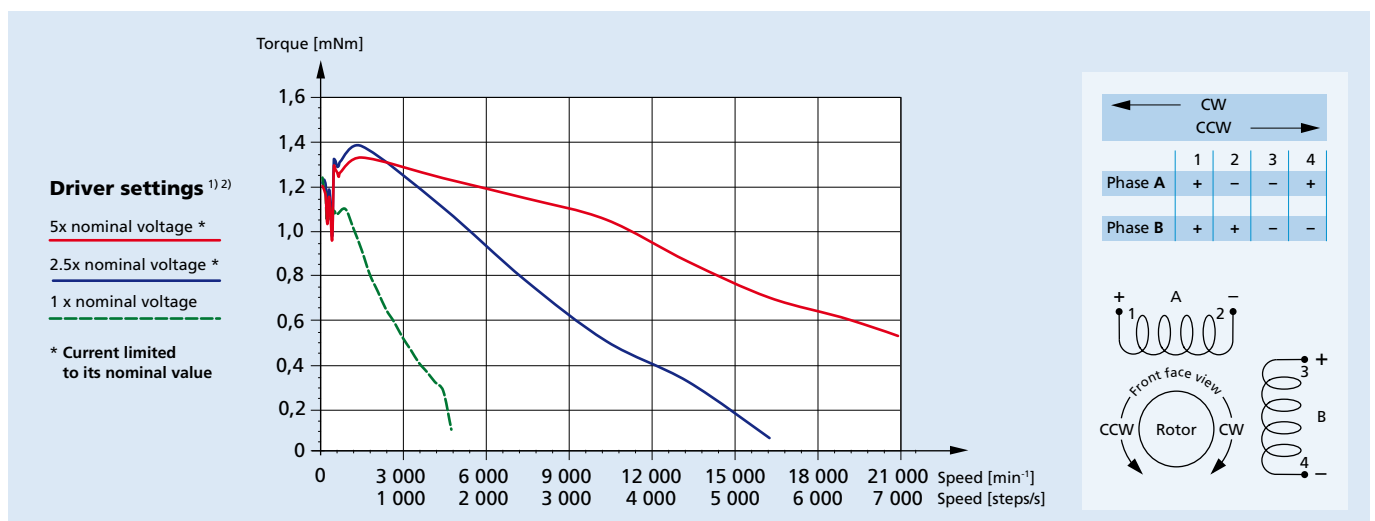
1,6 mNm

Two phase, 20 steps per revolution
PRECiStep® Technology

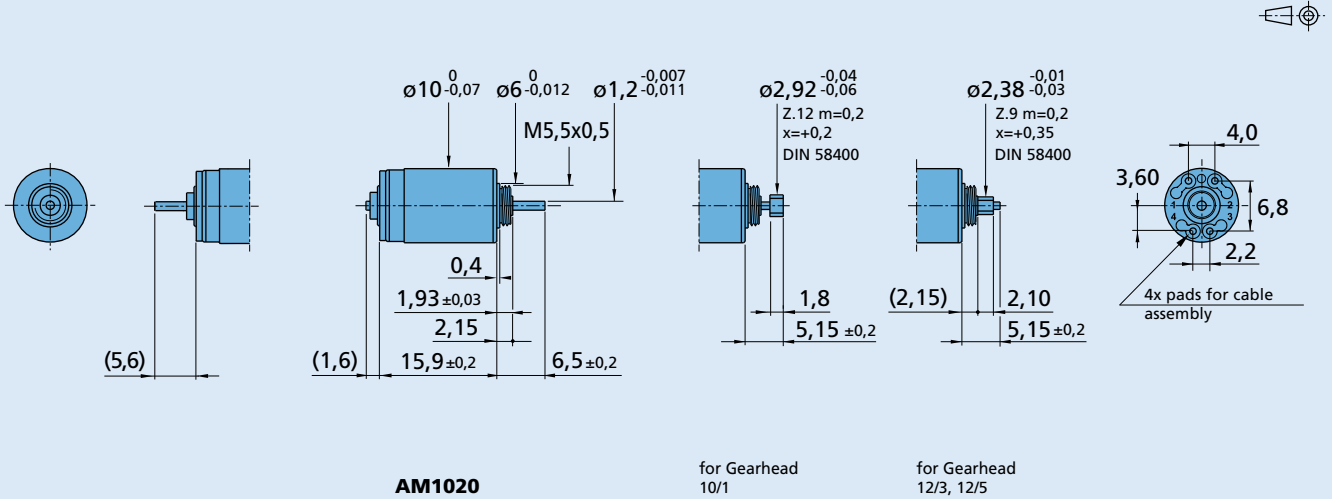
Series AM1020

AM1020 ...	0250		0180		0090		0045		Drive mode	
	Current	Voltage	Current	Voltage	Current	Voltage	Current	Voltage		
1 Nominal current per phase (both phases ON) ¹⁾	0,25	–	0,18	–	0,09	–	0,045	–	A	
2 Nominal voltage per phase (both phases ON) ¹⁾	–	2	–	3	–	6	–	12	V DC	
3 Phase resistance (at 20°C)	8		16		65		250		Ω	
4 Phase inductance (1kHz)	2,4		5,2		21,4		80,1		mH	
5 Back-EMF amplitude	1,8		2,6		5,3		10,5		V/k step/s	
6 Holding torque (at nominal current in both phases)	1,6								mNm	
7 Holding torque (at twice the nominal current)	2,4								mNm	
8 Step angle (full step)	18								degree	
9 Angular accuracy ¹⁾	± 10								% of full step	
10 Residual torque, max.	0,20								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	<i>R_{th1} / R_{th2}</i>	3,9 / 53,8							°C/W	
17 Thermal time constant	<i>τ_{w1} / τ_{w2}</i>	4,5 / 200							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 Mass	5,5								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 6 · 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	Available on request	List available on request	10/1 12/3 12/5* Lead screws M1,2 M1,6 Lead screws M2 - M3

* Zero Backlash Gearheads

Ordering information

Example: **AM10202R018008**

Motor type	Bearings	Winding	Motor execution		
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	SB (sleeve bearings) 2R (2 ball bearings) RC (2 ball bearings, vacuum/low temp.)	0180 0090 0045 0250	01 08 10	00 09 11 12 13 14 20 22 24	Plain shaft Pinion 10/1 Pinion 12/5, 12/3 Plain shaft, Rear = 3,7mm for encoder Pinion 10/1, Rear = 3,7mm for encoder Pinion 12/5, 12/3 Rear = 3,7mm for encoder Plain shaft for lead screw M1,2 Plain shaft for lead screw M2 - M3 Plain shaft for lead screw M1,6