

# Stepper Motors

1,6 mNm

Two phase, 20 steps per revolution  
PRECIstep® Technology

## AM1020-ww-ee

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

<sup>1)</sup> Relevant for 2 phases ON only. On PWM drivers with 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.

<sup>2)</sup> Curves measured with a load inertia of 6 · 10<sup>-9</sup> kgm<sup>2</sup>, in half-step mode for the “1 x nominal voltage” curve, in 1/4 micro-stepping mode for the other curves.

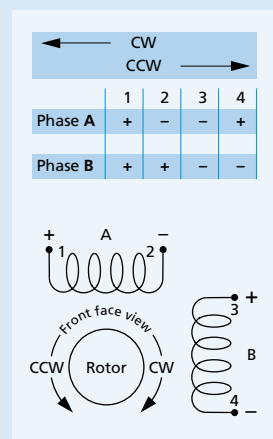
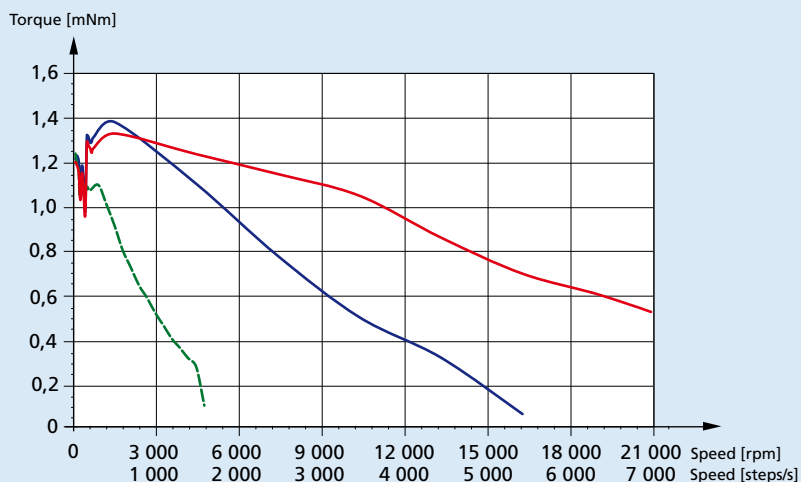
### Driver settings <sup>1) 2)</sup>

5x nominal voltage \*

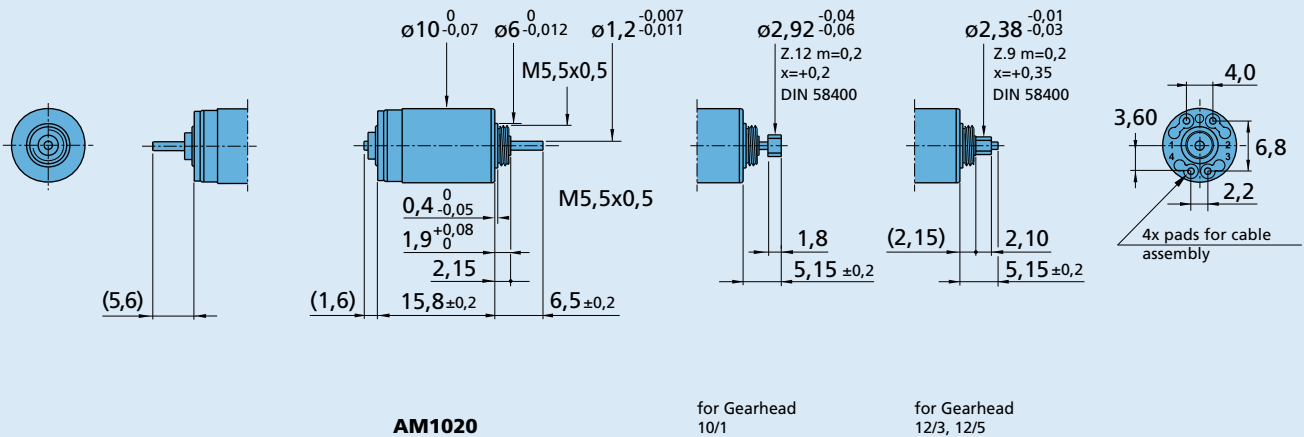
2.5x nominal voltage \*

1 x nominal voltage

\* Current limited to its nominal value



### Dimensional drawing



### Combinations

Drive Electronics	Encoders	Cables	Gearheads / Lead screws
Available on request	Available on request	List available on request	<b>10/1</b> <b>12/3</b> <b>12/5*</b> Lead screws <b>M1,2 M1,6</b> Lead screws <b>M2 - M2,5 - M3</b>

\* 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
<b>AM1020</b>	- (sleeve bearings) <b>-2R</b> (2 ball bearings)	<b>-V-3-16</b> <b>-V-6-65</b> <b>-V-12-250</b> <b>-A-0,25-8</b>	<b>-01</b> <b>-08</b> <b>-10</b>	<b>-00</b> <b>-09</b> <b>-11</b> <b>-12</b> <b>-13</b> <b>-14</b> <b>-20</b> <b>-22</b> <b>-24</b>	Plain shaft Pinion 10/1 Pinion 12/5 Plain shaft, Rear = 3,7mm for encoder Pinion 10/1, Rear = 3,7mm for encoder Pinion 12/5, Rear = 3,7mm for encoder Plain shaft for lead screw M1,2 Plain shaft for lead screw M2 - M2,5 - M3 Plain shaft for lead screw M1,6