

Stepper Motors

1,6 mNm

Two phase, 20 steps per revolution
PREClstep® 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) 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.

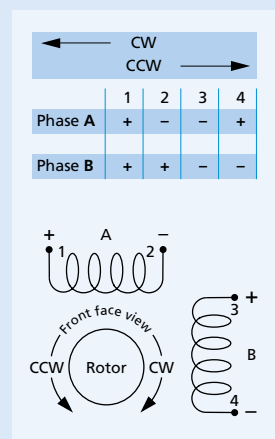
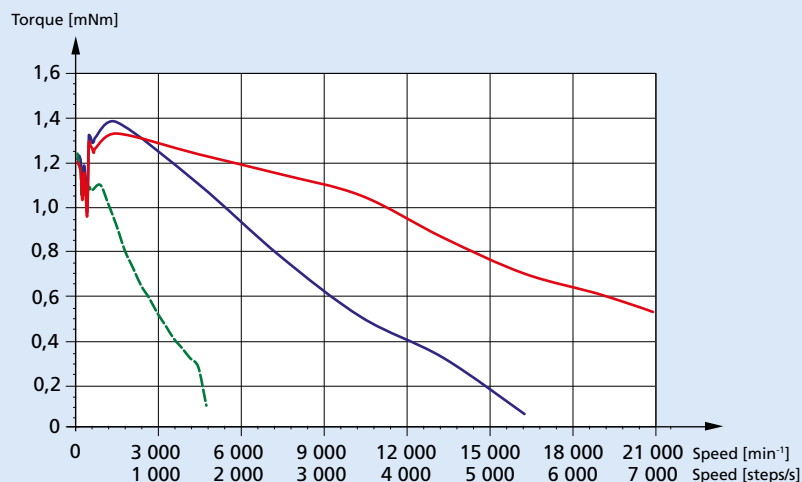
Driver settings ^{1) 2)}

5x nominal voltage *

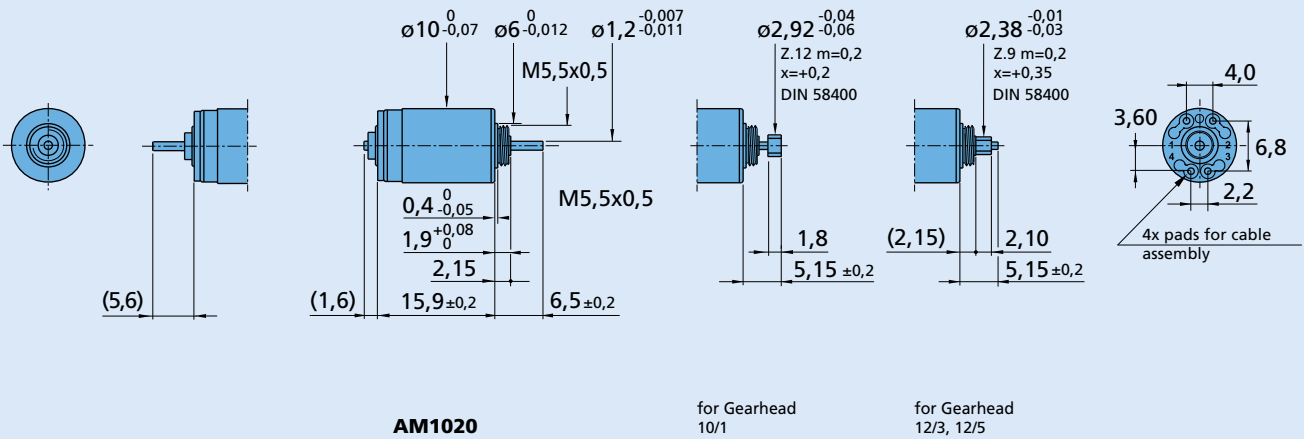
2.5x nominal voltage *

1 x nominal voltage

* Current limited to its nominal value



Dimensional drawing



Combinations

Drive Electronics	Encoders	Cables	Gearheads / Lead screws
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: **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 -20 -22 -24	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 - M3 Plain shaft for lead screw M1,6