Stepper Motors

Two phases, 20 steps per revolution

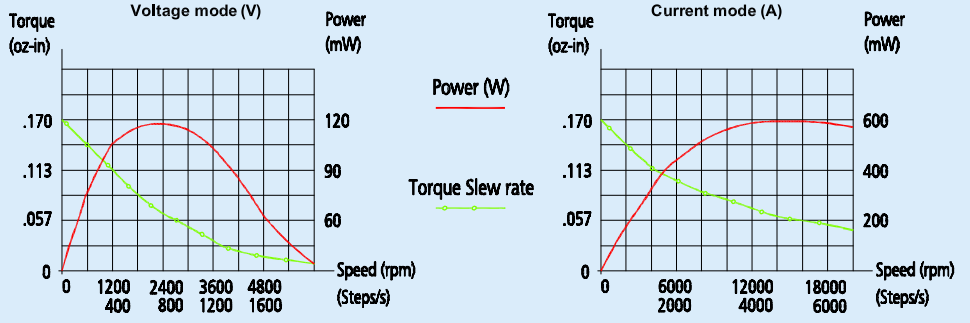
For combination with:
Gearheads: 08/1, 10/1, 12/3, 12/5
Encoder: HE
Drive Electronics: AD VL M, AD VM M, AD CM M

Series AM 1020

See beginning of the Stepper Motor Section for Ordering Information

		V 3	V 6	V 12	A 0.25	
		Voltage mode			Current mode	
1	Nominal supply voltage U_N	3	6	12		V DC
2	Phase Resistance at 20°C (68°F)	16	65	250	7.4	Ω
3	Phase inductance (1kHz)	4.5	18	70	2.1	mH
4	Nominal current per phase (both phases ON)	0.175	0.09	0.045	0.25	A
5	Back-EMF amplitude	2.25	4.5	9	1.5	V/k step/s
6	Holding torque [1] (with nominal current in both phases)	0.227				oz-in
7	Holding torque [1] (with twice the nominal current)	0.340				oz-in
8	Residual and friction torque	0.035				oz-in
9	Thermal resistance winding-ambient air	73				°C/W
10	Winding temperature tolerated, max.	130 (266)				°C (°F)
11	Ambient working temperature range	–40 to +70 (–40 to +158)				°C (°F)
12	Thermal time constant	90				s
13	Full step angle	18				degree
14	Angular accuracy [2]	± 10				% of full step
15	Rotor inertia	$1.27 \cdot 10^{-6}$				oz-in-sec²
16	Shaft bearings	sintered bronze sleeve (standard)	ball bearings, preloaded (optional)			
17	Shaft load, max.:					
	– radial (3 mm (0.118 in.) from bearing	1.08	14.4			oz
	– axial	1.08	7.2			oz
18	Shaft play, max.:					
	– radial (0.720 oz)	$5.91 \cdot 10^{-4}$	$4.72 \cdot 10^{-4}$			in
	– axial (0.720 oz)	$5.91 \cdot 10^{-3}$	~0			in
19	Weight	0.19				oz
20	Isolation test voltage	200				V DC
21	Resonance frequency	140				Hz
22	Electrical time constant	0.28				ms

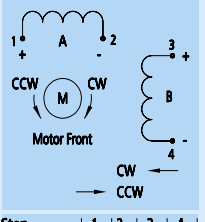
[1] with bipolar driver
[2] 2 phases ON, balanced phase current



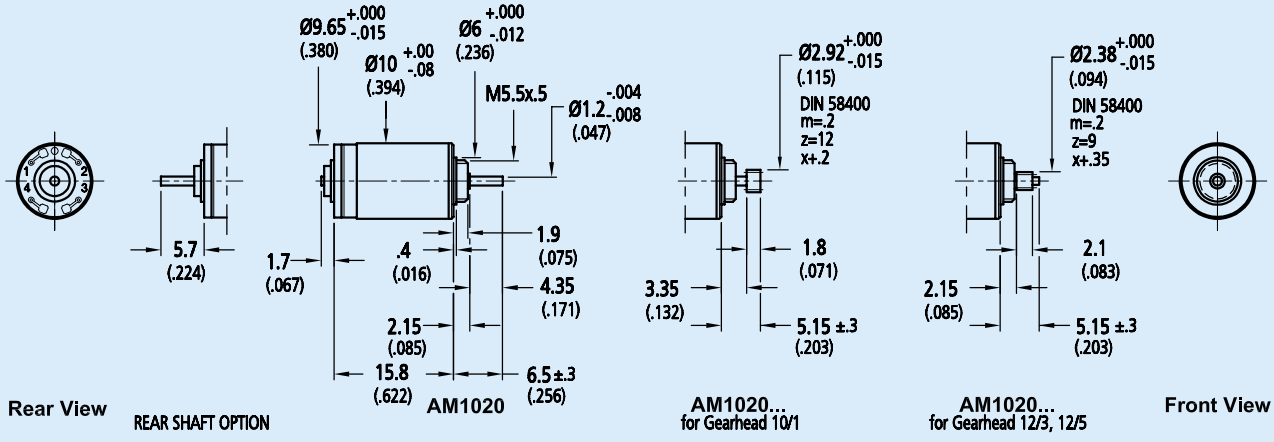
Torque / speed curves measured with a load inertia of 1.416 x10⁻⁶ oz-in-sec²

Cable Connection

Driving sequence



Step	1	2	3	4
Phase A	+	-	-	+
Phase B	+	+	-	-



For notes on technical data refer to "Technical Information". Specifications subject to change without notice. MME1102