

Stepper Motors

22 mNm

Two phase, 24 steps per revolution

Series AM2224

Values at 20°C	AM2224	1000	0500	0250	0125	
Nominal current per phase (both phases ON)		1	0,5	0,25	0,125	A
Boosted current per phase (both phases ON)		2	1	0,5	0,25	A
Nominal voltage per phase (both phases ON)		1,4	3	6	12	V
Phase resistance		0,9	4,8	18	75	Ω
Phase inductance (1 kHz)		0,9	4,3	16,3	65,6	mH
Holding torque (at nominal current in both phases)		22	22	22	22	mNm
Holding torque at boosted current		37	37	37	37	mNm
Residual torque, typ.		1,47	1,47	1,47	1,47	mNm
Back-EMF amplitude		3,8	8,3	16,3	32,7	V/k step/s
Electrical time constant	1,7					ms
Rotor inertia	253·10 ⁻⁹					kgm ²
Step angle (full step)	15					°
Angular accuracy	±10					%
Angular acceleration, max.	146·10 ³					rad/s ²
Resonance frequency (at no load)	45					Hz
Thermal resistance	4,8 / 20,4					K/W
Thermal time constant	10 / 620					s
Operating temperature range	-35 ... +70					°C
Winding temperature, max.	+130					°C
Shaft bearings ^{1) 2)}	sintered bearings (Bearing code: SB)		ball bearings, preloaded (Bearing code: 2R)			
Shaft load max.:						
– with shaft diameter	2		2			mm
– radial at 5 000 min ⁻¹ (3 mm from bearing)	1,5		8			N
– axial at 5 000 min ⁻¹	0,5		4			N
– axial at standstill	0,5		24,8			N
Shaft play:						
– radial	0,03		0,015			mm
– axial	0,2		0			mm
Housing material	aluminium, black anodized					
Mass	43					g
Magnet material	NdFeB					

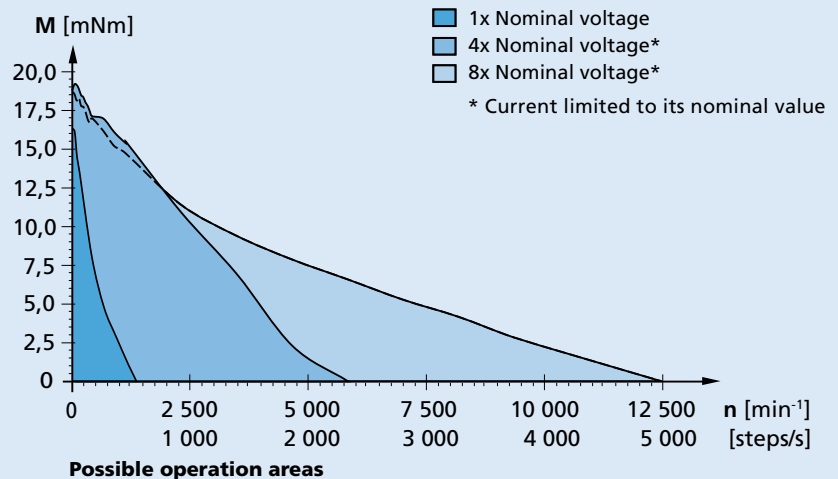
¹⁾ Special lubricant options available on request.

²⁾ 2 preloaded ball bearings available on request for vacuum / low temperature (bearing code: RC).

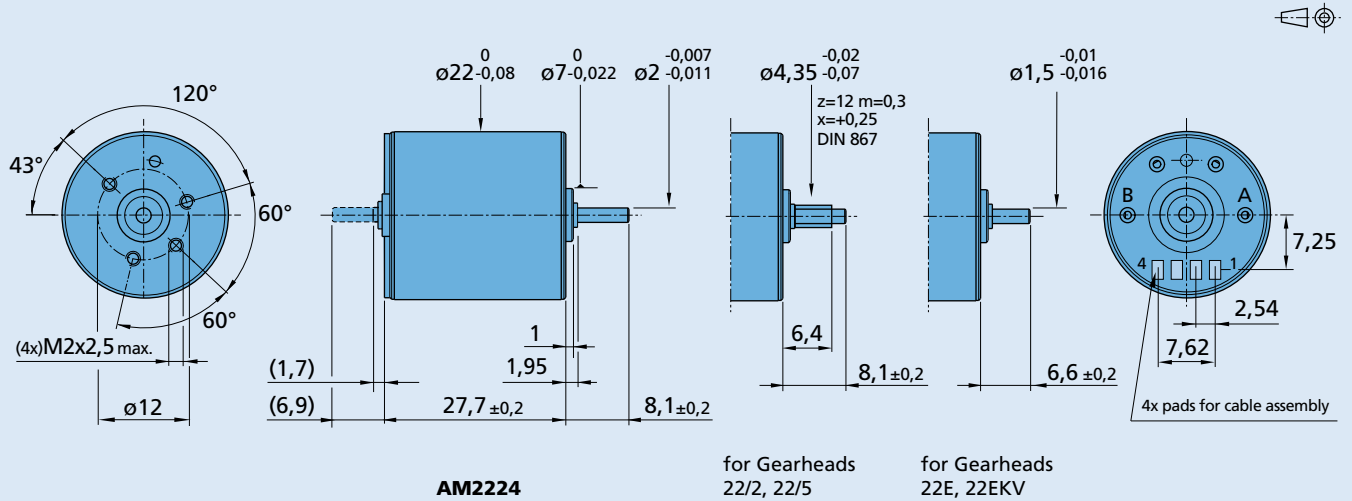
Driver settings

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 4 to 8x higher than the nominal voltage.

Curves measured with a load inertia of 600·10⁻⁹ kgm², in half-step mode for the "1 x nominal voltage" curve, in 1/4 micro-stepping mode for the other curves.



Dimensional drawing



Options and connection information

Example product design: **AM22242R050010**

Motor executions		Front shaft description	Connection	
front shaft	double shaft		No.	Function
10	11	Plain shaft, L=8,1 mm \varnothing 2 mm for gearheads 20/1R, 22/7, 23/1, 22GPT and Linear Actuator 22L	1	Phase A +
12	13	Plain shaft, L=6,6 mm \varnothing 1,5 for gearheads 22E, 22EKV	2	Phase A -
14	15	Pinion for gearheads 22/2, 22/5	3	Phase B +
	16	Plain shaft, L=8,1 mm \varnothing 2 mm for gearheads 20/1R, 22/7, 23/1, 22GPT and Linear Actuator 22L with encoder PE22-120	4	Phase B -
	17	Plain shaft, L=6,6 mm \varnothing 1,5 for gearheads 22E, 22EKV and encoder PE22-120		
	18	Pinion for gearheads 22/2, 22/5 and encoder PE22-120		

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
20/1R 22E 22EKV 22GPT 22/2 22/5 22/7 23/1 22L ... ML 22L ... PB 22L ... SB	PE22-120	MCST 3601	List available on request