

Stepper Motors

6,0 mNm

Two phase, 24 steps per revolution
PRECiStep® Technology

AM1524-ww-ee

	ww =		A-0,45-3,6		A-0,25-12,5		V-6-35		V-12-150		Drive mode
	Current	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	
1 Nominal current per phase (both phases ON) ¹⁾	0,45	–	0,25	–	0,15	–	0,075	–	–	–	A
2 Nominal voltage per phase (both phases ON) ¹⁾	–	2	–	3,5	–	6	–	12	–	–	V DC
3 Phase resistance (at 20°C)		3,6		12,5		35		138		–	Ω
4 Phase inductance (1kHz)		1,9		6,3		16,5		70,6		–	mH
5 Back-EMF amplitude		2,4		4,4		7,2		14,7		–	V/k step/s
6 Holding torque (at nominal current in both phases)		6,0		–		–		–		–	mNm
7 Holding torque (at twice the nominal current)		10		–		–		–		–	mNm
8 Step angle (full step)		15		–		–		–		–	degree
9 Angular accuracy ¹⁾		± 10		–		–		–		–	% of full step
10 Residual torque, max.		0,9		–		–		–		–	mNm
11 Rotor inertia		45		–		–		–		–	·10 ⁻⁹ kgm ²
12 Resonance frequency (at no load)		120		–		–		–		–	Hz
13 Electrical time constant		0,5		–		–		–		–	ms
14 Ambient temperature range		–35 ... +70		–		–		–		–	°C
15 Winding temperature tolerated, max.		130		–		–		–		–	°C
16 Thermal resistance	R _{th1} / R _{th2}	12,9 / 31,6		–		–		–		–	°C/W
17 Thermal time constant	τ _{w1} / τ _{w2}	6 / 350		–		–		–		–	s
18 Shaft bearings		sintered bronze sleeves (standard)		–		–		ball bearings, preloaded (optional)		–	–
19 Shaft load, max.:				–		–				–	–
– radial (3 mm from bearing)		0,5		–		–		6,0		–	N
– axial		0,5		–		–		2,0		–	N
20 Shaft play, max.:				–		–				–	–
– radial (0,2N)		15		–		–		12		–	μm
– axial (0,2N)		150		–		–		~0		–	μm
21 Isolation test voltage		200		–		–		–		–	V DC
22 Mass		12		–		–		–		–	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 50 · 10⁻⁹ kgm², in half-step mode for the "1 x nominal voltage" curve, in 1/4 micro-stepping mode for the other curves.

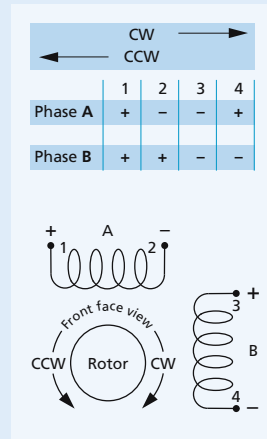
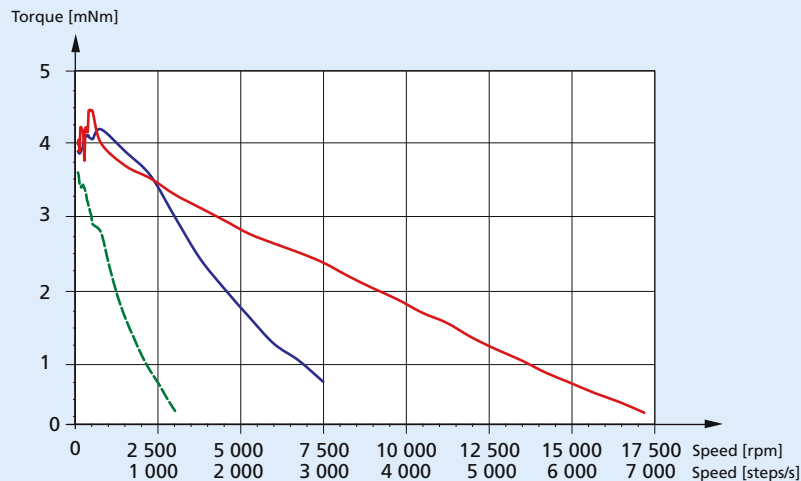
Driver settings ^{1) 2)}

5x nominal voltage *

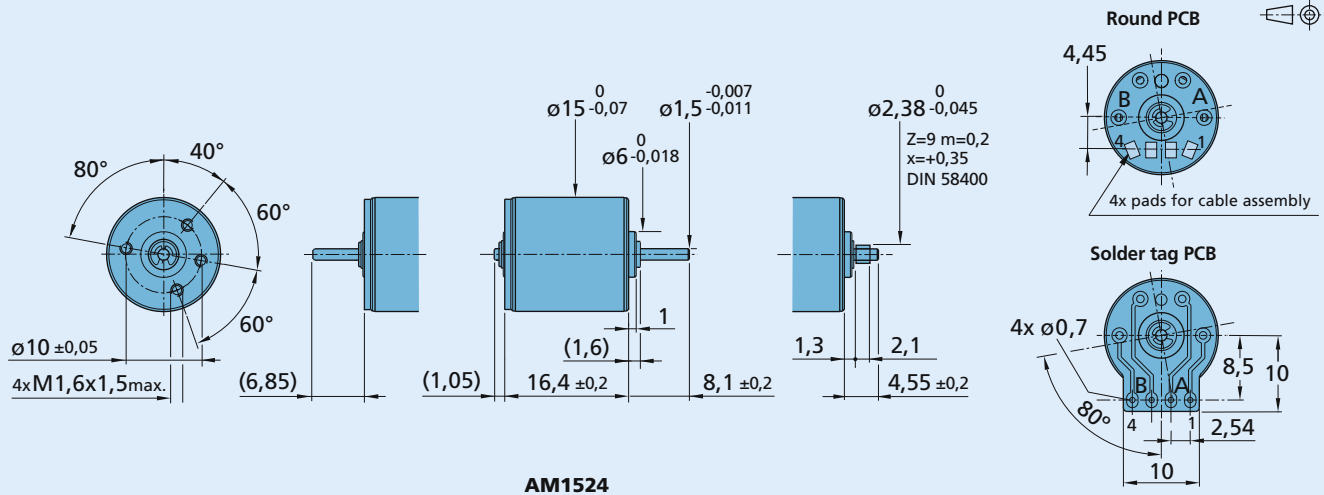
2.5x nominal voltage *

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	15A 15/5(S) 15/8* 15/10 16/7 17/1 Lead screws M2 - M2,5 - M3

* Zero Backlash Gearheads

Ordering information

Example: **AM1524-2R-V-6-35-57**

Motor type	Bearings (rr)	Winding (ww)	Motor execution (ee)		
AM = Motor design 15 = Motor diameter (mm) 24 = Steps per revolution	Special lubricant options available		Only front output shaft	With double output shaft	Front output shaft
AM1524	- (sleeve bearings) -2R (2 ball bearings)	-V-6-35 -V-12-150 -A-0,25-12,5 -A-0,45-3,6	-55 (Round PCB) -57 (Round PCB) -70 (Round PCB) -83 (Round PCB) -05 (Solder tag PCB) -07 (Solder tag PCB) -72 (Solder tag PCB) -23 (Solder tag PCB)	-54 (Round PCB) -56 (Round PCB) -71 (Round PCB) -82 (Round PCB) -04 (Solder tag PCB) -06 (Solder tag PCB) -73 (Solder tag PCB) -22 (Solder tag PCB) -04-0904 -06-0904 -73-0904	Plain shaft, L=8,1 mm for 15/10,16/7, 17/1, M3 Pinion 15/5(S), 15/8 Plain shaft, L=4,5 mm for gearhead 15A Plain shaft for lead screw M2 - M2,5 Plain shaft, L=8,1 mm for 15/10,16/7, 17/1, M3 Pinion 15/5(S), 15/8 Plain shaft, L=4,5 mm for gearhead 15A Plain shaft for lead screw M2 - M2,5 Idem -04 & for encoder Idem -06 & for encoder Idem -73 & for encoder

For combination with
DC-Micromotors
Stepper Motors

Series 15/5

	15/5
Housing material	metal
Geartrain material ¹⁾	plastic/steel
Recommended max. input speed for:	
– continuous operation	5 000 min ⁻¹
Backlash, at no-load	< 3 °
Bearings on output shaft	ball bearings, preloaded
Shaft load, max.:	
– radial (6,5 mm from mounting face)	≤ 25 N
– axial	≤ 5 N
Shaft press fit force, max.	≤ 5 N
Shaft play	
– radial (6,5 mm from mounting face)	≤ 0,03 mm
– axial	= 0 mm
Operating temperature range	- 30 ... + 100 °C

Specifications		2	3	4	4	5	5	6	6	7
Number of gear stages		2	3	4	4	5	5	6	6	7
Continuous torque	mNm	60	60	100	100	100	100	100	100	100
Intermittent torque	mNm	150	150	300	150	300	150	300	150	300
Mass without motor, ca.	g	17	19	21	21	22	22	24	24	25
Efficiency, max.	%	81	73	66	66	59	59	53	53	48
Direction of rotation, drive to output		=	≠	=	=	≠	≠	=	=	≠
Reduction ratio ²⁾ (rounded)		6,3:1 11,8:1	22:1 41:1	76:1	141:1	262:1	485:1	900:1	1 670:1	3 101:1
L2 [mm] = length without motor		26,2	29,9	32,0	32,0	34,1	34,1	36,2	36,2	38,3
L1 [mm] = length with motor										
1319E...SR		32,5	36,2	38,3	38,3	40,4	40,4	42,5	42,5	44,6
1331E...SR		44,5	48,2	50,3	50,3	52,4	52,4	54,5	54,5	56,6
1516E...S		29,1	32,8	34,9	34,9	37,0	37,0	39,1	39,1	41,2
1516E...SR		29,1	32,8	34,9	34,9	37,0	37,0	39,1	39,1	41,2
1524E...SR		37,1	40,8	42,9	42,9	45,0	45,0	47,1	47,1	49,2
AM1524...S7		29,7	33,4	35,5	35,5	37,6	37,6	39,7	39,7	41,8

¹⁾ Gearheads with ratios < 3 101:1 have all steel gears.

²⁾ The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.

