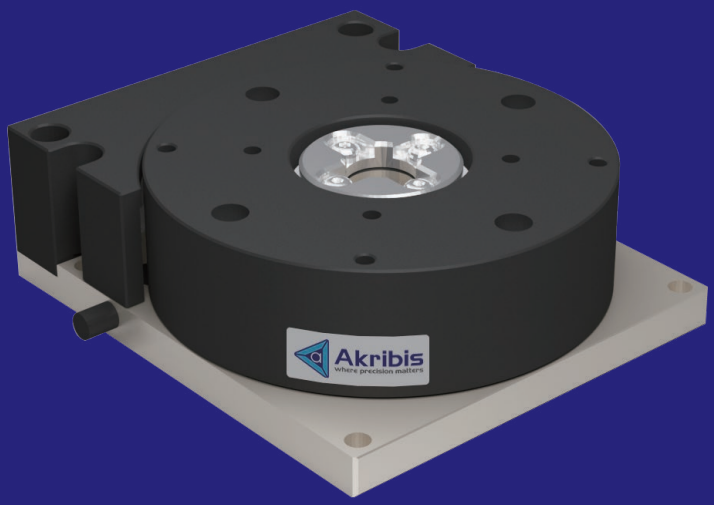


AMR SERIES

- Compact design
- Direct drive technology
- Cogging free
- High precision optical encoder
- Stackable configuration

EN-26.3.1

Introduction

The AMR series of micro rotary motors consist of a micro non-core motor, micro bearings, high-precision optical encoders, and a structural base. The internal structure is extremely compact and offers high-precision positioning.

There are two standard product specifications: AMR65D and AMR80D. According to actual technical requirements, different encoder position feedback options can be selected, and customized demands can also be met.

Continuous Torque Tcn = 0.13Nm~0.2Nm
Peak Torque Tpk = 0.51Nm~0.79Nm

Features

- Micro direct-drive rotary motor
- Design without iron core, no cogging torque
- Dimensions: Length × Width × Height = 76 × 65 × 25 mm
- Rotation angles: 50°, 100°, other angles can be customized

Applications

Precision rotation correction positioning, optical alignment stage.

Applicable to point-to-point high-speed rotation positioning/correcting, optical alignment, micro assembly and fiber optical alignment for automation equipment of all industries.

Miniature Modules	■ Continuous Torque (T_{cn}) ■ Peak Torque (T_{pk}) Unit: Nm 0.1 | 0.2 | 0.4 | 0.6 | 0.8 | 1.0	Stroke[1] (degree)	Repeatability (arcsec)
 AMR65	0.13 — 0.51	50	up to ±5
 AMR80	0.2 — 0.79	100	

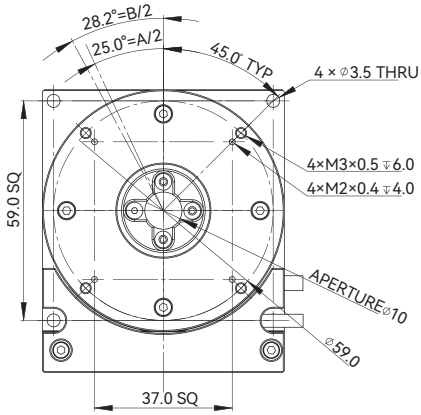
Note:
[1] Longer stroke available upon request.
★ Products can be customized to meet specific working environments, please contact cust-service@akribis-sys.com.

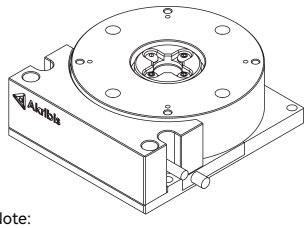
AMR65

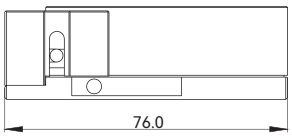
Motor Specifications	Unit	Value	
Motor	-	AMR65D-50	
Continuous Torque (NC) @100°C [1]	Nm	0.13	
Peak Torque	Nm	0.51	
Torque Constant ±10%	Nm/Arms	0.12	
Back EMF Constant ±10%	Vpeak/rpm	1.00E-02	
Resistance (L-L) @25°C ±10% [2]	Ω	8	
Inductance (L-L) ± 20% [3]	mH	0.75	
Continuous Current (NC) @100°C [1]	Arms	1.1	
Peak Current	Arms	4.4	
Max. Bus Voltage	Vdc	48	
Pole Number	-	16	
Mechanical Specifications	**Unit**	**Value**	
Precision Grade	-	P	N
Effective Stroke	degree	50	
Resolution	μm	SINCOS/0.05	0.2
Repeatability	arcsec	±5	±5
Max. Speed	degree/s	720	
Rotor Inertia	kg.m²	0.0014	
No-load Total Mass	kg	0.52	
Max. Static Axial Load	N	30	
Max. Static Moment [4]	Nm	0.84	

[1] Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC=Natural Cooling.
[2] Resistance is measured by DC current with standard 0.5m cable.
[3] Inductance is measured by current frequency of 1kHz.
[4] This value is based on providing a higher control bandwidth, please contact cust-service@akribis-sys.com for higher load requirements.
The contents of datasheet are subject to change without prior notice.

Dimensional Drawing







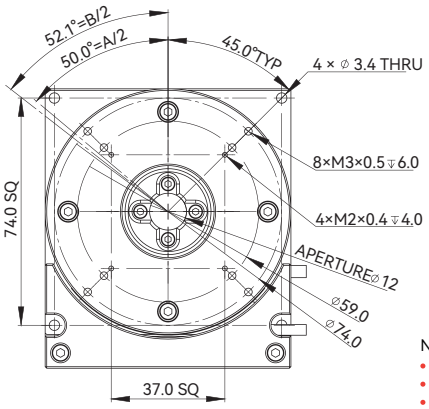
Note:
- A=Effective stroke
- B=Hardstop stroke
- Home index near center of stroke
- To maintain accuracy, mounting surface must be flat within 5μm over stage entire footprint

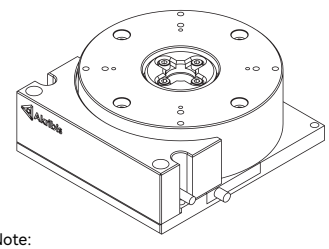
AMR80

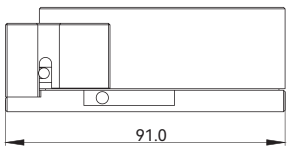
Motor Specifications	Unit	Value	
Motor	-	AMR80D-100	
Continuous Torque (NC) @100°C [1]	Nm	0.2	
Peak Torque	Nm	0.79	
Torque Constant ±10%	Nm/Arms	0.2	
Back EMF Constant ±10%	Vpeak/rpm	1.69E-02	
Resistance (L-L) @25°C ±10% [2]	Ω	9.3	
Inductance (L-L) ±20% [3]	mH	1	
Continuous Current (NC) @100°C [1]	Arms	1	
Peak Current	Arms	4	
Max. Bus Voltage	Vdc	48	
Pole Number	-	16	
Mechanical Specifications	**Unit**	**Value**	
Precision Grade	-	P	N
Effective Stroke	degree	100	
Resolution	μm	SINCOS/0.05	0.2
Repeatability	arcsec	±5	±5
Max. Speed	degree/s	720	
Rotor Inertia	kg.m²	0.0016	
No-load Total Mass	kg	1.1	
Max. Static Axial Load	N	60	
Max. Static Moment [4]	Nm	2.0	

[1] Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC=Natural Cooling.
[2] Resistance is measured by DC current with standard 0.5m cable.
[3] Inductance is measured by current frequency of 1kHz.
[4] This value is based on providing a higher control bandwidth, please contact cust-service@akribis-sys.com for higher load requirements.
The contents of datasheet are subject to change without prior notice.

Dimensional Drawing







Note:
- A=Effective stroke
- B=Hardstop stroke
- Home index near center of stroke
- To maintain accuracy, mounting surface must be flat within 5μm over stage entire footprint

Ordering Part Number (OPN)

AMR65-T50-A0G4-A1

- Model: AMR65/AMR80
- Precision Grade: Unmarked: Normal
- Cover Type: T: Standard (Black Anodized)[1] E: EN[2]
- Effective Stroke (Corresponding Models): 50: 50deg (AMR65) 100: 100deg (AMR80)
- Termination: 1: Motor: Flying Leads/Encoder: DSUB 15 2: Motor: TYCO4/Encoder: DSUB 15
- Cable Length: A: 0.5m B: 3.0m
- Scale Type: 4: Nickel, 14ppm/K
- Encoder Type: A0G: ABI-21, TTL (0.2μm)

AMR65P-T50-R0A1-A1

- Model: AMR65/AMR80
- Precision Grade: P: Precision
- Cover Type: T: Standard (Black Anodized)[1] E: EN[2]
- Effective Stroke (Corresponding Models): 50: 50deg (AMR65) 100: 100deg (AMR80)
- Termination: 1: Motor: Flying Leads/Encoder: DSUB 15 2: Motor: TYCO4/Encoder: DSUB 15
- Cable Length: A: 0.5m B: 3.0m
- Scale Type: 1: Steel Tape, 11ppm/K
- Encoder Type: R0A: ATOM2, SINCOS (1Vpp) R0J: ATOM2, TTL (0.05μm)

Note:

[1] Black anodized AMR is used with AML and AMZ.

[2] Nickel plated AMR is used with AMS.

★Default mounting orientation for this motor is horizontal. For other mounting orientations, please contact cust-service@akribis-sys.com.