

XRG SERIES GONIO MODULE

- ▶ Compact design
- ▶ Anti-creep cross roller guide rail
- ▶ Direct drive technology
- ▶ Highly dynamic
- ▶ High precision optical encoder
- ▶ Stackable configuration

EN-26.3.1

Introduction

The XRG series miniature direct drive goniometer stage feature anti-creep crossed roller gonio ways. This direct drive module achieves superior dynamic & reliability compared to conventional indirect drive gonio stage.

There are two standard products: XRG70 and XRG110.

Continuous Torque $T_{cn} = 0.602\text{Nm} \sim 1.070\text{Nm}$

Peak Torque $T_{pk} = 1.697\text{Nm} \sim 3.210\text{Nm}$



Features

- ▶ Compact design, direct-drive goniometer positioning stage
- ▶ 12.0 degree stroke
- ▶ Built-in grating scale and repeatability up to 4.0 arcsec
- ▶ It can be combined flexibly with XRG70-XRG110 to form pitch-roll positioning stage with intercepting axis of rotation or combined with AMR/AML/AMZ to form a 6-axis positioning stage

Applications

Suitable for high precision Angle positioning, optical alignment stage.

Applicable to point-to-point high-speed angular component positioning, optical alignment, optical focusing, flying probe test, fibre optic alignment and assembly for automation equipment of all industry.

Cross Roller Modules Series	Continuous Torque (T_{cn})		Peak Torque (T_{pk})			Unit: Nm	Stroke ^① (degree)	Repeatability (arcsec)	Page
	1.0	1.5	2.0	2.5	3.0	3.5			
 XRG70	0.602		1.697				12.0	up to 4.0	090
 XRG110	1.070		3.210				12.0		091

Note:

① Longer stroke available upon request.

★ Products can be customized to meet specific working environments, please contact cust-service@akribis-sys.com.

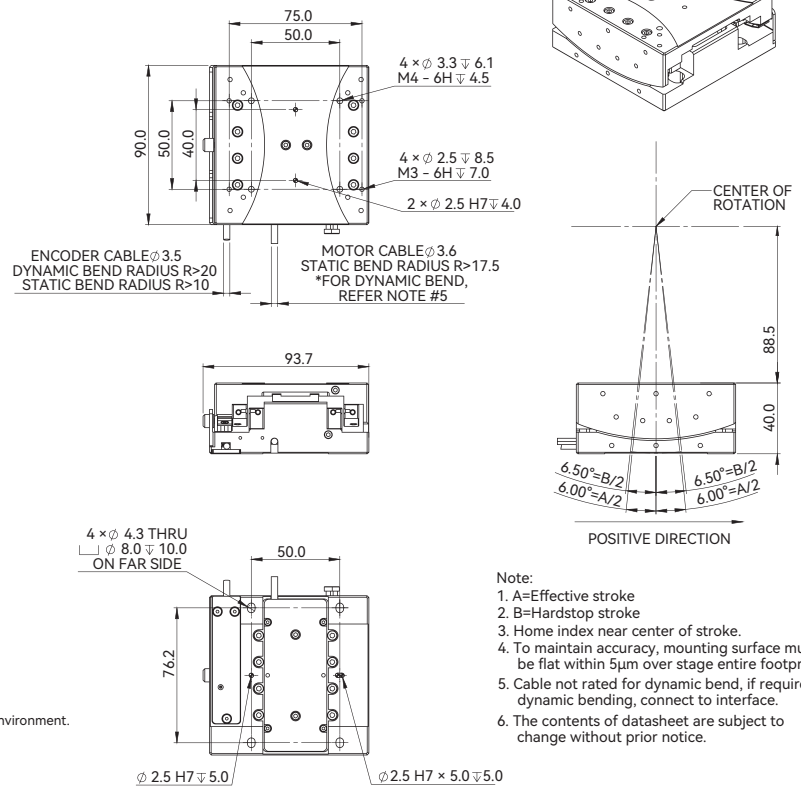
XRG110

Motor Specifications	Unit	Value
Motor	-	CLC0013
Continuous Torque @100°C ^①	Nm	1.070
Peak Torque	Nm	3.210
Torque Constant ±10%	Nm/Arms	1.070
Back EMF Constant ±10%	Vpeak/rpm	0.090
Motor Constant @25°C	Nm/Sqrt(W)	0.440
Resistance (L-L) @25°C ±10% ^②	Ω	3.900
Inductance (L-L) ±20% ^③	mH	5.000
Continuous Current @100°C ^①	Arms	1.00
Peak Current	Arms	3.00
Max. Bus Voltage	Vdc	48
Mechanical Specifications	Unit	Value
Effective stroke	degree	12.0
Resolution	-	SINCOS
Repeatability	arcsec	4.0
Max. Velocity	degree/s	150.0
Radius of Rotation	mm	110.0
Height from Mounting Surface to Center of Rotation	mm	88.5
Rated Payload ^④	kg	1.70
No-load Moving Mass	kg	0.41
No-load Total Mass	kg	1.10
Max. Static Moment	Nm	8.99

- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 ② Resistance is measured by DC current with standard 0.5m cable.
 ③ Inductance is measured by current frequency of 1kHz.
 ④ Load capacity of module without cantilever.

The contents of datasheet are subject to change without prior notice.

Dimensional Drawing



- Note:
1. A=Effective stroke
 2. B=Hardstop stroke
 3. Home index near center of stroke.
 4. To maintain accuracy, mounting surface must be flat within 5 μ m over stage entire footprint.
 5. Cable not rated for dynamic bend, if require dynamic bending, connect to interface.
 6. The contents of datasheet are subject to change without prior notice.

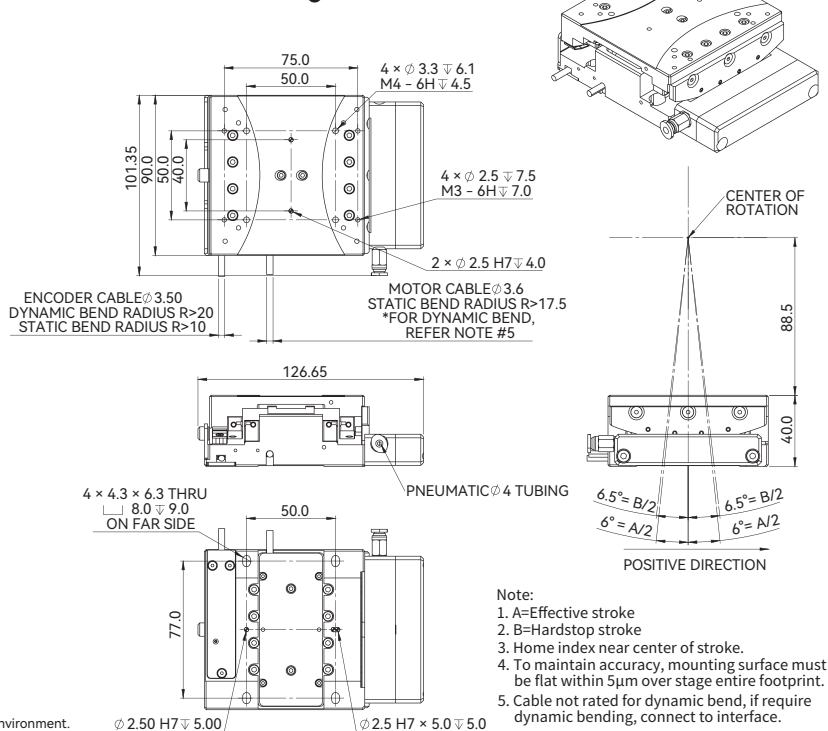
XRG110 (With Brake Function)

Motor Specifications	Unit	Value
Motor	-	CLC0013
Continuous Torque @100°C ^①	Nm	1.070
Peak Torque	Nm	3.210
Torque Constant ±10%	Nm/Arms	1.070
Back EMF Constant ±10%	Vpeak/rpm	0.090
Motor Constant @25°C	Nm/Sqrt(W)	0.440
Resistance (L-L) @25°C ±10% ^②	Ω	3.900
Inductance (L-L) ±20% ^③	mH	5.000
Continuous Current @100°C ^①	Arms	1.00
Peak Current	Arms	3.00
Max. Bus Voltage	Vdc	48
Mechanical Specifications	Unit	Value
Effective stroke	degree	12.0
Resolution	-	SINCOS
Repeatability	arcsec	4.0
Max. Velocity	degree/s	150.0
Radius of Rotation	mm	110.0
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Dimensional Drawing



- Note:
1. A=Effective stroke
 2. B=Hardstop stroke
 3. Home index near center of stroke.
 4. To maintain accuracy, mounting surface must be flat within 5 μ m over stage entire footprint.
 5. Cable not rated for dynamic bend, if require dynamic bending, connect to interface.
 6. The contents of datasheet are subject to change without prior notice.
 7. Apply 0.3MPa to release brake (no payload condition).

Ordering Part Number (OPN)

XRG70-B-T12-R1A1-A1

Model:

XRG70
XRG110

Brake Function:

Unmarked: Blank
B: With Brake Function

Cover Type:

T: Standard (Black Anodized)

Effective Stroke:

T12: 12deg

Termination:

1: Motor: Flying Leads/Encoder: DSUB 15
2: Motor: TYCO4/Encoder: DSUB 15

Cable Length:

A: 0.5m
D: 1.0m
B: 3.0m

Scale Type:

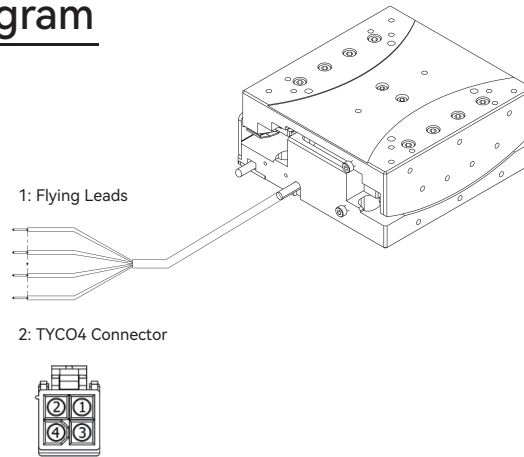
1: Steel tape, 11ppm/K

Encoder Type:

R1A: ATOM4, SINCOS (1Vpp)

XRG Motor Cable Connection Diagram

PIN	DESCRIPTION	COLOR
1	M1	Black
2	M2	Red
3	M3	Blue
4	PE	Green



XRG Encoder Cable Connection Diagram

ENCODER CONNECTOR	PIN	SIGNAL	FUNCTION	
<p>Ri Connector</p>	4, 5	5V	POWER	
	12, 13	0V		
	9	V1	+	INCREMENTAL SIGNALS
	1		-	
	10	V2	+	
	2		-	
	3	V0	+	REFERENCE MARK
	11		-	
	-	-	-	ALARM
	6	VX	SET-UP	
	14	CAL	REMOTE CAL	
	Case	-	SHIELD	
	7, 8, 15	-	DO NOT CONNECT	