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NB Linear Actuator BG type

A compact single axis linear actuator which integrates a slide guide and precision ball screw

1.Reduced installation time

Adjustment-free design that integrates linear slide guide rail and precision ball screws.

2.High rigidity in a compact package

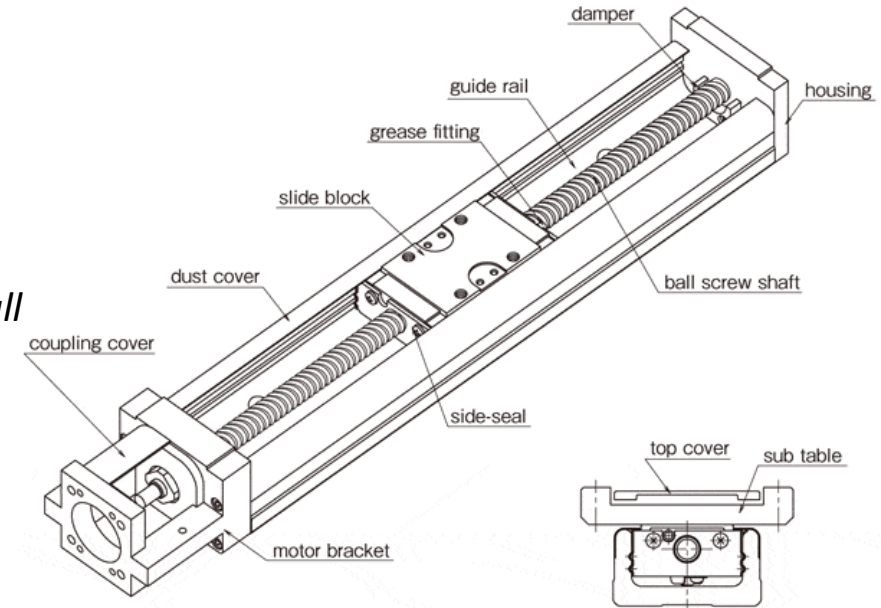
They feature a unique U-shaped linear slide guide rail and a four-point contact configuration.

3.High positioning accuracy

Precision-machined components such as a linear slide guide rail, linear guide block, and ball screw provide accuracy.

4.A space-saving design

BG single-axis linear stage actuators can be used in compact applications where other positioning tables won't fit.



Talk with one of our experts at Central Bearings Supplies



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Product Description

BG linear actuator consists of a linear slide block, guide rail, and ball screws. They are housed in a U-shaped steel component and mounted to a sub table/motor bracket assembly. To accommodate a wide range of installations and applications, these high-speed linear actuators are available in various sizes and block type configurations.

Sizes and Options

BG linear motion actuators are available in six different sizes and multiple rail lengths. As well, four block configurations are available: single long, double long, single short and double short. All products are available in one of two accuracy grades:

- 1.High grade
- 2.Precision grade

While BG high-rigidity linear actuators are sufficient for most applications, precision-grade products deliver overall improvements in positioning repeatability, positioning accuracy, running parallelism and backlash, which are necessary for use in high-performance environments.

Other options available for BG high-speed linear actuators include:

- Top cover or bellows for additional protection against dust
- Mounting brackets for use with various electric motor types
- Limit sensors, including slim-type/compact photo micro, close-contact-capable or proximity sensors
- Positioning pin holes on the side block or sub table

You'll find a complete list of product options and configurations by downloading the available BG linear actuator catalogue. One of our in-house engineers would be happy to help you assess your needs and determine the best possible iteration of this award-winning product.

NB Linear Actuator BG type is a compact single axis linear actuator which integrates a slide guide and precision ball screw. The NB Linear Actuator BG type offers compact dimensions and outperforms conventional Positioning Tables. This is made possible by a unique "U" shaped guide rail and slide block which provides multiple functions of a guide block and a ball screw nut combined into a single unit. The "U" shaped guide rail offers high rigidity against bending moment. This structural feature allows for the integrated framework of machinery or equipment and can be cantilevered. Additionally, the slide block contains 4 ball circuits which deliver high load capacity, high accuracy, and high rigidity.

Adjustment-Free

The integration of the slide guide and precision ball screw eliminates complex precision adjustment and reduces installation time dramatically.

High Rigidity

"U" shaped guide rail provides very high rigidity despite its compact configuration and can be used for a cantilevered application.

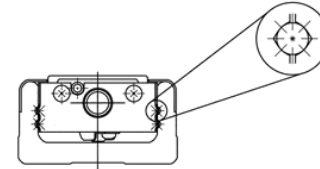
High Accuracy

The NB Linear Actuator BG type contains four ball circuits and four-point contact ball grooves which contribute to its high rigidity. The combination of a precision ground guide rail, slide block, and precision ball screw provides high positioning accuracy.

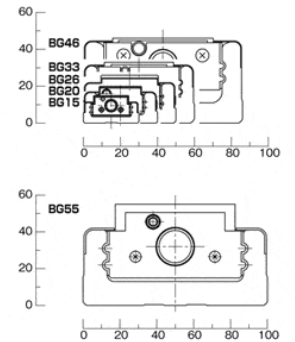
Space Saving

In comparison to conventional positioning tables, the NB Linear Actuator BG type allows for compact designs and dramatic space saving. The "U" shaped guide rail and integrated slide block and precision ball screw make this possible.

Ball Contact Profile



Cross Section



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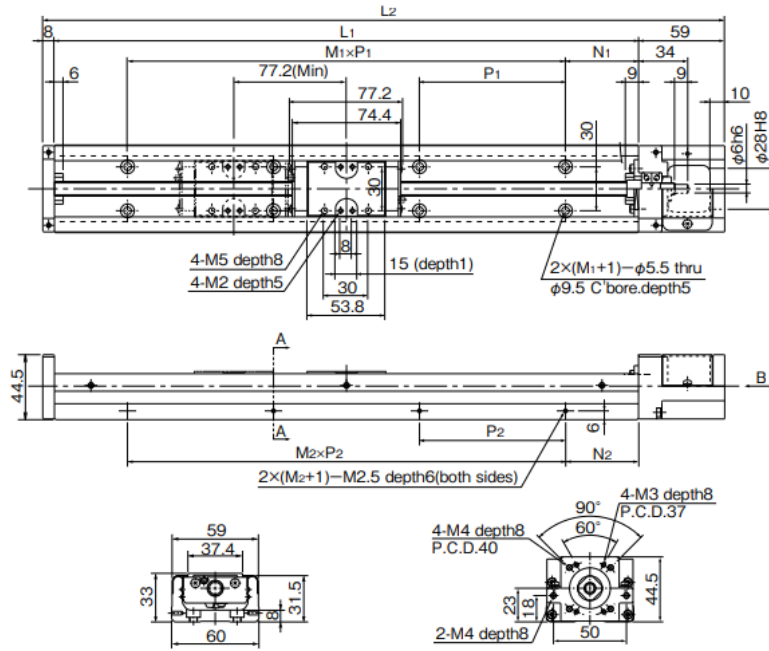
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BG33 – Without Top Cover –

- A (1 long block)
- B (2 long blocks in close contact)



section A-A

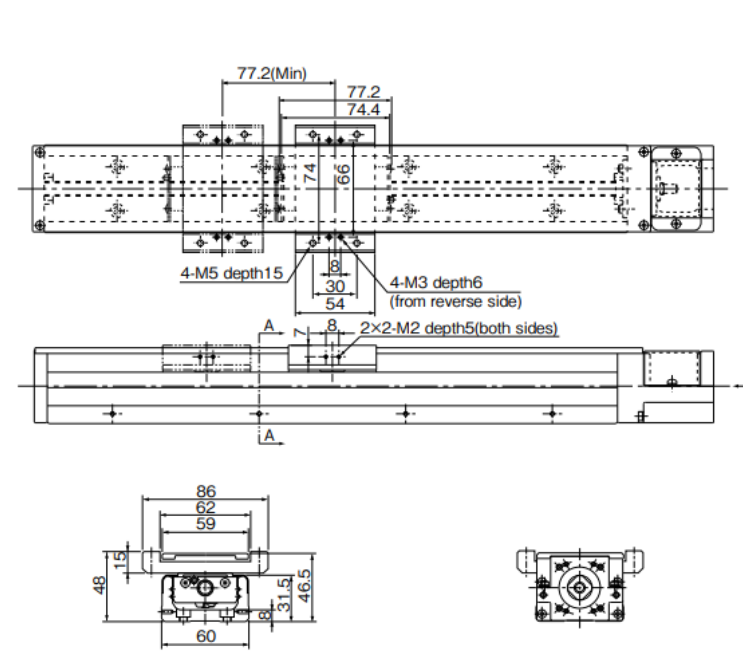
View B (motor bracket A0)
refer to page H-38,H-39 for other motor bracket

part number ^{#3#4}	stroke limit mm ^{#1}	dimensions mm		dimensions mm			block mass kg ^{#2}		total mass kg		
		L1	L2	N1	M1xP1	N2	M2xP2	without top cover	with top cover	without top cover	with top cover
BG33 □ A-150	60	150	217	25	1x100	25	1x100	0.3	0.4	1.6	1.8
BG33 □ B	-	-	-	-	-	-	-	-	-	-	-
BG33 □ A-200	110	200	267	50	1x100	50	1x100	0.3	0.4	2	2.1
BG33 □ B	-	-	-	-	-	-	-	-	-	-	-
BG33 □ A-300	210	300	367	50	2x100	50	2x100	0.3	0.4	2.6	2.8
BG33 □ B	133	-	-					0.6	0.8	2.9	3.2
BG33 □ A-400	310	400	467	50	3x100	50	3x100	0.3	0.4	3.2	3.5
BG33 □ B	233	-	-					0.6	0.8	3.6	3.9
BG33 □ A-500	410	500	567	50	4x100	50	4x100	0.3	0.4	3.9	4.2
BG33 □ B	333	-	-					0.6	0.8	4.2	4.6
BG33 □ A-600	510	600	667	50	5x100	50	5x100	0.3	0.4	4.6	4.9
BG33 □ B	433	-	-					0.6	0.8	4.9	5.3

#1: Stroke limit is a drive distance between both ends of the dampers.
#2: Mass stated "with top cover" includes mass of sub tables.
#3: For B type (2 long blocks), drive block is located closest to motor bracket side.
#4: □ is ball screw lead.

BG33 – With Top Cover –

- A (1 long block)
- B (2 long blocks in close contact)



section A-A

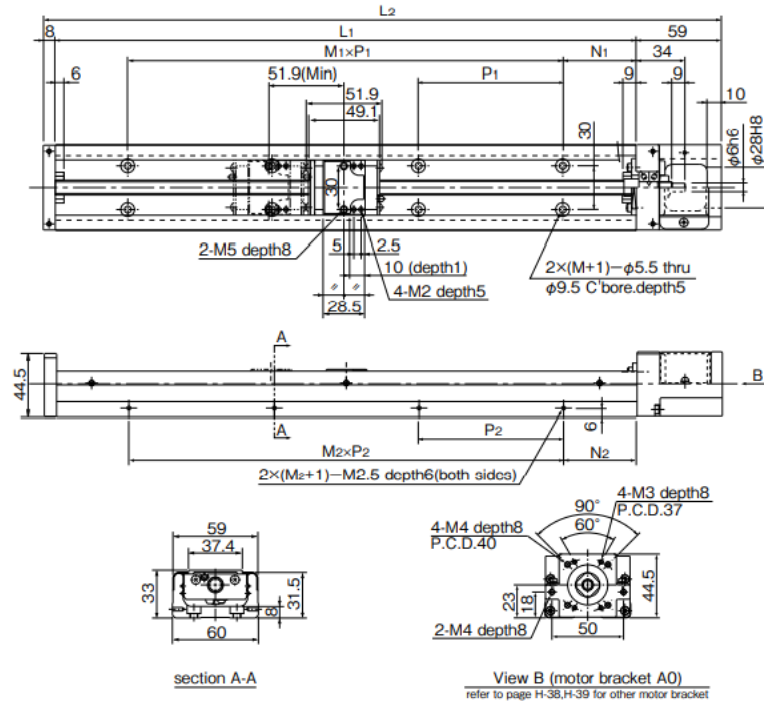
View B (motor bracket A0)
refer to Page H-38,H-39 for other motor bracket

part number	rail length mm	inertia (reference values) unit: kg · m ²			
		without top cover		with top cover	
		A 1 block	B 2 block	A 1 block	B 2 block
BG3305	150	1.64 × 10 ⁻⁶	-	1.71 × 10 ⁻⁶	-
	200	2.02 × 10 ⁻⁶	-	2.09 × 10 ⁻⁶	-
	300	2.79 × 10 ⁻⁶	2.99 × 10 ⁻⁶	2.86 × 10 ⁻⁶	3.13 × 10 ⁻⁶
	400	3.55 × 10 ⁻⁶	3.75 × 10 ⁻⁶	3.62 × 10 ⁻⁶	3.89 × 10 ⁻⁶
	500	4.32 × 10 ⁻⁶	4.52 × 10 ⁻⁶	4.39 × 10 ⁻⁶	4.66 × 10 ⁻⁶
BG3310	150	2.19 × 10 ⁻⁶	-	2.47 × 10 ⁻⁶	-
	200	2.57 × 10 ⁻⁶	-	2.85 × 10 ⁻⁶	-
	300	3.34 × 10 ⁻⁶	4.14 × 10 ⁻⁶	3.61 × 10 ⁻⁶	4.69 × 10 ⁻⁶
	400	4.10 × 10 ⁻⁶	4.90 × 10 ⁻⁶	4.38 × 10 ⁻⁶	5.46 × 10 ⁻⁶
	500	4.87 × 10 ⁻⁶	5.67 × 10 ⁻⁶	5.15 × 10 ⁻⁶	6.22 × 10 ⁻⁶
BG3320	150	5.94 × 10 ⁻⁶	-	7.06 × 10 ⁻⁶	-
	200	6.74 × 10 ⁻⁶	-	7.85 × 10 ⁻⁶	-
	300	8.33 × 10 ⁻⁶	1.15 × 10 ⁻⁵	9.44 × 10 ⁻⁶	1.38 × 10 ⁻⁵
	400	9.91 × 10 ⁻⁶	1.31 × 10 ⁻⁵	1.10 × 10 ⁻⁵	1.53 × 10 ⁻⁵
	500	1.15 × 10 ⁻⁵	1.47 × 10 ⁻⁵	1.26 × 10 ⁻⁵	1.69 × 10 ⁻⁵
600	1.31 × 10 ⁻⁵	1.63 × 10 ⁻⁵	1.42 × 10 ⁻⁵	1.85 × 10 ⁻⁵	



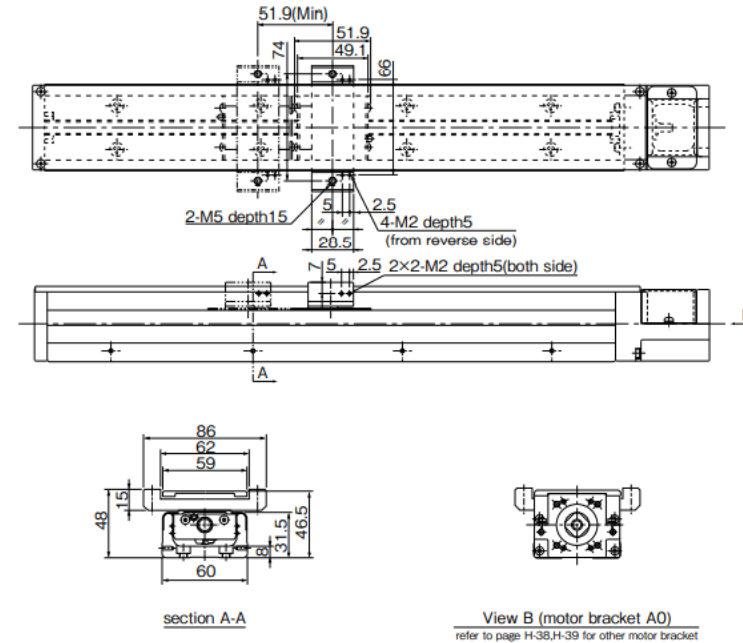
BG33 – Without Top Cover–

C (1 short block)
D (2 short blocks in close contact)



BG33 – With Top Cover–

C (1 short block)
D (2 short blocks in close contact)



part number ⁹³⁸⁴	stroke limit mm ⁹¹	dimensions mm				block mass kg ⁹²		total mass kg	
		L1	L2	N1	M1xP1	N2	M2xP2	without top cover	with top cover
BG33 □ C-150	85	150	217	25	1x100	25	1x100	0.15	0.2
D	34							1.5	1.6
BG33 □ C-200	135	200	267	25	1x100	25	1x100	0.3	0.4
D	84							1.7	1.9
BG33 □ C-300	235	300	367	50	2x100	50	2x100	0.15	0.2
D	184							2.5	2.6
BG33 □ C-400	335	400	467	50	3x100	50	3x100	0.3	0.4
D	284							2.7	2.9
BG33 □ C-500	435	500	567	50	4x100	50	4x100	0.15	0.2
D	384							3.1	3.3
BG33 □ C-600	535	600	667	50	5x100	50	5x100	0.3	0.4
D	484							3.8	4.2
								0.15	0.2
								0.3	0.4
								4.4	4.7
								4.6	4.9

91: Stroke limit is a drive distance between both ends of the dampers.

92: Mass stated "with top cover" includes mass of sub tables.

93: For D type (2 short blocks), drive block is located closest to motor bracket side.

94: □ is ball screw lead.

95: Ball screw lead of 20mm is not available for BG33 short block type.

inertia (reference values) unit : kg · m²

part number	rail length mm	short block			
		without top cover		with top cover	
		C 1 block	D 2 block	C 1 block	D 2 block
BG3305	150	1.56 × 10 ⁻⁶	1.64 × 10 ⁻⁶	1.60 × 10 ⁻⁶	1.71 × 10 ⁻⁶
	200	1.94 × 10 ⁻⁶	2.03 × 10 ⁻⁶	1.98 × 10 ⁻⁶	2.10 × 10 ⁻⁶
	300	2.71 × 10 ⁻⁶	2.79 × 10 ⁻⁶	2.75 × 10 ⁻⁶	2.86 × 10 ⁻⁶
	400	3.48 × 10 ⁻⁶	3.56 × 10 ⁻⁶	3.51 × 10 ⁻⁶	3.63 × 10 ⁻⁶
	500	4.24 × 10 ⁻⁶	4.32 × 10 ⁻⁶	4.28 × 10 ⁻⁶	4.39 × 10 ⁻⁶
BG3310	150	1.88 × 10 ⁻⁶	2.21 × 10 ⁻⁶	2.02 × 10 ⁻⁶	2.49 × 10 ⁻⁶
	200	2.27 × 10 ⁻⁶	2.59 × 10 ⁻⁶	2.40 × 10 ⁻⁶	2.87 × 10 ⁻⁶
	300	3.03 × 10 ⁻⁶	3.36 × 10 ⁻⁶	3.17 × 10 ⁻⁶	3.64 × 10 ⁻⁶
	400	3.80 × 10 ⁻⁶	4.12 × 10 ⁻⁶	3.94 × 10 ⁻⁶	4.40 × 10 ⁻⁶
	500	4.56 × 10 ⁻⁶	4.89 × 10 ⁻⁶	4.70 × 10 ⁻⁶	5.17 × 10 ⁻⁶
600	5.33 × 10 ⁻⁶	5.65 × 10 ⁻⁶	5.47 × 10 ⁻⁶	5.93 × 10 ⁻⁶	