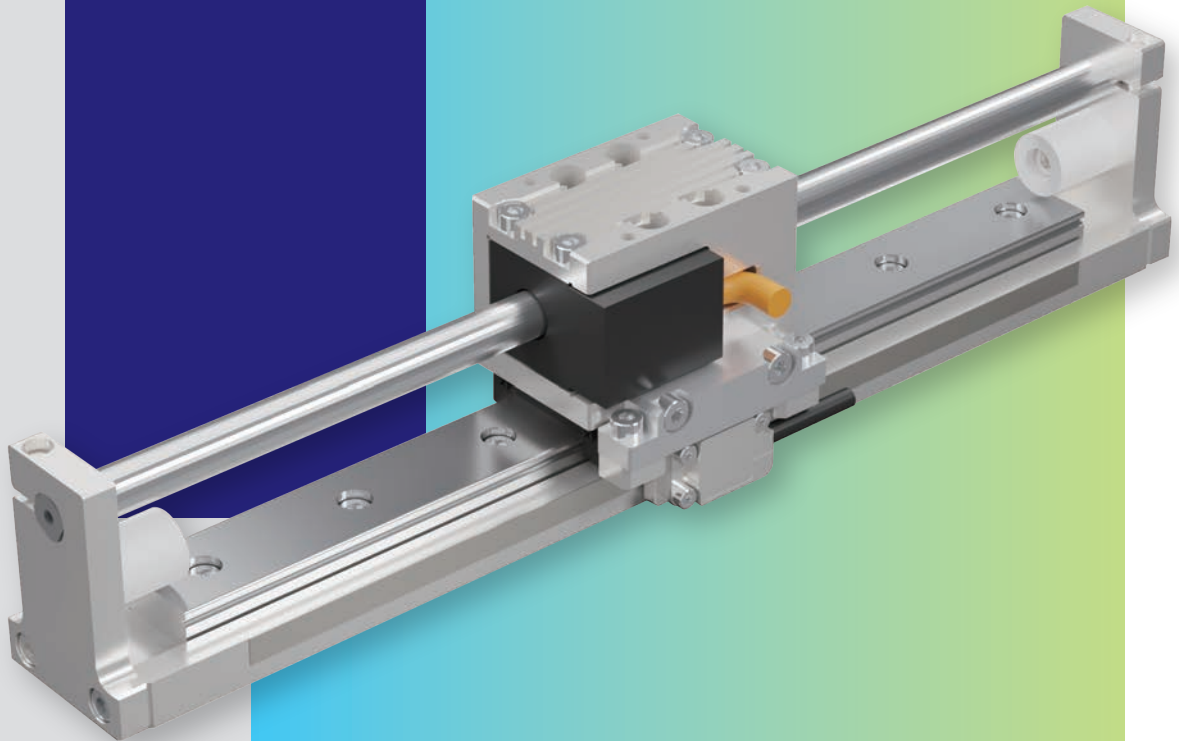


# ROD MOTOR MODULE SGR SERIES



**where precision matters**



Akribis is a Latinized Greek word that means “Precision”. On the Akribis logo, the letter “a” is formed by a line and a circle, representing linear and rotary motions. These are supported by a tetrahedron structure, the same structure as the diamond crystal which has many exceptional physical properties.

The logo signifies that Akribis Systems’ sound engineering expertise is the basis of the company’ s foundation, and this enables us to provide customers with precise, direct drive motion control solutions.

Akribis Systems Pte Ltd was founded in 2004. We design and manufacture direct drive motors, stages and precision systems that are used in equipment for manufacturing, inspection and testing. Akribis Systems supports a wide range of industries including semiconductor, solar, flat panel, hard disk, LED, printed circuit board, printing, photonics and biomedical manufacturing.

From the beginning, the company has been focusing on innovation and development of new technologies and solutions in motion control, with more than 120 patents applied. Backed by a very strong and committed engineering team, the company continues to develop custom motors and systems for the most demanding applications.

We have manufacturing facilities in Singapore and in Shanghai, Nantong and Dongguan, China and in Selangor, Malaysia and in Siheung, Korea. Our sales network includes our sales offices in USA, Germany, South Korea, Japan, Thailand, Israel and Malaysia, and is reinforced by our comprehensive distribution channels in Asia, Europe and North America.



# CONTENTS

▶ SGR30 Series .....	05
▶ SGR40 Series .....	09
▶ SGR60 Series .....	13
▶ SGR70 Series .....	18

# SGR Series

## Introduction

The Akribis SGR series uses a rod motor direct drive positioning system. The compact module consists of linear guide rail, rod motor, encoder feedback and aluminum housing.

Four sizes are available: SGR30, SGR40, SGR60 and SGR70.

The RDM series rod motor used in SGR is a compact coreless linear motor.

The SGR series is more suitable for rapid point-to-point positioning, achieving micron level repeated positioning accuracy.

Continuous Force  $F_{cn} = 3.1N \sim 114.8N$

Peak Force  $F_{pk} = 9.3N \sim 344.5N$









## Features

- ▶ Single guide direct drive module
- ▶ Built-in coreless rod motors
- ▶ Stroke from 70mm to 720mm, customizable
- ▶ 0.2 $\mu$ m resolution grating encoder
- ▶ Simple structure, economical configuration

## Applications

Suitable for point to point micron level fast positioning, accept customization.

For example: electronic semiconductors, photovoltaic and lithium batteries, glass and LCD panels, medical equipments, industrial printing machines, laser processing, precision assembly and other equipment and production lines, where high speed and high precision positioning is required for handling situations.

Rod Motor Module Series	Rod Motor Series	Continuous Force ( $F_{cn}$ ) ■ Peak Force ( $F_{pk}$ ) Unit: N						Repeatability ( $\mu$ m)	Page
		5	15	50	150	300	450		
 SGR30	 RDM020-A-B3	3.1	9.3					±2	05
 SGR40	 RDM030-A-B3	18.6	55.8						09
 SGR60	 RDM050-A-B7	60.2	180.6						13
 SGR70	 RDM060-A-B5	114.8	344.5						18

## SGR30 Series

Motor Specifications	Unit	Value		
Motor	-	RDM020-A-B3		
Continuous Force (NC) @100°C <sup>❶</sup>	N	3.1		
Peak Force	N	9.3		
Force Constant ±10%	N/Arms	3.00		
Back EMF Constant ±10%	Vpeak/(m/s)	2.45		
Resistance (L-L) @25°C ±10% <sup>❷</sup>	Ω	4.47		
Inductance (L-L) ±40% <sup>❸</sup>	mH	0.36		
Continuous Current (NC) @100°C <sup>❶</sup>	Arms	1.03		
Peak Current	Arms	3.09		
Max. Bus Voltage	Vdc	60		
Magnetic Period	mm	30		
Mechanical Specifications	Unit	Value		
Stroke	mm	70	145	235
Resolution	μm	0.2		
Repeatability	μm	±2		
Rated Payload	kg	1.0		
No-load Moving Mass	kg	0.19		
No-load Total Mass	kg	0.44	0.59	0.76
Max. Static Moment	Nm	0.1		

- ❶ Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
  - ❷ Resistance is measured by DC current with standard 0.5m lead wire.
  - ❸ Inductance is measured by current frequency of 1 kHz.
  - ★ The accuracy of the mounting surface must be within 20μm.
  - ★ The measurement values are based on the Akribis measurement standard.
- The contents of datasheet are subject to change without prior notice.

## Ordering Part Number (OPN)

**SGR30-S07-D23A0G4-A1**

Model:

SGR30

Country of Origin:

Blank/SG<sup>❶</sup>

Cover Type:

S: Standard (Clear Anodized)

Termination:

1: Motor: Flying Leads/Encoder: DSUB 15  
2: Motor: TYCO6/Encoder: DSUB 15

Effective Stroke:

07: 70mm  
14: 145mm  
23: 235mm

Cable Length:

A: 0.5m

Scale Type:

4: Nickel, 14ppm/K

Motor Type:

D23: RDM020-A-B3 (Peak Force: 9.3N)

Encoder Type:

A0G: ABI-21, TTL (0.2μm)

Note:

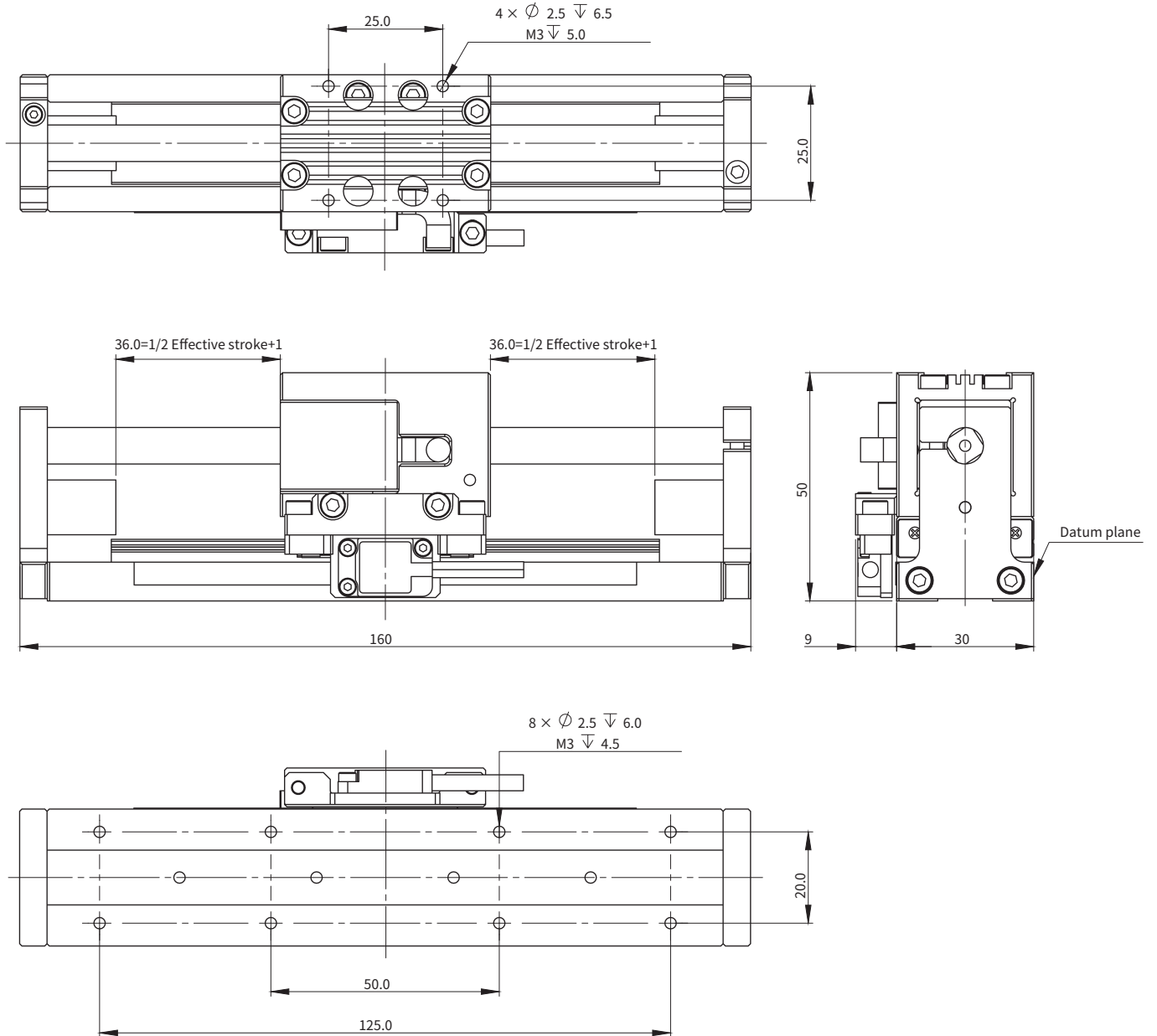
- ❶ Blank=Default
- SG=Singapore

★ For custom requirements, please contact [cust-service@akribis-sys.com](mailto:cust-service@akribis-sys.com).

# SGR Series

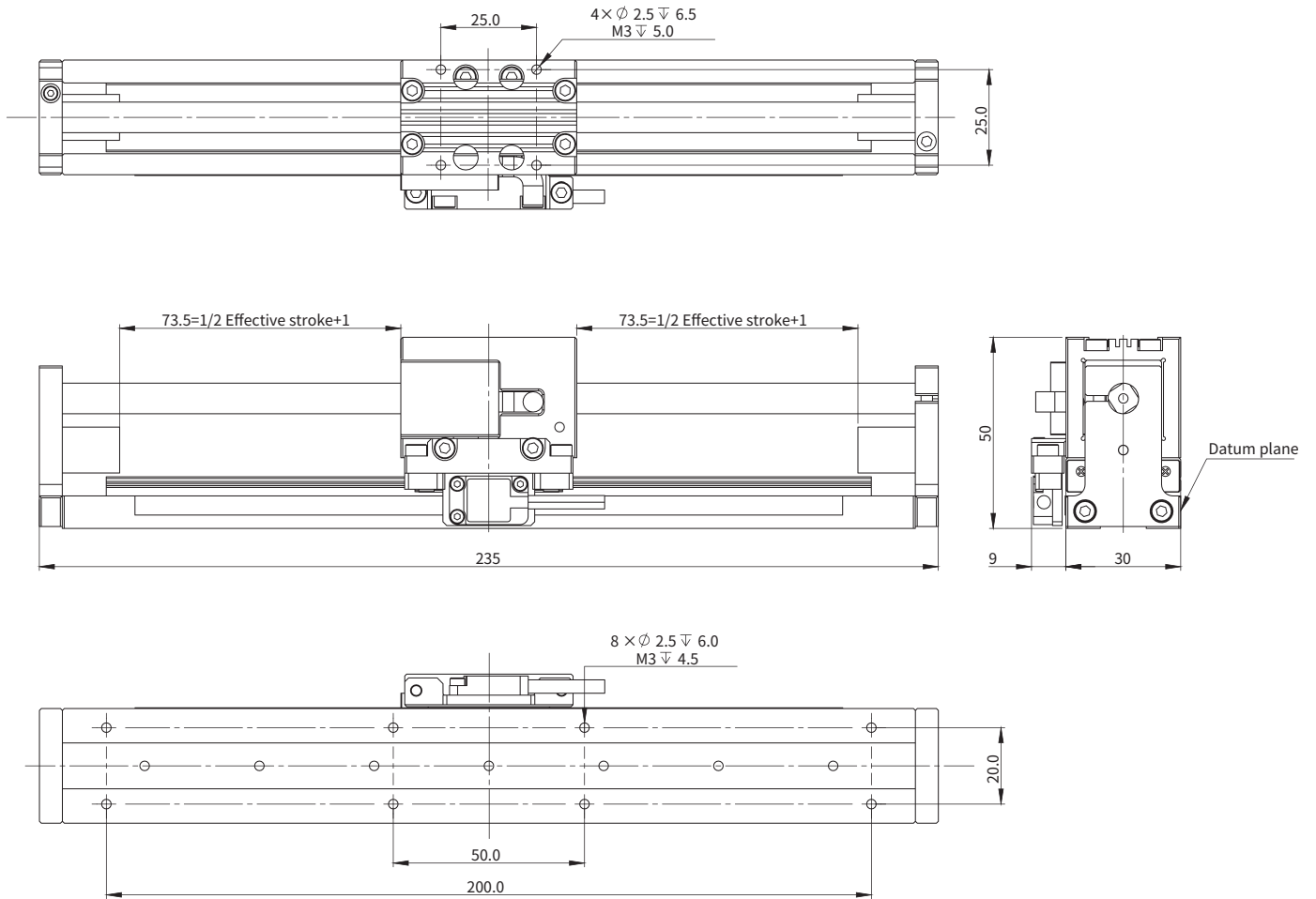
## SGR30 Series

### SGR30-70 Dimensional Drawing



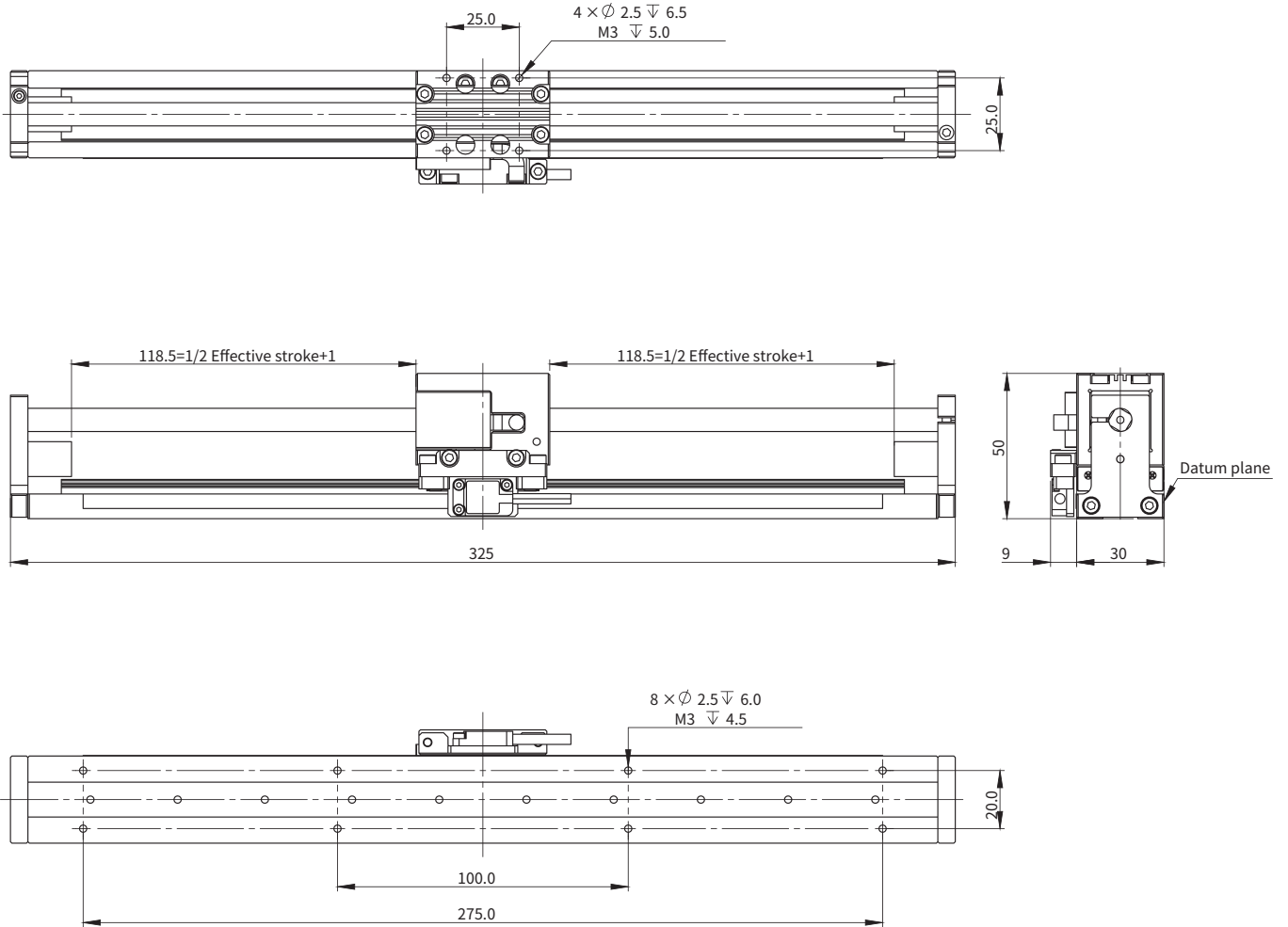
## SGR30 Series

### ■ SGR30-145 Dimensional Drawing



## SGR30 Series

### SGR30-235 Dimensional Drawing





## SGR40 Series

Motor Specifications	Unit	Value		
Motor	-	RDM030-A-B3		
Continuous Force (NC) @100°C <sup>1</sup>	N	18.6		
Peak Force	N	55.8		
Force Constant ±10%	N/Arms	11.00		
Back EMF Constant ±10%	Vpeak/(m/s)	8.94		
Resistance (L-L) @25°C ±10% <sup>2</sup>	Ω	4.19		
Inductance (L-L) ±40% <sup>3</sup>	mH	0.93		
Continuous Current (NC) @100°C <sup>1</sup>	Arms	1.70		
Peak Current	Arms	5.10		
Max. Bus Voltage	Vdc	60		
Magnetic Period	mm	60		
Mechanical Specifications	Unit	Value		
Stroke	mm	185	275	365
Resolution	μm	0.2		
Repeatability	μm	±2		
Rated Payload	kg	5.0		
No-load Moving Mass	kg	0.46		
No-load Total Mass	kg	1.60	1.94	2.29
Max. Static Moment	Nm	0.5		

- <sup>1</sup> Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
  - <sup>2</sup> Resistance is measured by DC current with standard 0.5m lead wire.
  - <sup>3</sup> Inductance is measured by current frequency of 1 kHz.
  - ★ The accuracy of the mounting surface must be within 20μm.
  - ★ The measurement values are based on the Akribis measurement standard.
- The contents of datasheet are subject to change without prior notice.

## Ordering Part Number (OPN)

**SGR40-S18-D33A0G4-A1-**

Model:

SGR40

Country of Origin:

Blank/SG<sup>1</sup>

Cover Type:

S: Standard (Clear Anodized)

Termination:

1: Motor: Flying Leads/Encoder: DSUB 15/  
Hall: Flying Leads  
2: Motor: TYCO6/Encoder: DSUB 15/Hall: TYCO6

Effective Stroke:

18: 185mm  
27: 275mm  
36: 365mm

Cable Length:

A: 0.5m

Motor Type:

D33: RDM030-A-B3 (Peak Force: 55.8N)

Scale Type:

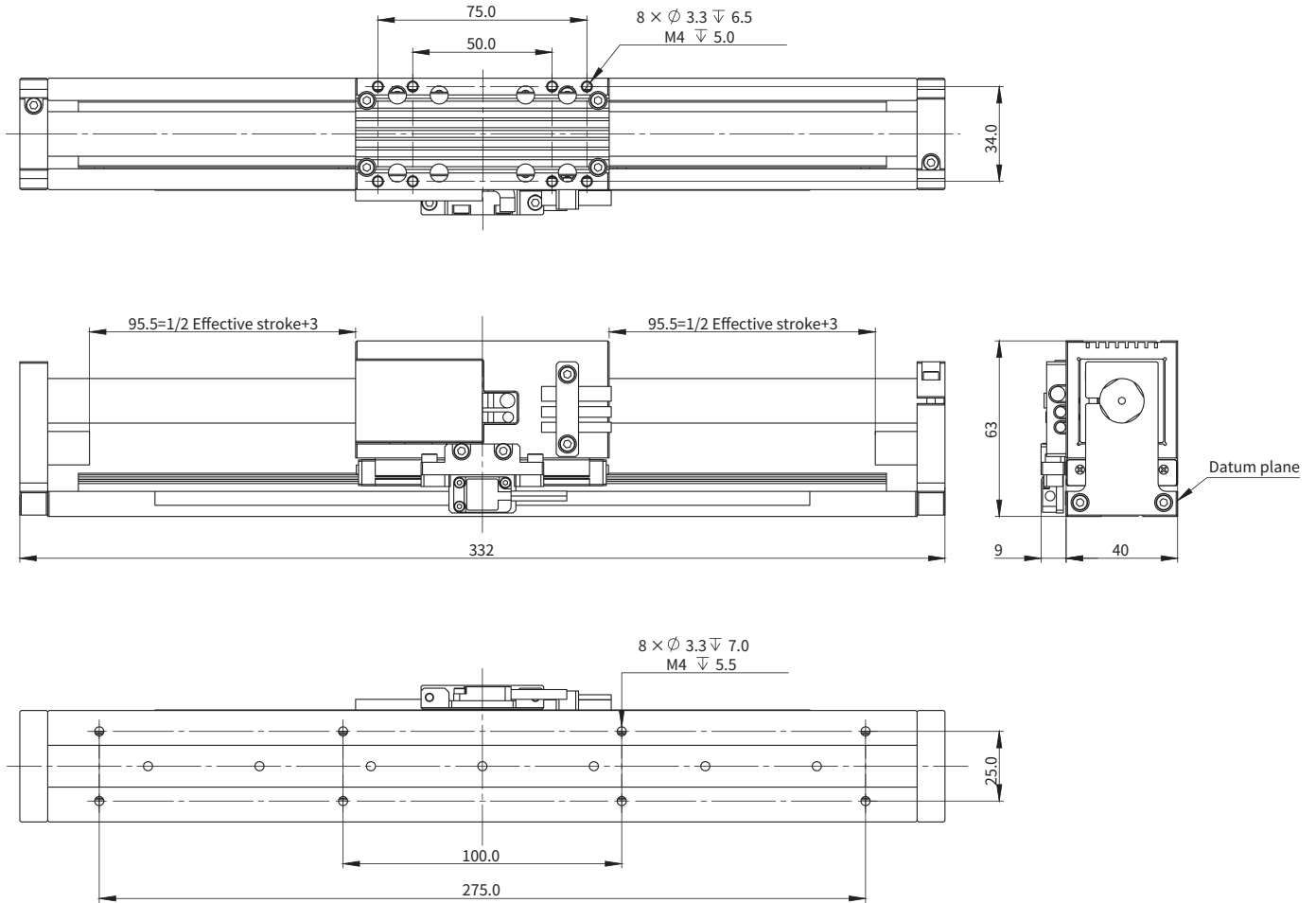
4: Nickel, 14ppm/K

Note:

- <sup>1</sup> Blank=Default
- SG=Singapore
- ★ For custom requirements, please contact [cust-service@akribis-sys.com](mailto:cust-service@akribis-sys.com).

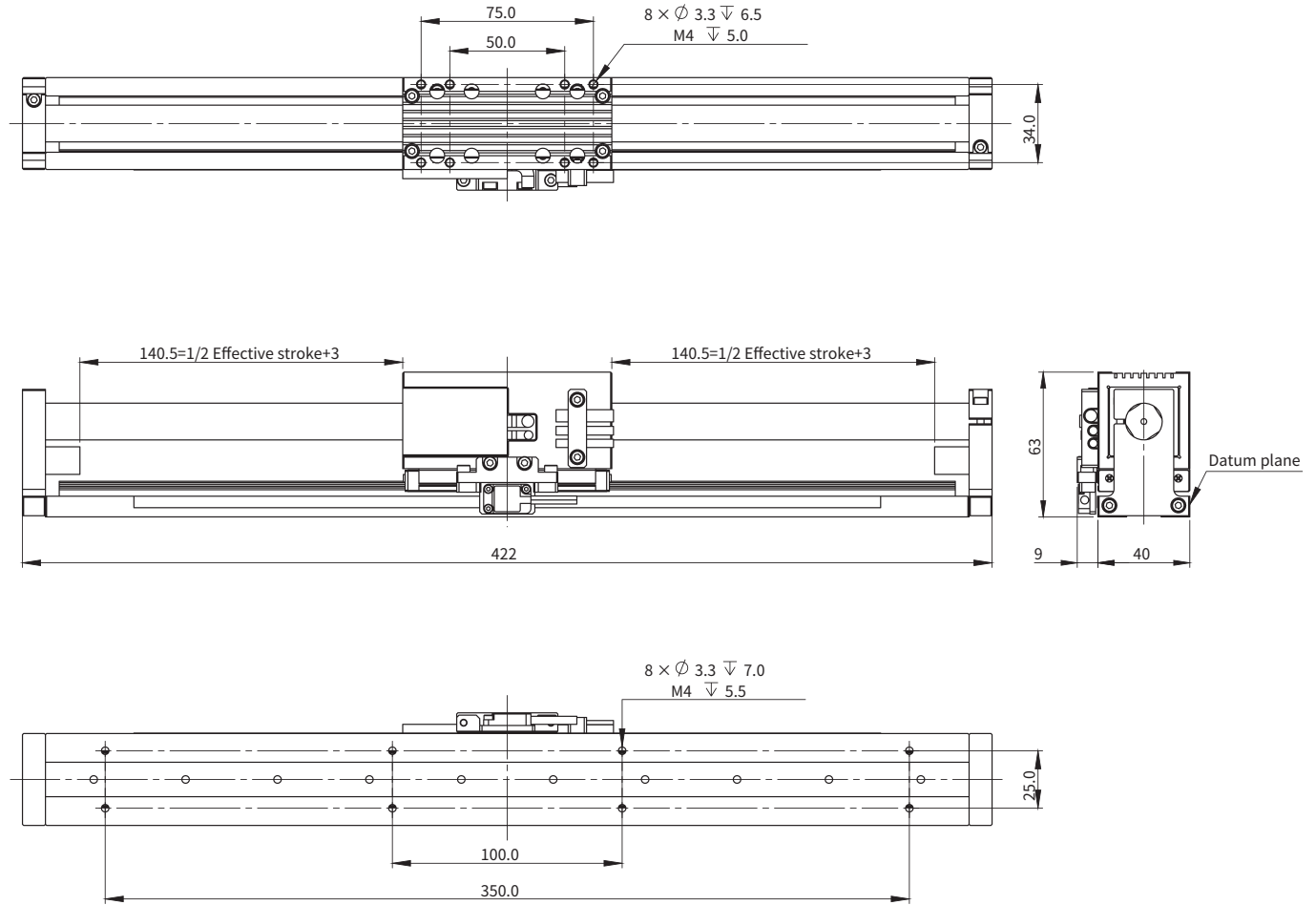
## SGR40 Series

### SGR40-185 Dimensional Drawing



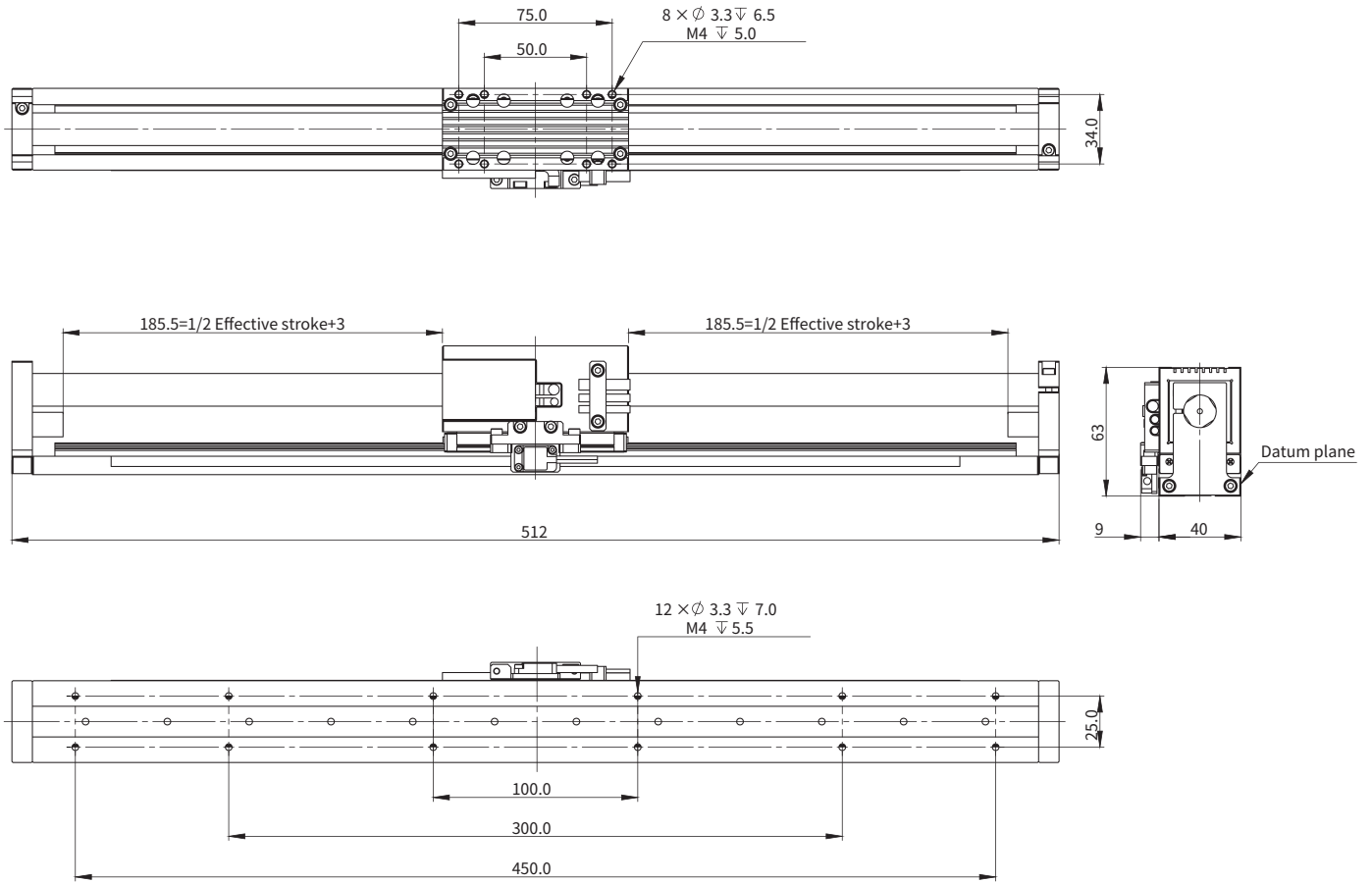
## SGR40 Series

### SGR40-275 Dimensional Drawing



## SGR40 Series

### SGR40-365 Dimensional Drawing



## SGR60 Series

Motor Specifications	Unit	Value			
Motor	-	RDM050-A-B7			
Continuous Force (NC) @100°C <sup>1</sup>	N	60.2			
Peak Force	N	180.6			
Force Constant ±10%	N/Arms	41.80			
Back EMF Constant ±10%	Vpeak/(m/s)	34.13			
Resistance (L-L) @25°C ±10% <sup>2</sup>	Ω	12.07			
Inductance (L-L) ±40% <sup>3</sup>	mH	3.13			
Continuous Current (NC) @100°C <sup>1</sup>	Arms	1.44			
Peak Current	Arms	4.32			
Max. Bus Voltage	Vdc	330			
Magnetic Period	mm	37.2			
Mechanical Specifications	Unit	Value			
Stroke	mm	135	320	500	690
Resolution	μm	0.2			
Repeatability	μm	±2			
Rated Payload	kg	15.0			
No-load Moving Mass	kg	1.6			
No-load Total Mass	kg	3.1	3.9	4.6	5.4
Max. Static Moment	Nm	3.5			

- <sup>1</sup> Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
  - <sup>2</sup> Resistance is measured by DC current with standard 0.5m lead wire.
  - <sup>3</sup> Inductance is measured by current frequency of 1 kHz.
  - ★ The accuracy of the mounting surface must be within 20μm.
  - ★ The measurement values are based on the Akribis measurement standard.
- The contents of datasheet are subject to change without prior notice.

## Ordering Part Number (OPN)

**SGR60-S13-D57A0G4-A1**

Model:

SGR60

Country of Origin:

Blank/SG<sup>1</sup>

Cover Type:

S: Standard (Clear Anodized)

Termination:

1: Motor: Flying Leads/Encoder: DSUB 15/  
Hall: Flying Leads  
2: Motor: TYCO6/Encoder: DSUB 15/Hall: TYCO6

Effective Stroke:

13: 135mm  
32: 320mm  
50: 500mm  
69: 690mm

Cable Length:

A: 0.5m

Motor Type:

D57: RDM050-A-B7 (Peak Force: 180.6N)

Scale Type:

4: Nickel, 14ppm/K

Note:

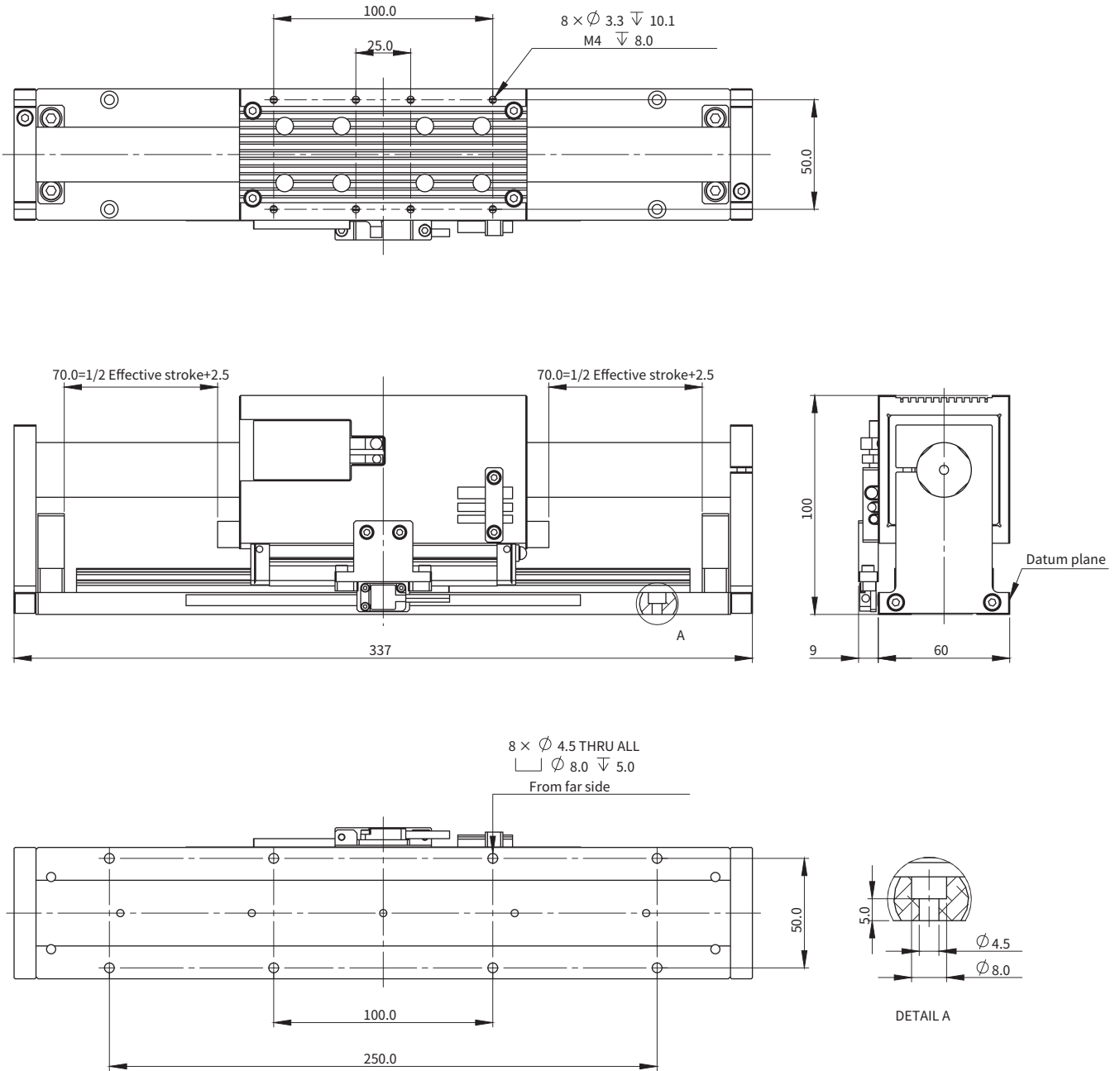
- <sup>1</sup> Blank=Default
- SG=Singapore
- ★ For custom requirements, please contact cust-service@akribis-sys.com.

Encoder Type:  
A0G: ABI-21, TTL (0.2μm)

# SGR Series

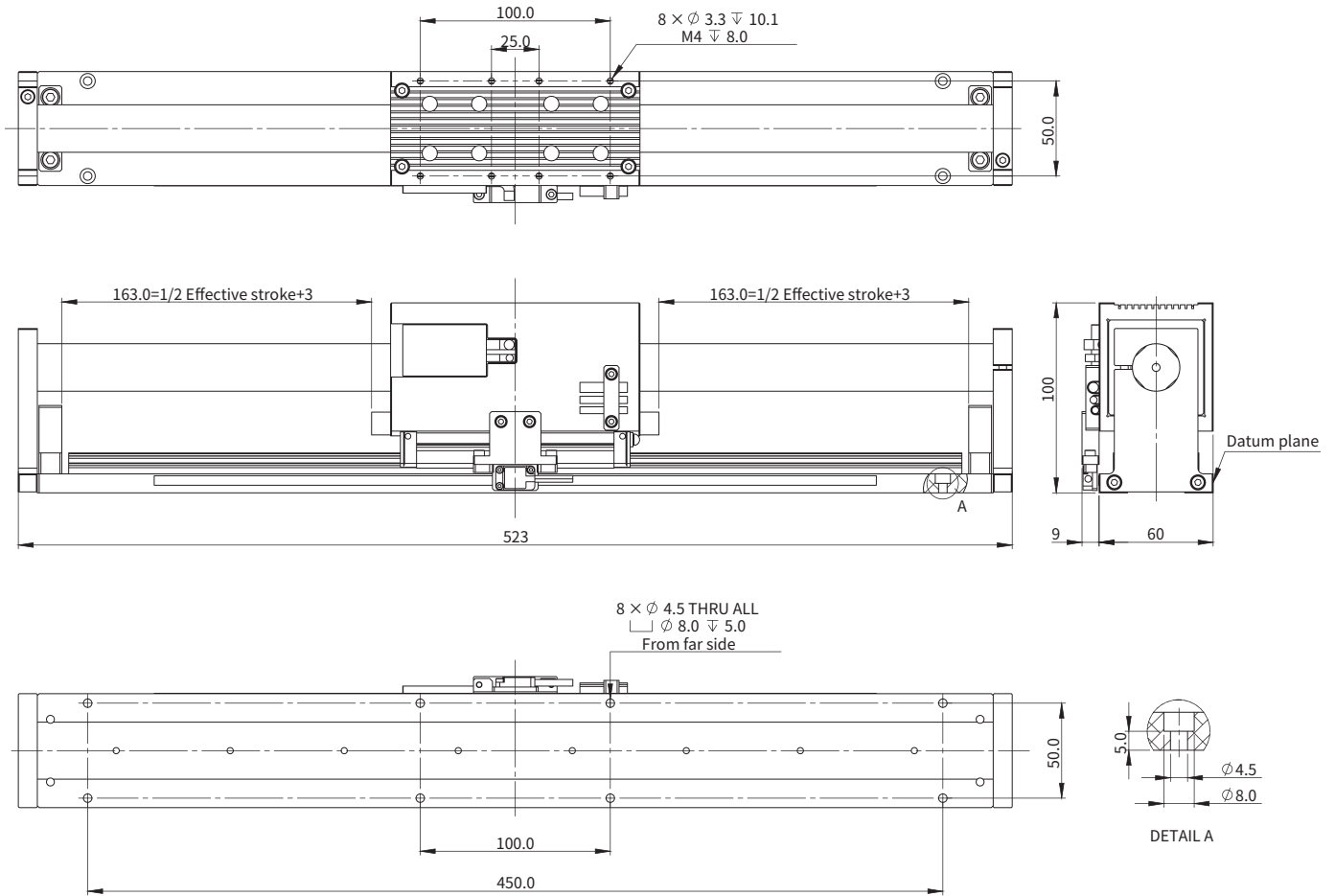
## SGR60 Series

### SGR60-135 Dimensional Drawing



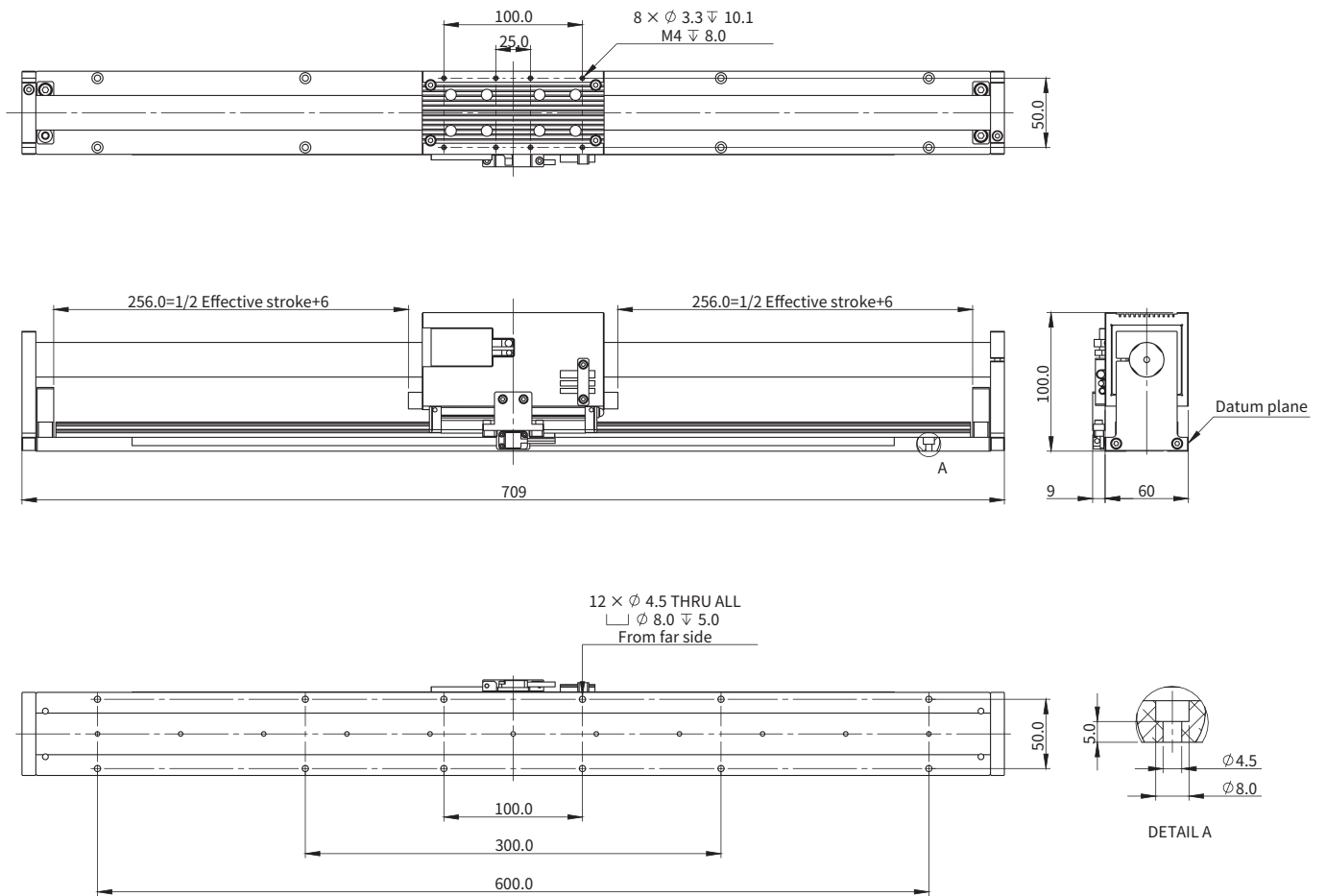
## SGR60 Series

### SGR60-320 Dimensional Drawing



## SGR60 Series

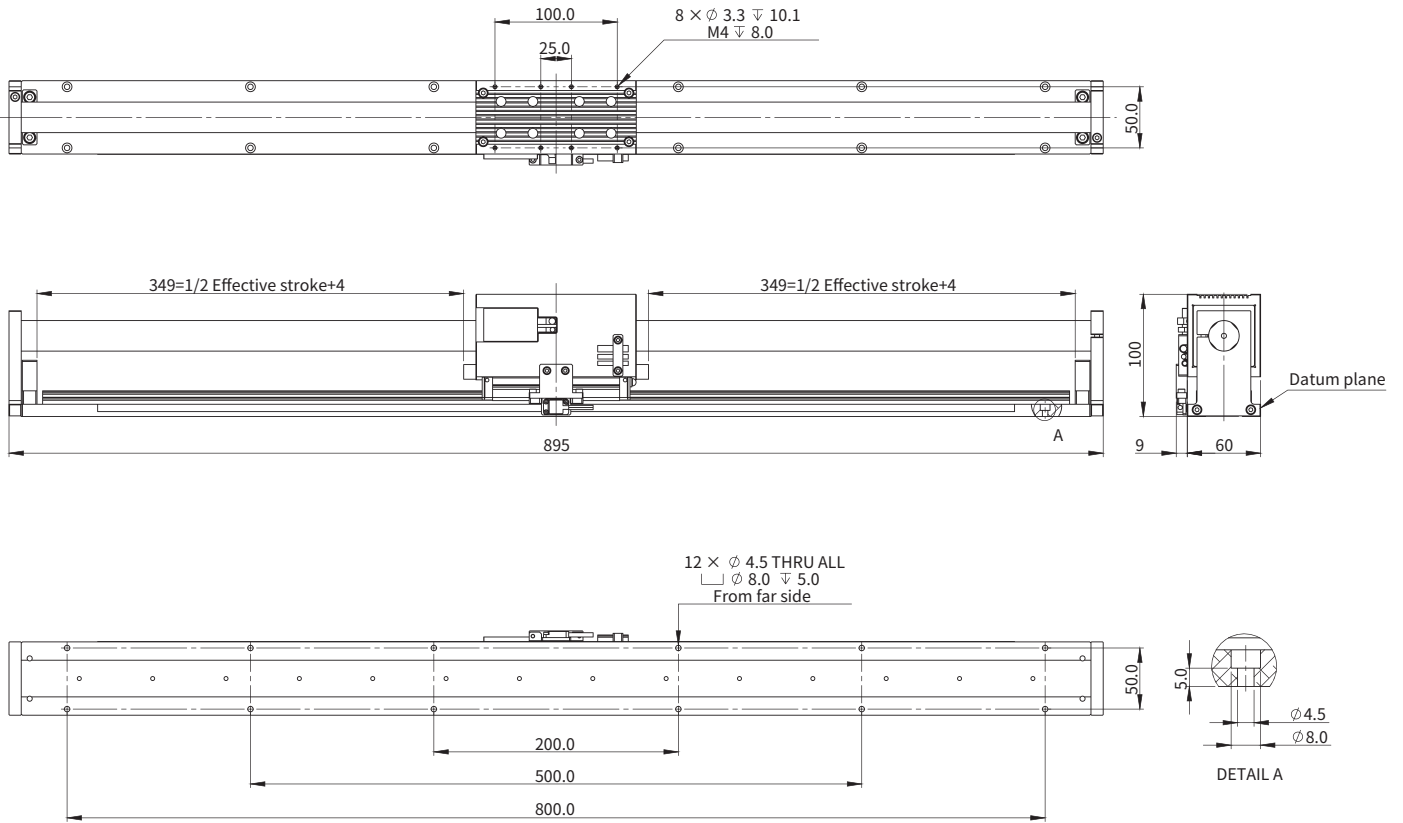
### SGR60-500 Dimensional Drawing





## SGR60 Series

### SGR60-690 Dimensional Drawing



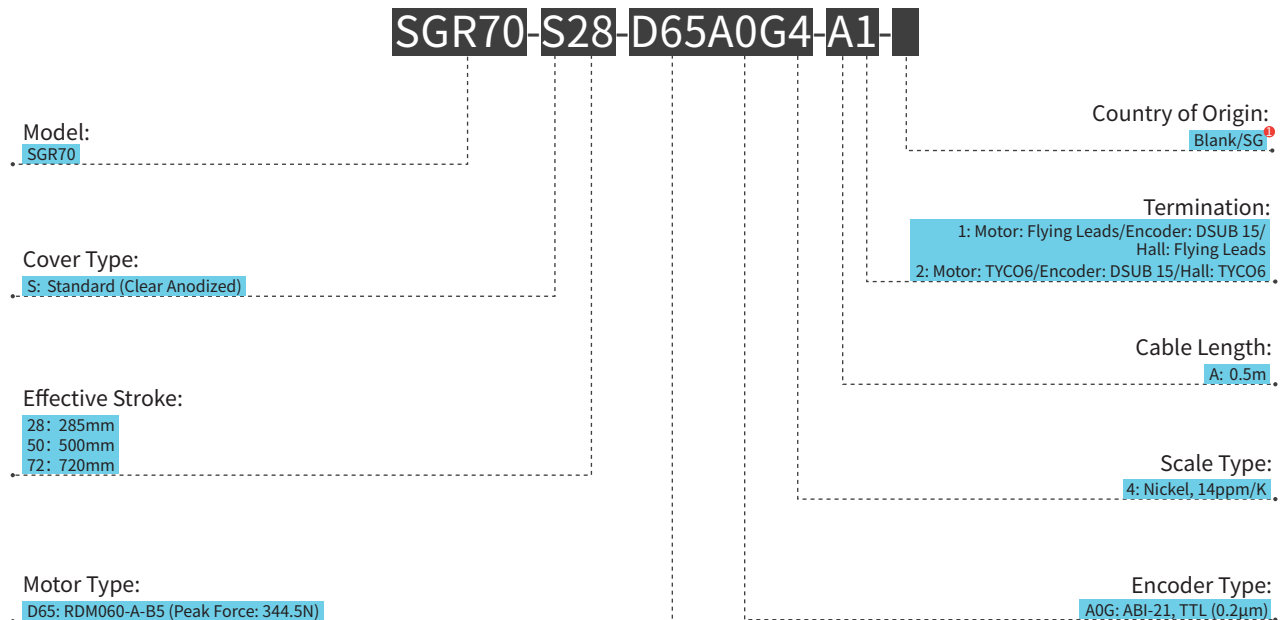
# SGR Series

## SGR70 Series

Motor Specifications	Unit	Value		
Motor	-	RDM060-A-B5		
Continuous Force (NC) @100°C <sup>1</sup>	N	114.8		
Peak Force	N	344.5		
Force Constant ±10%	N/Arms	58.00		
Back EMF Constant ±10%	Vpeak/(m/s)	47.36		
Resistance (L-L) @25°C ±10% <sup>2</sup>	Ω	8.91		
Inductance (L-L) ±40% <sup>3</sup>	mH	4.57		
Continuous Current (NC) @100°C <sup>1</sup>	Arms	1.98		
Peak Current	Arms	5.94		
Max. Bus Voltage	Vdc	330		
Magnetic Period	mm	72		
Mechanical Specifications	Unit	Value		
Stroke	mm	285	500	720
Resolution	μm	0.2		
Repeatability	μm	±2		
Rated Payload	kg	25.0		
No-load Moving Mass	kg	3.2		
No-load Total Mass	kg	6.7	8.0	9.4
Max. Static Moment	Nm	8.5		

- <sup>1</sup> Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
  - <sup>2</sup> Resistance is measured by DC current with standard 0.5m lead wire.
  - <sup>3</sup> Inductance is measured by current frequency of 1 kHz.
  - ★ The accuracy of the mounting surface must be within 20μm.
  - ★ The measurement values are based on the Akribis measurement standard.
- The contents of datasheet are subject to change without prior notice.

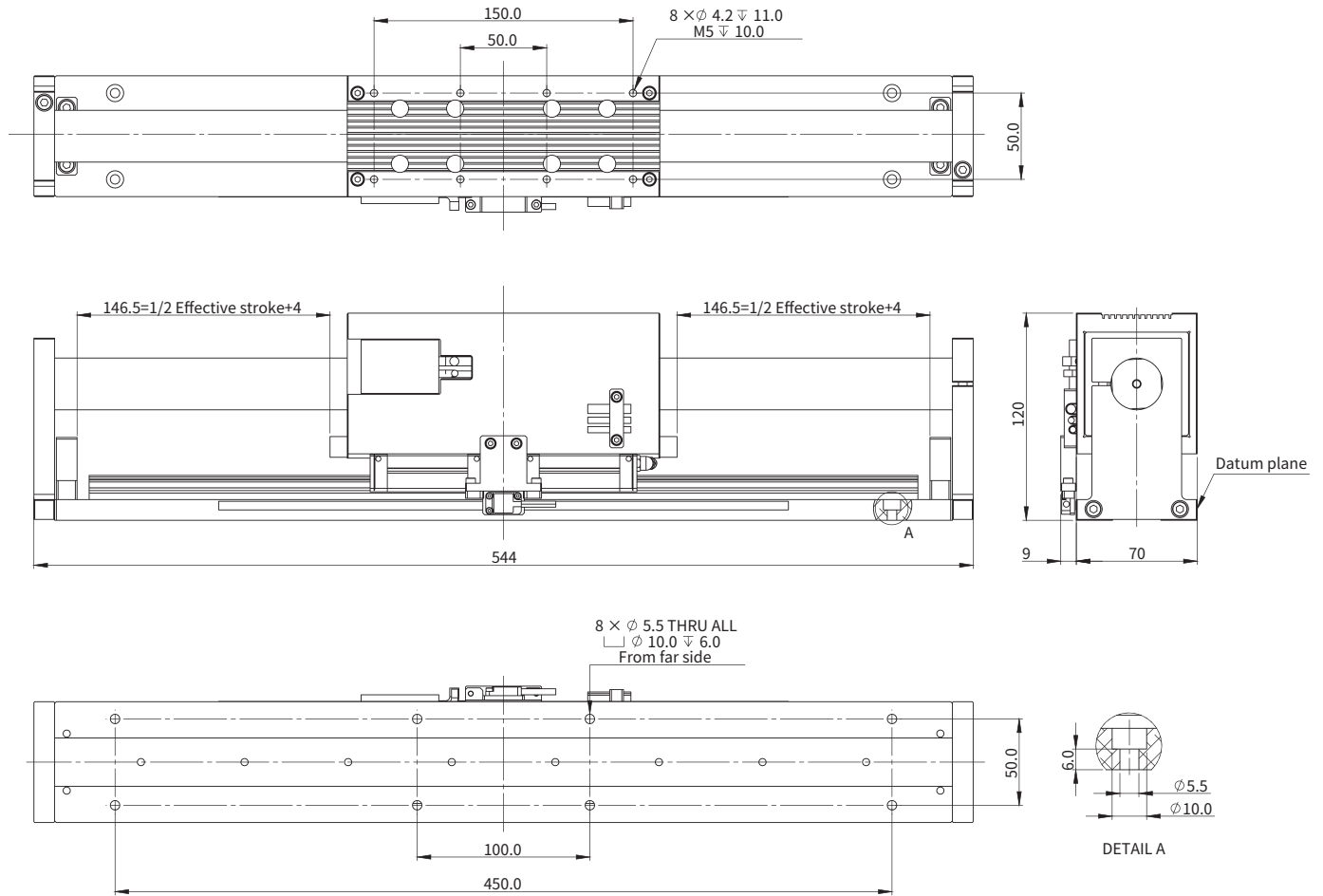
## Ordering Part Number (OPN)



- Note:
- <sup>1</sup> Blank=Default
  - SG=Singapore
  - ★ For custom requirements, please contact [cust-service@akribis-sys.com](mailto:cust-service@akribis-sys.com).

## SGR70 Series

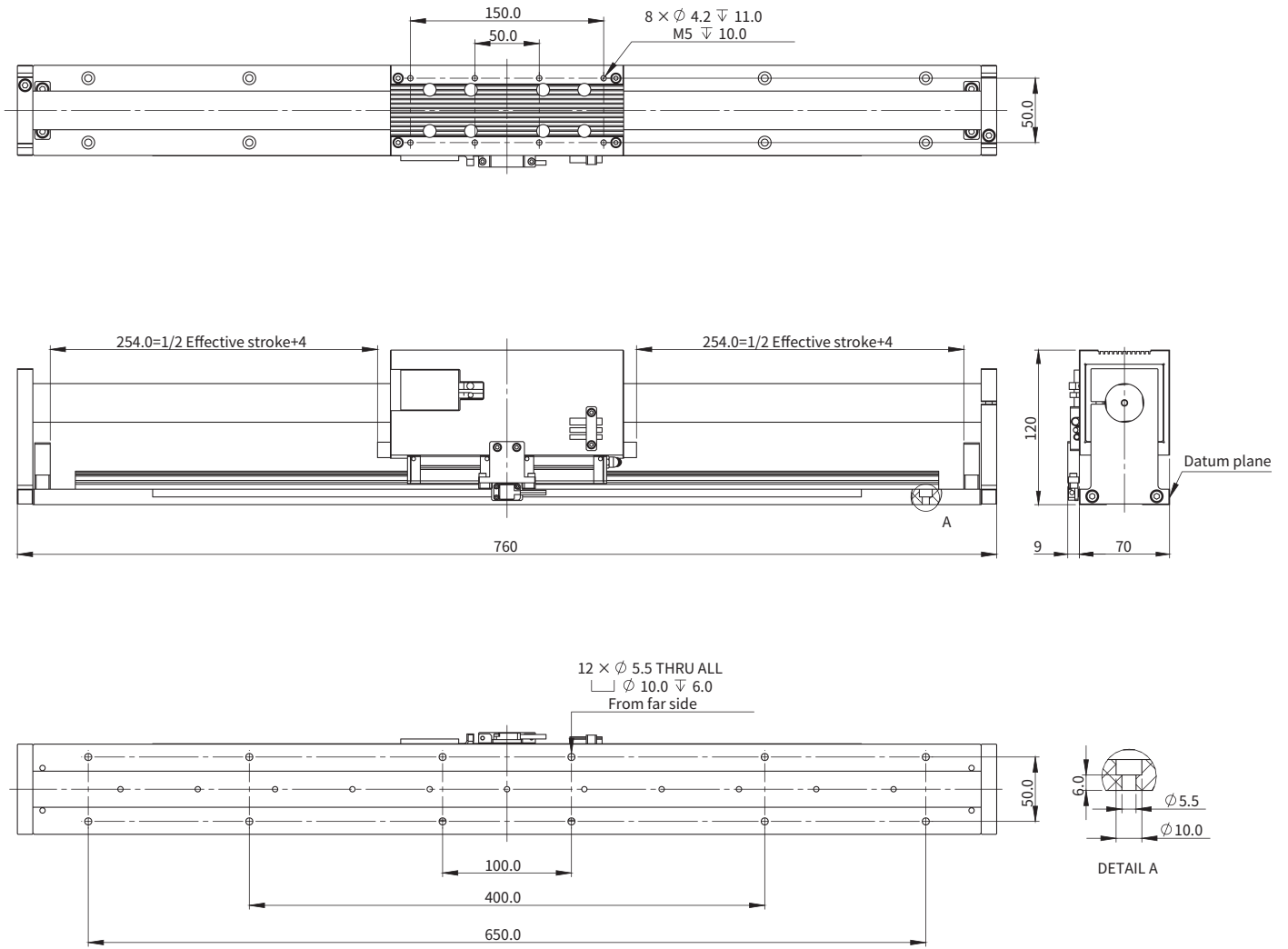
### SGR70-285 Dimensional Drawing



# SGR Series

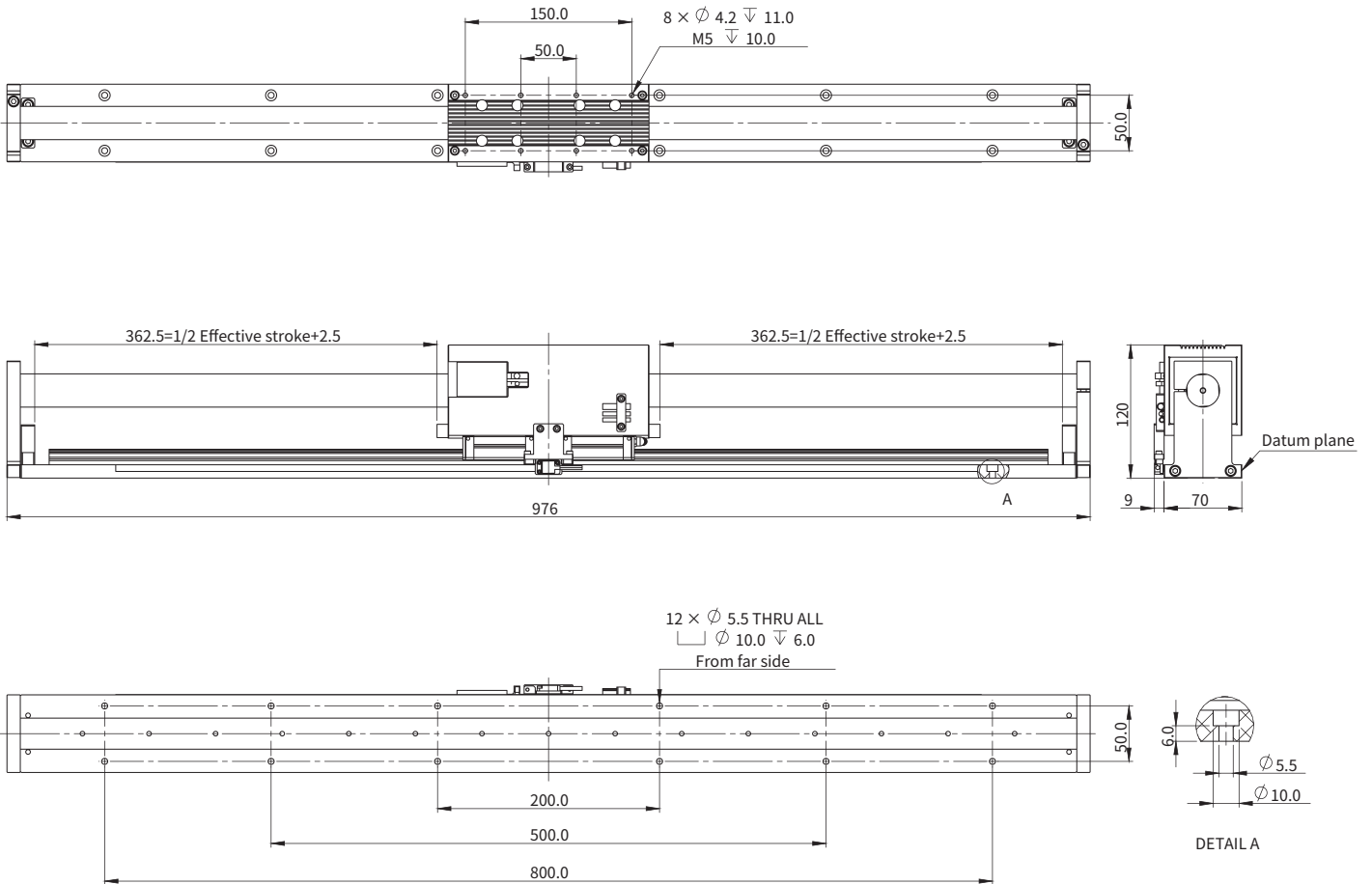
## SGR70 Series

### SGR70-500 Dimensional Drawing

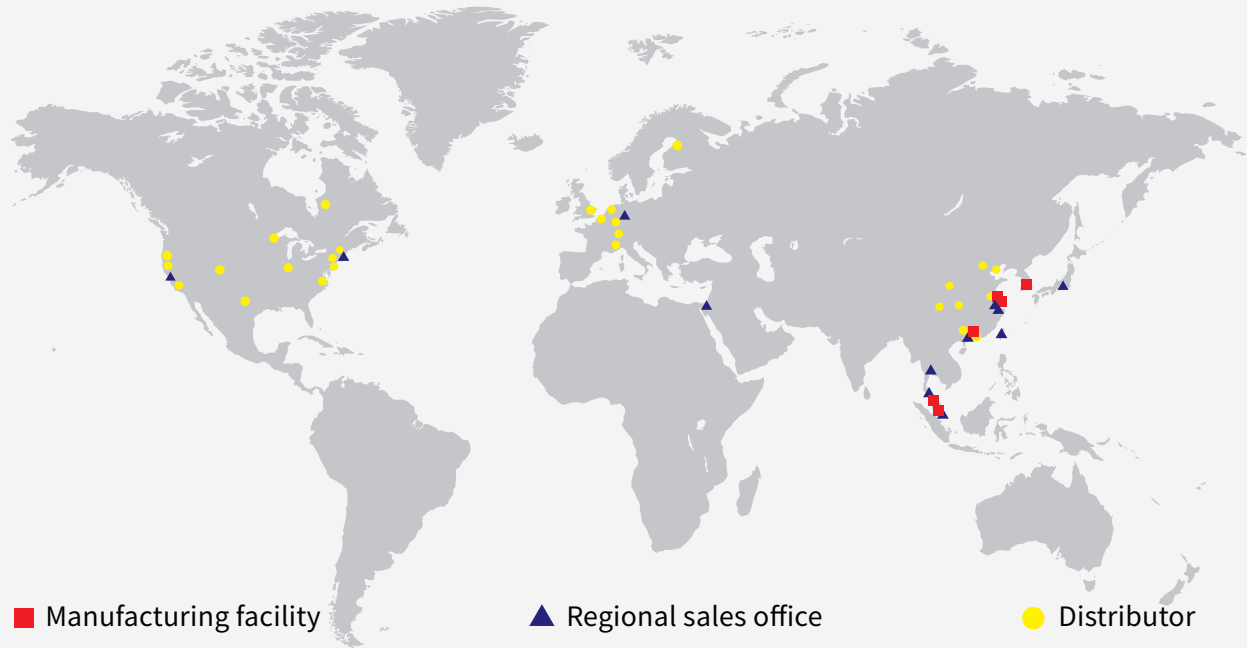


## SGR70 Series

### SGR70-720 Dimensional Drawing



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Akribis Systems reserves the right to change the specifications of the product  
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