



# XMGV SERIES

- ▶ Direct drive
- ▶ Zero cogging, zero backlash, ironless linear motor actuator
- ▶ Stroke from 15mm to 30mm
- ▶ Suitable for high speed and high acceleration application
- ▶ Smooth motion even at low speed (minimum velocity ripple)
- ▶ Use cross roller guide for high stiffness

## Introduction

XMGV series voice coil motor module consists of cylindrical voice coil motor, cross roller guide rail, encoder position feedback and structural base. It is a motion platform with compact internal structure and high-performance direct drive.

There are 4 standard products specifications: XMGV30, XMGV40, XMGV60 and XMGV90, which can be customized according to the technical requirements. The built-in voice coil motor and encoder are selectable for the 4 standard products.

The built-in voice coil motor module can achieve no cogging force, and adopts cross roller guide rail, which has the characteristics of high precision and high frequency.

$F_{cn}$  (Continuous Force) = 4.63N~89.10N









$F_{pk}$  (Peak Force) = 29.40N~315.00N

## Features

- ▶ Direct drive, built-in cylindrical voice coil motor
- ▶ Stroke from 15mm to 30mm
- ▶ Repeatability up to  $\pm 0.5\mu\text{m}$
- ▶ Optional resolution of  $0.2\mu\text{m}$ ,  $0.05\mu\text{m}$ , SINCOS
- ▶ Excellent straightness and flatness, high rigidity, high dynamic performance

## Applications

Applications in various industries such as automation equipment which requires point-to-point high speed positioning, z-axis optical focusing, leveling mechanism, high speed pick and place, flying probe test, material fatigue tester and others.

Voice Coil Module Series	Voice Coil Motor Series	Continuous Force ( $F_{cn}$ )					Peak Force ( $F_{pk}$ )		Stroke (mm)	Repeatability ( $\mu\text{m}$ )	Page
		5	10	50	100	200	320	Unit: N			
 XMGV30	 AVM30	4.63					29.40		15	up to $\pm 0.5$	148
 XMGV40	 AVM40	9.93					58.05		20		148
 XMGV60	 AVM60	26.35					119.00		25		149
 XMGV90	 AVM90	89.10					315.00		30		149

Note:

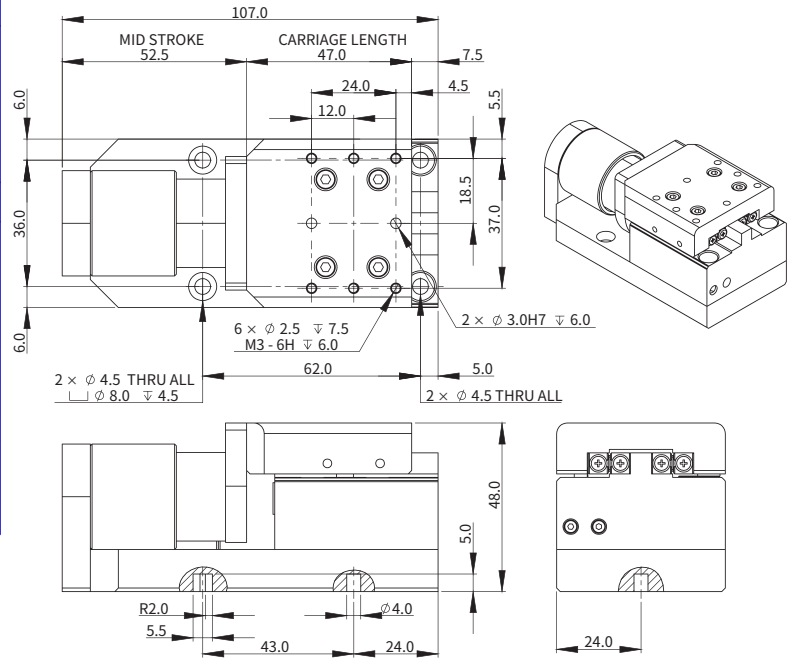
★ Products can be customized to meet specific working environments, please contact [cust-service@akribis-sys.com](mailto:cust-service@akribis-sys.com).

## XMGV30

XMGV30			
Motor Specifications	Unit	Value	
Motor	-	AVM30-15	
Continuous Force	N	4.63	
Peak Force	N	29.4	
Force Constant $\pm 10\%$	N/Arms	7.0	
Back EMF Constant $\pm 10\%$	Vpeak/(m/s)	7.0	
Mechanical Specifications	Unit	Value	
Precision Grade	-	P	N
Stroke <sup>①</sup>	mm	15	
Resolution	$\mu\text{m}$	SINCOS/0.05	0.2
Repeatability	$\mu\text{m}$	$\pm 0.5$	$\pm 1.0$
Horizontal Straightness	$\mu\text{m}$	$\pm 2.5$	
Vertical Straightness	$\mu\text{m}$	$\pm 2.5$	
Rated Payload <sup>②</sup>	kg	0.6	
No-load Moving Mass	kg	0.14	
No-load Total Mass	kg	0.51	
Max. Allowable Static Moment	Nm	0.8	

- ① Stroke refers to hardstop-to-hardstop mechanical stroke. The limit sensors are positioned 0.5mm from the hardstops.  
 ② The rated load is based on the load in which the acceleration of the mass is at least 1G.

### Dimensional Drawing

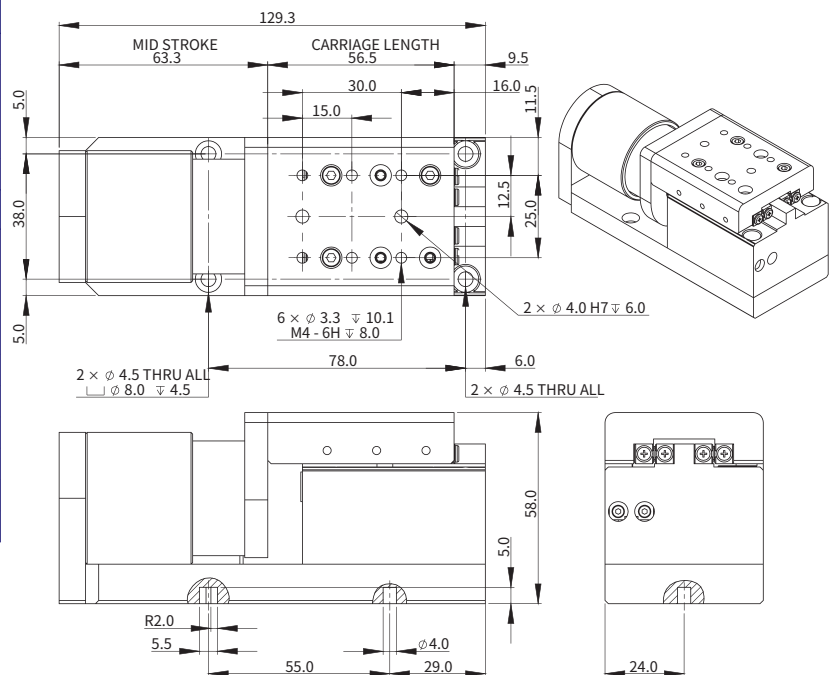


## XMGV40

XMGV40			
Motor Specifications	Unit	Value	
Motor	-	AVM40-20	
Continuous Force	N	9.93	
Peak Force	N	58.05	
Force Constant $\pm 10\%$	N/Arms	13.6	
Back EMF Constant $\pm 10\%$	Vpeak/(m/s)	13.6	
Mechanical Specifications	Unit	Value	
Precision Grade	-	P	N
Stroke <sup>①</sup>	mm	20	
Resolution	$\mu\text{m}$	SINCOS/0.05	0.2
Repeatability	$\mu\text{m}$	$\pm 0.5$	$\pm 1.0$
Horizontal Straightness	$\mu\text{m}$	$\pm 2.5$	
Vertical Straightness	$\mu\text{m}$	$\pm 2.5$	
Rated Payload <sup>②</sup>	kg	1.5	
No-load Moving Mass	kg	0.20	
No-load Total Mass	kg	0.80	
Max. Allowable Static Moment	Nm	1.4	

- ① Stroke refers to hardstop-to-hardstop mechanical stroke. The limit sensors are positioned 0.5mm from the hardstops.  
 ② The rated load is based on the load in which the acceleration of the mass is at least 1G.

### Dimensional Drawing



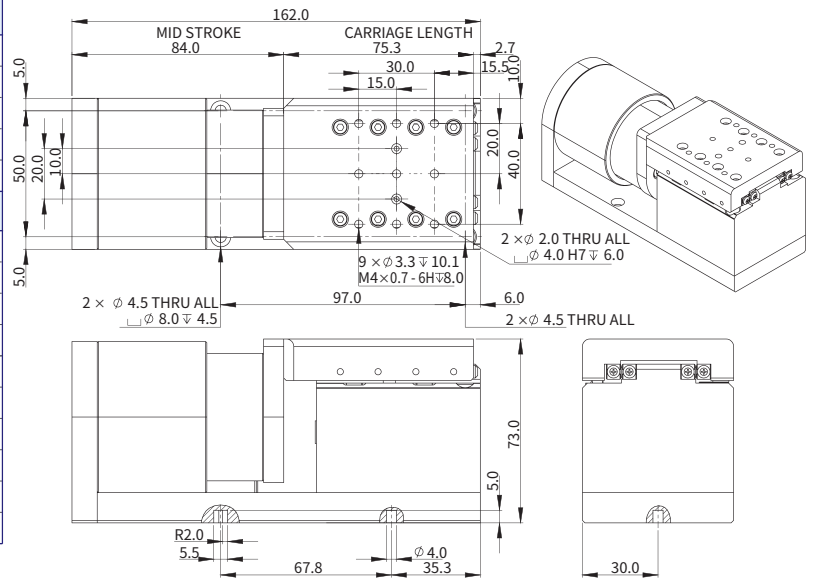
## XMGV60

XMGV60			
Motor Specifications	Unit	Value	
Motor	-	AVM60-25	
Continuous Force	N	26.35	
Peak Force	N	119.00	
Force Constant $\pm 10\%$	N/Arms	17.3	
Back EMF Constant $\pm 10\%$	$V_{peak}/(m/s)$	17.3	
Mechanical Specifications	Unit	Value	
Precision Grade	-	P	N
Stroke <sup>①</sup>	mm	25	
Resolution	$\mu m$	SINCOS/0.05	0.2
Repeatability	$\mu m$	$\pm 0.5$	$\pm 1.0$
Horizontal Straightness	$\mu m$	$\pm 2.5$	
Vertical Straightness	$\mu m$	$\pm 2.5$	
Rated Payload <sup>②</sup>	kg	4.0	
No-load Moving Mass	kg	0.45	
No-load Total Mass	kg	1.90	
Max. Allowable Static Moment	Nm	3.4	

① Stroke refers to hardstop-to-hardstop mechanical stroke. The limit sensors are positioned 0.5mm from the hardstops.

② The rated load is based on the load in which the acceleration of the mass is at least 1G.

### Dimensional Drawing



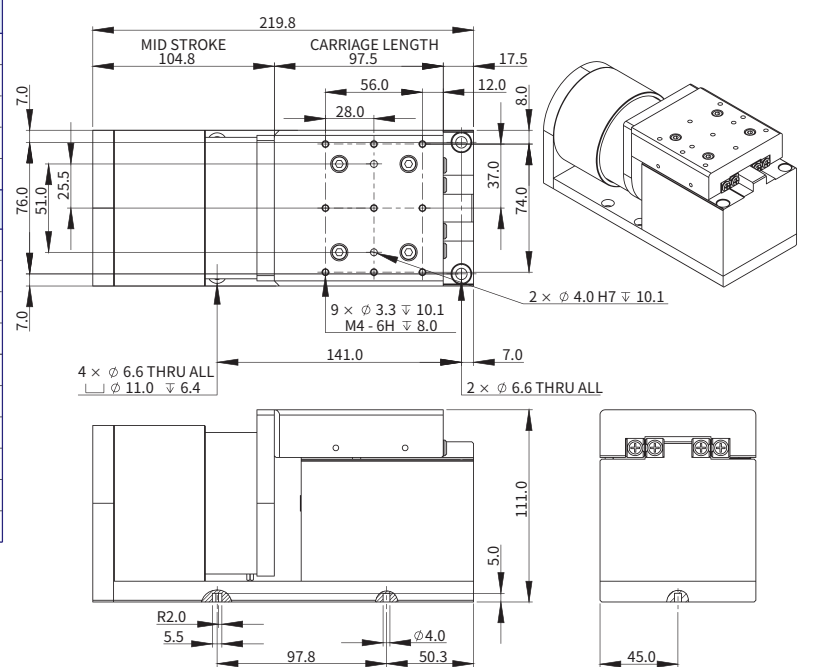
## XMGV90

XMGV90			
Motor Specifications	Unit	Value	
Motor	-	AVM90-30	
Continuous Force	N	89.10	
Peak Force	N	315.00	
Force Constant $\pm 10\%$	N/Arms	23.9	
Back EMF Constant $\pm 10\%$	$V_{peak}/(m/s)$	23.9	
Mechanical Specifications	Unit	Value	
Precision Grade	-	P	N
Stroke <sup>①</sup>	mm	30	
Resolution	$\mu m$	SINCOS/0.05	0.2
Repeatability	$\mu m$	$\pm 0.5$	$\pm 1.0$
Horizontal Straightness	$\mu m$	$\pm 2.5$	
Vertical Straightness	$\mu m$	$\pm 2.5$	
Rated Payload <sup>②</sup>	kg	14.0	
No-load Moving Mass	kg	1.63	
No-load Total Mass	kg	5.31	
Max. Allowable Static Moment	Nm	16.0	

① Stroke refers to hardstop-to-hardstop mechanical stroke. The limit sensors are positioned 0.5mm from the hardstops.

② The rated load is based on the load in which the acceleration of the mass is at least 1G.

### Dimensional Drawing



## Ordering Part Number (OPN)

Introduction | Sizing Guide | QA | Motion Control of Gantry Stages | Linear Modules | Stacked Stages | Gantry Stages | Voice Coil Modules | Miniature Stages | Pickers | Water Stages

### XMGV30-T15-A0G1-A1

Model:

XMGV30  
XMGV40  
XMGV60  
XMGV90

Termination:

1: Flying Leads

Precision Grade:

Normal: Unmarked

Cable Length:

A: 0.5m

Cover Type:

T: Standard (Black Anodized)

Scale Type:

1: Steel tape, 11ppm/K

Stroke (Corresponding Models):

15: 15mm (XMGV30)  
20: 20mm (XMGV40)  
25: 25mm (XMGV60)  
30: 30mm (XMGV90)

Encoder Type:

A0G: ABI-21 (0.2µm)

### XMGV30P-T15-R0A2-A1

Model:

XMGV30  
XMGV40  
XMGV60  
XMGV90

Termination:

1: Flying Leads

Precision Grade:

Precision: P

Cable Length:

A: 0.5m

Cover Type:

T: Standard (Black Anodized)

Scale Type:

2: Glass G8 Soda Lime, 8ppm/K

Stroke (Corresponding Models):

15: 15mm (XMGV30)  
20: 20mm (XMGV40)  
25: 25mm (XMGV60)  
30: 30mm (XMGV90)

Encoder Type:

R0A: ATOM2 (SINCOS)  
R0J: ATOM2 (0.05µm)

Note:

★ Products can be customized to meet specific working environments, please contact [cust-service@akribis-sys.com](mailto:cust-service@akribis-sys.com).