

# XCV SERIES

- ▶ Direct drive linear mechanism by voice coil motor
- ▶ Zero cogging effect, zero backlash
- ▶ High repeatability and accuracy
- ▶ Suitable for short stroke, high speed and high acceleration application
- ▶ Cross roller stage providing high stiffness
- ▶ Maximized dynamic performance

EN-26.3.1

## Introduction

XCV series voice coil module consists of cylindrical voice coil motor, cross roller bearing system, encoder position feedback system, and customized parts which are assembled as a compact structure, to give a high-performance direct drive motion platform.

The built-in voice coil motor and encoder position feedback of the standard module XCV30 can be selected according to the actual technical requirements. Customization service is available.

XCV modules have the following characteristics, no cogging force, low friction because of the use of cross roller bearings. Suitable for short stroke, high speed and high acceleration applications.

Continuous Force  $F_{cn} = 7.23N$



Peak Force  $F_{pk} = 46.1N$

## Features

- ▶ Direct drive, built-in cylindrical voice coil motor
- ▶ Stroke from 4mm
- ▶ No cogging effect, no backlash, highly responsive and high bandwidth
- ▶ Optional resolution of 0.2 $\mu$ m, 0.05 $\mu$ 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 ( $F_{pk}$ ) Unit: N						Stroke (mm)	Repeatability ( $\mu$ m)	Page
		5	10	20	30	40	50			
 XCV30	 AVM30							4	up to $\pm 0.2$	102

Note:

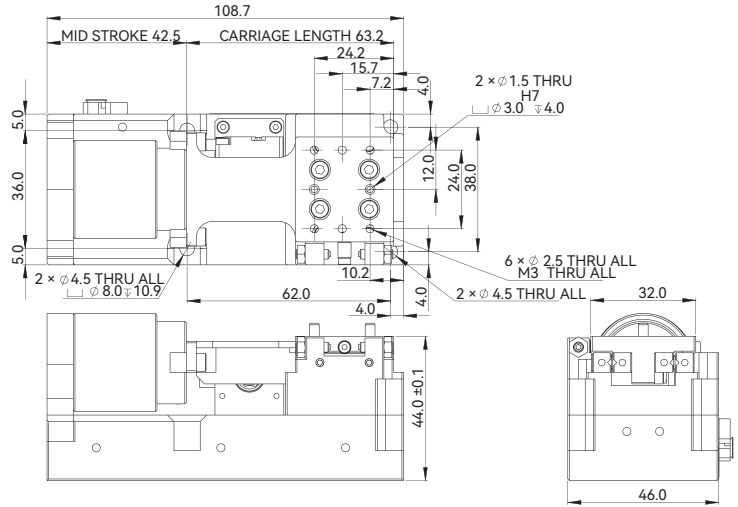
★ Products can be customized to meet specific working environments, please contact [cust-service@akribis-sys.com](mailto:cust-service@akribis-sys.com).

## XCV30

Motor Specifications	Unit	Value
Motor	-	AVM30-HF-4
Continuous Force (NC) @100°C <sup>1 2</sup>	N	7.23
Peak Force <sup>2</sup>	N	46.1
Force Constant ±10% <sup>2</sup>	N/A	11.5
Back EMF Constant ±10% <sup>2</sup>	V/(m/s)	11.5
Resistance @25°C ±10% <sup>3</sup>	Ω	8.0
Inductance ±20% <sup>4</sup>	mH	1.40
Continuous Current (NC) @100°C <sup>1</sup>	A	0.6
Peak Current	A	4.0
Max. Voltage	Vdc	60
Mechanical Specifications	Unit	Value
Precision Grade	-	P   N
Stroke	mm	4
Resolution	μm	SINCOS/0.05   0.2
Repeatability	μm	±0.2   ±0.5
Horizontal Straightness	μm	±0.5
Vertical Straightness	μm	±0.5
No-load Moving Mass	kg	0.065
No-load Total Mass	kg	0.467
Max. Static Moment	Nm	8.8

<sup>1</sup> Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC=Natural Cooling, AC=Air Cooling, WC=Water Cooling.  
<sup>2</sup> The values are at mid stroke.  
<sup>3</sup> Resistance is measured by DC current with standard 0.5m lead wire.  
<sup>4</sup> Inductance is measured by current frequency of 1 kHz.  
 The contents of datasheet are subject to change without prior notice.

### Dimensional Drawing



## Ordering Part Number (OPN)

**XCV30-T04-A0G4-A1**

Model:

XCV30

Precision Grade:

Unmarked: Normal

Cover Type:

T: Standard (Black Anodized)

Stroke:

04: 4mm

Termination:

1: Motor: Flying Leads/Encoder: DSUB 15

Cable Length:

A: 0.5m

Scale Type:

4: Nickel, 14ppm/K

Encoder Type:

A0G: ABI-21, TTL (0.2μm)

**XCV30P-T04-R0A2-A1**

Model:

XCV30

Precision Grade:

P: Precision

Cover Type:

T: Standard (Black Anodized)

Stroke:

04: 4mm

Termination:

1: Motor: Flying Leads/Encoder: DSUB 15

Cable Length:

A: 0.5m

Scale Type:

2: Glass G8 Soda Lime, 8ppm/K

Encoder Type:

R0A: ATOM2, SINCOS (1Vpp)  
 R0J: ATOM2, TTL (0.05μm)

Note:

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