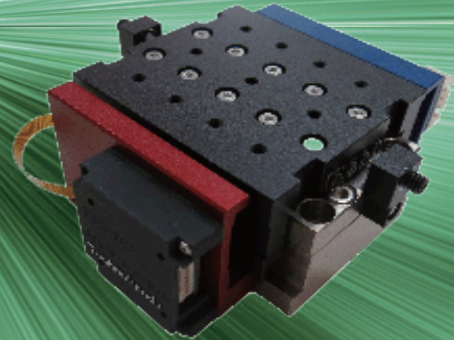


VOICE COIL MOTOR LINEAR STAGE

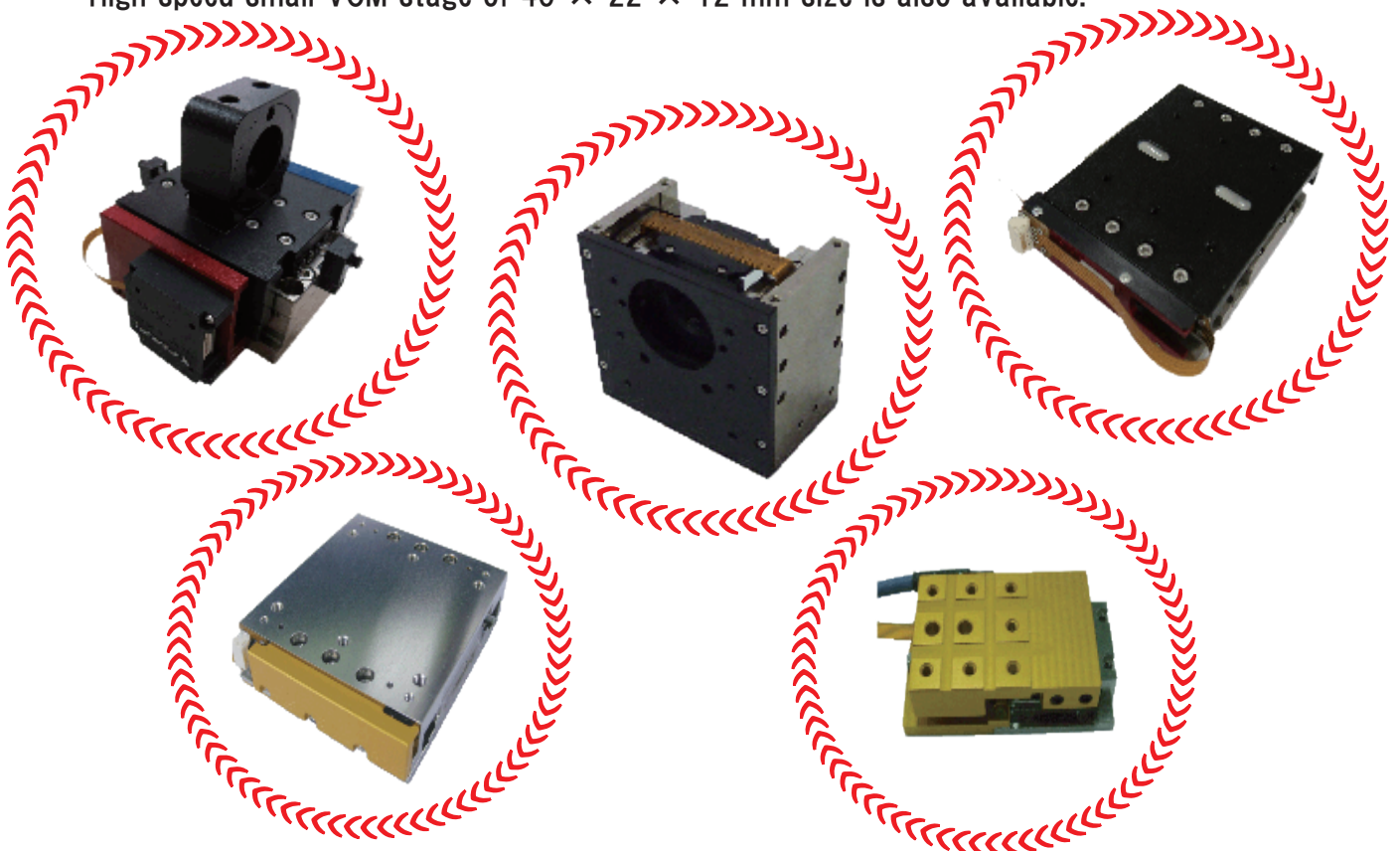
VCM Linear Stage series



High precision system solutions

- ◆ VCM linear stage for high speed scanning stage
- ◆ A flat coil type using a rectangular coil is adopted and thrust is increased by 15% or more from our conventional product.
- ◆ With direct drive control there is no pitch unevenness like the ball screw, ideal for speed control.

Also added thin VCM stage, realizing a high thrust at low profile by adopting the square coil type. For position control, our proprietary ultra-compact and high precision optical encoder is also installed. High speed small VCM stage of 40 × 22 × 12 mm size is also available.





Thin profile with high precision and thrust Thin VCM stages XV series

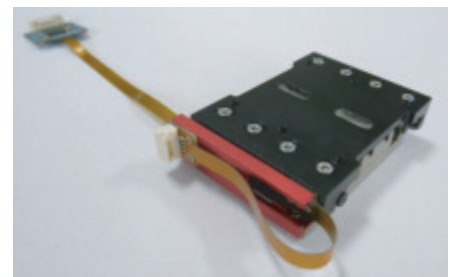
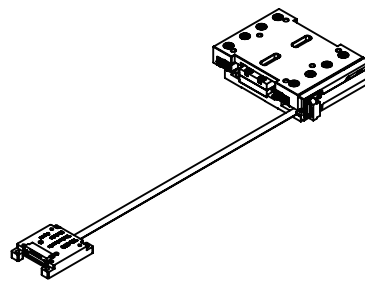
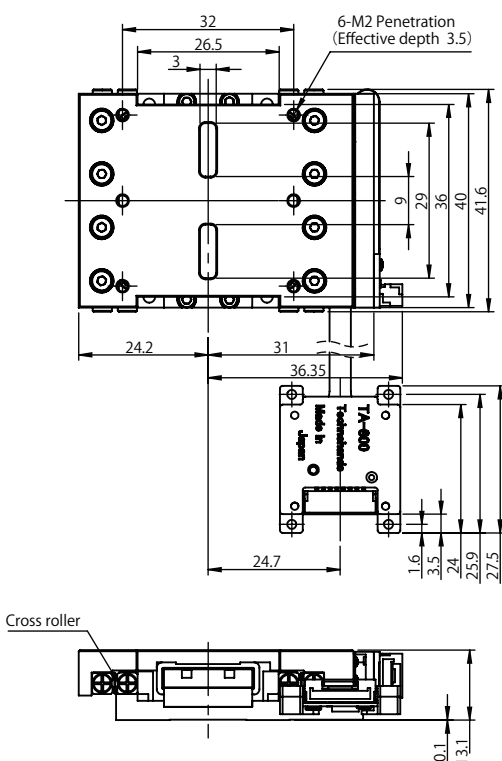
Features

- Enabling simultaneously high thrust and thin profile by employing square coil technique
- Developed a double axes XY stage product in addition to a single axis X stage product
- Built-in a voice coil motor in a barycenter side of the stage in a compact design
- Enabling high straightness by adopting a precision cross roller guide for a guide
- Enabling low cost thanks to a integrated original small linear encoder (optical reflective type), a limit sensor can be optioned
- A temperature sensor(thermister) equipped as standard, a thermostat can be optioned

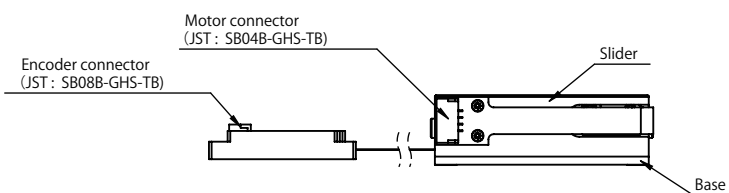
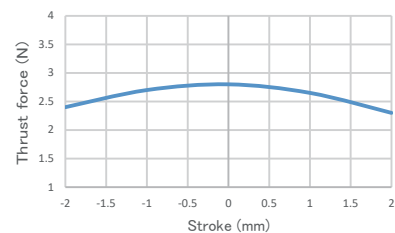
Specifications

Item	Type	XV002C-4	XV003C-8	XYV003C-8
Driving method		Moving coil	Moving coil	Moving coil
Number of phases/poles		1 phase · 2 poles	1 phase · 2 poles	1 phase · 2 poles
Effective stroke		±2mm	±4mm	±4mm
Maximum stroke		±2.2mm	±4.2mm	±4.2mm
Coil wire		2LOCKY1 Φ0.21	2LOCKY1 Φ0.21	2LOCKY1 Φ0.21
Number of coil turns		320T	320T	320T
Coil resistance		8.3Ω ±10%	10.3Ω ±10%	10.3Ω ±10%
Inductance		3.14mH ±10%	3.38mH ±10%	4.24mH ±10%
Thrust constant		2N/A	3N/A	3N/A
Guide		Cross roller guide	Cross roller guide	Cross roller guide
Straightness		Horizontal:2μm, Vertical:2μm	Horizontal:2μm, Vertical:2μm	Horizontal:2μm, Vertical:2μm
Moving part weight		30g	45g	200g
Maximum load weight (horizontal capacity)		1kg	1kg	800g
Body weight		approximately 126g	approximately 180g	approximately 400g
Resolution		1μm, 0.5μm, 0.1μm selectable	←	←

XV002C-4 Outline dimensions



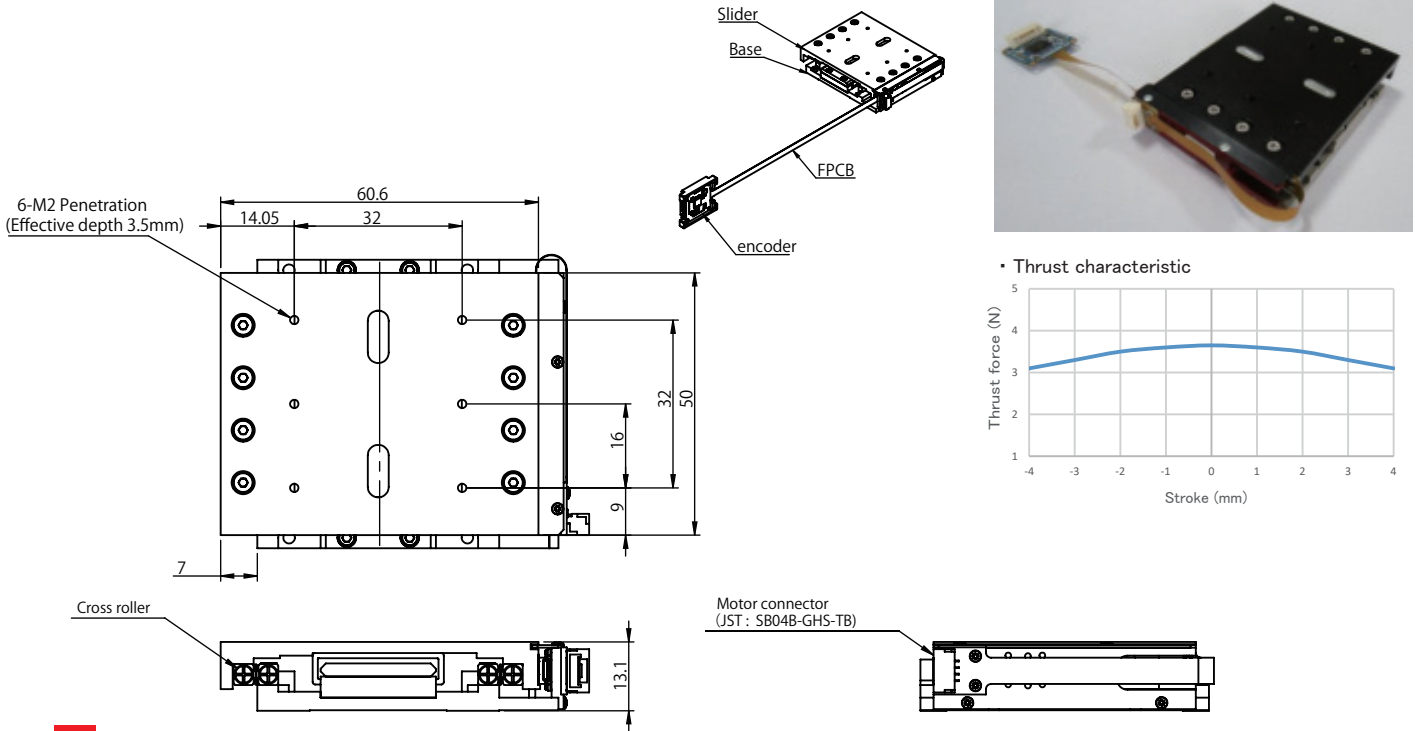
• Thrust characteristic





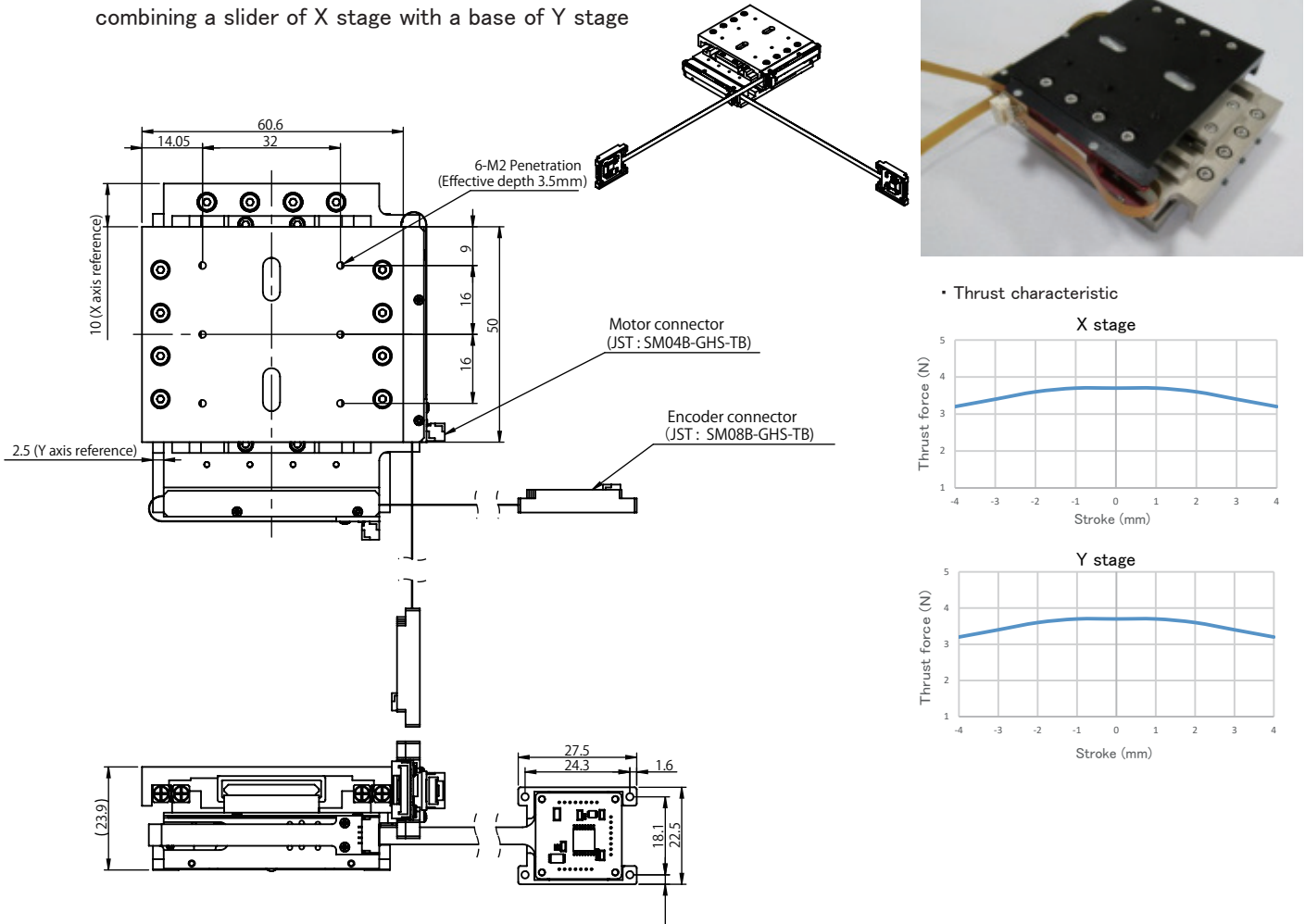
Thin profile with high precision and thrust Thin VCM stages XV series

XV003C-8 Outline dimensions



XYV003C-8 Outline dimensions

The XY stage based on XV003C-8, enabling thin profile because of combining a slider of X stage with a base of Y stage





High precision without thrust ripple with single phase motor VCM stages XV series

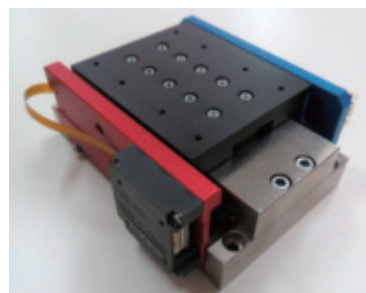
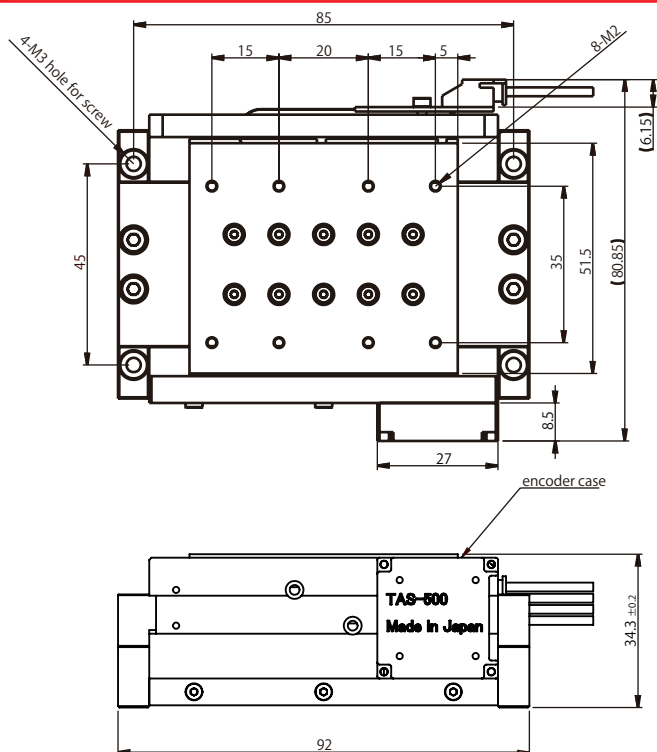
Features

- Built-in a voice coil motor in a barycenter side of the stage in a compact design
- Employing a flat coil structure using rectangular coil allows thrust increasing more than 15% compared to our previous product
- Enabling high straightness by adopting a precision cross roller guide for a guide
- Most suitable for speed control due to employing direct drive control which does not cause pitch nonuniformity by a ball screw
- Easy to designing control circuit alike DC motors, available for controlling by analog(voltage) input
- Possible to mount an optical part such as lenses on the table, this allows high speed scanning because of high stiffness
- Enabling low cost thanks to an integrated original small linear encoder (optical reflective type), a limit sensor can be optioned
- A temperature sensor(thermister) equipped as standard, a thermostat can be optioned

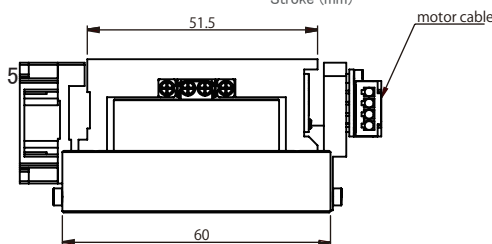
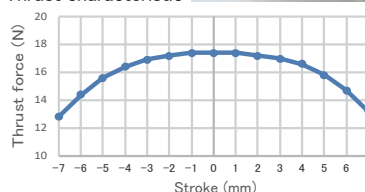
Specifications

Item	Type	XV015F-10	XV005F-6	XV005F-6S16
Driving method		Moving coil	Moving coil	Moving coil
Number of phases/poles		1 phase • 6 poles	1 phase • 4 poles	1 phase • 4 poles
Effective stroke		±5mm	±3mm	±3mm
Maximum stroke		±7mm	±3.5mm	±3.5mm
Coil wire		Rectangular H (180°C)	Rectangular H (180°C)	Rectangular H (180°C)
Number of coil turns		320T	100T	100T
Coil resistance		7.5 Ω ±10%	1.5 Ω ±10%	1.5 Ω ±10%
Inductance		2.73mH ±10%	320 μH ±10%	320 μH ±10%
Thrust constant		15N/A	5N/A	5N/A
Guide		Cross roller guide	Cross roller guide	Cross roller guide
Straightness		Horizontal:2 μm, Vertical:2 μm	Horizontal:2 μm, Vertical:2 μm	Horizontal:2 μm, Vertical:2 μm
Moving part weight		130g	105g	125g
Maximum load weight (horizontal capacity)		2kg	1kg	1kg
Body weight		approximately 800g	approximately 400g	approximately 400g
Resolution		1 μm, 0.5 μm, 0.1 μm selectable	←	←

XV015F-10 Outline dimensions



• Thrust characteristic

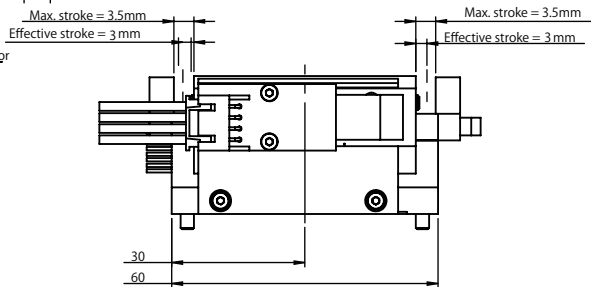
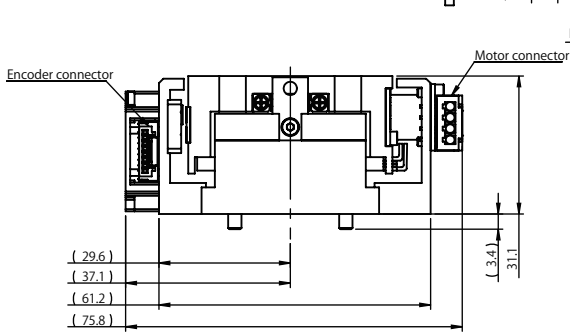
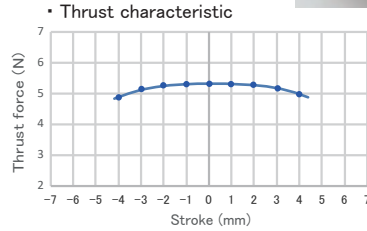
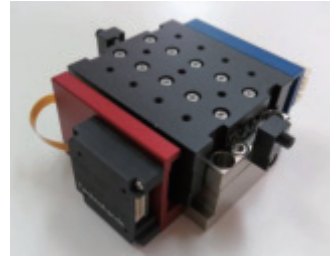
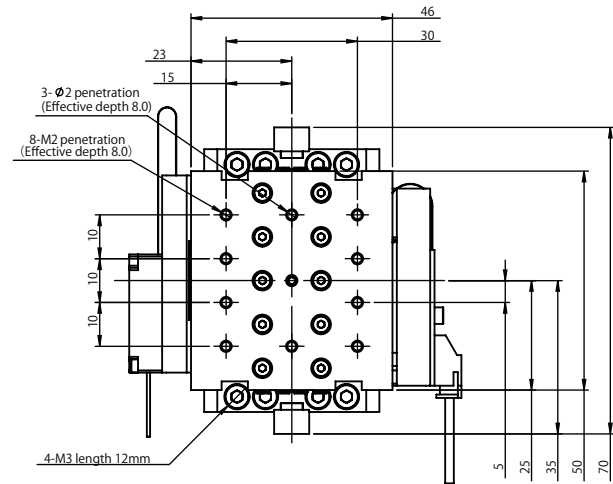




High precision without thrust ripple with single phase motor

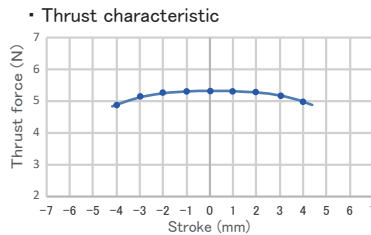
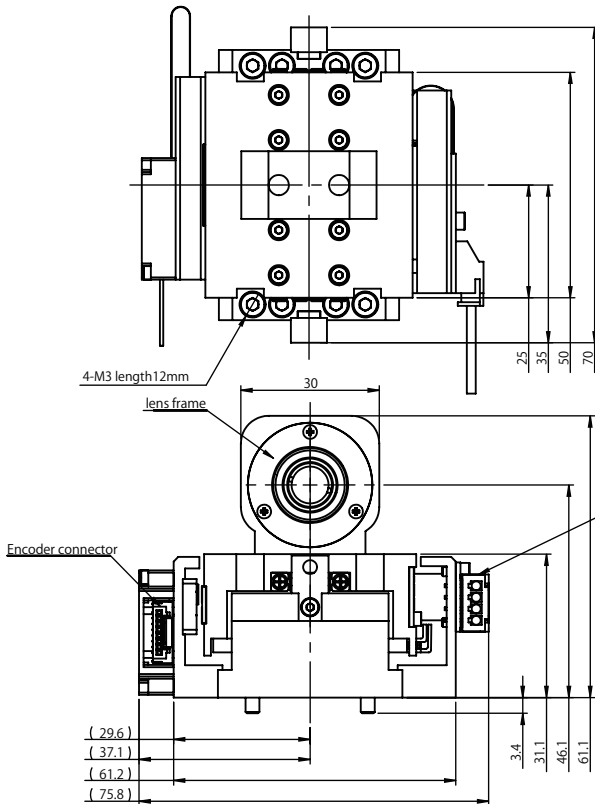
VCM stages XV series

XV005F-6 Outline dimensions

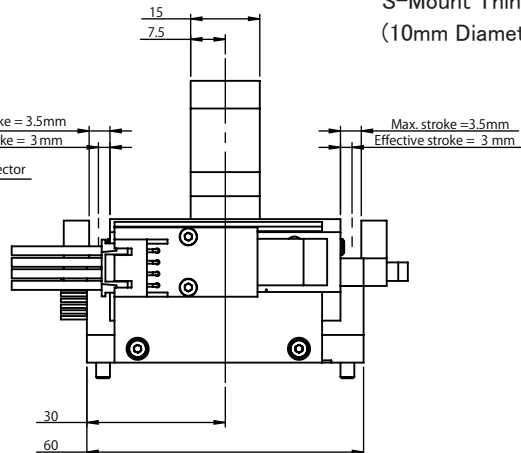


XV005F-6S16 Outline dimensions

Possible to mount a lens on the table, this allows high speed scanning
 Application: Industrial auto focus unit



Lens holder adaptation :
 Manufacturer: Edmund Optics
 S-Mount Thin Lens Mount
 (10mm Diameter)



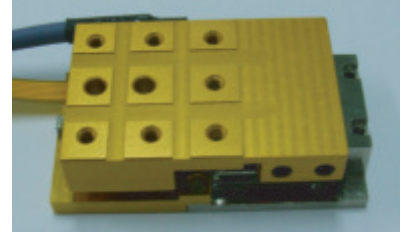
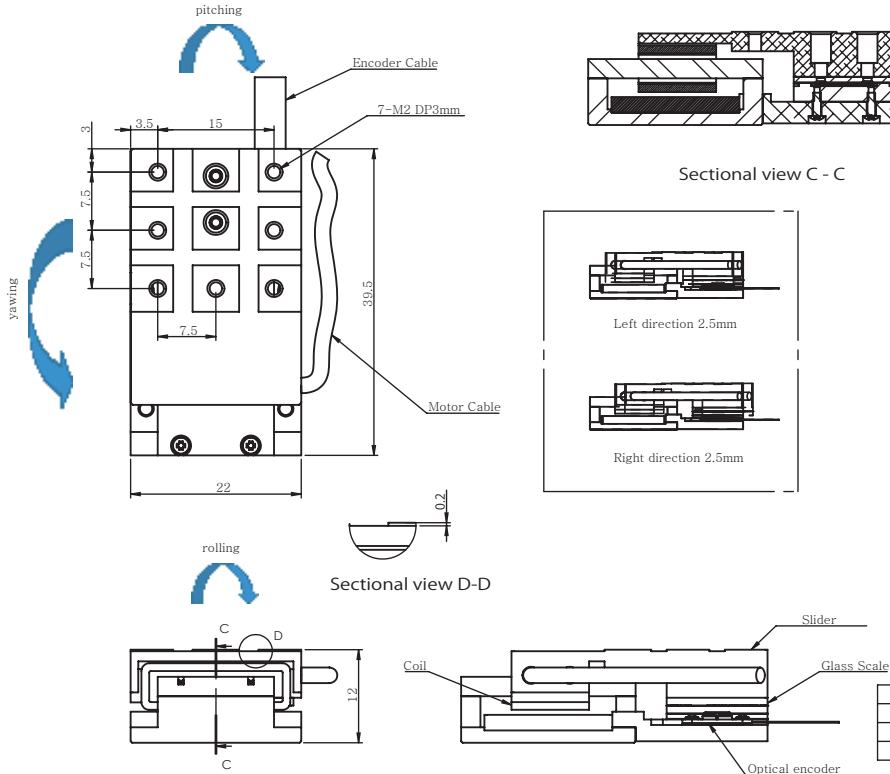
* External driver boards such as digital servo drivers or linear amplifier drivers are available. Please contact us for more information or details.
 Custom designing is also available. If any request,



High speed scanning stage

VCM stage

MVX1.3-5.0/0.1 Outline dimensions



1. Total weight: 35g ± 2g
2. Encoder resolution: 0.1μm
3. Stroke: 5mm
4. Sin drive 1mm: 50Hz (no load)
5. inductance: 0.25mH
6. rated thrust: 1.3N / A
7. The resistance: 4Ω
8. Static permissible moment
 - ①.pitching: 0.21N · M
 - ②.yawing: 0.25N · M
 - ③.rolling: 0.21N · M

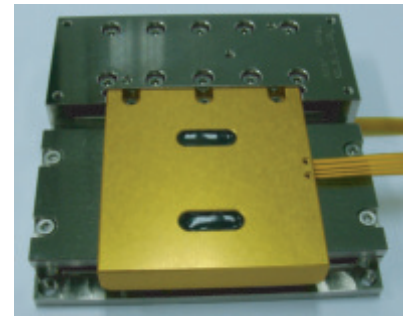
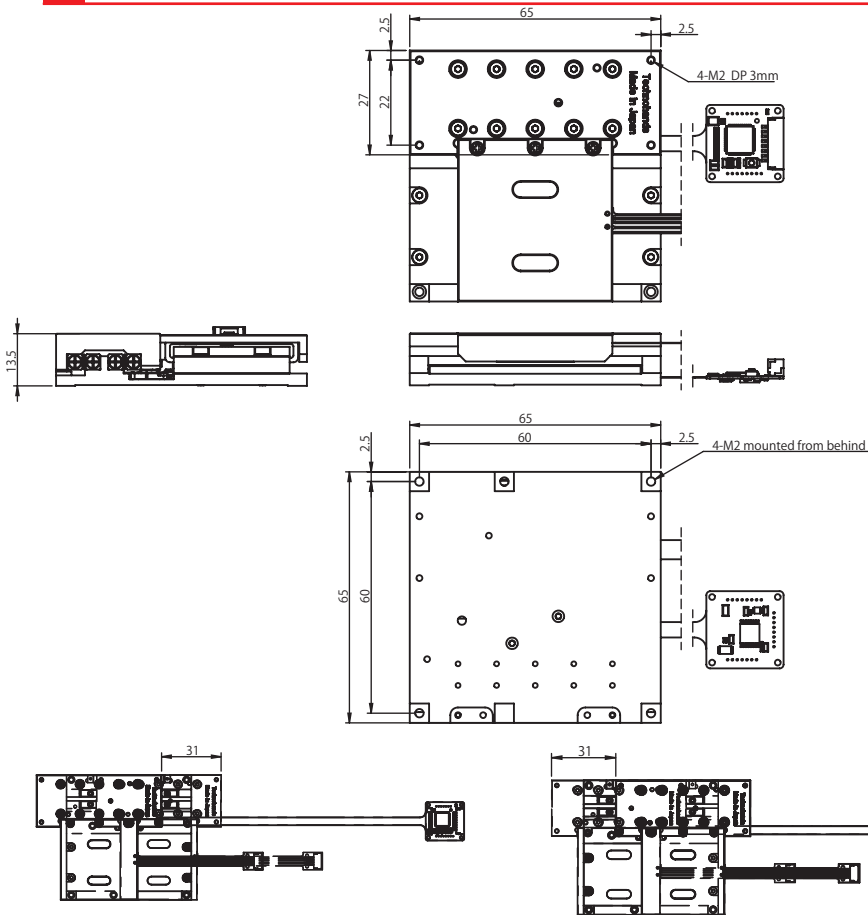
Motor
Phoenix contact
MC 1.5/4-S T-3.81

1	brown	Motor A
2	black	Motor B
3	White	thermistorA
4	blue	thermistorB

Encoder
JST : SM8B-GHS-TB

1	Black	GND
2	Brown	5V
3	Orange	A+
4	Blue	A-
5	Red	B+
6	White	B-
7	Yellow	Z+
8	Green	Z-

MVX2-30/0.1 Outline dimensions



1. Total weight: 240g ± 5g
2. Encoder resolution: 0.1 μm
3. Stroke: 30mm (± 15mm)
4. rated thrust: 1.3N / A
5. inductance: 0.2mH
6. The resistance: 1.4Ω

Motor
Phoenix contact
MC 1.5/4-S T-3.81

1	brown	Motor A
2	black	Motor B
3	White	thermistorA
4	blue	thermistorB

Encoder
JST : SM8B-GHS-TB

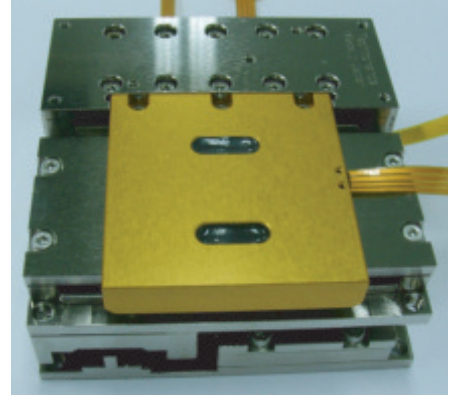
1	Black	GND
2	Brown	5V
3	Orange	A+
4	Blue	A-
5	Red	B+
6	White	B-
7	Yellow	Z+
8	Green	Z-

◆ Stroke : ±15mm



High speed scanning stage VCM stage

MVXY2-30/0.1 Outline dimensions



1. Total weight: 480g ± 5g
2. Encoder resolution: 0.1 μm
3. Stroke: 30mm (± 15mm)
4. rated thrust: 1.3N / A
5. inductance: 0.2mH
6. The resistance: 1.4Ω

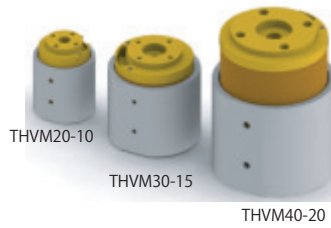
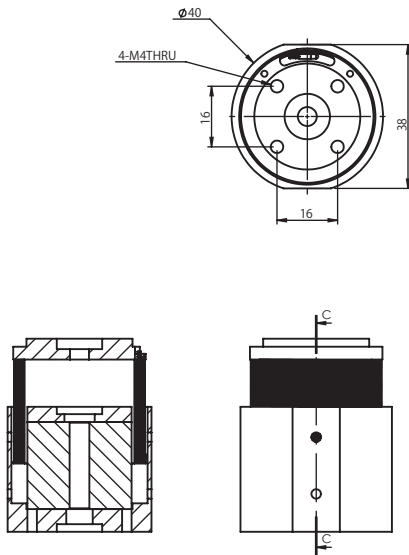
Motor
Phoenix contact
MC 1.5/4-ST-3.81

Encoder
JST : SM8B-GHS-TB

1	brown	Motor A
2	black	Motor B
3	White	thermistora
4	blue	thermistorb

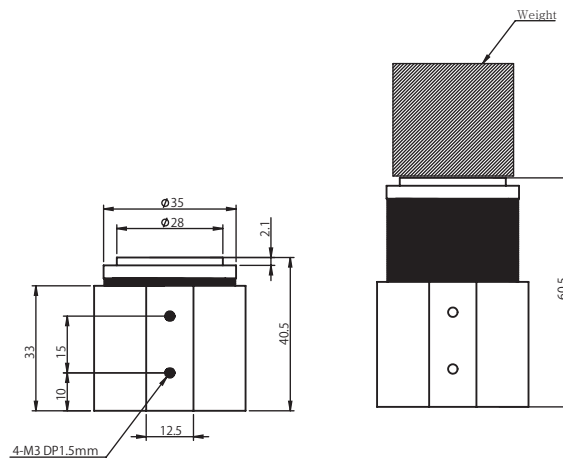
1	Black	GND
2	Brown	5V
3	Orange	A+
4	Blue	A-
5	Red	B+
6	White	B-
7	Yellow	Z+
8	Green	Z-

Cylindrical THVM series Outline dimensions



THVM40-20

1. Model: THVM40-20
2. stroke: 20mm
3. thrust: 6N / A
4. Maximum thrust: 24N
5. maximum current: 4A
6. Sensor: position sensor (encoder can be mounted)
Temperature sensor built-in

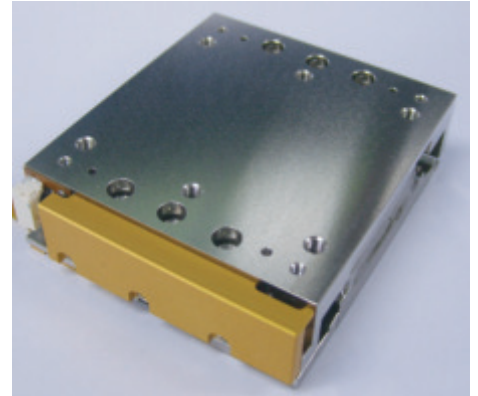
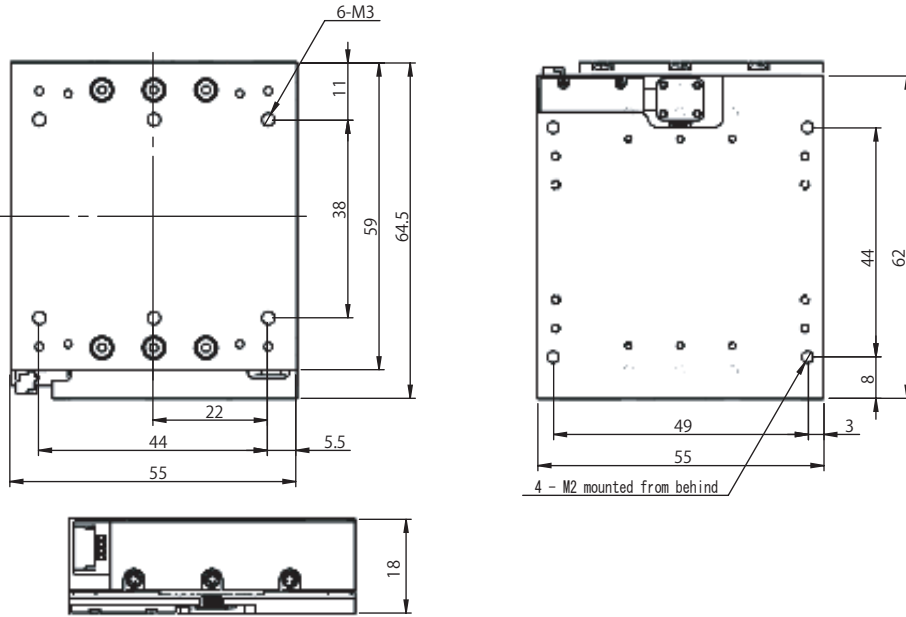


THVM40-20
encoder type



High speed scanning stage VCM stage

XV007F-14 Outline dimensions



1. Total weight : 265g ± 5g
2. Encoder resolution : 0.1 μm
3. Stroke : 14mm (± 7mm)
4. rated thrust : 7.5N / A
5. inductance : 3mH
6. The resistance : 13.5Ω

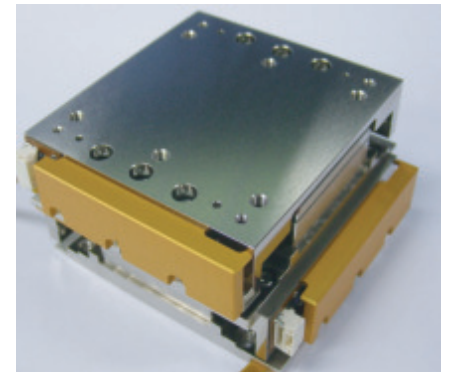
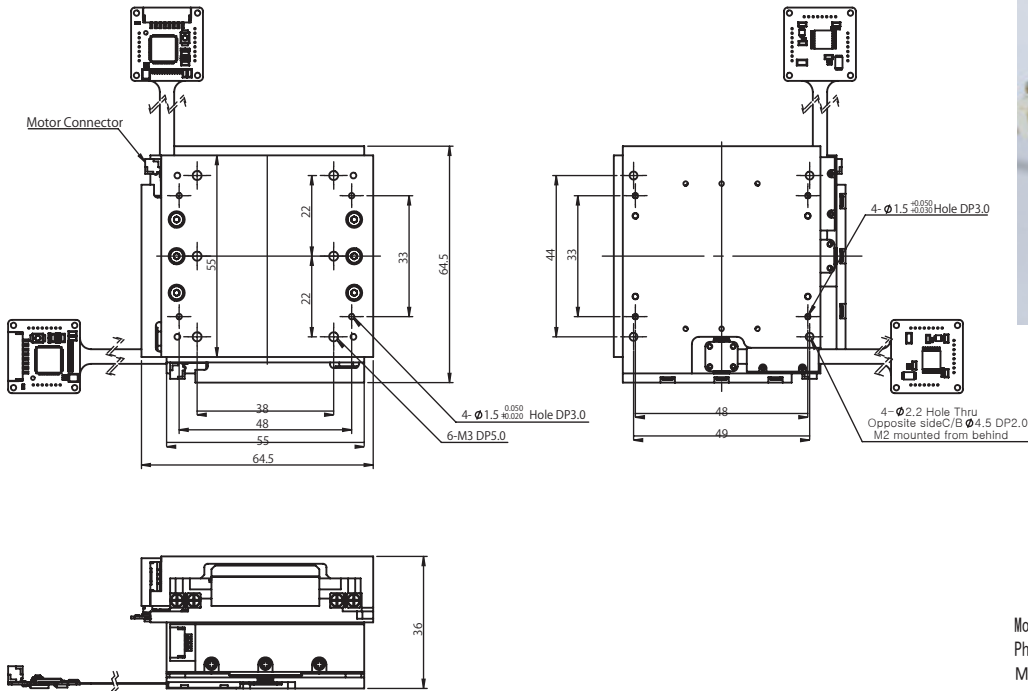
Motor
Phoenix contact
MC1.5/4-ST-3.81

1	brown	Motor A
2	black	Motor B
3	White	thermistorA
4	blue	thermistorB

Encoder
JST : SM8B-GHS-TB

1	Black	GND
2	Brown	5V
3	Orange	A+
4	Blue	A-
5	Red	B+
6	White	B-
7	Yellow	Z+
8	Green	Z-

XYV007F-14 Outline dimensions



1. Total weight : 530g ± 10g
2. Encoder resolution : 0.1 μm
3. Stroke : 14mm (± 7mm)
4. rated thrust : 7.5N / A
5. inductance : 3mH
6. The resistance : 13.5Ω

Motor
Phoenix contact
MC1.5/4-ST-3.81

1	brown	Motor A
2	black	Motor B
3	White	thermistorA
4	blue	thermistorB

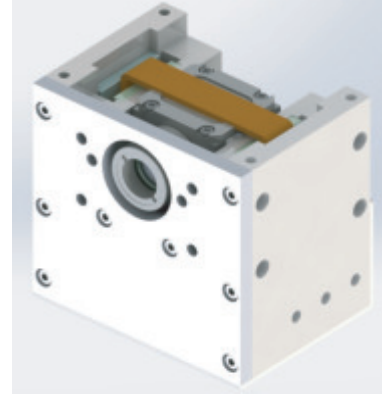
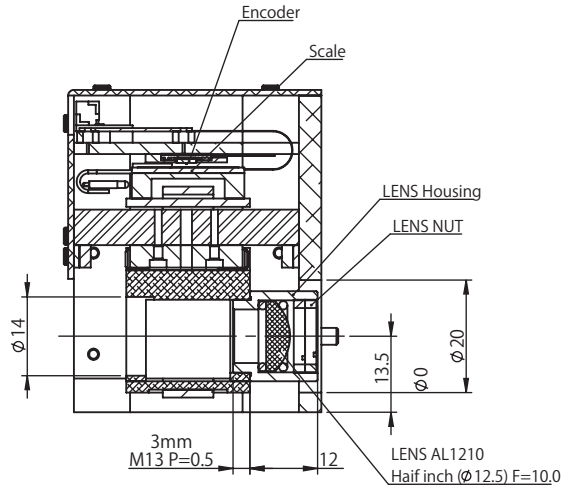
Encoder
JST : SM8B-GHS-TB

1	Black	GND
2	Brown	5V
3	Orange	A+
4	Blue	A-
5	Red	B+
6	White	B-
7	Yellow	Z+
8	Green	Z-

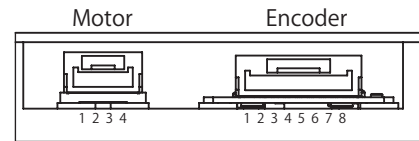
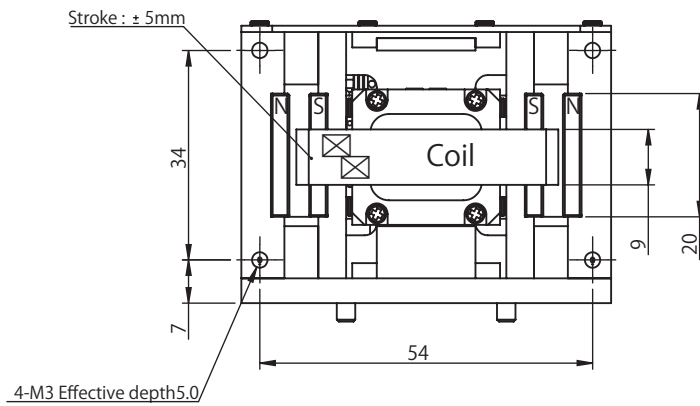


Laser beam adjustment unit Haif inch Lens linear stage

VXH -10/0.1 Outline dimensions



1. Total weight: $483g \pm 5g$
2. Encoder resolution: $0.1 \mu m$
3. Stroke: $10mm (\pm 5mm)$
4. rated thrust: $3N / A$
5. inductance: $0.3mH$
6. The resistance: 1.45Ω
7. Drive in the SIN, $1mm : 50Hz$ (No-load)

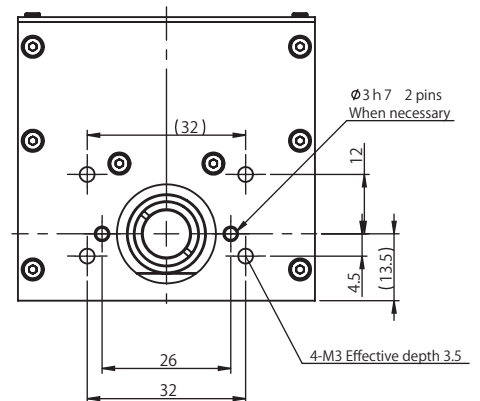
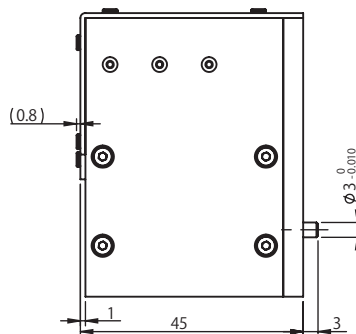
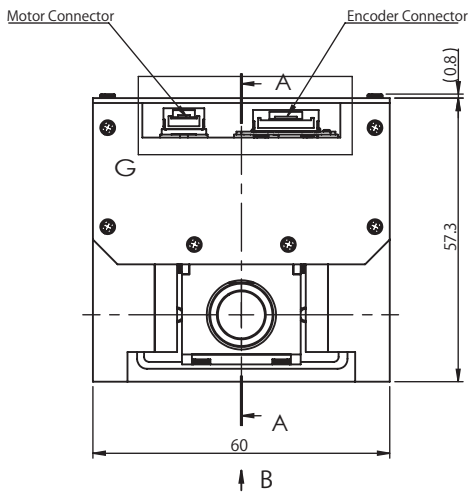


Motor
Phoenix contact
M C 1.5/4-S T-3.81

1	brown	Motor A
2	black	Motor B
3	White	thermistar A
4	blue	thermistar B

Encoder
JST : SM8B-GHS-TB

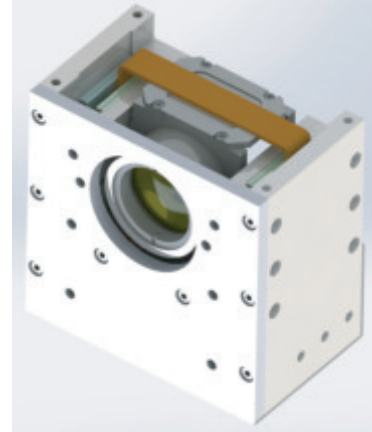
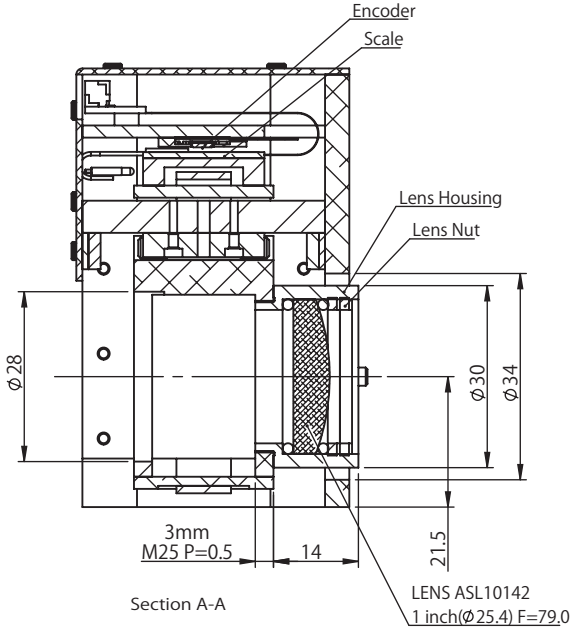
1	Black	GND
2	Brown	5V
3	Orange	A+
4	Blue	A-
5	Red	B+
6	White	B-
7	Yellow	Z+
8	Green	Z-



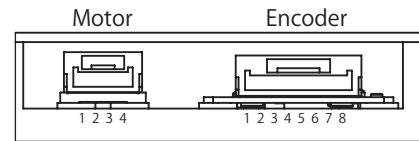
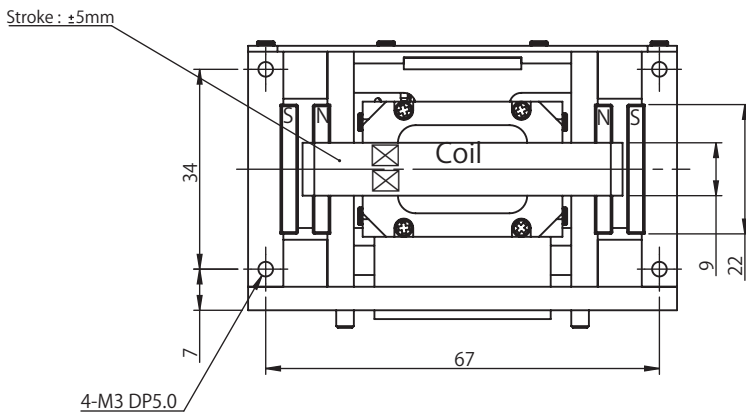


Laser beam adjustment unit 1 inch Lens linear stage

VX1 -10/0.1 Outline dimensions



1. Total weight: 675g ± 5g
2. Encoder resolution: 0.1 μm
3. Stroke: 10mm (± 5mm)
4. rated thrust: 4.3N / A
5. inductance: 0.7mH
6. The resistance: 2.7Ω
7. Drive in the SIN, 1mm : 50Hz(No-load)

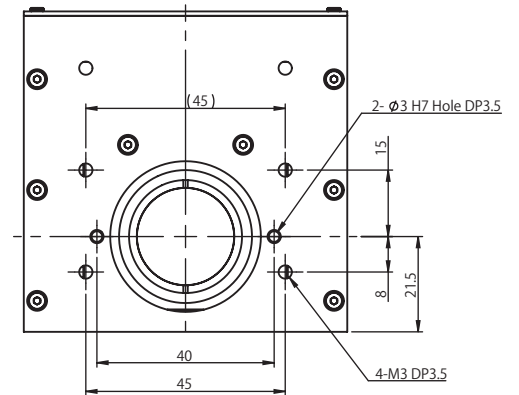
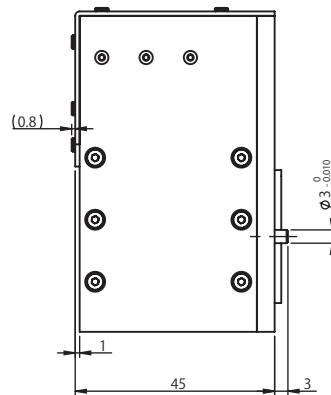
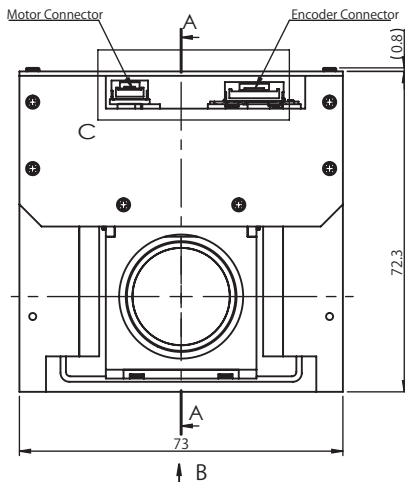


Motor
Phoenix contact
MC 1.5/4-S T-3.81

Encoder
JST : SM8B-GHS-TB

1	brown	Motor A
2	black	Motor B
3	White	thermistorA
4	blue	thermistorB

1	Black	GND
2	Brown	5V
3	Orange	A+
4	Blue	A-
5	Red	B+
6	White	B-
7	Yellow	Z+
8	Green	Z-





VCM PWM driver / Linear driver

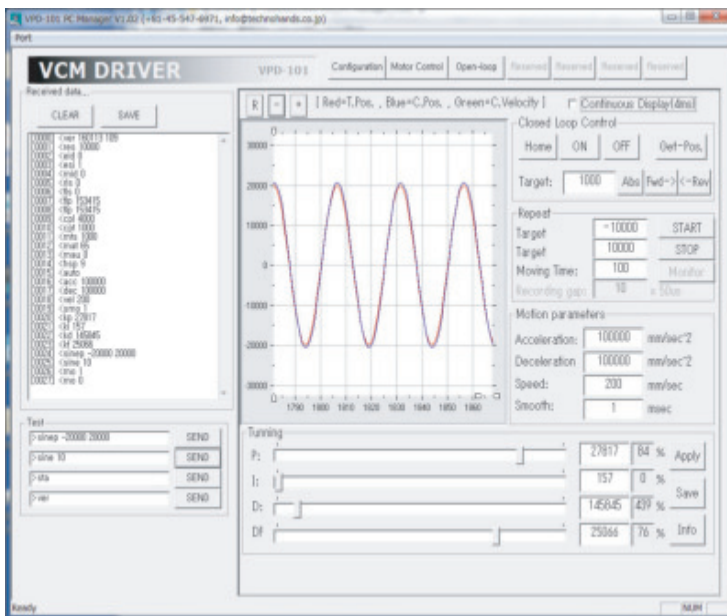
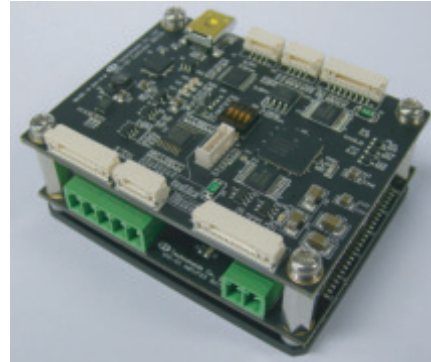
VPD-101 PWM driver

1. Overview

- VPD - 101 driver has a single axis configuration.
- VPD-101 Feedback Position of Incremental encoder and perform digital position control and speed control on axis.

2. Features

- Miniaturized VCM driver.
- PID Control and IIR filter Algorithm.
- USB (Serial over USB) or RS-232, RS-485.
- Pulse/Direction feedback.
- DI/DO/AI System.
- Data Recording.



PC demo program



Model number : VPD-101

Drive voltage : 24V - 36V [$\pm 10\%$]
 Current consumption : 108W
 Maximum voltage : 3A
 communication : USB (Serial over USB) / RS232/RS485
 baud rate : 115200 bps
 Transmission code : ASC II
 Data length : 8 bit
 Stop bit length: 1 bit
 Parity check : None
 Special program : VPD-101 PC Manager environment
 Operating environment : 0 to +50°C
 Storage environment : -20°C to +70°C
 Storage humidity : 0 to 80%
 size : 65 mm x 50 mm x 28mm
 weight : 80g

VLD-102 Linear driver



Model number : VPD-102

Drive voltage : -12V, +12V [$\pm 10\%$]
 Current consumption : 72W
 Maximum voltage : 3A
 communication : USB (Serial over USB) / RS232/RS485
 baud rate : 115200 bps
 Transmission code : ASC II
 Data length : 8 bit
 Stop bit length: 1 bit
 Parity check : None
 Special program : VPD-201 PC Manager environment
 Operating environment : 0 to +50°C
 Storage environment : -20°C to +70°C
 Storage humidity : 0 to 80%
 Size : 86 mm x 70 mm x 22 mm
 weight : 117g

FAX inquiry sheet

Please print out this sheet and FAX to us



DD/MM/YYYY : / /

To : Technohands Co.,Ltd. Sales Dept.

Japan
FAX : +81-45-370-8010
TEL : +81-45-370-8015

Korea
FAX : +82-31-695-6524
TEL : +82-31-695-6525

※ If any custom designing request, please let us know by this request sheet or contact us directly.

◆ E-mail : info@technohands.co.jp

● Please fill this sheet as below for request information.

Company Name		Country/ Affiliation	
Customer Name		TEL	
FAX.		Further request	
Stage type	X、XY、XYθ、θ		
Stroke	±	mm	
Resolution		μm	
Speed		mm/s	
Load weight		g	
Load size	× ×	mm	
Moving direction	Horizontal / Vertical		
Temperature		°C	
Atmospheric pressure	10-	Pascal	
Streightness		μm	
Required cost Schedule			
Others			

 Technohands Co., Ltd.

1-9-1 Maruyama, Isogo-ku, Yokohama-shi,
Kanagawa-ken, 235-0011, Japan

TEL : +81-45-370-8010 FAX : +81-45-370-8015

103-1206, Digital Empire 2, 88 Shinwon-ro, Yeongtong-gu,
Suwon, Gyeonggi-do, Korea

TEL : +82-31-695-6525 FAX : +82-31-695-6524

www.technohands.co.jp

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