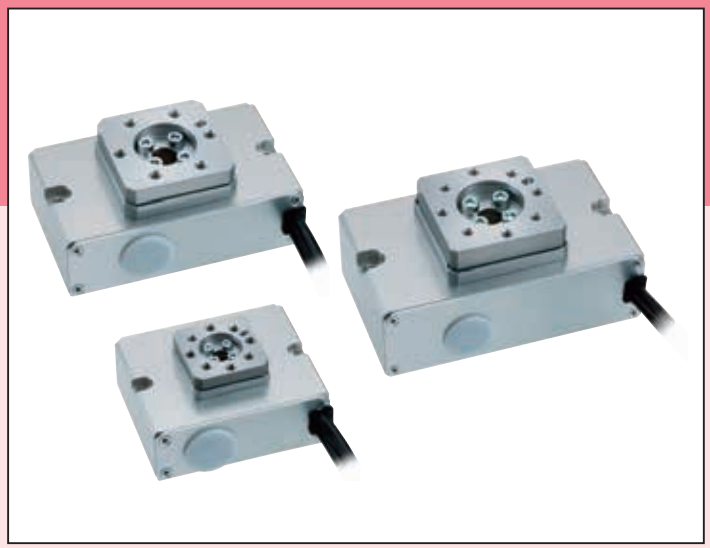
FGRC

Rotary

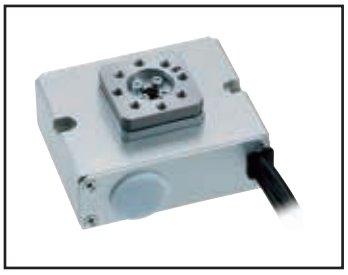
Electric actuator
Motor specification



CONTENTS

FGRC Series variation

Model No.	Motor size	Max. torque (N·m)	Max. angular speed (deg/s)
FGRC-10	□20	0.89	200
FGRC-30	□25	2.71	
FGRC-50	□35	4.66	



Electric actuator Rotary

FGRC-10

☐ 20 stepper motor

For applicable controller ECR, 48 V and 24 V power supplies can be used.
For applicable controller ECG, 24 V power supplies can be used.

How to order

FGRC - 10 (A) G (B) 360 N C (C) N - F S03 (D)

A Size

10

B Applicable controller *1

G	ECG
Blank	ECR

C Encoder

C	Incremental encoder

D Relay cable *2

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R01	Movable cable 1 m
R03	Movable cable 3 m
R05	Movable cable 5 m
R10	Movable cable 10 m

*1 Select the controller from page 45 or page 59.
*2 Refer to page 55 or page 70 for relay cable dimensions.

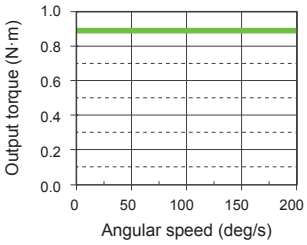
Specifications

Motor		☐ 20 stepper motor
Encoder type		Incremental encoder
Drive method		Worm gear + belt
Travel angle *1		360
Max. output torque *2	N·m	0.89
Repeatability	deg	±0.05
Backlash *3	deg	±0.3
Lost motion	deg	0.3 or less
Operation angular speed range	deg/s	20 to 200
Pressing operation angular speed range	deg/s	20 to 30
Allowable moment of inertia *2	kg·m²	0.0057
Allowable thrust load	N	80
Allowable radial load	N	80
Allowable moment	N·m	2.5
Motor power supply voltage		24 VDC ±10% or 48 VDC ±10%
Insulation resistance		10 MΩ, 500 VDC
Withstand voltage		500 VAC for 1 minute
Operating ambient temperature, humidity		0 to 40°C (no freezing) 35 to 80% RH (no condensation)
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)
Atmosphere		No corrosive gas, explosive gas, or dust
Degree of protection		IP40
Weight	kg	0.65

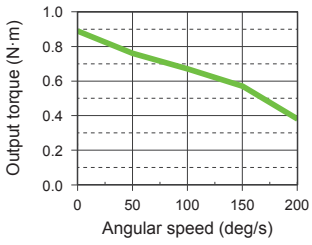
*1 Movable angle is up to 359.9° via travel instructions.
*2 Rotation torque and allowable moment of inertia change in accordance with angular speed and angular acceleration/deceleration. Refer to the table at right for details.
*3 When stopping precision is required, stop with an external stopper, etc., and complete positioning with pressing operation.

Angular speed and output torque

[At 48 VDC]

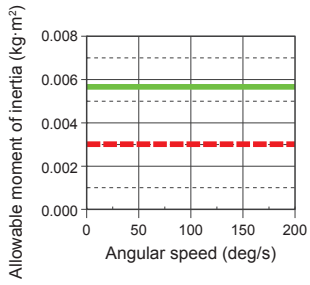


[At 24 VDC]

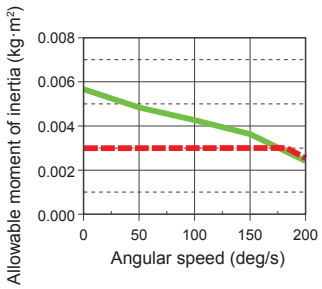


Angular speed and allowable moment of inertia

[At 48 VDC]

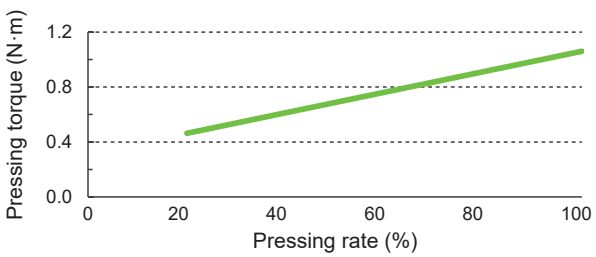


[At 24 VDC]



* When angular acceleration/deceleration is greater than 1700deg/s², operate below the dashed line.

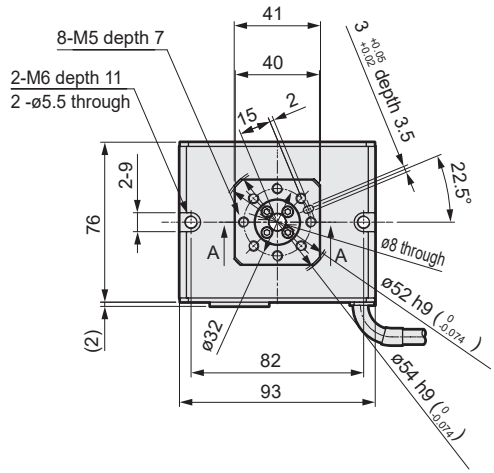
Pressing torque

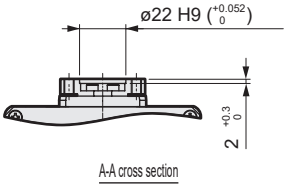


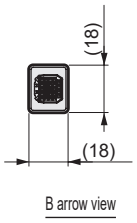
* The pressing torque and pressing rate are merely guidelines.
Individual motor differences and variations in mechanical efficiency may result in differing actual values, even at the same pressing rate.

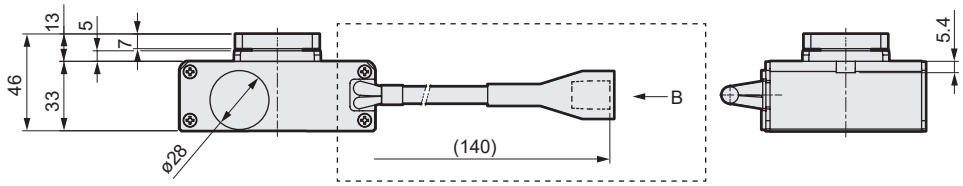
Dimensions

● FGRC-10

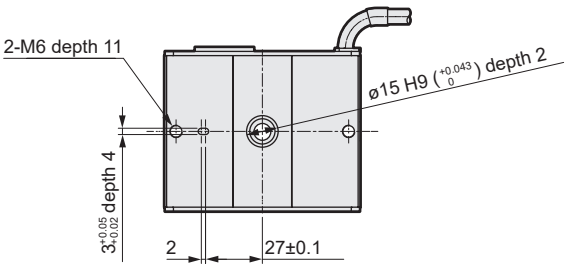




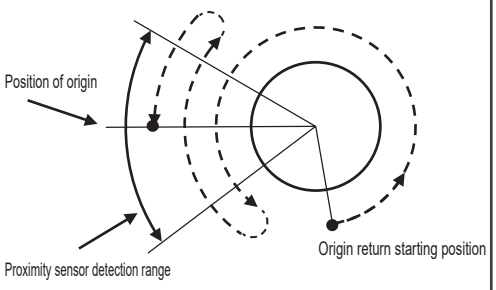




* The cable cannot be removed.

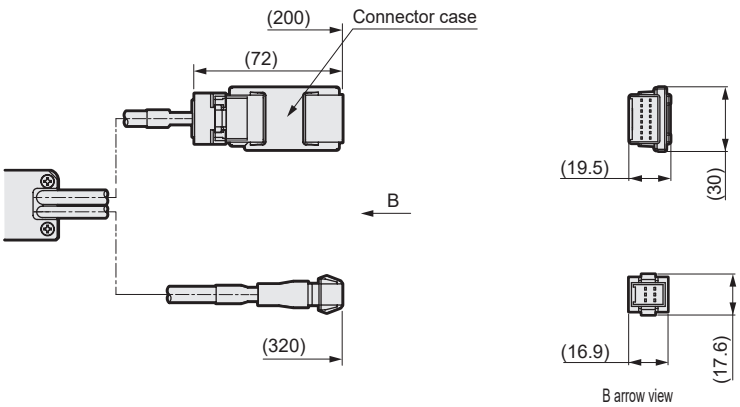


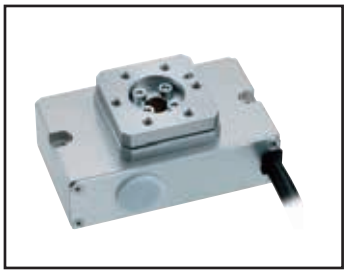
The FGRC Series detects the origin position by detecting a proximity sensor located in the actuator. Therefore, depending on the zero point return start position, the actuator may move by more than one rotation during zero point return. With FGRC-10, after detecting a proximity sensor, the actuator operates within the range of ±45deg with the sensor as its center. After that, the zero point return operation is completed.



*The angle at which the unit operates around the sensor varies somewhat for each product due to factors such as how the sensor is fixed.

* The dotted line is as shown below when connecting ECR.





Electric actuator Rotary

FGRC-30

□25 stepper motor

For applicable controller ECR, 48 V and 24 V power supplies can be used.
For applicable controller ECG, 24 V power supplies can be used.

How to order

FGRC - 30 G 360 N C N - F S03

Ⓐ Size

30

Ⓑ Applicable controller *1

G	ECG
Blank	ECR

Ⓒ Encoder

C	Incremental encoder

Ⓓ Relay cable *2

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R01	Movable cable 1 m
R03	Movable cable 3 m
R05	Movable cable 5 m
R10	Movable cable 10 m

*1 Select the controller from page 45 or page 59.
*2 Refer to page 55 or page 70 for relay cable dimensions.

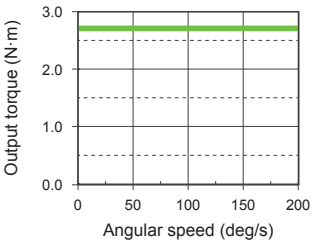
Specifications

Motor		□25 stepper motor
Encoder type		Incremental encoder
Drive method		Worm gear + belt
Travel angle *1		360
Max. output torque *2	N·m	2.71
Repeatability	deg	±0.05
Backlash *3	deg	±0.2
Lost motion	deg	0.3 or less
Operation angular speed range	deg/s	20 to 200
Pressing operation angular speed range	deg/s	20 to 30
Allowable moment of inertia *2	kg·m²	0.0173
Allowable thrust load	N	200
Allowable radial load	N	200
Allowable moment	N·m	5.5
Motor power supply voltage		24 VDC ±10% or 48 VDC ±10%
Insulation resistance		10 MΩ, 500 VDC
Withstand voltage		500 VAC for 1 minute
Operating ambient temperature, humidity		0 to 40°C (no freezing) 35 to 80% RH (no condensation)
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)
Atmosphere		No corrosive gas, explosive gas, or dust
Degree of protection		IP40
Weight	kg	1.05

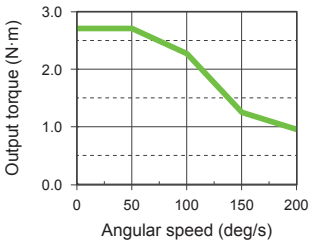
*1 Movable angle is up to 359.9° via travel instructions.
*2 Rotation torque and allowable moment of inertia change in accordance with angular speed and angular acceleration/deceleration. Refer to the table at right for details.
*3 When stopping precision is required, stop with an external stopper, etc., and complete positioning with pressing operation.

Angular speed and output torque

[At 48 VDC]

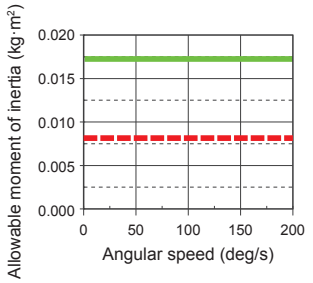


[At 24 VDC]

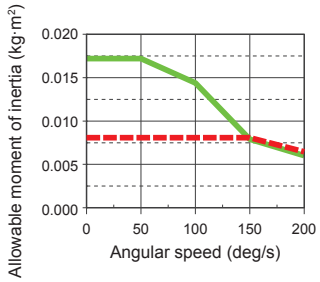


Angular speed and allowable moment of inertia

[At 48 VDC]

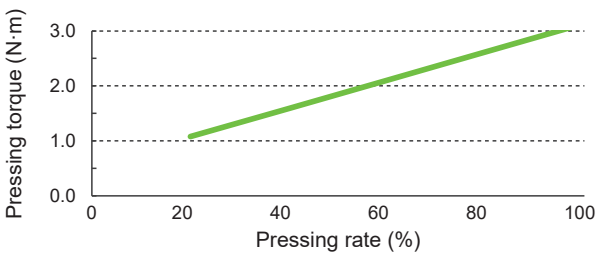


[At 24 VDC]



* When angular acceleration/deceleration is greater than 1700deg/s², operate below the dashed line.

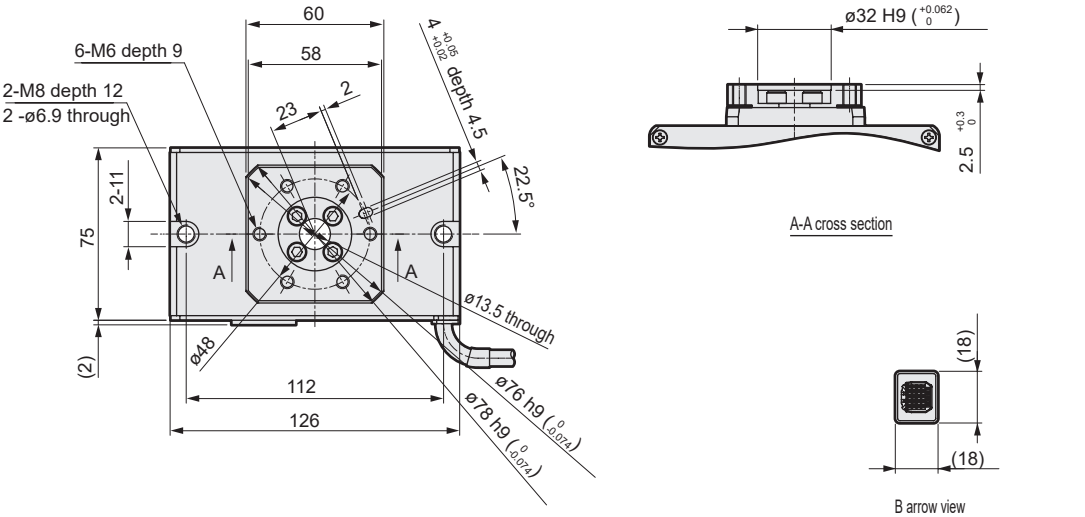
Pressing torque



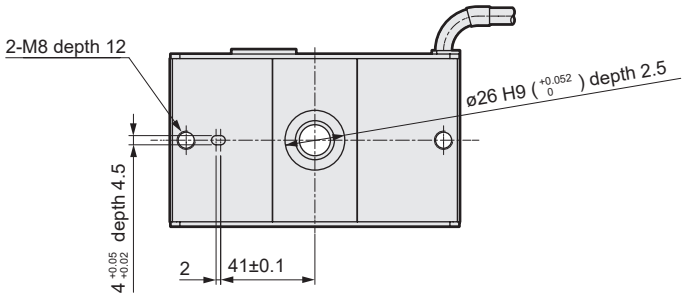
* The pressing torque and pressing rate are merely guidelines.
Individual motor differences and variations in mechanical efficiency may result in differing actual values, even at the same pressing rate.

Dimensions

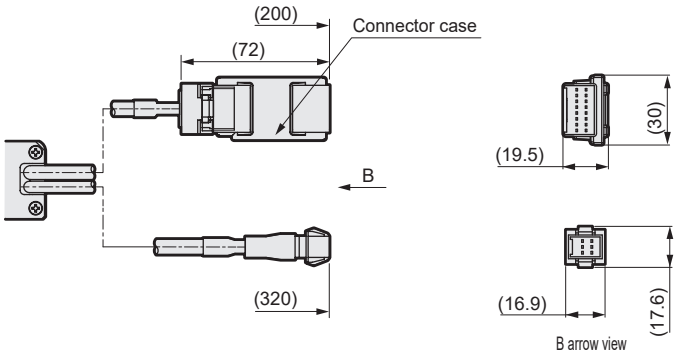
● FGRC-30



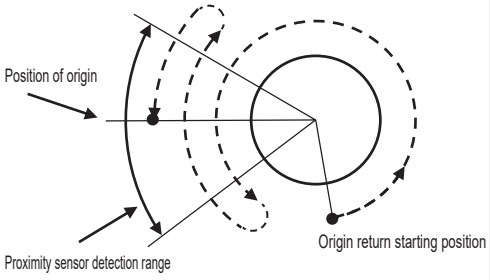
* The cable cannot be removed.



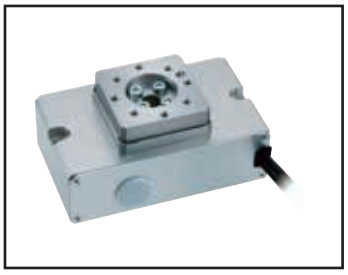
* The dotted line is as shown below when connecting ECR.



The FGRC Series detects the origin position by detecting a proximity sensor located in the actuator. Therefore, depending on the zero point return start position, the actuator may move by more than one rotation during zero point return. With FGRC-30, after detecting a proximity sensor, the actuator operates within the range of ±35deg with the sensor as its center. After that, the zero point return operation is completed.



*The angle at which the unit operates around the sensor varies somewhat for each product due to factors such as how the sensor is fixed.



Electric actuator Rotary

FGRC-50

□35 stepper motor

For applicable controller ECR, 48 V and 24 V power supplies can be used.
For applicable controller ECG, 24 V power supplies can be used.

How to order

FGRC - 50 G 360 N C N - F S03
(A) (B) (C) (D)

(A) Size

50

(B) Applicable controller *1

G	ECG
Blank	ECR

(C) Encoder

C	Incremental encoder

(D) Relay cable *1*2

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R01	Movable cable 1 m
R03	Movable cable 3 m
R05	Movable cable 5 m
R10	Movable cable 10 m

*1 Select the controller from page 45 or page 59.
*2 Refer to page 55 or page 70 for relay cable dimensions.

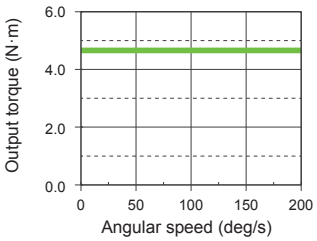
Specifications

Motor		□35 stepper motor
Encoder type		Incremental encoder
Drive method		Worm gear + belt
Travel angle *1		360
Max. output torque *2	N·m	4.66
Repeatability	deg	±0.05
Backlash *3	deg	±0.2
Lost motion	deg	0.3 or less
Operation angular speed range	deg/s	20 to 200
Pressing operation angular speed range	deg/s	20 to 30
Allowable moment of inertia *2	kg·m²	0.0297
Allowable thrust load	N	450
Allowable radial load	N	320
Allowable moment	N·m	10
Motor power supply voltage		24 VDC ±10% or 48 VDC ±10%
Insulation resistance		10 MΩ, 500 VDC
Withstand voltage		500 VAC for 1 minute
Operating ambient temperature, humidity		0 to 40°C (no freezing) 35 to 80% RH (no condensation)
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)
Atmosphere		No corrosive gas, explosive gas, or dust
Degree of protection		IP40
Weight	kg	1.85

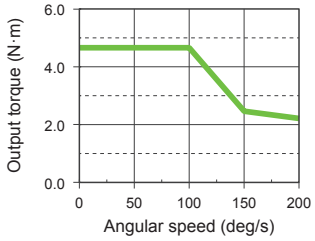
*1 Movable angle is up to 359.9° via travel instructions.
*2 Rotation torque and allowable moment of inertia change in accordance with angular speed and angular acceleration/deceleration. Refer to the table at right for details.
*3 When stopping precision is required, stop with an external stopper, etc., and complete positioning with pressing operation.

Angular speed and output torque

[At 48 VDC]

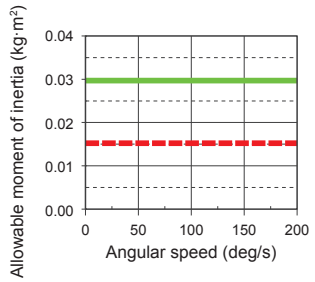


[At 24 VDC]

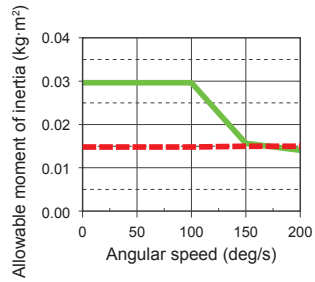


Angular speed and allowable moment of inertia

[At 48 VDC]

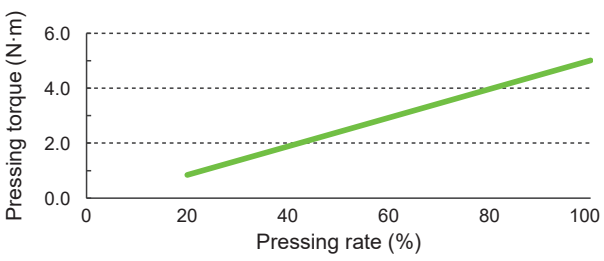


[At 24 VDC]



* When angular acceleration/deceleration is greater than 1700deg/s², operate below the dashed line.

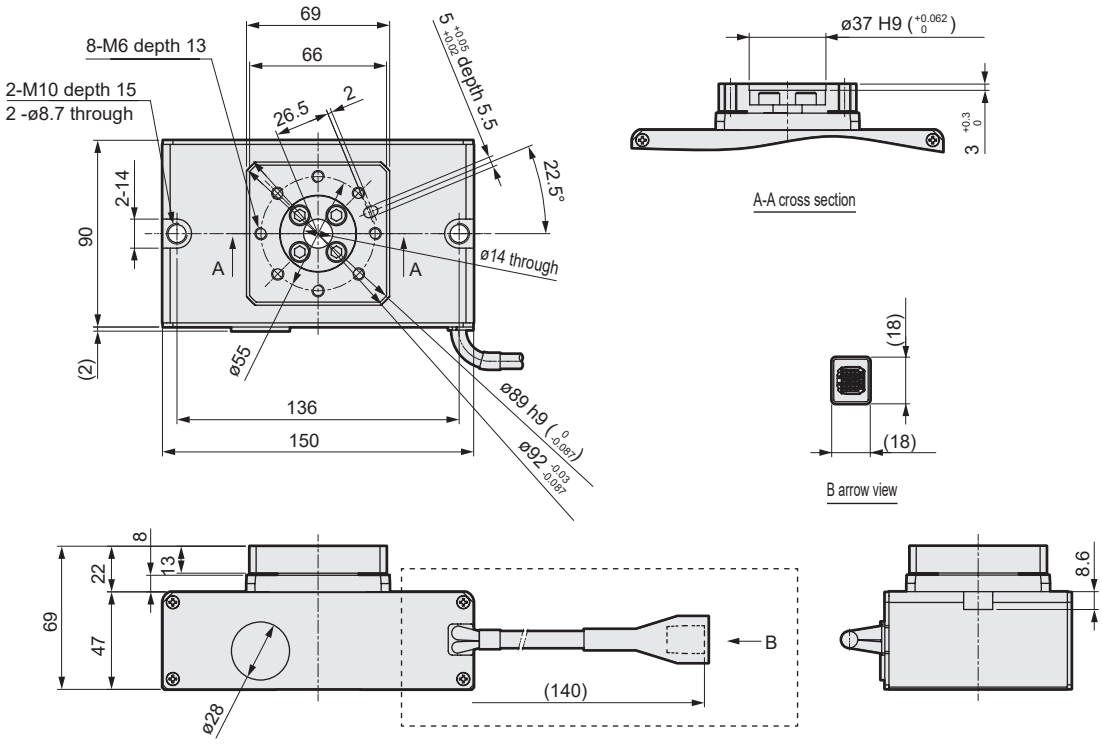
Pressing torque



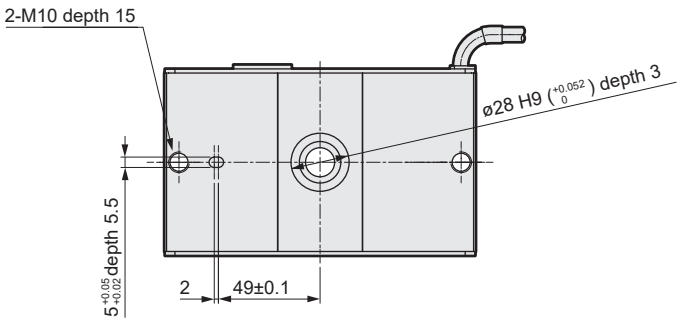
* The pressing torque and pressing rate are merely guidelines.
Individual motor differences and variations in mechanical efficiency may result in differing actual values, even at the same pressing rate.

Dimensions

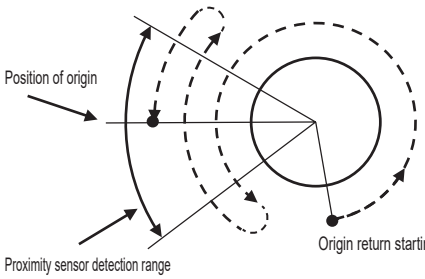
● FGRC-50



* The cable cannot be removed.



The FGRC Series detects the origin position by detecting a proximity sensor located in the actuator. Therefore, depending on the zero point return start position, the actuator may move by more than one rotation during zero point return. With FGRC-50, after detecting a proximity sensor, the actuator operates within the range of ±25deg with the sensor as its center. After that, the zero point return operation is completed.



*The angle at which the unit operates around the sensor varies somewhat for each product due to factors such as how the sensor is fixed.

* The dotted line is as shown below when connecting ECR.