FGRC

Rotary

**Electric actuator
Motor specification**
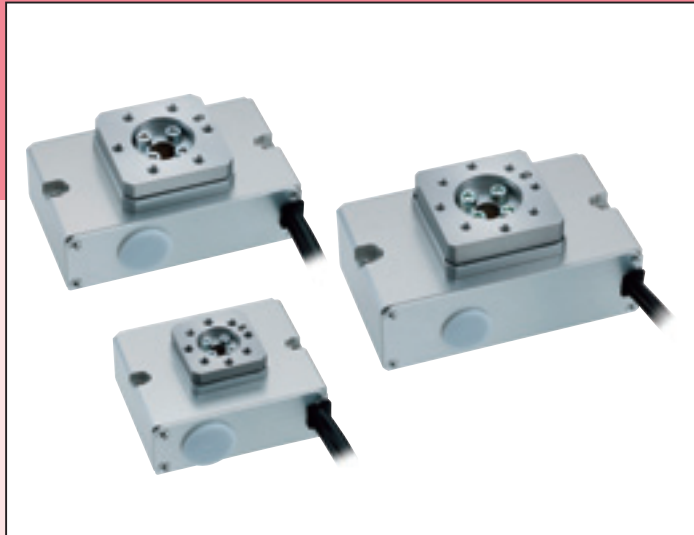
FLSH

FLCR

FGRC

ECR
(controller)

Safety
precautions

CONTENTS

FGRC Series variation

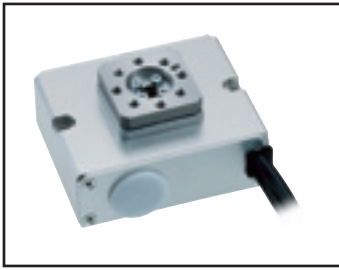| Model No.	Motor size	Max. torque (N·m)	Max. angular speed (deg/s)
FGRC-10	□20	0.89	200
FGRC-30	□25	2.71	
FGRC-50	□35	4.66	

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Safety
precautions

Electric actuator Rotary

FGRC-10

□20 stepper motor

CE RoHS

How to order

| FGRC | - | 10 | 360 N | C | N - F | S03 |

Ⓐ   Ⓑ   Ⓒ

Ⓐ Size

| 10 |

Ⓑ Encoder

| C | Incremental encoder |

Ⓒ 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.
*2 Refer to page 55 for relay cable dimensions.

Specifications

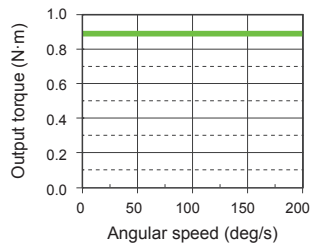| Motor	□20 stepper motor
Encoder type	Incremental encoder
Drive method	Worm gear + belt
Travel angle *1	360
Max. output torque *2 N·m	0.89
Repeatability deg	±0.05
Backlash *3 deg	±0.3
Lost motion deg	0.3 or less
Operation angular speed range deg/s	20 to 200
Pressing operation angular speed range deg/s	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%
Motor section maximum instantaneous current A	1.4
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.
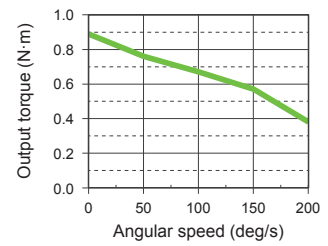*3 When stopping precision is required, stop with an external stopper, etc., and complete positioning with pressing operation.

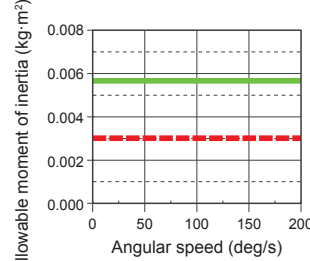## Angular speed and output torque

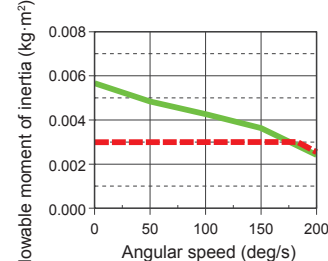[At 48 VDC]

[At 24 VDC]

Angular speed and allowable moment of inertia
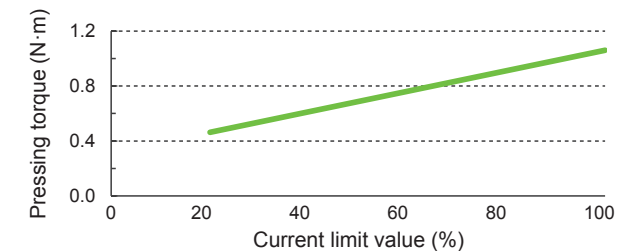
[At 48 VDC]

[At 24 VDC]

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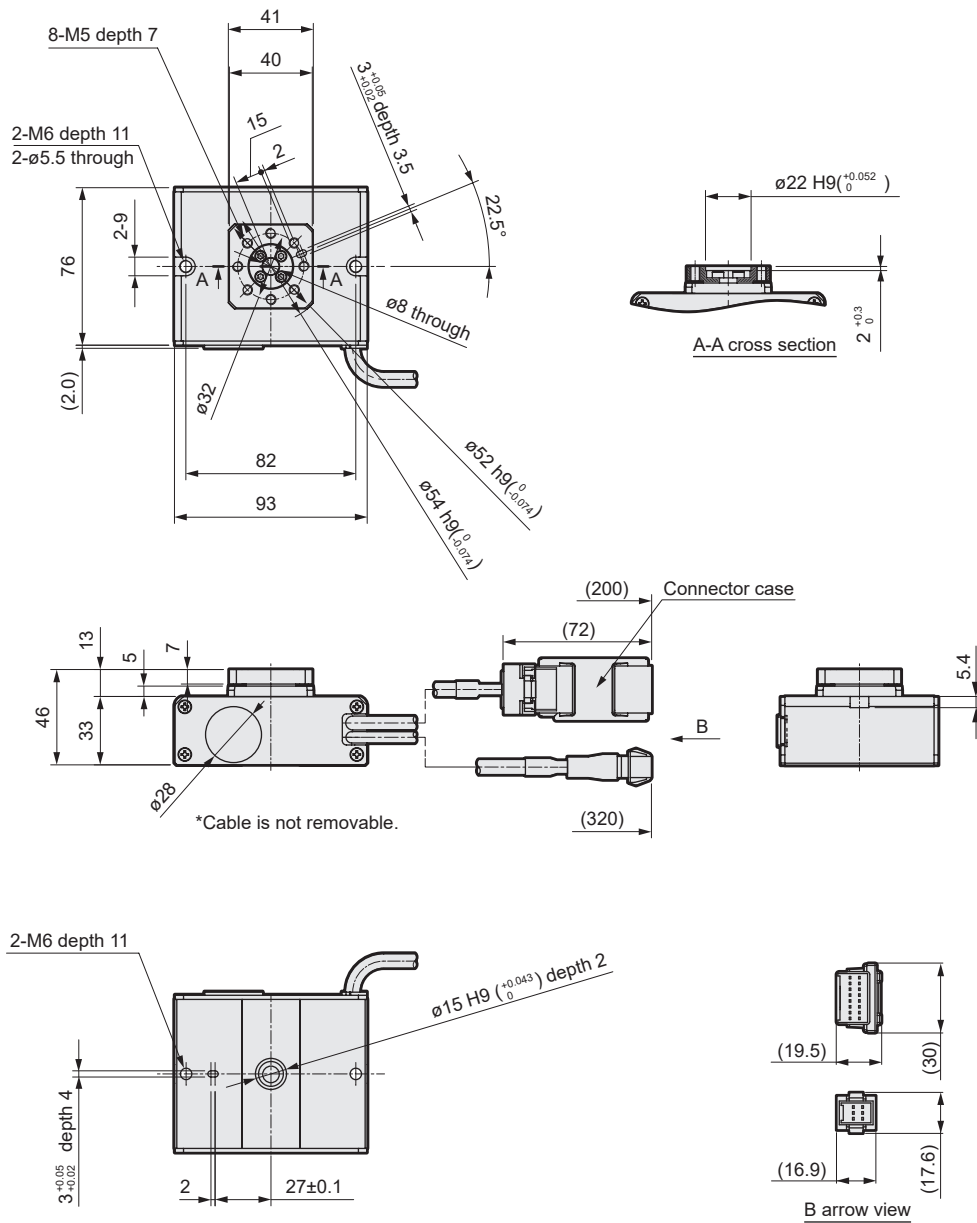
Pressing torque

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

CKD

Dimensions

● FGRC-10

8-M5 depth 7

2-M6 depth 11
2-ø5.5 through

41
40
15
2

$3^{+0.05}_{+0.02}$ depth 3.5

22.5°

ø8 through

ø22 H9($^{+0.052}_{0}$)

A-A cross section

$2^{+0.3}_{0}$

2-9

76

(2.0)

ø32

82

93

ø52 h9($^{0}_{-0.074}$)

ø54 h9($^{0}_{-0.074}$)

13
5
7
46
33

ø28

*Cable is not removable.

(200)   Connector case

(72)

B

(320)

5.4

2-M6 depth 11

ø15 H9($^{+0.043}_{0}$) depth 2

$3^{+0.05}_{+0.02}$ depth 4
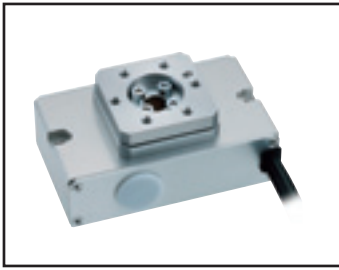
2   27±0.1

(19.5)   (30)

(16.9)   (17.6)

B arrow view

*1   The origin position of the actuator may differ from the position shown in the dimensions.
     The origin offset function allows origin setting at any position.

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(controller)

Safety
precautions

Electric actuator Rotary

FGRC-30

□25 stepper motor

CE RoHS

How to order

FGRC **-** 30 360 N C N **-** F S03
　Ⓐ Ⓑ Ⓒ

Ⓐ Size
30

Ⓑ Encoder	
C	Incremental encoder

Ⓒ 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.
*2　Refer to page 55 for relay cable dimensions.

Specifications

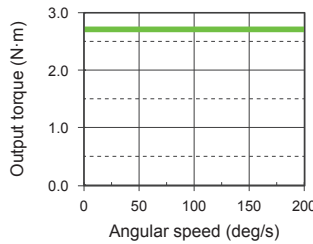| Motor	□25 stepper motor
Encoder type	Incremental encoder
Drive method	Worm gear + belt
Travel angle *1	360
Max. output torque *2　N·m	2.71
Repeatability　deg	±0.05
Backlash *3　deg	±0.2
Lost motion　deg	0.3 or less
Operation angular speed range　deg/s	20 to 200
Pressing operation angular speed range　deg/s	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%
Motor section maximum instantaneous current　A	3
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.
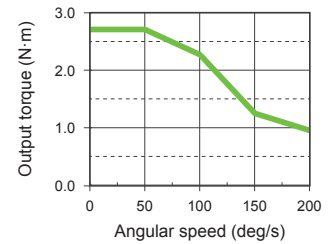*3　When stopping precision is required, stop with an external stopper, etc., and complete positioning with pressing operation.

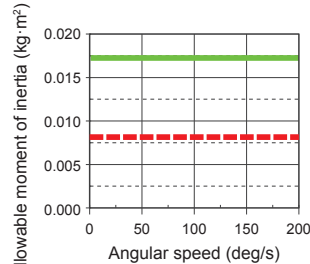## Angular speed and output torque

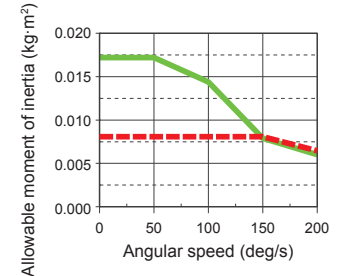[At 48 VDC]

[At 24 VDC]

Angular speed and allowable moment of inertia
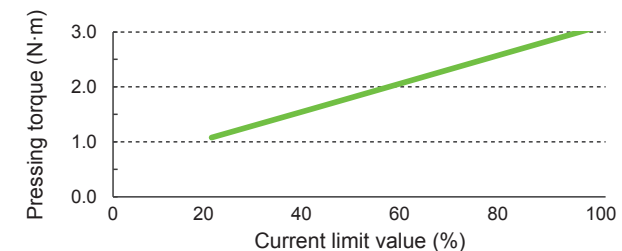
[At 48 VDC]

[At 24 VDC]

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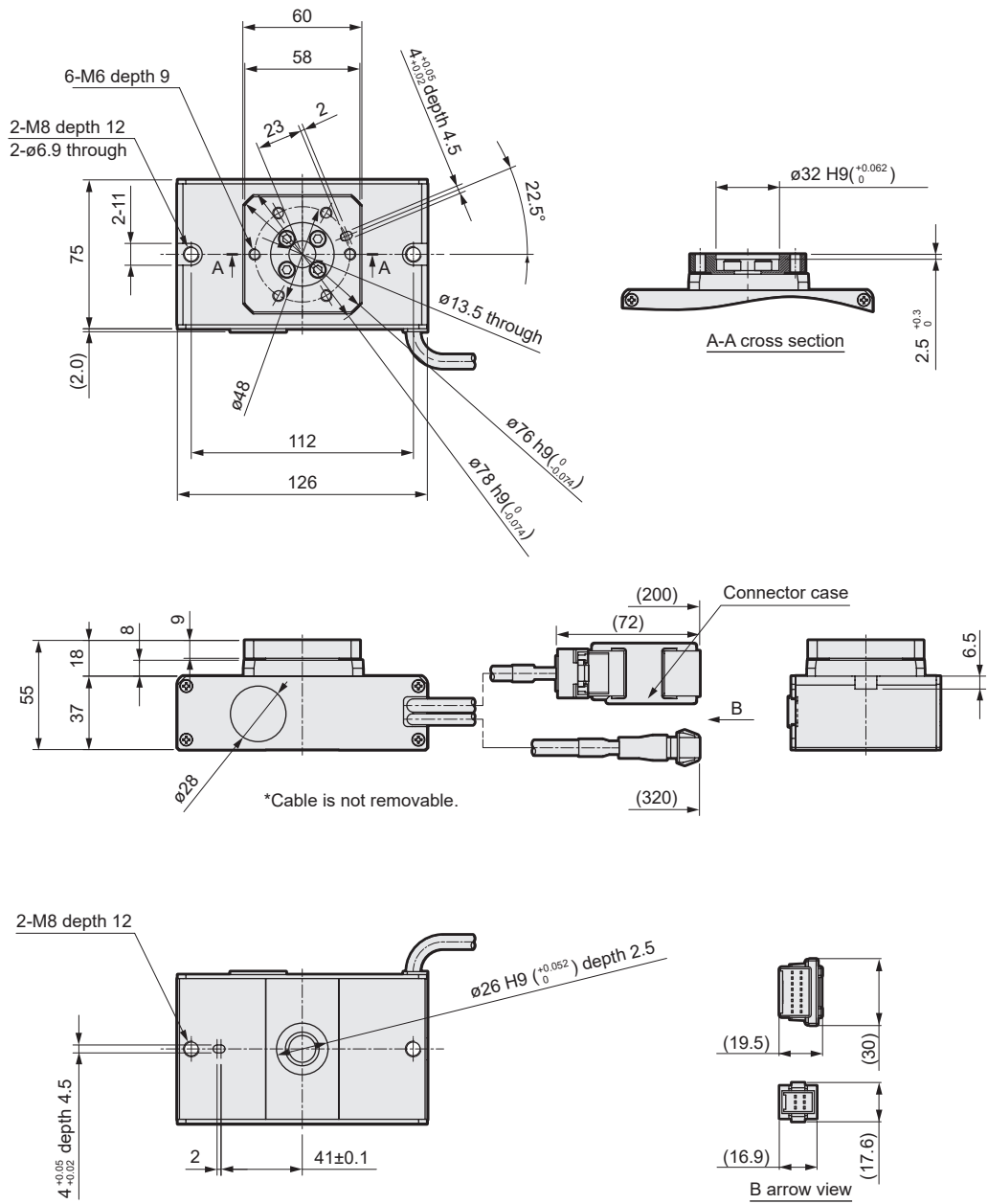
Pressing torque

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

Dimensions

● FGRC-30

6-M6 depth 9

2-M8 depth 12
2-ø6.9 through

60

58

23

2

$4^{+0.05}_{+0.02}$ depth 4.5

22.5°

2-11

75

(2.0)

A

A

ø48

ø13.5 through

112

126

ø76 h9($^{0}_{-0.074}$)

ø78 h9($^{0}_{-0.074}$)

ø32 H9($^{+0.062}_{0}$)

A-A cross section

$2.5^{+0.3}_{0}$

55

37

18

8

9

ø28

*Cable is not removable.

(200)

(72)

Connector case

B

(320)

6.5

2-M8 depth 12

$4^{+0.05}_{+0.02}$ depth 4.5

2

41±0.1

ø26 H9($^{+0.052}_{0}$) depth 2.5

(19.5)

(16.9)

(30)

(17.6)

B arrow view

*1 The origin position of the actuator may differ from the position shown in the dimensions.
The origin offset function allows origin setting at any position.

FLSH

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FGRC

ECR
(controller)

Safety
precautions
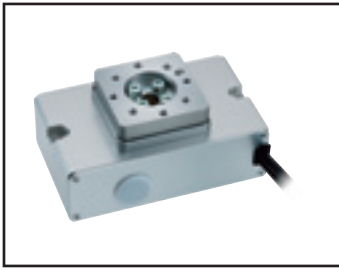
Electric actuator Rotary

FGRC-50

☐35 stepper motor

CE RoHS

How to order

FGRC - 50 360 N C N - F S03
      Ⓐ   Ⓑ   Ⓒ

Ⓐ Size	
50	

Ⓑ Encoder	
C	Incremental encoder

Ⓒ 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.
*2 Refer to page 55 for relay cable dimensions.

Specifications

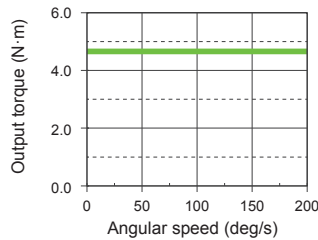| Motor	☐35 stepper motor
Encoder type	Incremental encoder
Drive method	Worm gear + belt
Travel angle *1	360
Max. output torque *2 N·m	4.66
Repeatability deg	±0.05
Backlash *3 deg	±0.2
Lost motion deg	0.3 or less
Operation angular speed range deg/s	20 to 200
Pressing operation angular speed range deg/s	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%
Motor section maximum instantaneous current A	4.2
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.
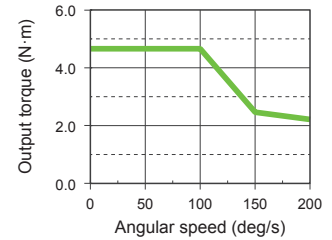*3 When stopping precision is required, stop with an external stopper, etc., and complete positioning with pressing operation.

Angular speed and output torque
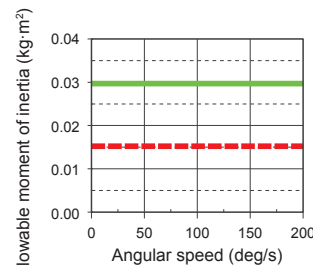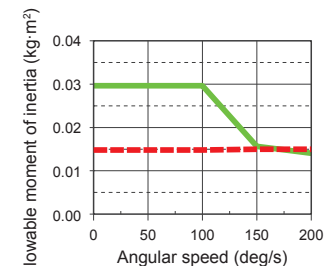
[At 48 VDC]

[At 24 VDC]

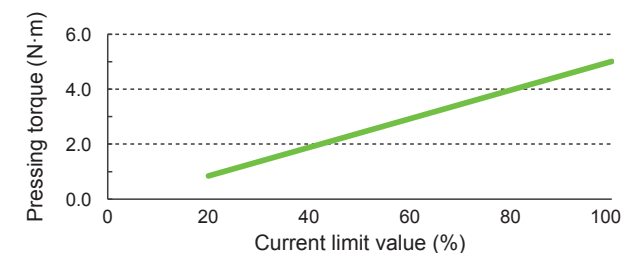## Angular speed and allowable moment of inertia

[At 48 VDC]

[At 24 VDC]

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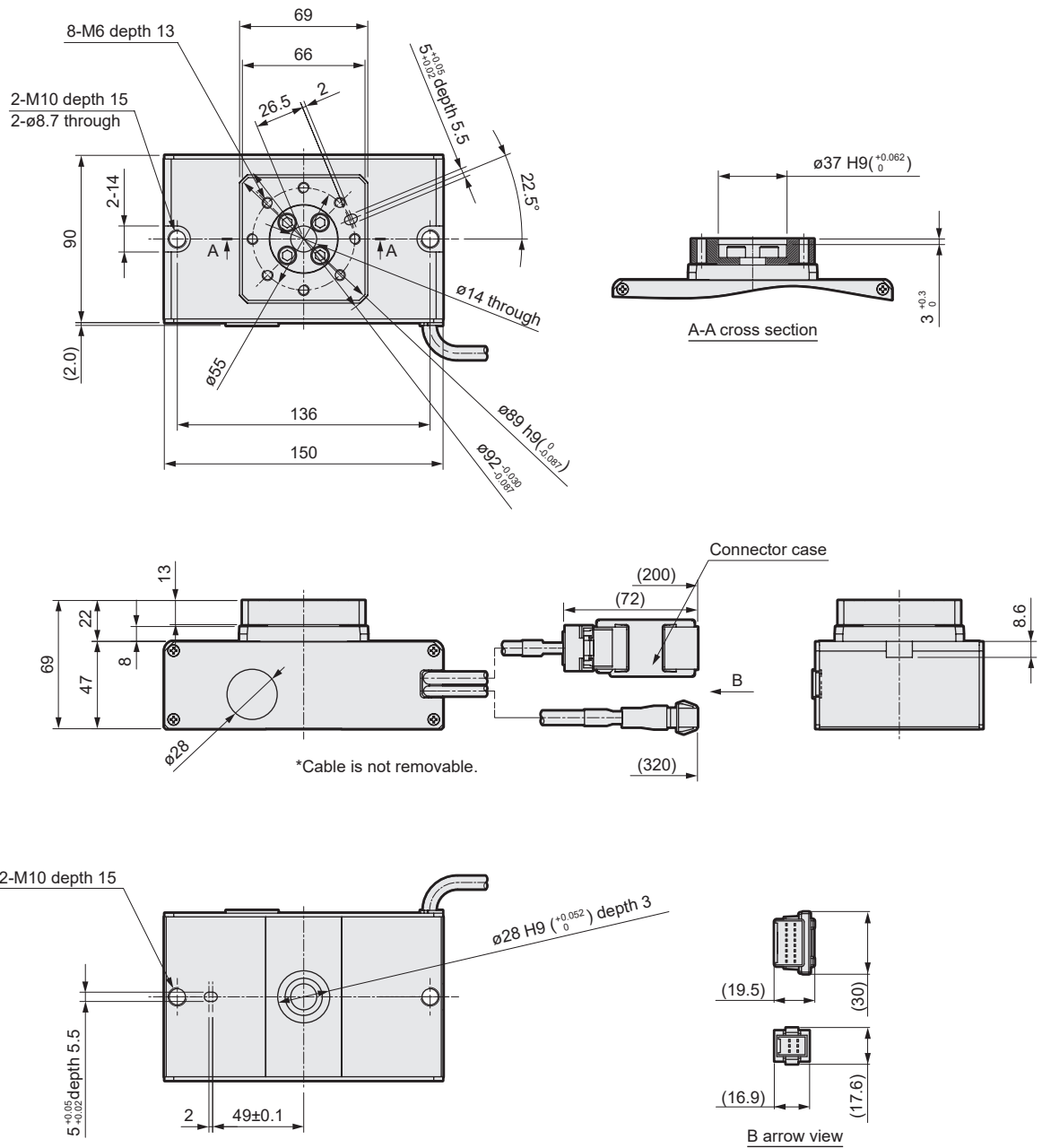
Pressing torque

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

CKD

Dimensions

● FGRC-50

8-M6 depth 13

2-M10 depth 15
2-ø8.7 through

5$^{+0.05}_{+0.02}$ depth 5.5

22.5°

69

66

26.5 2

2-14

90

(2.0)

ø55

136

150

ø14 through

ø89 h9($^{0}_{-0.087}$)

ø92$^{-0.030}_{-0.087}$

ø37 H9($^{+0.062}_{0}$)

3$^{+0.3}_{0}$

A-A cross section

Connector case

(200)

(72)

13

22

8

69

47

ø28

B

8.6

*Cable is not removable.

(320)

2-M10 depth 15

ø28 H9($^{+0.052}_{0}$) depth 3

5$^{+0.05}_{+0.02}$ depth 5.5

2 49±0.1

(19.5)

(30)

(16.9)

(17.6)

B arrow view

*1 The origin position of the actuator may differ from the position shown in the dimensions.
    The origin offset function allows origin setting at any position.

FLSH

FLCR

FGRC

ECR
(controller)

Safety
precautions

CKD

35