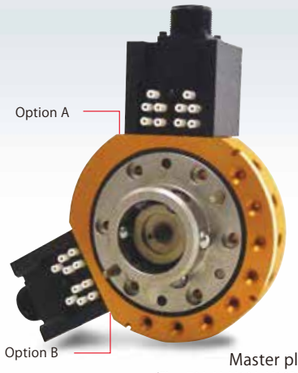
Flex-70A

Flex-70 is attached to the robot flange for quick and reliable exchange of end-effectors, such as tools. The ball-lock system in the Tool Plate is a sturdy specification, even for moment loads. A ground and approach sensor are now available as options in addition to conventional pneumatic ports, electric signals and a lock/unlock sensor. May be used in welding, press handling and deburring applications. Earth contact and electric signal module with approach sensor are added as option to usual electric signal contact blocks, pneumatic port blocks and lock/unlock sensor.



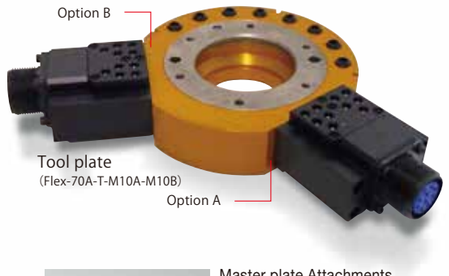
Master plate
(Flex-70A-M-M10A-M10B-SX)

Heavy duty applications

For heavy duty applications, such as deburring, a special seal prevents dust from entering the locking mechanism and electrical contacts when the plates are coupled.

Various range of utilities

In addition to traditional air ports, electrical signals and a lock/unlock sensor, an approach sensor and a ground can be added.



Large misalignment correction capability

The unique design corrects misalignment when the Master and Tool plates couple. An approach sensor system, built into the plates, verifies coupling capability.

Superior fail-safe locking mechanism

BL's unique lock/unlock mechanism contains a mechanical fail-safe feature which does not allow the Master and Tool plates to uncouple if the air pressure is shut off.

Master plate Attachments
- 6 bolts (M6×40)
- 1 locating pin

※Seal plate, O-ring and screws are pre-assembled.

Specifications

Main Body

Load capacity (rated load)		686N (70kg)
Positional repeatability		±0.015mm
Allowable dynamic moment	Bending direction (Tx, Ty)	686N・m (70kgf・m)
	Twisting direction (Tz)	784N・m (80kgf・m)
Coupling force (with air pressure of 0.49 Mpa) ※1		7,056N(720kgf)
Materials	Frame	Aluminum alloy
	Lock/unlock mechanism	Stainless steel
Overall dimension (when coupled)		φ139×H65mm
Weight (Main body)	Master plate	1,900g
	Tool plate	1,200g
Self-separating mechanism		Ball-locking mechanism
Required air pressure		0.39～0.68MPa (4～7kgf/cm²)
Allowable temperature and humidity ranges		0～50℃, 35～90% (Non-condensing)
Utilities	Pneumatic ports	Rc1/8×8

※1 Coupling force is the force to achieve specified repeatability. Coupling force will be maintained until unlock pressure is applied or the device is damaged.
※2 The connector plug is user-provided.
※3 Cables of Lock/unlock sensors (proximity sensor) can be connected optional connectors (J16A, M10A, A16A, A08A). Please contact BL. Autotec, Ltd. for further information.

Options

Utilities	D15A. D15B	Electrical signals	3A×15 ※2
	J16A. J16B	Electrical signals	5A×16 ※3 ※4
	M10A. M10B	Electrical signals	13A×10 ※3 ※5
	A16A. A16B	Electrical signals	Approach Sensor + 5A×16 ※3 ※4
	A08A. A08B	Electrical signals	Approach Sensor + 13A×8 ※3 ※5
	B15NA B15NB B15PA B15PB	Electric signals Max.50mA DC24V Non-contact system (Please refer to page 41 for details.)	50mA×15 WEB series connector ※3 In Zone 1 IP67
	B15DA B15DB	Electric signals Max.5mA DC12V Non-contact system (Please refer to page 41 for details.)	5mA×15 WEB series connector ※3 IP67
	E50A. E50B	Ground	500A (50% usage) ×1
	P18A. P18B	Pneumatic ports	Rc1/8×4
	P14A. P14B	Pneumatic ports	Rc1/4×2
	P3WA. P3WB	Pneumatic ports	Rc3/8×2
Lock/unlock sensor ※6			Two built-in proximity switches

Flex-70A Ordering Information

Master plate: Flex-70A -M- (Option A) – (Option B) – (Lock/unlock sensor)

Tool plate: Flex-70A -T- (Option A) – (Option B)

XXXA	No option
D15A	Electrical signals 3A×15※2
J16A	Electrical signals 5A×16※3 ※4
M10A	Electrical signals 13A×10※3 ※5
A16A	Approach sensors + Electrical signals 5A×16※3 ※4
A08A	Approach sensors + Electrical signals 13A×8※3 ※5
B15NA	Non-contact electric signal block Master side NPN output
B15PA	Non-contact electric signal block Master side PNP output
B15DA	Non-contact electric signal block Tool side
◎ E50A	Ground 500A×1
P18A	Pneumatic ports Rc1/8×4
P14A	Pneumatic ports Rc1/4×2
◎ P3WA	Pneumatic ports Rc1/8×2

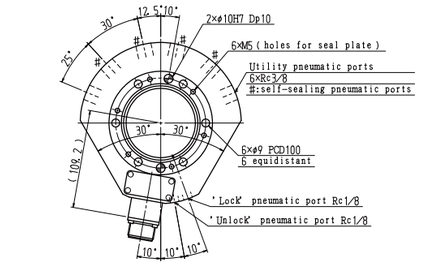
XXXB	No option
D15B	Electrical signals 3A×15※2
J16B	Electrical signals 5A×16※3 ※4
M10B	Electrical signals 13A×10※3 ※5
A16B	Approach sensors + Electrical signals 5A×16※3 ※4
A08B	Approach sensors + Electrical signals 13A×8※3 ※5
B15NA	Non-contact electric signal block Master side NPN output
B15PB	Non-contact electric signal block Master side PNP output
B15DB	Non-contact electric signal block Tool side
◎ E50B	Ground 500A×1
P18B	Pneumatic ports Rc1/8×4
P14B	Pneumatic ports Rc1/4×2
◎ P3WB	Pneumatic ports Rc1/8×2

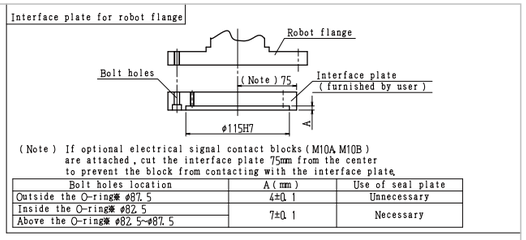
SX	No Lock/unlock Sensor
SA	Lock/unlock Sensor A type (Customer processes the adptor plate)
SB	Lock/unlock Sensor B type (BL. Autotec processes the adptor plate)

Note: ◎Combination of E50A & E50B, PC3WA & PC3WB, PC3WA & E50B cannot be used on the same Flex-70A.

※In case combing Flex-70(old version) & Flex-70A (current version), pls confirm a serial number & let us know accordingly.

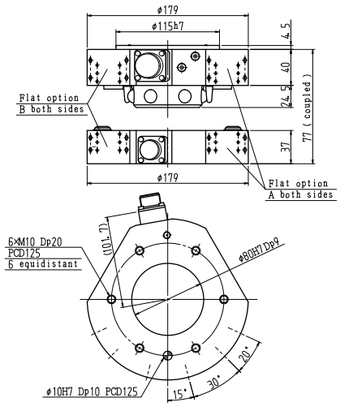
Main Body Dimensions

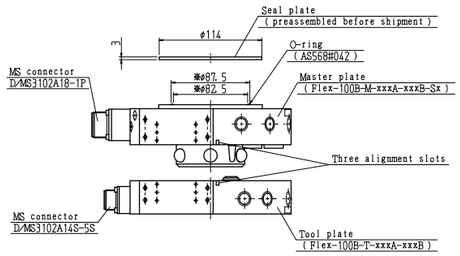




(Note) If optional electrical signal contact blocks (M10A M10B) are attached, cut the interface plate 75mm from the center to prevent the block from contacting with the interface plate.

Bolt holes location	A (mm)	Use of seal plate
Outside the O-ring※ φ87.5	45±0.1	Unnecessary
Inside the O-ring※ φ82.5	7±0.1	Necessary
Above the O-ring※ φ82.5-φ87.5		





(Model:Flex-100B-xxxA-xxxB-Sx)

●Six bolts (M8×55mm) and one locating pin (MSY10-30) are supplied with the Master plate.
●The six bolts extend 16.0mm above the Master plate (when seal plate attached).

Options

■Electrical signal contact block

D15A,D15B

3A×15 D-sub 15 contacts (female receptacles)※2

※Plug side is DDK, 17JE-23150-02(D8A) -CG, or its equivalent.

J16A,J16B

5A×16 (JM connector)※3 ※4

Use JMR2116M-D for the J16A master side
Use JMR2116F-D for the J16A Tool side
Use JMR2116MX-D for the J16B Master side
Use JMR2116FX-D for the J16B Tool side

M10A,M10B

13A×10 (MS connector)※3 ※5

Use D/MS3102A 18-1P for the M10A master side
Use D/MS3102A 18-1S for the M10A Tool side
Use D/MS3102A 18-19P for the M10B Master side
Use D/MS3102A 18-19S for the M10B Tool side

A16A,A16B

Approach Sensor
5A×16 (JM connector)※3 ※4

Use JMR2119M-D for the A16A master side
Use JMR2116F-D for the A16A Tool side
Use JMR2119MX-D for the A16B Master side
Use JMR2116FX-D for the A16B Tool side

A08A,A08B

Approach Sensor
13A×8 (MS connector)※3 ※5

Use D/MS3102A 18-1P for the A08A master side
Use D/MS3102A 18-1S for the A08A Tool side
Use D/MS3102A 18-19P for the A08B Master side
Use D/MS3102A 18-19S for the A08B Tool side

■Non-contact electric signal block

B15NA/B,B15PA/B(Master side only) B15DA/B (Tool side only)

B15NA/B NPN output
B15PA/B PNP output

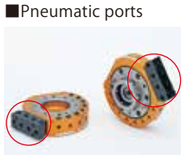
Receptacle connector: WE8R-21195-D for B15NA/B and B15PA/B
Receptacle connector: WE8R-21195-D for B15DA/B

■Ground

E50A,E50B

Ground 500A×1

■Pneumatic ports



P18A,P18B

Rc1/8×4

P14A,P14B

Rc1/4×2

P3WA,P3WB

Rc3/8×2

■Lock/unlock sensor

SA,SB

Two built-in proximity switches verify piston position, thus reliably checking the lock and unlock status.

Please contact BL Autotec, Ltd. for detailed information on the options.

SA Type・・・The sensor plate can be used in place of an interface plate with modifications by the user
SB Type・・・The sensor plate can be used in place of an interface plate with modifications by BL Autotec ,Ltd.
※When you order the lock/unlock sensor please provide us with a drawing of the robot flange.

※1 Coupling force is the force to achieve specified repeatability. Coupling will be maintained until unlock pressure is applied or the device is damaged. ※2 Plug connector is not included. Please prepare plug connector type 17JE-23150-02(D8A)-CG or compatible type. ※3 Plug connector is not included. Please prepare plug connector by customer. For connector, please see correspondence table on page 46. ※4 Allowable current is total 30.4A for connector. ※5 Allowable current is total 57.2A for connector. ※6 An option is available on the electric signal contact block (J16A, M10A, A16A, A08A) to connect the Lock/unlock proximity switch signal. Please contact us for additional information.