

Flex-100B

The BL QUICK-CHANGE Model Flex-100B is a device for quick and accurate automatic changing of multiple end-effectors, such as material handling, palletizing and deburring. Pneumatic blocks and electrical connector blocks can be selected for the Flex-100B.

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.

Self-sealing pneumatic ports

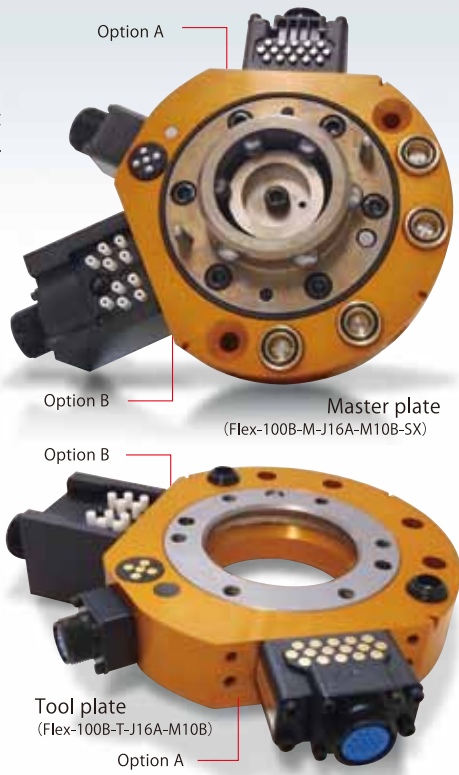
There are six pneumatic ports in the Master plate (Rc3/8) . Four of the six ports are self-sealing, which automatically shut off air pressure when uncoupled and allow for easier air control in the system.

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 (M8×55)  
• Stepped parallel pin×1  
※ Seal plate, O-ring and screws are pre-assembled.

Specifications

Main Body		
Load capacity (rated load)		980N (100kg)
Positional repeatability ※1		±0.015mm
Allowable dynamic moment	Bending direction (Tx, Ty)	1,372N·m (140kgf·m)
	Twisting direction (Tz)	1,372N·m (140kgf·m)
Coupling force (with air pressure of 0.49MPa) ※2		10,290N (1,050kgf)
Materials	Frame	Aluminum alloy
	Lock/ unlock mechanism	Stainless steel
Overall dimension (when coupled)		φ 178×H81.5mm
Weight (Main body)	Master plate	3,900g
	Tool plate	2,250g
Self-separating mechanism		Ball-locking mechanism
Required air pressure		0.39~0.68MPa (4~7kgf/cm <sup>2</sup> )
Allowable temperature and humidity ranges		0~50℃, 35~90% (Non-condensing)
Utilities	Electrical signals Max. 5 DC/AC200V Probe contact	5A×5 ※3
	Pneumatic ports	Rc3/8×4 (self-sealing) ※4 Rc3/8×2
	Approach sensor	Senses Tool plate position up to 1.5mm distance

Option			
Utilities	D15A, D15B	Electrical signals	3A×15 ※5
	J16A, J16B	Electrical signals	5A×16 ※3 ※6
	M10A, M10B	Electrical signals	13A×10 ※3 ※7
	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
	P38A, P38B	Pneumatic ports	Rc3/8×4
	P3WA, P3WB	Pneumatic ports	Rc3/8×2
	Lock/unlock sensor ※8		Two built-in proximity switches

Flex-100B Ordering Informatio

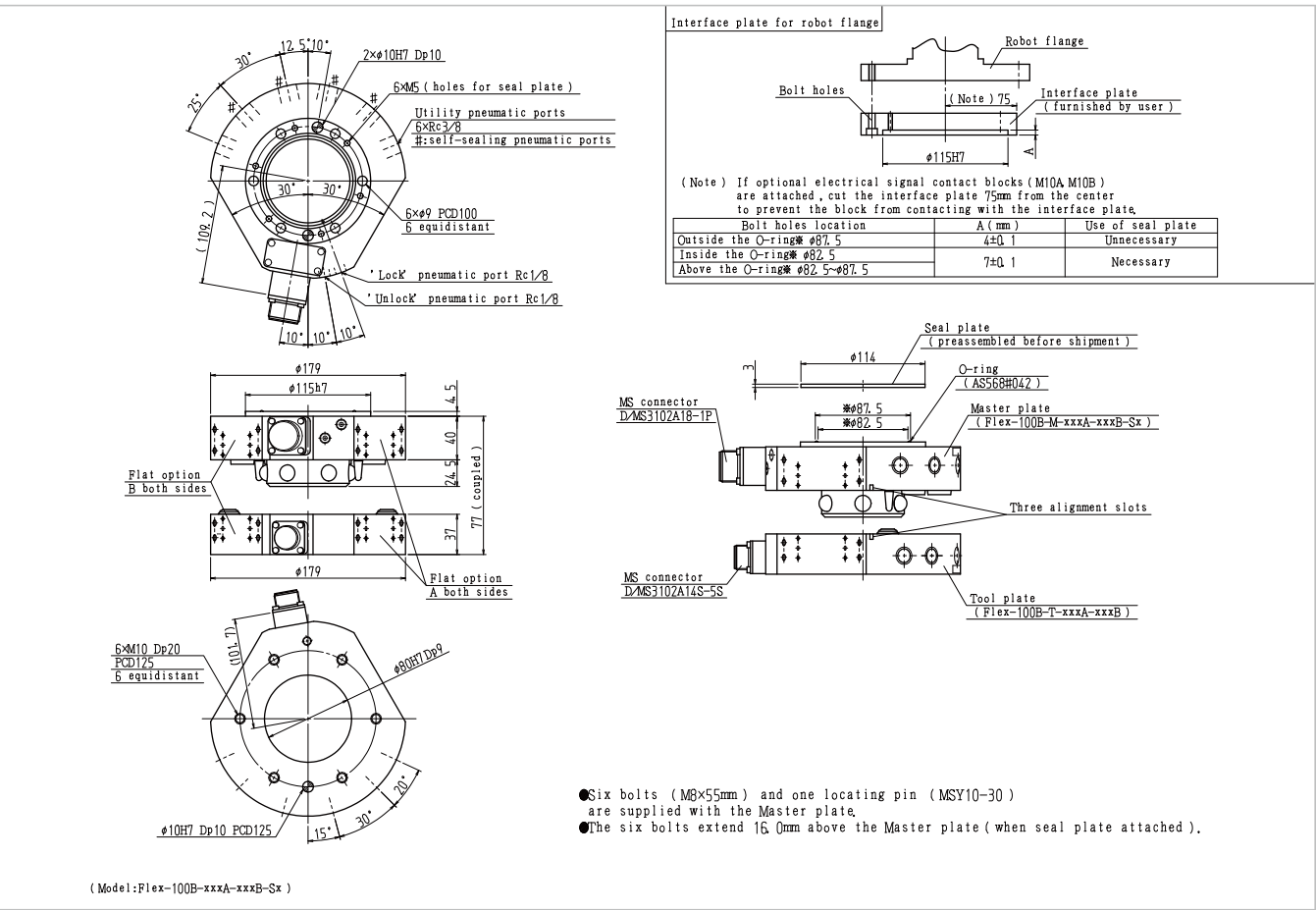
Master plate	<b>Flex-100B -M-</b>	(Option A)	—	(Option B)	—	(Lock/unlock sensor)
Tool plate	<b>Flex-100B -T-</b>	(Option A)	—	(Option B)		
		XXXX	No electrical signal	XXXX	No option	
		D15A	Electrical signals 3A×15※5	D15B	Electrical signals 3A×15※5	
		J16A	Electrical signals 5A×16※3 ※6	J16B	Electrical signals 5A×16※3 ※6	
		M10A	Electrical signals 13A×10※3 ※7	M10B	Electrical signals 13A×10※3 ※7	
		B15NA	Non-contact electric signal block Master side NPN output	B15NB	Non-contact electric signal block Master side NPN output	
		B15PA	Non-contact electric signal block Master side PNP output	B15PB	Non-contact electric signal block Master side PNP output	
		B15DA	Non-contact electric signal block Tool side	B15DB	Non-contact electric signal block Tool side	
		E50A	Ground 500A×1	E50B	Ground 500A×1	
		P18A	Pneumatic ports Rc1/8×4	P18B	Pneumatic ports Rc1/8×4	
		P14A	Pneumatic ports Rc1/4×2	P14B	Pneumatic ports Rc1/4×2	
		P38A	Pneumatic ports Rc3/8×4	P38B	Pneumatic ports Rc3/8×4	
		P3WA	Pneumatic ports Rc3/8×2	P3WB	Pneumatic ports Rc3/8×2	

Note:◎Combination of E50A & E50B, cannot be used on the same Flex-100B.

SX	No lock/unlock sensor
SA	Lock/unlock sensor A-Type (Customer processes the adaptor plate)
SB	Lock/unlock sensor B-Type (BL Autotec processes the adaptor plate)

We have Model: QCP-100A for material handling between presses. Please contact BL Autotec, Ltd. for further information.

Main Body Dimensions



Options

Electrical signal contact block



**D15A,D15B**  
3A×15 D-sub 15 contacts (female receptacles) ※5  
※ Plug side is DDK-17JE-23150-02(D8A)-CG or its equivalent.



**J16A,J16B**  
5A×16 (JM connector) ※3 ※6  
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 ※6  
Use D/MS3102A18-1P for the M10A Master side  
Use D/MS3102A18-1S for the M10A Tool side  
Use D/MS3102A18-19P for the M10B Master side  
Use D/MS3102A18-19S for the M10B 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: WEBR-2119S-D for B15NA/B and B15PA/B  
Receptacle connector: WEBR-2116S-D for B15DA/B

Ground

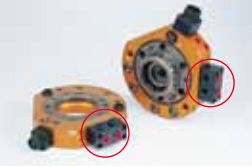


**E50A,E50B**  
Ground 500A×1

Pneumatic ports



**P18A,P18B**  
Rc1/8×4



**P14A,P14B**  
Rc1/4×2



**P38A,P38B**  
Rc3/8×4



**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 Positional repeatability means the accuracy of position between the one master plate and the one tool plate(A) repeat coupled and uncoupled. It is not possible to apply this positional repeatability to different tool plate(B).  
※2 Coupling force is the force to achieve specified repeatability. Coupling will be maintained until unlock pressure is applied or the device is damaged.  
※3 Plug connector is not included. Please prepare plug connector by customer. For connector, please see correspondence table on page 51.  
※4 Port with self-sealing of pneumatic ports cannot be used for vacuum.  
※5 Plug connector is not included. Please prepare plug connector type 17JE-23150-02(D8A)-CG or compatible type.  
※6 Allowable current is total 30.4A for connector.  
※7 Allowable current is total 57.2A for connector.  
※8 An option is available on the electric signal contact block (D/MS3102A18-1P) to connect the Lock/unlock proximity switch signal. Please contact us for additional information.