

Flex-40B

The BL QUICK-CHANGE Model Flex-40B is a device for automatic tool changing, designed to enable robots and automated equipment to automatically change end-effectors or other peripheral tooling. A ball-locking mechanism allows for high coupling force and increased moment. To meet your specific application requirements, such as material handling, assembly and deburring, you may select various options in pneumatic ports and electrical contacts, including motor-driving ampere capacity.

Various Range of Utilities

The system can be structured to meet individual customer applications by varying the size and number of electrical contacts and pneumatic ports.

Lock without touching

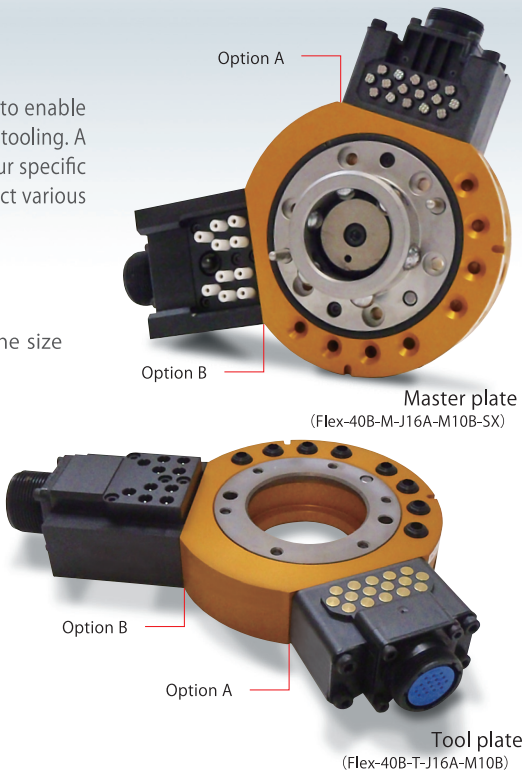
The Master plate can lock onto the Tool plate with a gap between them.

Superior fail-safe locking mechanism

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



Master plate Attachments
•6 bolts (M5×35)
•1 locating pin
※Seal plate, O-ring and screws are pre-assembled.



Specifications

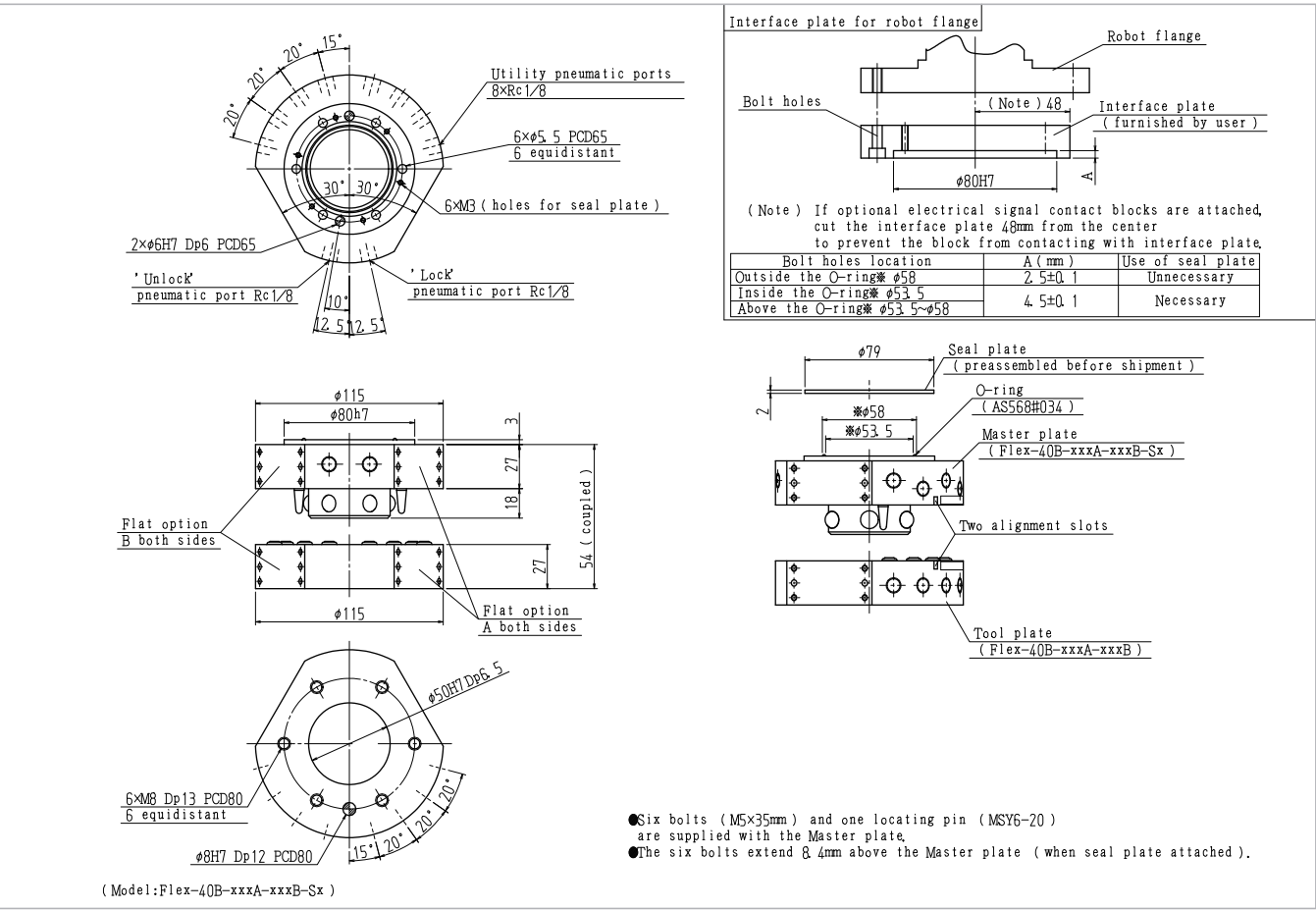
Main Body		
Load capacity (rated load)	392N (40kg)	
Positional repeatability ※1	±0.015mm	
Allowable dynamic moment	Bending direction (Tx, Ty)	314N·m (32kgf·m)
	Twisting direction (Tz)	430N·m (44kgf·m)
Coupling force (with air pressure of 0.49MPa) ※2	4,000N(408kgf)	
Mterials	Frame	Aluminum alloy
	Lock/unlock mechanism	Stainless steel
Overall dimension (when coupled)	φ115×H57mm	
Weight (Main body)	Master plate	1,140g
	Tool plate	610g
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

Options			
Utilities	D15A D15B	Electrical signals Max3A DC50V Probe contact	3A×15 ※3
	J16A J16B	Electrical signals Max5A DC/AC200V Probe contact	5A×16 本 ※4 ※5
	M10A M10B	Electrical signals Max13A DC250/AC200V Insertion contact	13A×10 ※4 ※6
	A16A A16B	Electrical signals Max5A DC/AC200V Probe contact	Approach sensor 5A×16 ※4 ※5
	A08A A08B	Electrical signals Max13A DC250/AC200V Insertion contact	Approach sensor 13A×8 ※4 ※6
	B15NA B15NB B15PA B15PB	Electric signals Max.50mA DC24V Non-contact system (Please refer to page 41 for details.)	50mA×15 WEB series connector ※4 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 ※4 IP67
	P18A, P18B	Pneumatic ports	Rc1/8×4
	P14A, P14B	Pneumatic ports	Rc1/4×2
	Lock/unlock sensor ※7		Two built-in proximity switches

Flex-40B Ordering Information

Master plate	Flex-40B	-M-	(Option A) □□□□	-	(Option B) □□□□	-	(Lock/unlock sensor) □□
Tool plate	Flex-40B	-T-	(Option A) □□□□	-	(Option B) □□□□		
		XXXX	No option				
		D15A	Electrical signals 3A×15※3				
		J16A	Electrical signals 5A×16※4 ※5				
		M10A	Electrical signals 13A×10※4 ※6				
		B15NA	Non-contact electric signal block Master side NPN output				
		B15P	Non-contact electric signal block Master side PNP output				
		B15D	Non-contact electric signal block Tool side				
		A16A	Approach sensor + Electrical signals 5A×16※4※5				
		A08A	Approach sensor + Electrical signals 13A×8※4※6				
		P18A	Pneumatic ports Rc1/8×4				
		P14A	Pneumatic ports Rc1/4×2				
		XXXXB	No option				
		D15B	Electrical signals 3A×15※3				
		J16B	Electrical signals 5A×16※4 ※5				
		M10B	Electrical signals 13A×10※4 ※6				
		B15NB	Non-contact electric signal block Master side NPN output				
		B15P	Non-contact electric signal block Master side PNP output				
		B15D	Non-contact electric signal block Tool side				
		A16B	Approach sensor + Electrical signals 5A×16※4 ※5				
		A08B	Approach sensor + Electrical signals 13A×8※4 ※6				
		P18B	Pneumatic ports Rc1/8×4				
		P14B	Pneumatic ports Rc1/4×2				
		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)				

Main Body Dimensions



Options

Electrical signal contact block

D15A,D15B 3A×15 D-sub 15 contacts (female receptacles)※3 ※Plug side is DDK, 17JE-23150-02 (D8A)-CG, or its equivalent.	J16A,J16B 5A×16 (JM connector)※4 ※5 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)※4 ※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	A16A,A16B Approach Sensor 5A×16 (JM connector)※4 ※5 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)※4 ※6 Use D/MS3102A18-1P for the A08A master side Use D/MS3102A18-1S for the A08A Tool side Use D/MS3102A18-19P for the A08B Master side Use D/MS3102A18-19S for the A08B Tool side
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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-2119FS-D for B15DA/B
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Pneumatic ports

P18A,P18B Rc1/8×4

P14A,P14B Rc1/4×2

Lock/unlock sensor

SA,SB Two built-in proximity switches verify piston position, thus reliably checking the lock and unlock status.
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※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 User to provide connector plugs (17JE-23150-02(D8A)-CG or the equivalent). ※4 Plug is not included. Please see the table on page 46 for connectors. ※5 Allowable current is total 30.4A for connector. ※6 Allowable current is total 57.2A for connector. ※7 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.

Next-Generation Robots	ZEUS	GIGA	Automatic tool Changer	1kg	5kg	10kg	20kg	40kg	60kg	70kg	100kg	150kg	220kg	300kg	Press Handling Specification	100kg	Spot-Welding Gun-Changer	300kg	Options	Wire-Saving module / Contact block	Non-contact electric signal block	A mechanical safety valve prevents Tool plate drops	Option List	Product Overview	Rotary Joint	PN-ZERO Series	Wrist Compliant	ACCURANCE LOCK-ACCURANCE	Couple Joint	CJ2
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