

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.

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

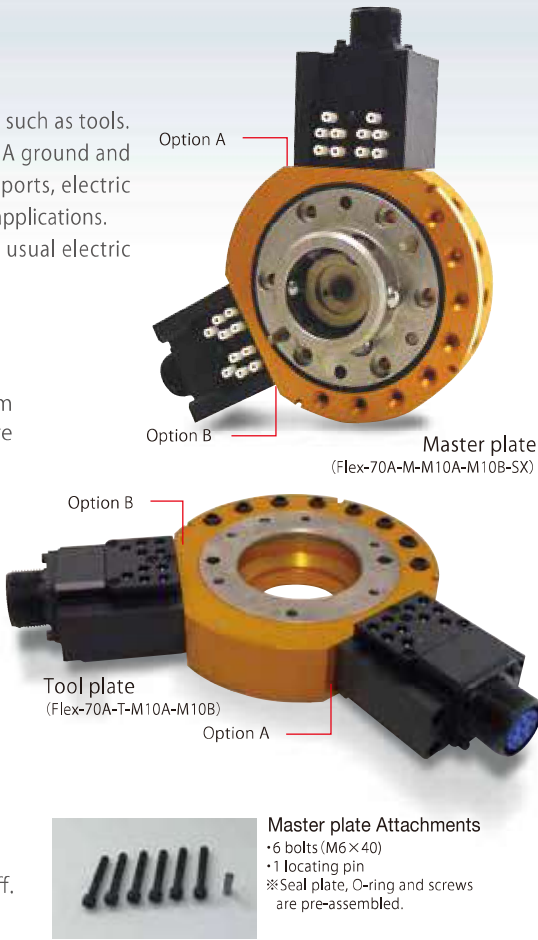
In addition to traditional air ports, electrical signals and a lock/unlock sensor, an approach sensor and a ground can be added.

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/cm ²)
Allowable temperature and humidity ranges		0~50°C, 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.

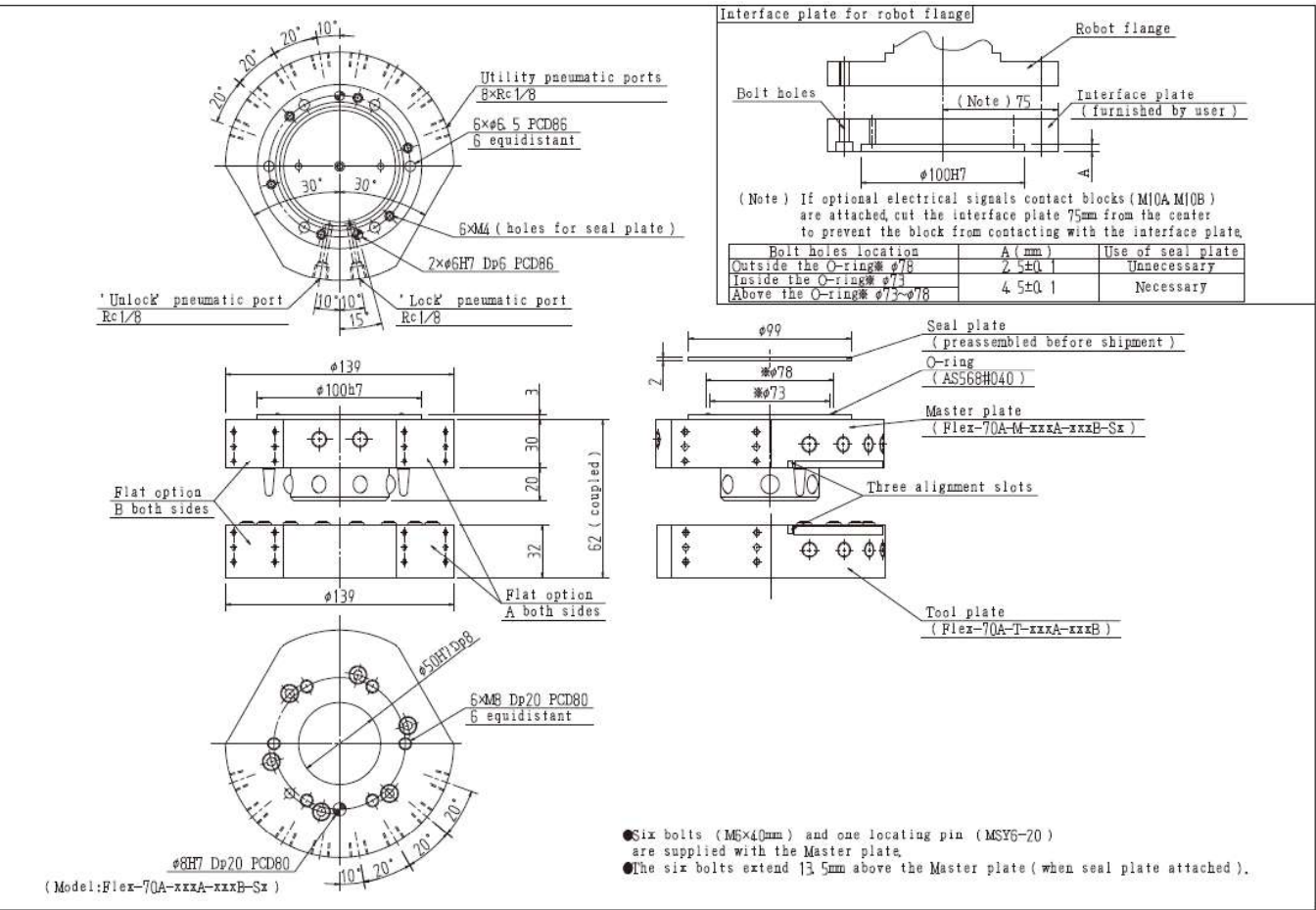
Options			
Utilities	D15A, D15B	Electrical signals	3A×15 ※2
	J16A, J16B	Electrical signals	5A×16 ※3 ※4
	M10A, M10B	Electrical signals	13A×10 ※3 ※5
	A16A, A16B	Electrical signals	Approach Sensor + 5A×16 ※3 ※4
	A08A, A08B	Electrical signals	Approach Sensor + 13A×8 ※3 ※5
	B15NA, B15NB, B15PA, B15PB	Electric 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		(Option A)	(Option B)	(Lock/unlock sensor)
Flex-70A -M-		□□□□	□□□□	□□
Tool plate		(Option A)	(Option B)	
Flex-70A -T-		□□□□	□□□□	
		XXXX No option	XXXX No option	
		D15A Electrical signals 3A×15※2	D15B Electrical signals 3A×15※2	
		J16A Electrical signals 5A×16※3 ※4	J16B Electrical signals 5A×16※3 ※4	
		M10A Electrical signals 13A×10※3 ※5	M10B Electrical signals 13A×10※3 ※5	
		A16A Approach sensors + Electrical signals 5A×16※3 ※4	A16B Approach sensors + Electrical signals 5A×16※3 ※4	
		A08A Approach sensors + Electrical signals 13A×8※3 ※5	A08B Approach sensors + Electrical signals 13A×8※3 ※5	
		B15NA Non-contact electric signal block Master side NPN output	B15NB Non-contact electric signal block Master side PNP 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	
		◎ P3WA Pneumatic ports Rc1/8×2	◎ P3WB Pneumatic ports Rc1/8×2	

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

Main Body Dimensions



Options

Electrical signal contact block

D15A, D15B 3A×15 D-sub 15 contacts (female receptacles) ※2 ※ Plug side is D0K, 17J6-23150-02(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 18-1P for the M10B master side Use D/MS3102A 18-1S for the M10B tool side	A16A, A16B Approach Sensor 5A×16 (JM connector) ※3 ※4 Use JMR2119M-D for the A16A master side Use JMR2119F-D for the A16A tool side Use JMR2119MX-D for the A16B master side Use JMR2119FX-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 18-1P for the A08B master side Use D/MS3102A 18-1S 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: WEBB-2119S-D for B15NA/B and B15PA/B
Receptacle connector: WEBB-2119F-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.

※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 by customer. For connector, please see correspondence table on page 46. ※3 Allowable current is total 30.4A for connector. ※4 Allowable current is total 57.2A for connector. ※5 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.

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.