

Flex-300A

The BL QUICK-CHANGE Model Flex-300A is a device for automatic tool changing, specially designed for high payload capacity robots generally used in handling and palletizing. Optional electrical contacts or pneumatic ports can be selected for the Flex-300A.

Heavy duty applications

For heavy duty applications, a special seal prevents dust from entering the locking mechanism and electrical contacts when the two plates are coupled. (Load Capacity: 300kg/Allowable static moment (Tx, Ty) :270kgf·m)

Self-sealing pneumatic ports

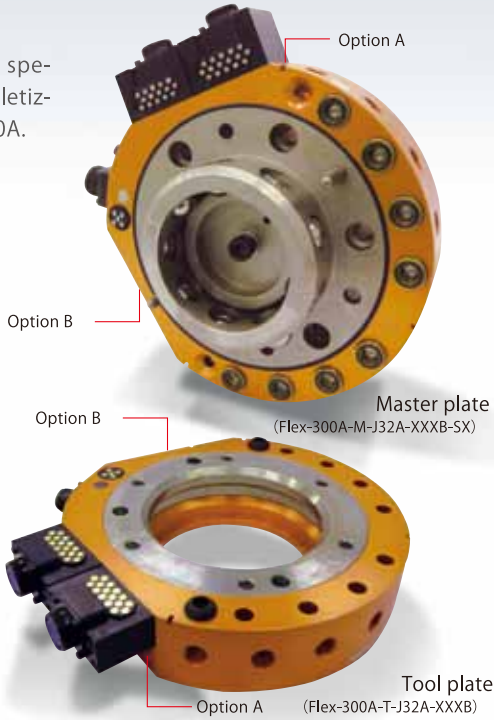
There are ten pneumatic ports in the Master plate (Rc3/8). Eight of the ten ports are self-sealing, which automatically shut off air pressure when uncoupled and allow for easier air control in the system.

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.

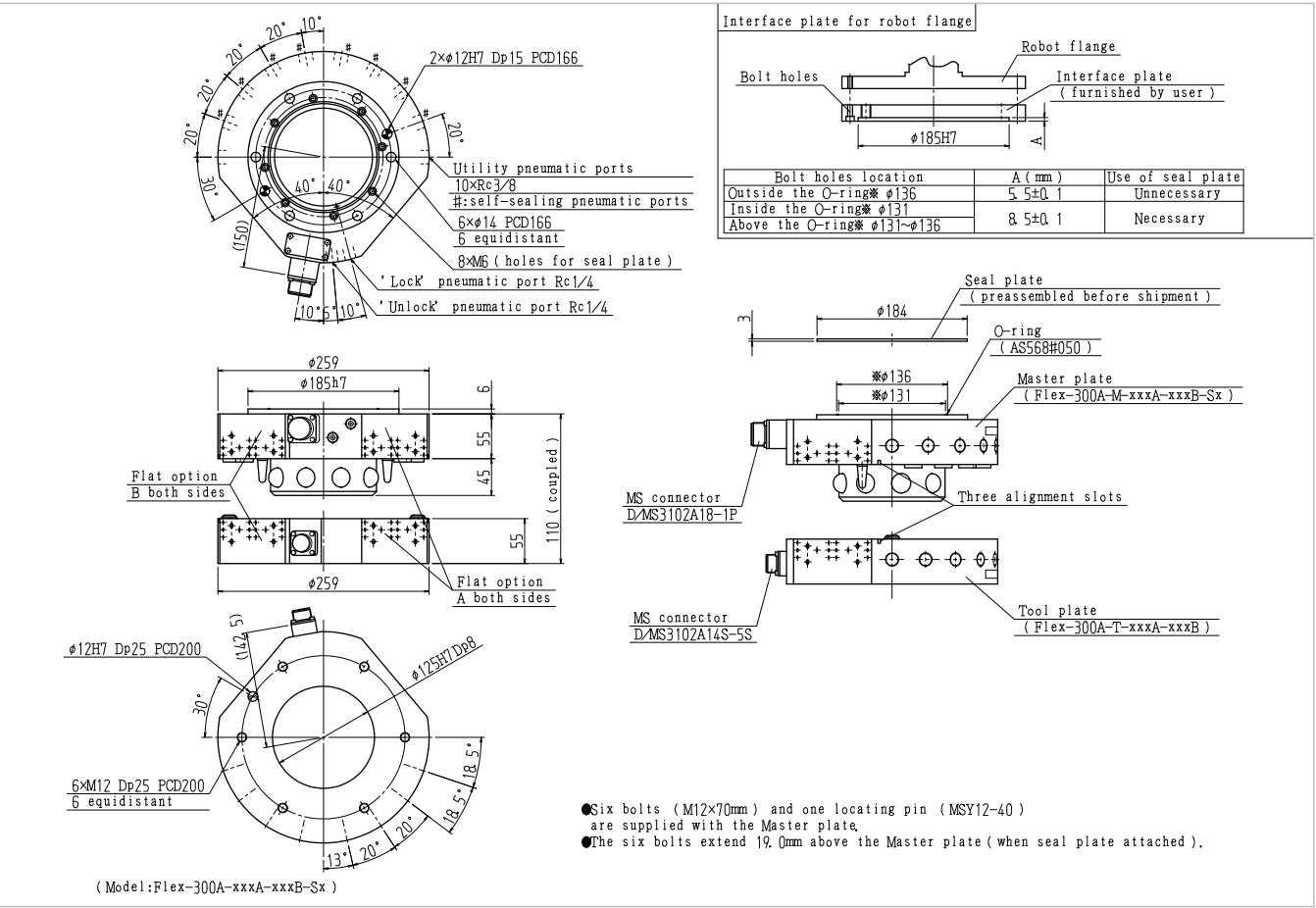
Superior fail-safe locking mechanism

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 (M12×70)  
•1 locating pin  
※Seal plate, O-ring and screws are pre-assembled.

Main Body Dimensions



Options

Electrical signal contact block

Options for electrical signal contact blocks and non-contact electric signal blocks, including J16A, J16B, J32A, J32B, M10A, M10B, M20A, M20B, B15NA/B, B15PA/B, B15DA/B, B15NA/B NPN output, B15PA/B PNP output, and Lock/unlock sensor.

Ground

Options for pneumatic ports and lock/unlock sensor, including E50A, E50B, P18A, P18B, P14A, P14B, P38A, P38B, P3WA, P3WB, SA, SB, and Lock/unlock sensor.

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 46. ※4 Allowable current is total 30.4A for connector. ※5 Allowable current is total 57.2A for connector. ※6 The two built-in proximity switch signals of the lock/unlock sensor can be assigned to the MS connector (D/MS3102A18-1P) of the main body. Please contact BL Autotec, Ltd. for further information.

Specifications

Main Body		
Load capacity (rated load)		2,940N (300kg)
Positional repeatability ※1		±0.025mm
Allowable dynamic moment	Bending direction (Tx, Ty)	5,292N·m (540kgf·m)
	Twisting direction (Tz)	4,704N·m (480kgf·m)
Coupling force (with air pressure of 0.49MPa) ※2		31,360N (3,200kgf)
Materials	Frame	Aluminum alloy
	Lock/ unlock mechanism	Stainless steel
Overall dimension (when coupled)		φ 259×H116mm
Weight (Main body)	Master plate	13.2kg
	Tool plate	7.2kg
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	Rc3/8×8 (self-sealing) ※3 Rc3/8×2
	Approach sensor	Senses Tool plate position up to 2.5mm distance

Options			
Utilities	J16A, J16B	Electrical signals	5A×16 ※3 ※5
	J32A, J32B	Electrical signals	5A×32 ※3 ※5
	M10A, M10B	Electrical signals	13A×10 ※3 ※6
	M20A, M20B	Electrical signals	13A×20 ※3 ※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 ※3 インソーン 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 ※6		Two built-in proximity switch

Flex-300A Ordering Information

Ordering information for Flex-300A, including Master plate (Flex-300A-M) and Tool plate (Flex-300A-T) options, and Lock/unlock sensor options.