

QCP-100A

The BL QUICK-CHANGE Model QCP-100 is an automatic tool changer used in press handling applications for switching part-adsorption end-effectors. It is easy to set up ID confirmation on the Tool plate side, and the block itself is equipped with a protective cover. An electrical signal contact block without a connector on the tool side is available as an option.

Body designed specially for press applications

Both sides of the Tool plate are cut, which allows it to be placed in an upright position, requiring less space for hand installation.

Utilities specially considered for press applications

Eight pneumatic vacuum ports are included on standard equipment, and the QCP-100 can be optionally equipped with up to 16 ports. The Tool plate has an optional electrical signal block contact without a connector (R16A/B). Directly-soldered hard-wiring makes a plug unnecessary, so it cannot be damaged when hands are exchanged. It is easy to assign ID discrimination in the hard-wiring section, and the block itself is protected by a metal cover.

Capability to assign power signals to the lock/unlock sensor from the electrical signal contact block

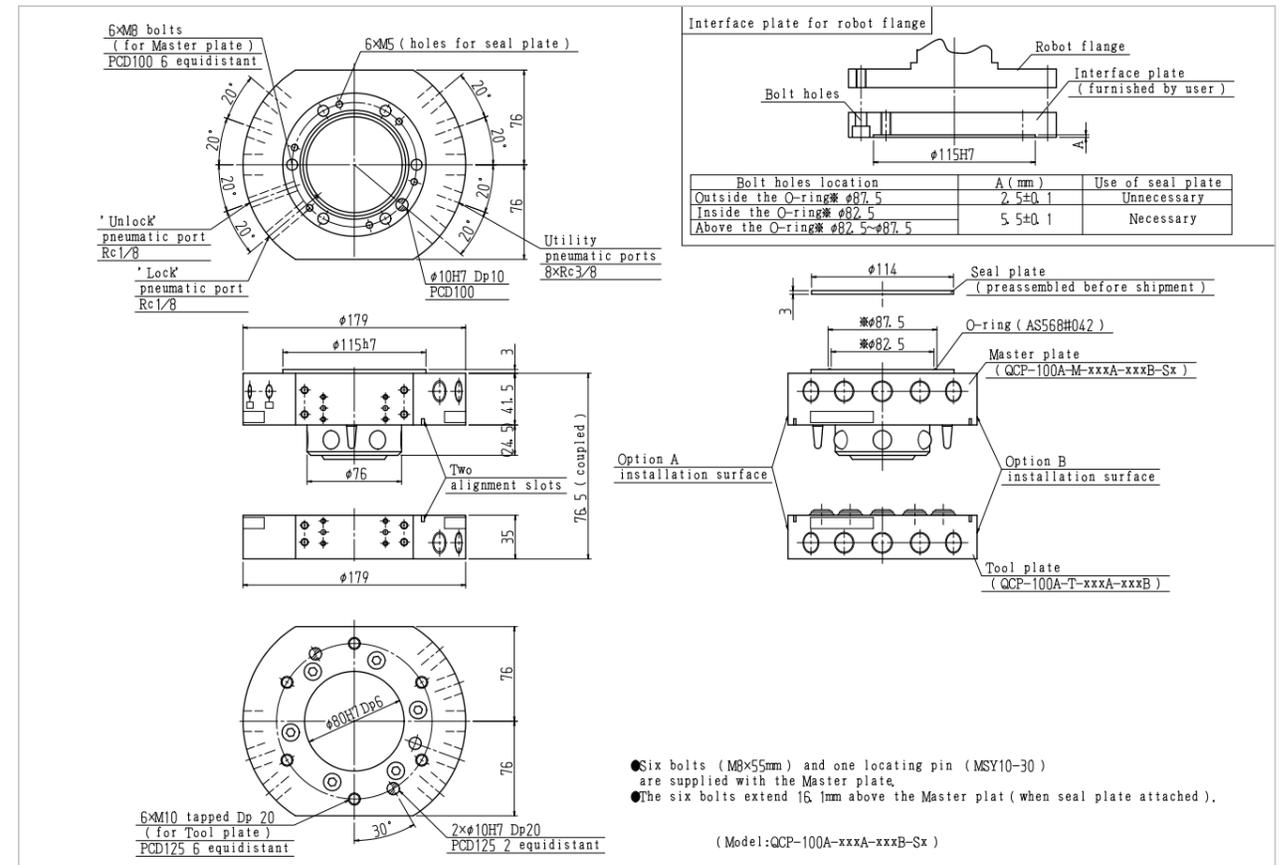
Two types of power signals may be assigned to the lock/unlock sensor (optional) from the electrical signal contact block.

Superior fail-safe locking mechanism

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



Main Body Dimensions



Specifications

Main Body		
Load capacity (rated load)		980N (100kg)
Positional repeatability $\ast 1$		$\pm 0.015\text{mm}$
Allowable dynamic moment	Bending direction (Tx, Ty)	$1,372\text{N}\cdot\text{m}$ (140kgf·m)
	Twisting direction (Tz)	$1,372\text{N}\cdot\text{m}$ (140kgf·m)
Coupling force (with air pressure of 0.49MPa) $\ast 2$		10,290N (1,050kgf)
Materials	Frame	Aluminum alloy
	Lock/unlock mechanism	Stainless steel
Overall dimension (when coupled)		$\phi 179 \times H79.5\text{mm}$
Weight (Main body)	Master plate	3.5kg
	Tool plate	2.0kg
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	Rc3/8 x 8

Options		
J16A, J16B	Electrical signals	5A x 16 $\ast 3 \ast 7$
M10A, M10B	Electrical signals	13A x 10 $\ast 3 \ast 8$
L16A	Electrical signals	5A x 16 + lock/unlock signals x 3 (Master side only) $\ast 3 \ast 4 \ast 7$
L07A	Electrical signals	13A x 7 + lock/unlock signals x 3 (Master side only) $\ast 3 \ast 5 \ast 8$
R16A, R16B	Electrical signals	5A x 16 (Tool side only. An electrical signal contact block without a connector specification) $\ast 5 \ast 6$
B15NA, B15NB, B15PA, B15PB	Electric signals Max. 50mA DC24V Non-contact system (Please refer to page 41 for details.)	50mA x 15 WEB series connector $\ast 3$ In Zone 1 IP67
B15DA, B15DB	Electric signals Max. 5mA DC12V Non-contact system (Please refer to page 41 for details.)	5mA x 15 WEB series connector $\ast 3$ IP67
P38A, P38B	Pneumatic ports	Rc3/8 x 4
Lock/unlock sensor		Two built-in proximity switches

QCP-100A Ordering Information

Master plate	QCP-100A-M-	(Option A)	(Option B)	(lock unlock sensor)	
XXXXA	No option	XXXXB	No option	SX	No lock/unlock sensor
J16A	Electrical signals 5A x 16 $\ast 3 \ast 7 \ast 9$	J16B	Electrical signals 5A x 16 $\ast 3 \ast 7 \ast 12$	SA	Lock/unlock sensor A-Type (Customer processes the adaptor plate)
M10A	Electrical signals 13A x 10 $\ast 3 \ast 8$	M10B	Electrical signals 13A x 10 $\ast 3 \ast 8$	SB	Lock/unlock sensor B-Type (BL Autotec processes the adaptor plate)
L16A	Electrical signals 5A x 16 (Three separately assigned lock/unlock signals) $\ast 3 \ast 4 \ast 7 \ast 10$	B15NB	Non-contact electric signal block Master side: NPN output		
L07A	Electrical signals 13A x 7 (Three separately assigned lock/unlock signals) $\ast 3 \ast 5 \ast 8 \ast 11$	B15PB	Non-contact electric signal block Master side: PNP output		
B15NA	Non-contact electric signal block Master side: NPN output	P38B	Pneumatic ports Rc3/8 x 4		
B15PA	Non-contact electric signal block Master side: PNP output				
P38A	Pneumatic ports Rc3/8 x 4				
Tool plate	QCP-100A-T-	(Option A)	(Option B)		
XXXXA	No option	XXXXB	No option		
J16A	Electrical signals 5A x 16 $\ast 3 \ast 7$	J16B	Electrical signals 5A x 16 $\ast 3 \ast 7$		
R16A	Electrical signals 5A x 16 $\ast 6 \ast 7$ (without a connector)	R16B	Electrical signals 5A x 16 $\ast 6 \ast 7$ (without a connector)		
M10A	Electrical signals 13A x 10 $\ast 3 \ast 8 \ast 13$	M10B	Electrical signals 13A x 10 $\ast 3 \ast 8$		
B15DA	Non-contact electric signal block Tool side	B15DB	Non-contact electric signal block Tool side		
P38A	Pneumatic ports Rc3/8 x 4	P38B	Pneumatic ports Rc3/8 x 4		

Options

Electrical signal contact block



J16A, J16B

5A x 16 (J16A·B) $\ast 3 \ast 7$

Use JMR2116M-D (DDK) for the J16A Master side
Use JMR2116F-D (DDK) for the J16A Tool side
Use JMR2116MX-D (DDK) for the J16B Master side
Use JMR2116FX-D (DDK) for the J16B Tool side
Use JMR2119M-D (DDK) for the J16A Master side



M10A, M10B, L07A

13A x 10 (M10A·B) $\ast 3 \ast 8$
13A x 7 + lock/unlock signals (L07A) $\ast 3 \ast 5 \ast 8$

Use D/MS3102A18-1P for the M10A and L07A Master side
Use D/MS3102A18-15 for the M10B Tool side
Use D/MS3102A18-19P for the M10B Master side
Use D/MS3102A18-19S for the M10B Tool side
(Use RoHS-compliant MS receptacle products)



R16A, R16B

5A x 16 (without a connector) $\ast 5 \ast 6 \ast 7$

Please solder the hard-wiring (Please use J16A, J16B or L16A for the Master side)



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

50mA x 15 WEB series connector $\ast 3$
In Zone 1
IP67

B15NA/B NPN output
B15PA/B PNP output
Receptacle connector: WEBR-2119S-D for B15NA/B and B15PA/B
Receptacle connector: WEBR-2116FS-D for B15DA/B

Pneumatic ports



P38A, P38B

Rc3/8 x 4

Lock/unlock sensor



SA, SB

Two built-in proximity switches verify piston position on and lock/unlock status.

Please contact us 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.
 $\ast 1$ When you order the lock/unlock sensor please provide us with a drawing of the robot flange.

$\ast 1$ 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). $\ast 2$ Coupling force is the force to achieve specified repeatability. Coupling will be maintained until contact pressure is applied or the device is damaged. $\ast 3$ Plug connector is not included. Please prepare plug connector by customer. For connector, please see correspondence table on page 46. Please use 5A x 16 electrical signal contacts (J16A or R16A) on the tool side. $\ast 4$ Please use 13A x 10 electrical signal contacts (M5 connector (Three of the 10 contacts are not useable)) $\ast 5$ Please use 5A x 16 electrical signal contacts (J16A or R16A) on the master side. $\ast 6$ Allowable current is total 30.4A for connector. $\ast 7$ Allowable current is total 57.2A for connector. $\ast 8$ Allowable current is total 30.4A for connector. $\ast 9$ Please select J16A or R16A for the tool side. $\ast 10$ Lock/unlock Sensor SA or SA may be selected for L16A. The receptacle connector is type JMR2119F (19 pins). Please select contact block J16A or R16A for the tool side. $\ast 11$ Lock/unlock Sensor SA or SA may be selected for L07A. The receptacle connector is D/MS3102A-1P (10 pins). Please select contact block M10A for the tool side. $\ast 12$ Please select electric signal contact block J16B or R16B for the tool side. $\ast 13$ Up to seven electric signals may be used when L07A is selected for the master side.