

QUICK-CHANGE ZEUS™ for Next-Generation Robots

# QUICK-CHANGE ZEUS™

QUICK-CHANGE ZEUS™ is available such as spot-welding gun exchange, material handling and tool changing. It can use for robot payloads of 150-230kg. ZEUS incorporates the proven locking mechanism of the BL Quick-Change. It is a new, advanced Quick-Change, and ZEUS is light weight and thinness when coupled.

### Compact, Light, Thin!

The weight has been reduced by 50% and the outer dimension is 70% compared with our Servo Gun Changer for 220kg payloads. It is only 110mm thick when coupled, which minimizes stress on the robot. The round shape reduces interference by the wiring and hose on the robot arm.

### Enhanced mechanical fail-safe function!

Our proven mechanical fail-safe mechanism has been further enhanced with the addition of a spring back-up for greater reliability, so the Master and Tool Plates will not separate, even if pneumatic pressure fails.

### Conforms to ISO standards for robot flanges!

The bolt patterns on ZEUS match the ISO 9409 "mechanical interface" for pitches of φ125mm and φ160mm. It can be installed on almost all industrial robots with 150-230 kg capacity. We can custom-manufacture to suit other robot flanges.

### Standard equipped lock/unlock sensor & LED indication!

A lock/unlock sensor and LED indications for "lock" or "unlock" are standard equipped on ZEUS, and an approach sensor (with LED indication) useful for teaching is available as an option.

### Resolves communication errors!

Resolves servo signal communication errors with a plug-in module.

### Various options available!

Options, such as fool-proof valves for drop prevention in predefined positions, solenoid valves and field bus systems are available. Please contact us for details.



Master plate  
(ZEUS-M1N-SEAM-FL6BM-WPCM-IS-AS-XN)



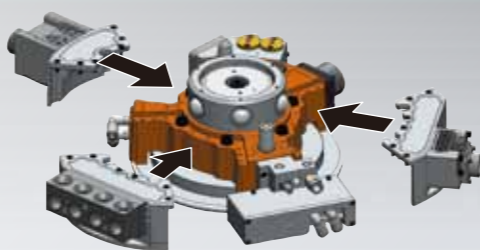
Tool plate  
(ZEUS-T-SEAT-FL6BT-WPCT-X)

## Specifications

Main body		
Weight capacity (Rated load)	1,470~2,254N(150~230kg)	
Positioning repeatability ※1	±0.025mm	
Allowable dynamic moment	Bending direction (Tx,Ty)	3,332N · m(340kgf · m)
	Torsional direction (Tz)	3,332N · m(340kgf · m)
Coupling force (at 0.49MPa air pressure) ※2	27,444N(2,800kgf)	
Material	Frame	Aluminum alloy
	Lock/unlock mechanism	stainless steel
Outer dimension (When coupled)	φ226×H110 mm	
Product weight (Main body)	Master Plate	5.4kg
	Tool Plate	2.3kg
Electric signal connection (Built-in)	Connector(Master side)	5A×20 D/MS3102A24-28P
	Connector(Tool side)	※3 D/MS3102A24-28S
Lock/unlock mechanism	Ball-locking mechanism	
Lock/unlock operation required air pressure	0.39 ~ 0.68MPa (4 ~ 7kgf/cm <sup>2</sup> )	
Allowable temperature and humidity range	0~50°C, 35 ~ 90% (Non-condensing)	
Lock/unlock sensor	Lock status	1 built-in proximity switch
	Unlock status	1 built-in proximity switch
Insulation plate set	Model	With/without insulation plate
	IS	Insulation plate (Fiber-reinforced Bakelite)
IN	Without insulation plate	

Over 1 million combinations available to meet your needs with flexible options!

May be used with conventional Quick Change modules.



Drop-prevention valve [Mechanical fool-proof system]

Optional safety system In case of lock/unlock solenoid valve malfunction. The Tool plate will not release from the Master plate except when it is located above the tool stand.



Lock/unlock Solenoid valve

A lock/unlock solenoid valve attached to the Master plate is available as an option.

※Select necessary plates and options based on an application or a robot flange.

### Accessories for master plate (in case of Master plate is IN02)

In case of type of Master plate is M1 (PCD125) (M1)...Stepped Parallel Pin (φ10×25)×2pcs, Hexagon socket bolt (custom) (M10×65)×6pcs,Washer (φ14)×6pcs  
 In case of type of Master plate is M2 (PCD160) (M2)...Stepped Parallel Pin (φ10×25)×2pcs, Hexagon socket bolt (custom) (M10×50)×6pcs,Hexagon socket bolt (custom) (M10×20)×6pcs, Washer (φ14)×12pcs,  
 (M3)...Stepped Parallel Pin (φ10×25)×2pcs, Hexagon socket bolt (custom) (M10×50)×6pcs,Hexagon socket bolt (custom) (M10×20)×6pcs, Washer (φ14)×6pcs,  
 Washer (for M12)×6pcs

(※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 means force which assure repeatability, coupling of Quick change is kept until supplying air for uncoupling or destroyed by crush. (※3) Max.93.6A is allowed as connector

## Option

### Module for A side and B side

Servo module	Model	Capacity and number of contacts	Connector for Master Plate side	Connector for Tool Plate side
SEAM (T) SEBM (T)	SEAM (T)	Servo powers 20A (500V) ×6 ※1	D/MS3102A20-17P	D/MS3102A20-17S
	SEBM (T)	Electric signals 5A (220V) ×17 ※2	D/MS3102A20-29P	D/MS3102A20-29S
	SEYAM (T)	Servo powers 20A (500V) ×6 ※5	D/MS3102A20-15P	D/MS3102A20-15S
	SEYBM (T)	Electric signals 5A (220V) ×17 ※2	D/MS3102A20-29P	D/MS3102A20-29S
	SEPAAM (T)	Servo powers 20A (500V) ×6 ※1	D/MS3102A20-17P	D/MS3102A20-17S
	SEPBM (T)	Electric signals 5A (220V) ×17 ※2	D/MS3102A20-29P	D/MS3102A20-29S
Fluid module ※3	FL4AM/FL4BM	4 ports	Master Plate side	4 ports Rc3/8 (self-sealing) for both of coolant and pneumatic
	FL4AT/FL4BT		Tool Plate side	4 ports Rc3/8 (pass-through) for pneumatic
	FL6AM/FL6BM	6 ports	Master Plate side	6 ports Rc3/8 (self-sealing) for both of coolant and pneumatic
	FL6AT/FL6BT		Tool Plate side	6 ports Rc3/8 (self-sealing) for both of coolant and pneumatic
	FP6AT/FP6BT		Tool Plate side	Rc3/8×6 (pass-through)
	P38AM (T) * P38BM (T) *		4 ports	Rc3/8×4 (pass-through)
Electric signal module	JXAM (T) * JXBM (T) *	5A×16 ※7	JMR-2116M-D	JMR-2116 F-D
	RXAT * RXBT *	5A×16 (without connector) ※9		terminal for solder
	MWXAM (T) * MWXBM (T) *	13A×10 Resistance to dust and water	D/MS3102A18-1P	D/MS3102A18-1S
	BNXAM (BDXAT) * BNXBM (BDXBT) *	non-contact electric signal 15 NPN output	WEBR2119MS-D	WEBR2116FS-D
	BPKAM (BDKAT) * BPKBM (BDKBT) *	non-contact electric signal 15 PNP output	WEBR2119MS-D	WEBR2116FS-D
	Ground contact module	E51AM (T) * E51BM (T) *	500A×1 (usage : 50%)	
Attachment module	GLAM (T) * GLBM (T) *	Attachment module for A or B side. (For adding conventional Quick change options)		
	LCAM (T) * LCBM (T) *	Cover for A side or B side (always use cover when the modules are not in use)		

### Module for C-side

Primary current module	Model	Capacity and number of contacts	Connector for Master Plate side	Connector for Tool Plate side
WPCM (T)	WPCM (T)	200A (usage: 25%) 600V Sequence 100A (600V)×3 ※4	D/MS3102A36-3P	D/MS3102A36-3S
	WSCM (T)	Thermo signal: 5A (200V) ×3	Seal connector ABS-3632	
Pneumatic port	P18CM (T) *	4 ports	Rc1/8×4 (pass-through)	
	P3WCM (T) *	2 ports	Rc3/8×2 (pass-through)	
Electric signal module	JCM (T) *	5A×16 ※7	JMR-2116M-D	JMR-2116F-D
	RCT *	5A×16 (without connector) ※9		terminal for solder
	MCM (T) *	13A×10 ※8	D/MS3102A18-1P	D/MS3102A18-1S
	MWCM (T)	13A×10 Resistance to dust and water	D/MS3102A18-1P	D/MS3102A18-1S
	BNCM (BDCT) *	non-contact electric signal 15 NPN output	WEBR2119MS-D	WEBR2116FS-D
	BPCM (BDCT) *	non-contact electric signal 15 PNP output	WEBR2119MS-D	WEBR2116FS-D
Ground contact module	E51CM (T) *	500A×1 (usage : 50%)		
Attachment module	GSCM (T)	Attachment module for C-side (For fitting conventional Quick change options onto C-side)		
Cover	SCCM (T)	Cover for C side (always use cover when the modules are not in use)		

\*include attachment module

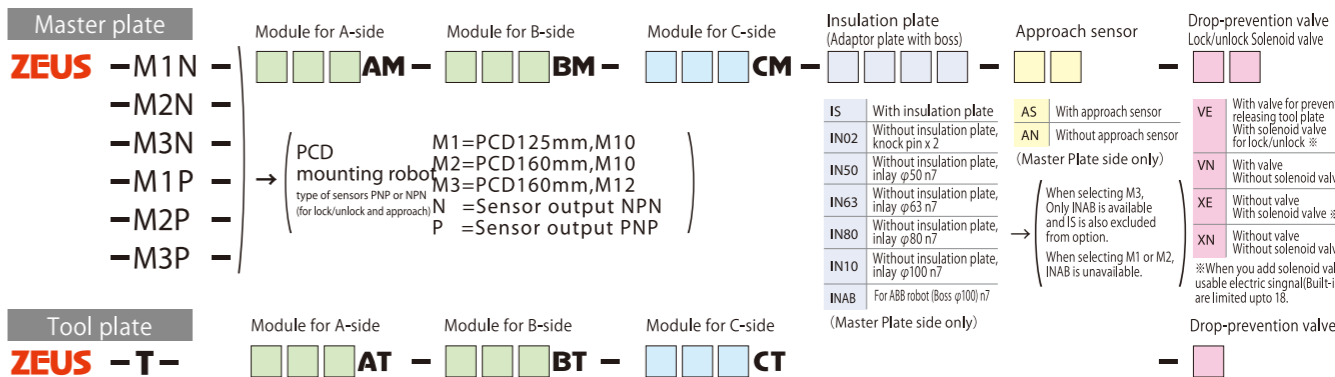
### Miscellaneous accessories

Approach sensor	AS	With approach sensors : 2 Proximity switches for sensing tool plate (AC 2 cords)
Drop-prevention valve (Foot proof)	VE	V: With valve for prevent releasing tool plate In case malfunction of solenoid valve for lock/unlock or operation mistake, tool plate is never released places except tool stand.
Lock/unlock Solenoid valve	VN	X: Without valve for prevent releasing tool plate
	XN	E: With solenoid valve for lock/unlock N: Without solenoid valve for lock/unlock

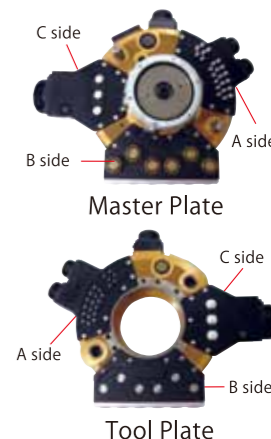
\*include attachment module  
 (※1) Allowable current is Max.20A for pin(13A for pin No.F) and total allowable current is 71.6A for connector. (※2) Allowable current is total 81.7A for connector. (※3) Port with self-sealing of Fluid module cannot be used for vacuum. (※4) Allowable current is total 290.6A for connector. (※5) Allowable current is total 83.7A for connector. Connector has 7 pins. (※6) Allowable current is total 120.2A for connector. (※7) Allowable current is total 30.4A for connector. (※8) Allowable current is total 57.2A for connector. (※9) Type of connector for master side is JMA.

In case of order options as part, model might be different from the above table. Please ask to our company's staff.

## Ordering Information



### Installing position



Please contact BL Autotec, Ltd. for detailed information on the options.

The electric connector and plugs are user-provided. Please contact BL Autotec, Ltd. for detailed information on the modules.  
 Please contact BL Autotec, Ltd. for special conditions and specific applications. Please refer to the Installation & Maintenance Manual when using.  
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The configuration and specifications for this series are subject to change.

ZEUS • GIGA Modules

Examples of optional modules (A or B side)

Master plate side



Servo module  
SEAM / SEBM



Fluid module  
FL6AM / FL6BM



Attachment module for adding Quick change options onto A-B-side  
GLAM / GLBM



Pneumatic port  
P38AM / P38BM




Electric signal module  
BPAM / BIBM  
BNAM / BNBM



Servo module  
SEPAM / SEIBM

Examples of optional module (C or D side)

Master plate side



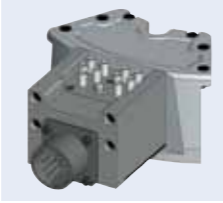
Primary current module  
WSCM / WSDM



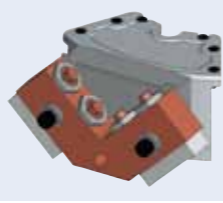
Attachment module for adding Quick change options onto C-D-side  
GSCM / GSDM



Electric signal module  
JCM / JDM



Electric signal module  
M10CM / M10DM



Ground contact module  
E51CM / E51DM

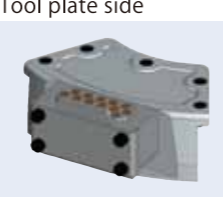


Pneumatic port  
P18CM / P18DM

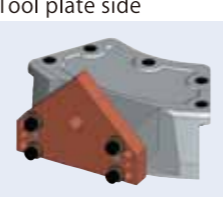
Tool plate side



Pneumatic port  
P3WCM / P3WDM




Electric signal module  
RCT / RDT




Ground contact module  
E51CT / E51DT

\*Please refer to the below table below for details of optional modules.


ZEUS Application Lineup




1 Model for spot welding gun exchange.




2 Model for exchanging jig hands for material handling.



3 Model for exchanging hands or jigs on actuated servo motors.



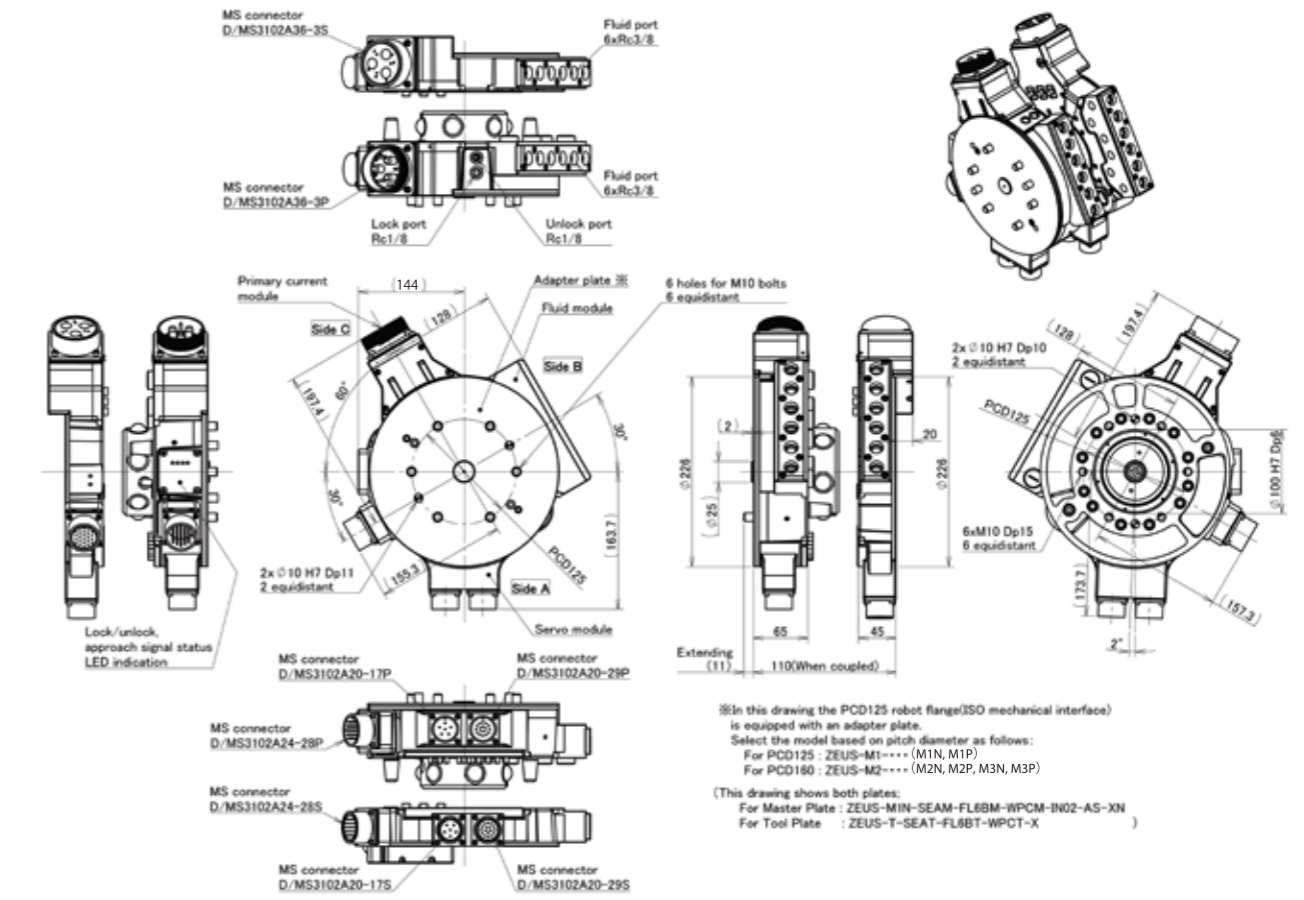
4 Model for high humidity or wet environments. (Remote sensor water-proof IP68 is used for electric signal module)



5 Model for exchanging spot welding guns and for handling hands or jigs.

ZEUS • GIGA Main Body Dimensions

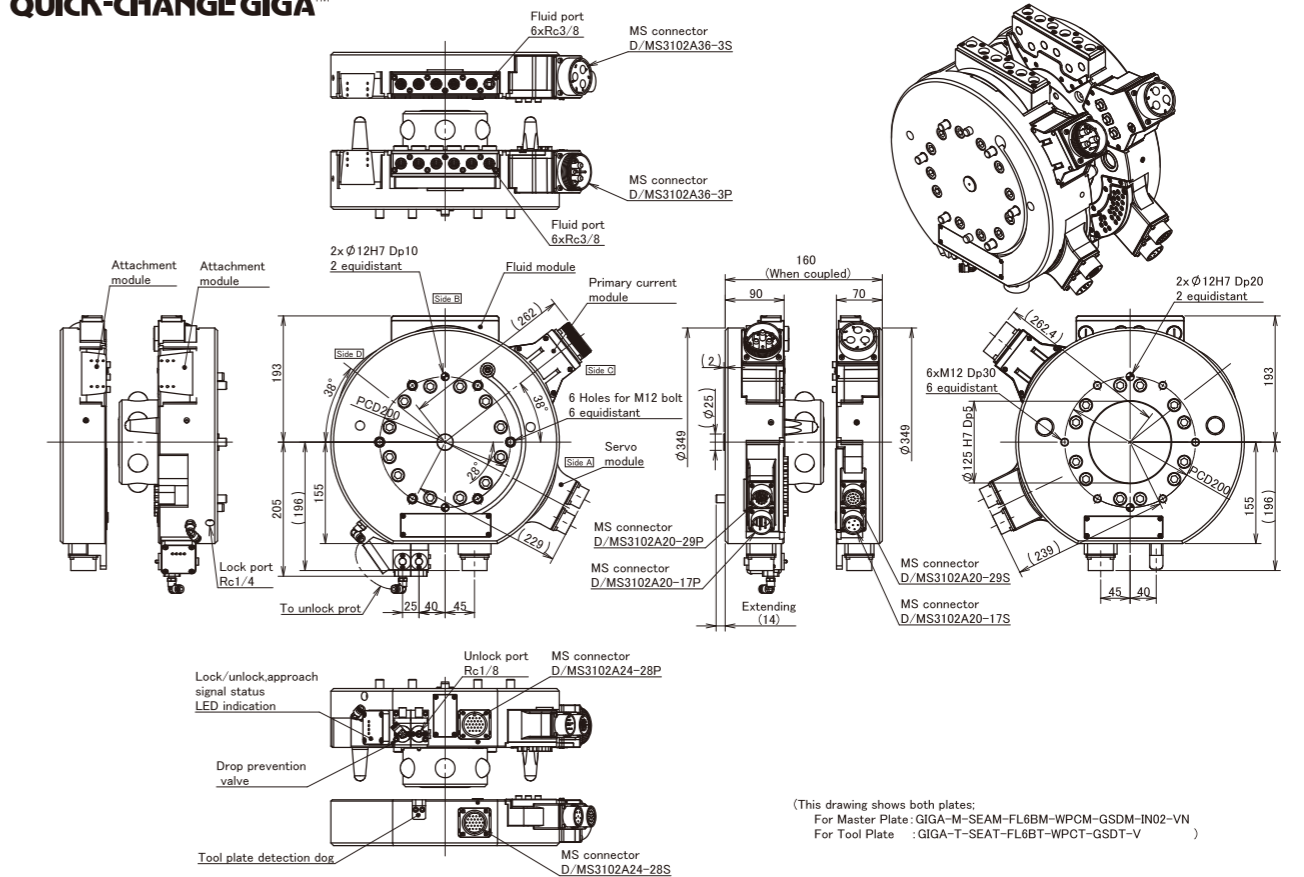
QUICK-CHANGE ZEUS™



MS connector D./MS3102A36-3S Fluid port 6xRc3/8  
MS connector D./MS3102A36-3P Fluid port 6xRc3/8  
Lock port Rc1/8 Unlock port Rc1/8  
Primary current module [144] Adapter plate [38] Fluid module  
Side C [178] Side B [197.1] 6 holes for M10 bolts 6 equidistant  
[107.1] 60° [185.3] PCD125 [163.7] 2x ∅ 10 H7 Dp10 2 equidistant  
Lock/unlock approach signal status LED indication MS connector D./MS3102A20-17P MS connector D./MS3102A20-28P  
MS connector D./MS3102A24-28P MS connector D./MS3102A20-28P  
MS connector D./MS3102A24-28S MS connector D./MS3102A20-17S MS connector D./MS3102A20-29S

(In this drawing the PCD125 robot flange/ISO mechanical interface is equipped with an adapter plate.  
Select the model based on pitch diameter as follows:  
For PCD125 : ZEUS-M1\*\*\*\* (M1N, M1P)  
For PCD160 : ZEUS-M2\*\*\*\* (M2N, M2P, M3N, M3P)  
(This drawing shows both plates:  
For Master Plate : ZEUS-MIN-SEAM-FL6BM-WPCM-IN02-AS-XN  
For Tool Plate : ZEUS-T-SEAT-FL6BT-WPCT-X )

QUICK-CHANGE GIGA™



Fluid port 6xRc3/8 MS connector D./MS3102A36-3S  
MS connector D./MS3102A36-3P Fluid port 6xRc3/8  
Attachment module Attachment module  
2x ∅ 12H7 Dp10 2 equidistant Fluid module Primary current module  
Side B [202] Side D [196] 6 Holes for M12 bolt 6 equidistant  
[193] 30° [155] PCD200 [228] Servo module  
[205] [196] 6xM12 Dp30 6 equidistant  
Lock port Rc1/4 To unlock prot [25] 40 45 MS connector D./MS3102A20-29P MS connector D./MS3102A20-17P  
Unlock port Rc1/8 MS connector D./MS3102A24-28P  
Lock/unlock approach signal status LED indication MS connector D./MS3102A24-28S  
Drop prevention valve MS connector D./MS3102A20-17S  
Tool plate detection dog MS connector D./MS3102A24-28S

(This drawing shows both plates:  
For Master Plate : GIGA-M-SEAM-FL6BM-WPCM-GSDM-IN02-VN  
For Tool Plate : GIGA-T-SEAT-FL6BT-WPCT-GSDT-V )

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 bite drops
				List
				Product Overview
				Rotary Joint
				PI-ZERO Series
				Whit Compliance
				ACCORNER LOW-PRECISION
				Couple Joint
				CJ2