

XR (Rotary Magazine)

XR-****-U / XR-****-L

Instruction Manual

Please read this instruction manual carefully
before operating this unit and use our product correctly.
After reading this instruction manual, be sure to keep it in a place where a person
who uses or manages the equipment can check it at any time.

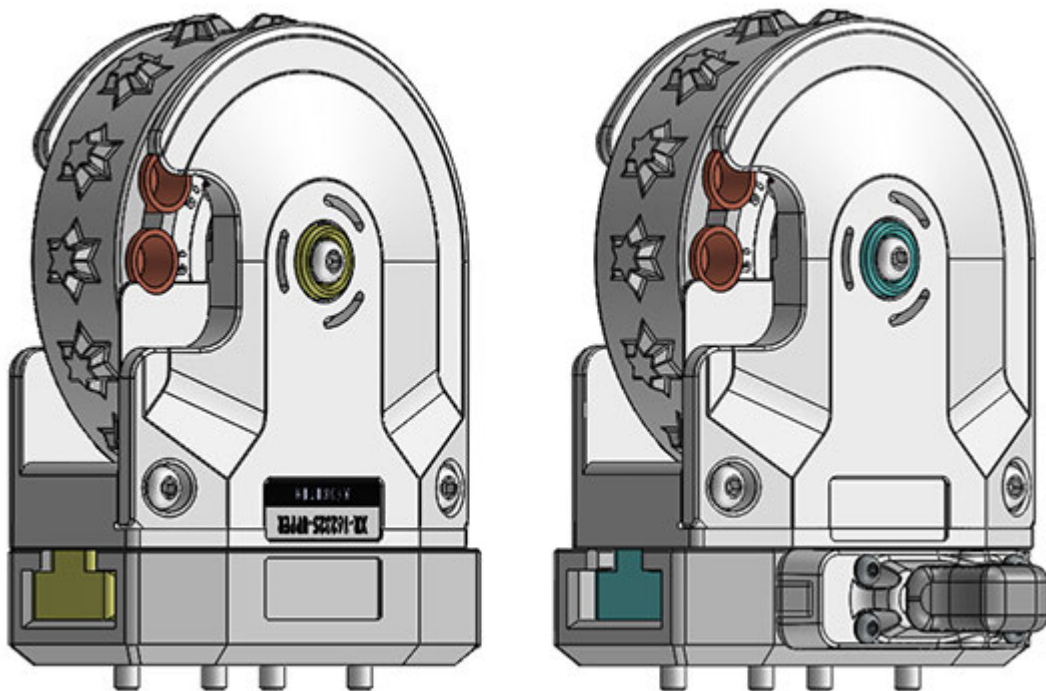


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1. Safety Precautions

■Please read "Safety Precautions" carefully before using, and use our product correctly.



This product is a device where a cap tip is inserted.

Please do not use it for any purpose other than its intended use. Our company does not bear any responsibility with respect to failures, repairs, accidents, or other problems when using our product outside of its intended use. Please understand this point.

■Regarding signs



"Safety Precautions" provided in this instruction manual to prevent risks and obstacles for you and other people in advance is divided into "Warning" and "Caution" for information.







Since both are important contents concerning safety, please be sure to observe them.

	It indicates contents informing possibilities of death or serious injury in case of incorrect handling.
	It indicates contents informing possibilities of injury due to handling error or occurrence of material damages.

■Examples of Signs

Types of contents to be observed are explained by classification with graphical symbols. (Below are examples of graphical symbols)

	This symbol indicates operations that should not be done.
	This symbol indicates operation that should be done.

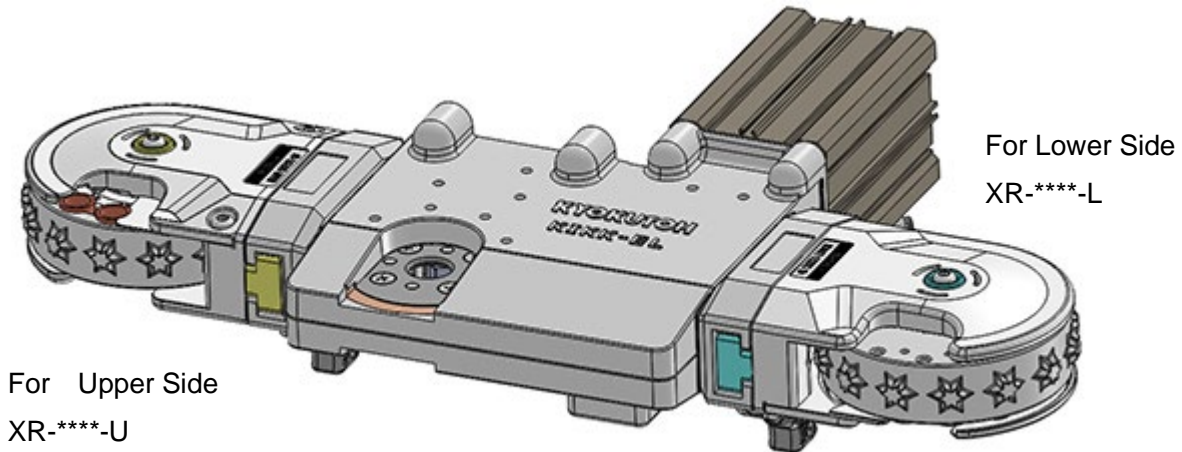
Handling precautions	
 <p>Never disassemble or modify.</p> <ul style="list-style-type: none"> ● It may cause injury or operation failure. 	 <p>Do not insert fingers or hands during operation.</p> <ul style="list-style-type: none"> ● Injury may occur due to getting sucked in or caught.
 <p>Please do not sprinkle a large amount of water.</p> <ul style="list-style-type: none"> ● Rush may occur to cause operation failure. 	 <p>Please do not use chlorine-based or acidic cleaner for cleaning the main body.</p> <ul style="list-style-type: none"> ● Toxic gas generated from the cleaner may harm your health.
 <p>Contamination on the main body must be removed regularly.</p> <ul style="list-style-type: none"> ● If contamination is accumulated, it may cause operation failure. 	 <p>When using alcohol, paint thinner, or volatile lubricant for cleaning the main body, please wipe it off well.</p> <ul style="list-style-type: none"> ● When spatter is accumulated on volatile lubricant, it may cause ignition.

2. Confirmation and Precautions Before Operation

This product is used when mounting cap tip with robot gun.

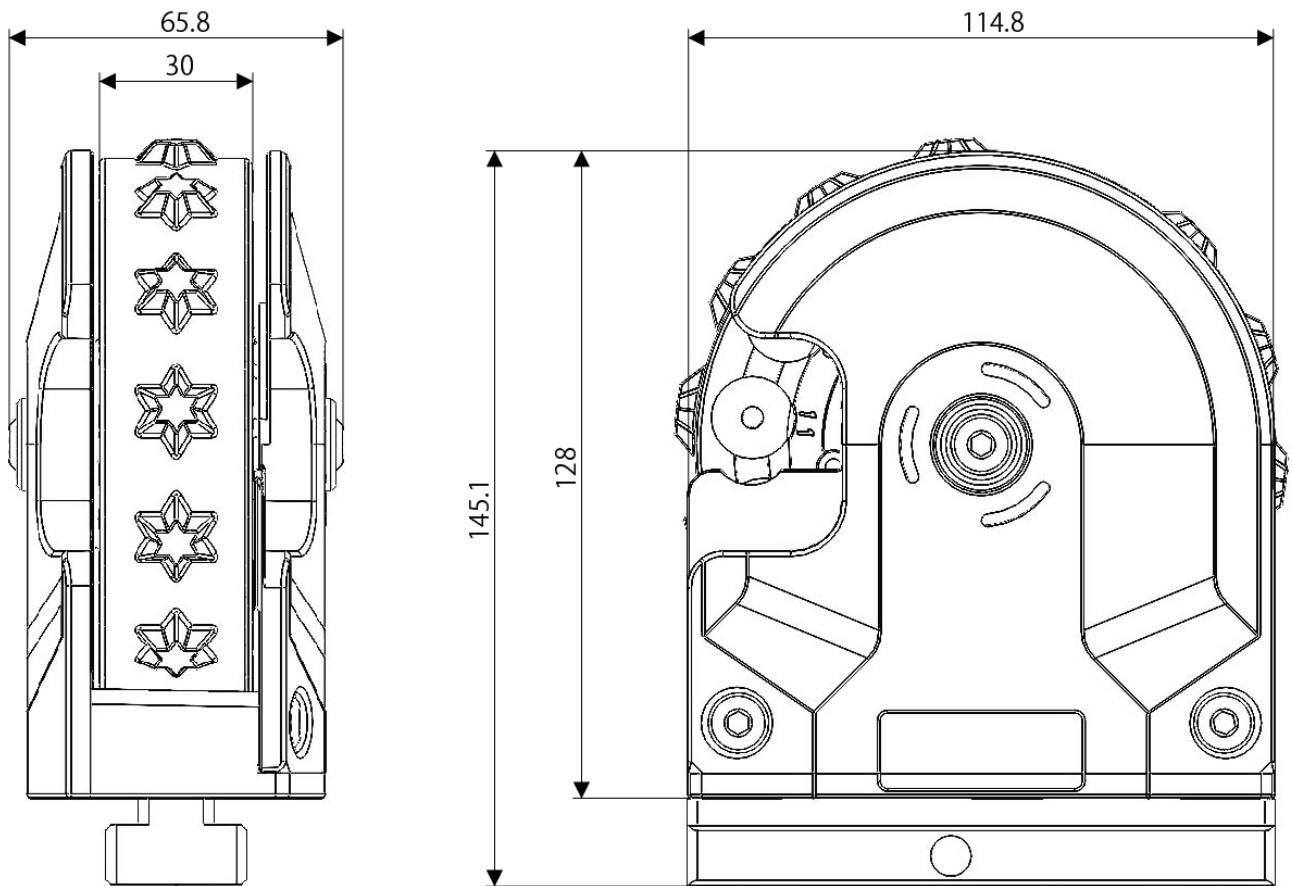
Upper and lower magazines can be distinguished by color.

Generally, "yellow is for the upper side" and "blue for the lower side".



1. Please use unused cap tip for loading.
If scratches or contaminations are prominent on used caps or outer tapers, operation failure may occur.
※The maximum number of loading are for $\phi 13$, $\phi 16 \rightarrow 13$ pcs (Except for special shapes).
2. Installation place must be where spatter and cooling water do not directly fall down as much as possible.
3. Remove dust or foreign substances from the magazine when they are caught in the magazine. When cleaning inside, please disassemble.
4. Please make sure that the magazine is securely fastened before use.
Also, make sure that the magazine model being used is correct.
5. Please make sure that the cap tip is loaded in the magazine, or the cap tip is used correctly.
6. During operation, set the applied gun pressure within 150kgf.
※If higher pressure is used, the product may be damaged.
※If 100kgf or less is used, the tip may not be set on a shank.
7. Do not drop this product.

3. External Dimension Diagram

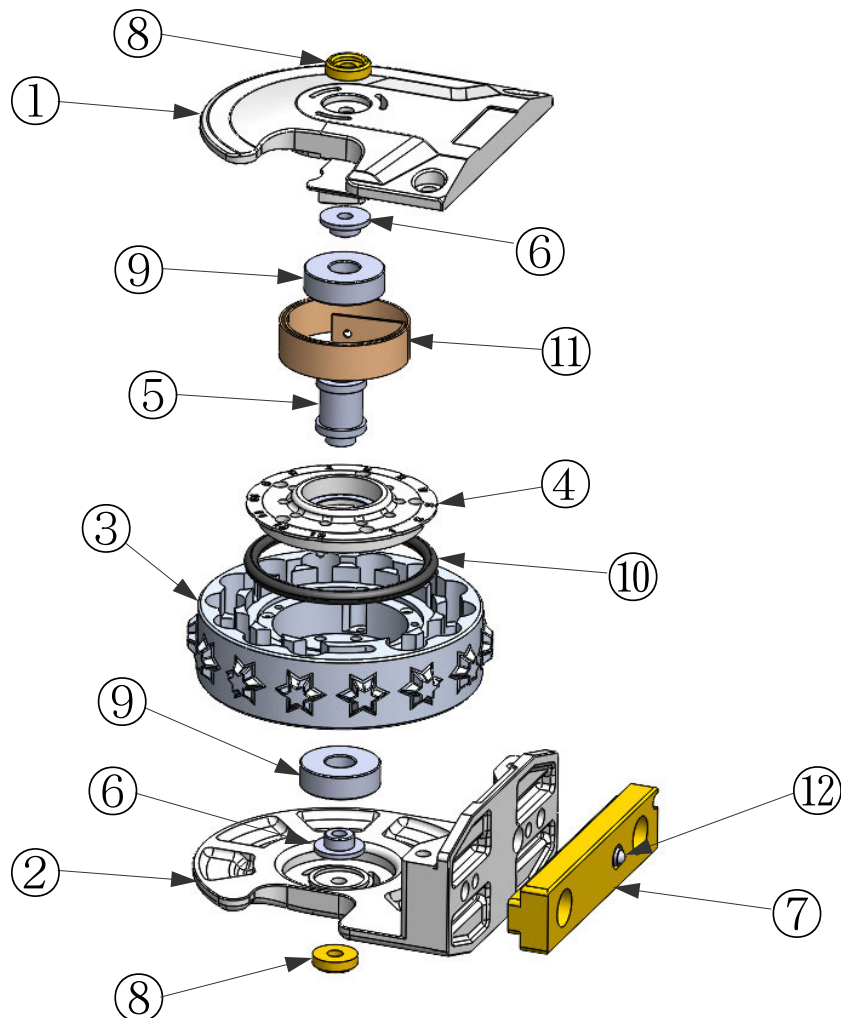


Weight about 1.5kg (Without Adapter Block)

4. Parts List

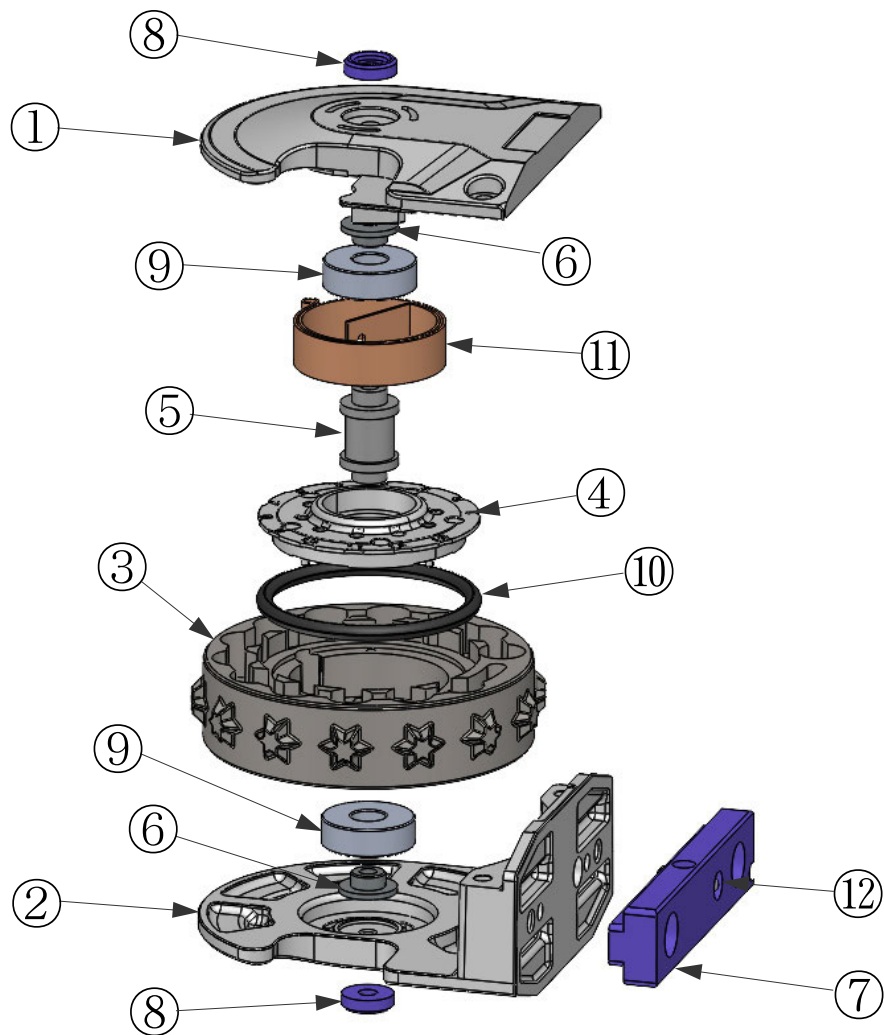
1) XR-162325-U

No.	Name	Model	QTY
1	Magazine Cover	XR-MGC16-2325S	1
2	Magazine Cover (for Mounting adapter side)	XR-MGC16-M	1
3	Revolver Magazine 1623-13	XR-MG-1623	1
4	Guide 16-13	XR-GD16	1
5	Shaft 33	XR-SH-33	1
6	Bearing Holder	KIKK-EL20-P-028	2
7	Key 16YL	XR-K16-YL	1
8	Collar Ring M6 yellow	CR-M6-YL	2
9	Bearing	6201H-2RS	2
10	O-ring	AS568-334A NBR-70-1(1A)	1
11	Spring	MR-SP-1316	1
12	Ball Plunger	LBSU10	1



2) XR-1623-L

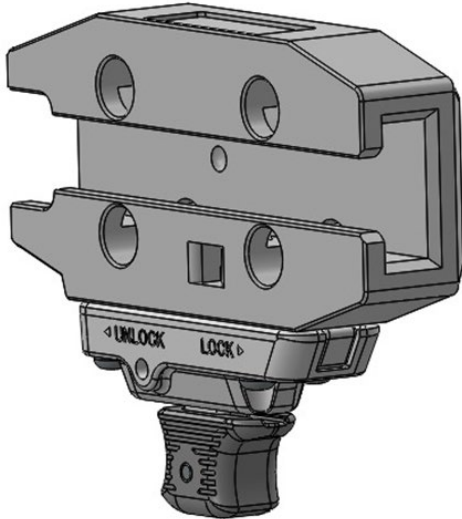
No.	Name	Model	QTY
1	Magazine Cover	XR-MGC16-2325S	1
2	Magazine Cover (for Mounting adapter side)	XR-MGC16-M	1
3	Revolver Magazine 1623-13	XR-MG-1623	1
4	Guide 16-13	XR-GD16	1
5	Shaft 33	XR-SH-33	1
6	Bearing Holder	KIKK-EL20-P-028	2
7	Key 16YL	XR-K16-BL	1
8	Collar Ring M6 yellow	CR-M6-BL	2
9	Bearing	6201H-2RS	2
10	O-ring	AS568-334A NBR-70-1(1A)	1
11	Spring	MR-SP-1316	1
12	Ball Plunger	LBSU10	1



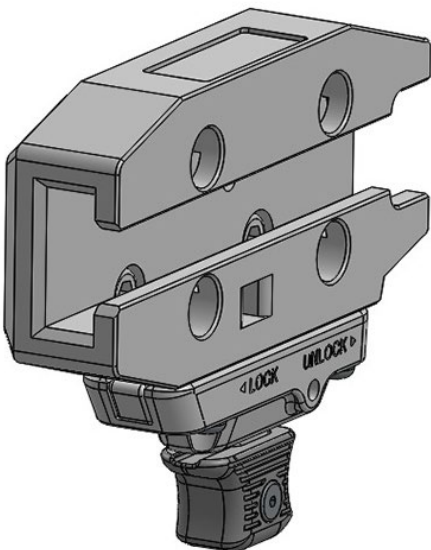
5. Adapter Block

※Adapter block [XR-ADB-U or L] is the accessory product of our company's Tip Changer.

1. For upper side: XR-ADB-SLIDE-REV-YL



2. For lower side: XR-ADB-SLIDE-REV-BL

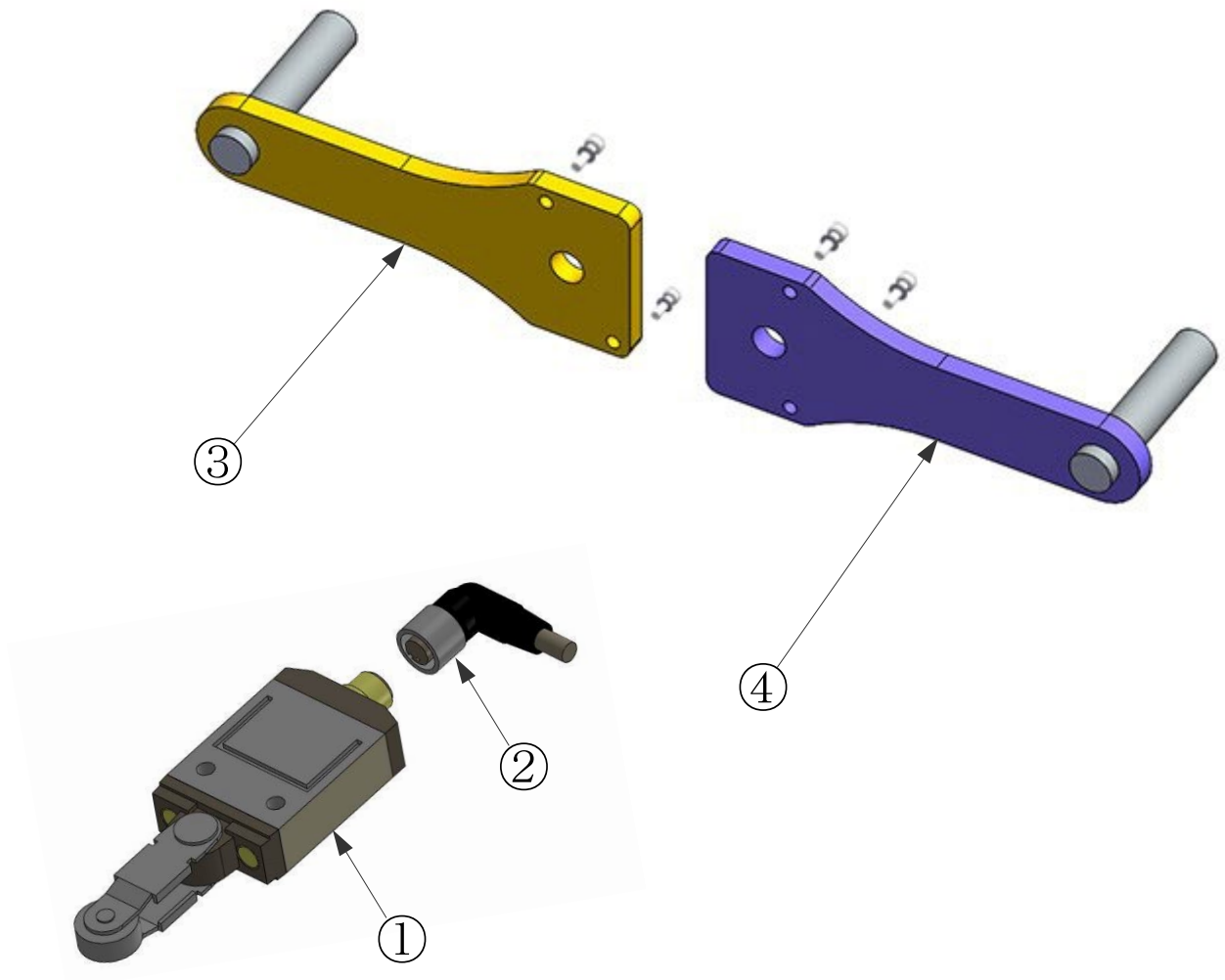


6. Sensor Pack (Option)

■KIKK-ELX-SE-Pac

This sensor pack corresponds to the Tip Changer KIKK-EL/KIKK-SG of our company.

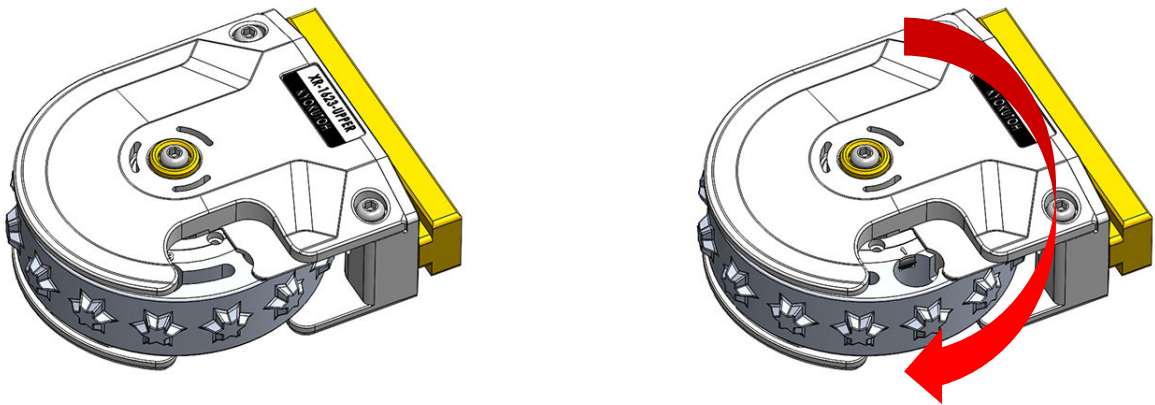
No.	Name	Model	QTY
1	Limit Switch	D4CC-4060(DC30V)	1
2	Plug	XS2F-D421-D-80F(2m)	1
3	XR Sensor plate set (yellow)	XR-SPL-PS-YL-SET	1
4	XR Sensor plate set (blue)	XR-SPL-PS-BL-SET	1



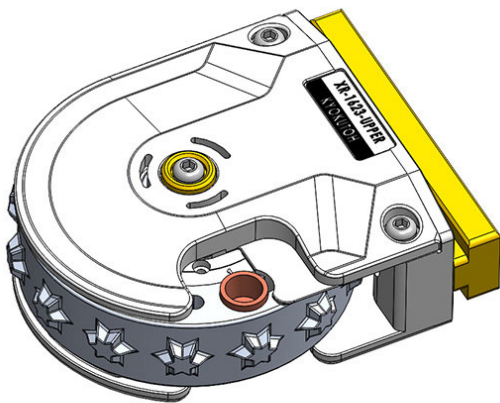
7. Maintenance

7-1. Cap Tip Loading Procedure

- Protect your body sufficiently with protective goggles, gloves, etc. before starting operation.
1. Make sure that there are no foreign substances or dust accumulated in the magazine.
If it cannot be cleaned by air spray, etc., clean the inside of the magazine after disassembly operation.
※This description corresponds to the magazine for the upper side, but also applies to operational procedure for the magazine for the lower side.
 2. Grab the revolver with your hand and rotate it.



3. Load a new cap tip.
※Do not use used cap tips with scratches around the periphery or on taper.
The cap tip may not be inserted correctly.

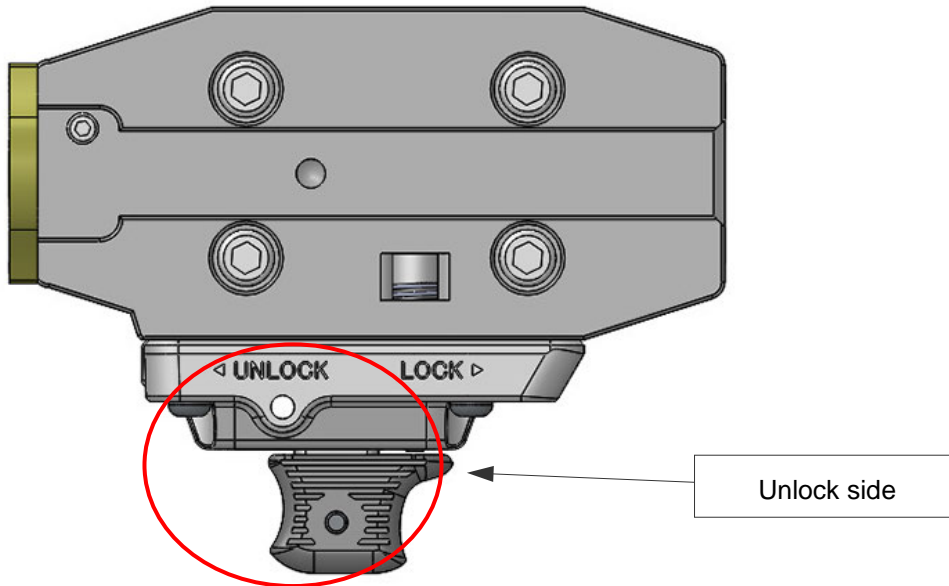


7-2. Magazine Mounting Procedure

- The magazine for the upper side is assembled in the yellow adapter block.
 - The magazine for the lower side is assembled in the blue adapter block.
- ※The adapter block is attached to the main body of the Tip Changer of our company.
- ※This description corresponds to the magazine for the upper side, but also applies to operational procedure for the magazine for the lower side.

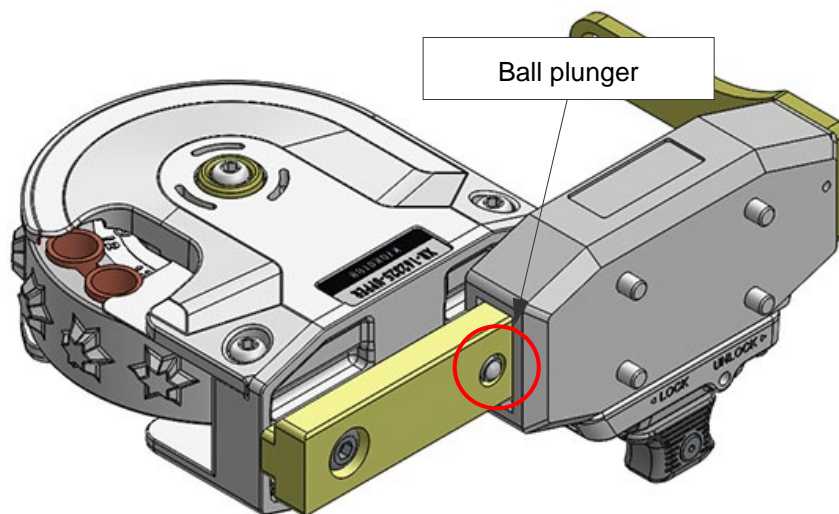
1. Make sure the lever is on the unlock side.

※If there is a lever on the lock side, you will not be able to insert the magazine.



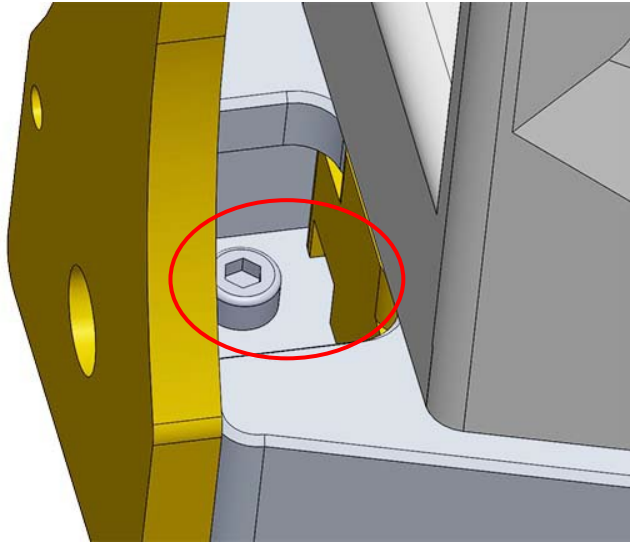
2. Install while sliding the magazine along the groove of the adapter block.

※If the ball plunger to give a click feeling to the fixed position hits and it is difficult to enter, slide it with a little momentum.

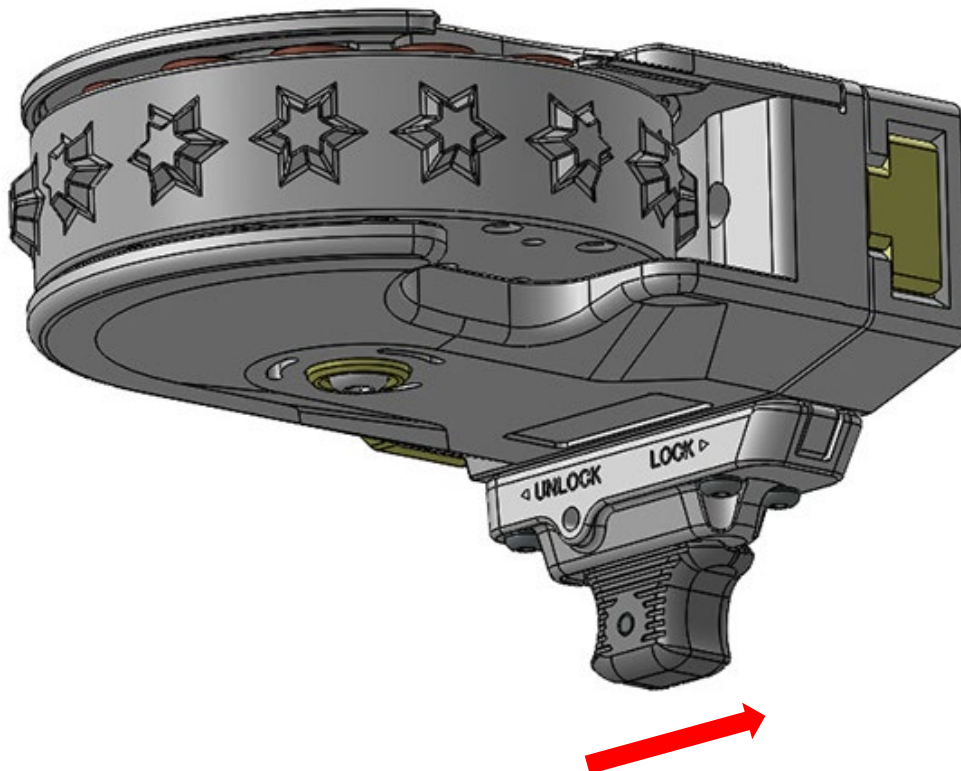


3. A poka-yoke system is adopted to prevent attaching wrong revolver.

※If you could not attach properly, the revolver you are attach may be the opposite one.



4. Slide the lever to the lock side and you're done.



8. Example of Cap Tip Insertion Operation

■ This is an example of operation when used with the tip changer of our company.

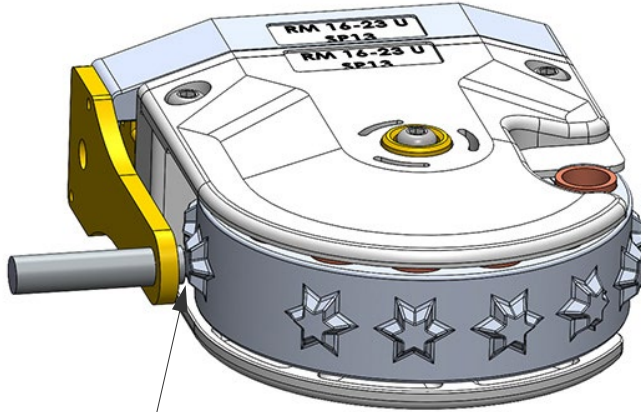
※ Please start from the welding power supply OFF/stopped cooling water.

1. Start cap tip exchange • insertion operation
↓
2. Check the presence or absence of the upper and lower magazines and cap tips with the "proximity sensor" (Option).
↓
3. Move a lower side of robot gun to cap tip removal position.
↓
4. Remove the lower side cap tip. ※ Be sure to remove the tip from the lower side.
↓
5. Check the removal of the lower side cap tip with "Limit Switch (Option)" on the Tip Changer.
↓
6. Move the lower side of the robot gun to cap tip insertion position.
↓
7. Insert the lower side cap tip. ※ Recommended Pressure: 150 kgf.
↓
8. Move the robot gun back to pull out a cap tip.
↓
9. Check the installation of the lower side cap tip with "Limit Switch (Option)" on the Tip Changer.
↓
10. Move a upper side of robot gun to cap tip removal position.
↓
11. Remove the upper side cap tip. ※ Be sure to remove the tip from the lower side.
↓
12. Check the removal of the upper side cap tip with "Limit Switch (Option)" on the Tip Changer.
↓
13. Move the upper side of the robot gun to cap tip insertion position.
↓
14. Insert the upper side cap tip. ※ Recommended Pressure: 150 kgf.
↓
15. Move the robot gun back to pull out a cap tip.
↓
16. Check the installation of the upper side cap tip with "Limit Switch (Option)" on the Tip Changer.
↓
17. Complete the cap tip exchange • insertion operation

◆ Supplementary Image (Sensor Pack)

■ Check the presence of the cartridge and cap tips with "proximity sensor".

※ Sensing the convex part (star-shaped part) in the figure below.



The presence or absence of a magazine and the presence or absence of a cap tip are sensed by a proximity sensor.
When there are no cap tips, there will be no convex parts (star-shaped parts).

9. Teaching

■Items to be Confirmed Before Robot Teaching

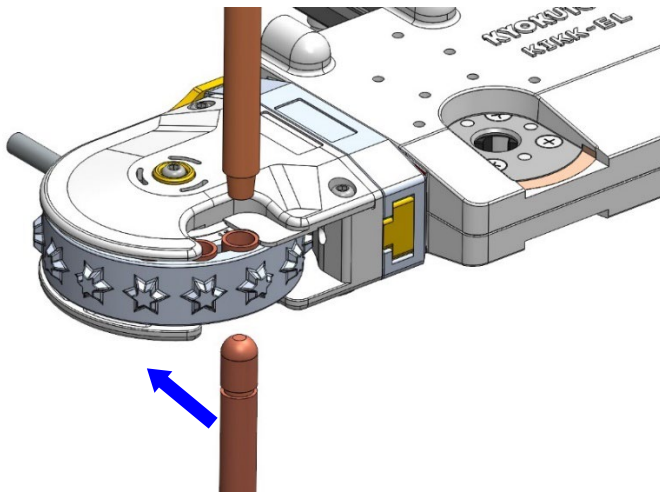
- Is the horizontal and the vertical of the robot gun correct?
- Are the shapes of the magazine and cap tip appropriate?
- Is the cap tip loaded in the magazine?
- Is the magazine firmly fixed and does not move?

■Inserting Upper Side Cap Tip

1. Move the robot gun from the front of the magazine.

※Fit as much as possible to the center position of the loaded cap tip and the shank.

Of each center position is out of position, the insertion operation may fail.



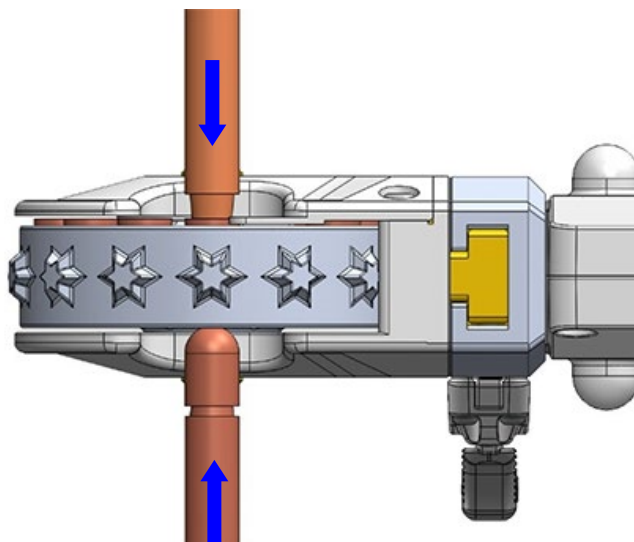
2. Move to the pressurization preparation position.

The upper side moves to the position where the cap tip inserted within 3~5mm.

The lower side moves to the position where the front end of the cap tip contacts the revolver.

Push up from the contact within 1mm.

※Operation of pushing up too much will cause failure of cap tip insertion or product breakage.

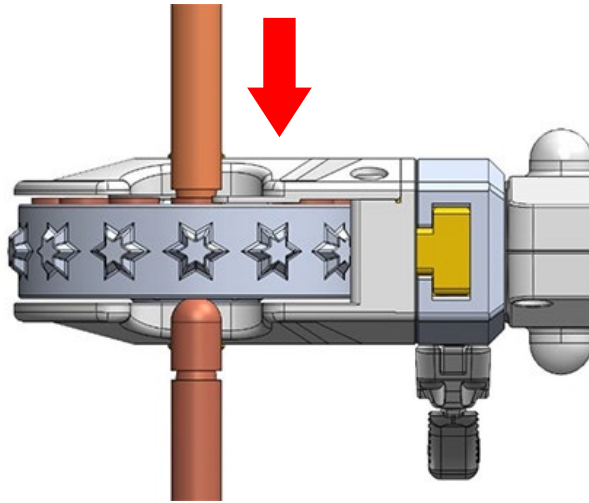


3. Insert the cap tip by applying pressure. (150kgf recommended)

※If used at higher pressure the product may be damaged.

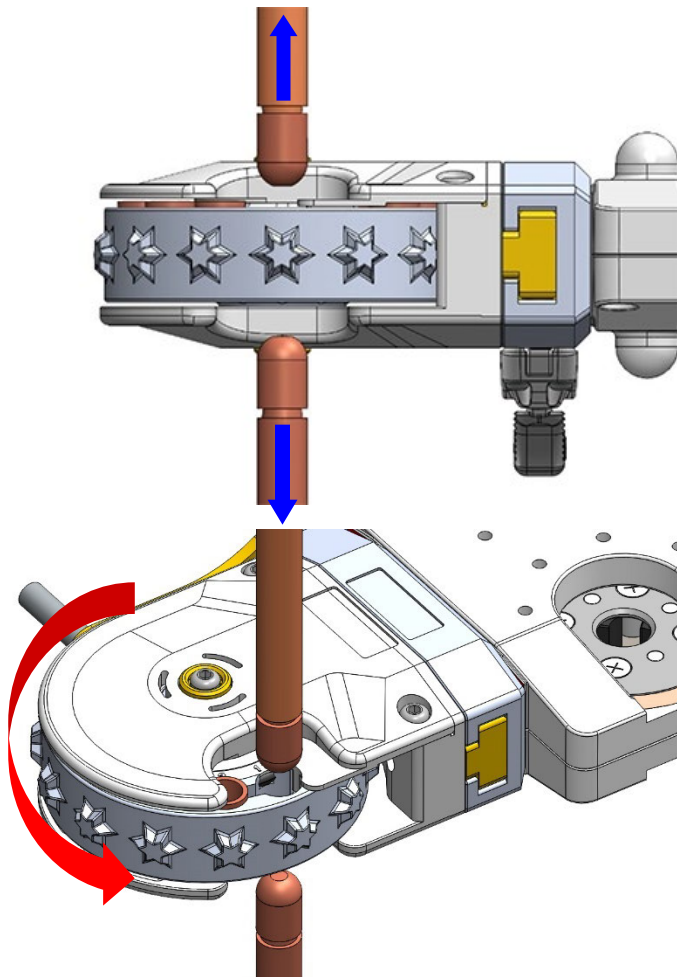
※If used at 100kgf or less, the cap tip may not be inserted.

※When using robots that require thickness setting when pressing, select 9mm (for 1623).



4. Release gun pressing. Check that the revolver rotates automatically, and the following cap tip comes to the front.

※Be sure that the tip release distance is enough not to interfere the revolver (both upper and lower side).

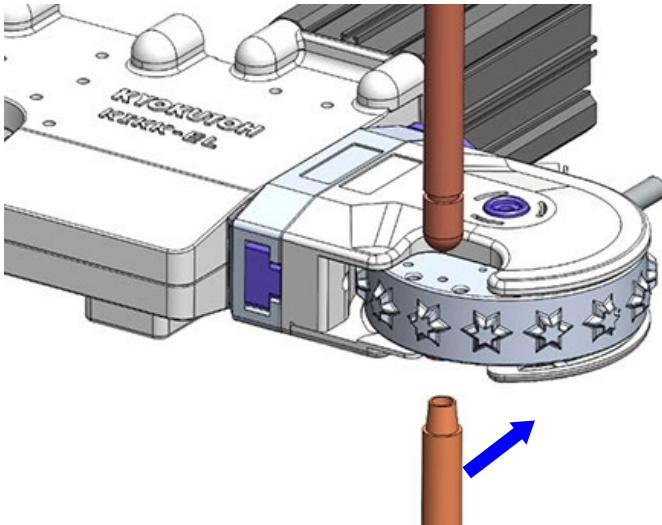


■Inserting Lower Side Cap Tip

1. Move the robot gun from the front of the magazine.

※Fit as much as possible to the center position of the loaded cap tip and the shank.

Of each center position is out of position, the insertion operation may fail.

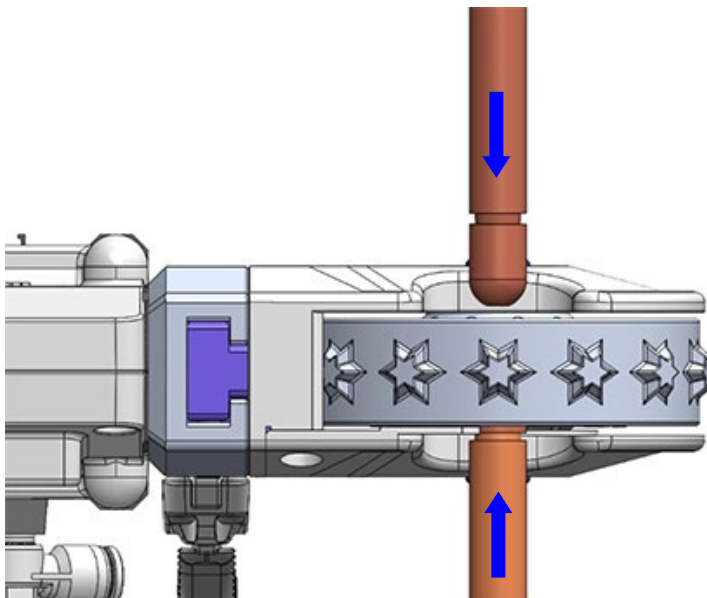


2. Move to the pressurization preparation position.

Insert the lower side completely into the tip and push it up within 1 mm of contact.

On the upper side, the tip of the cap tip moves to a position about 5 mm from the revolver.

※Operation of pushing up too much will cause failure of cap tip insertion or product breakage.

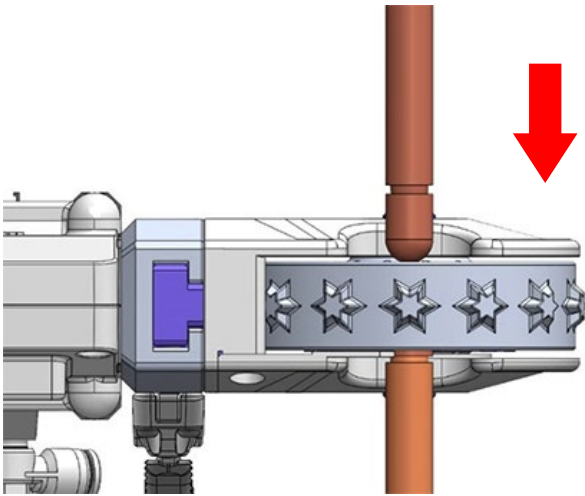


3. Insert the cap tip by applying pressure. (150kgf recommended)

※If used at higher pressure the product may be damaged.

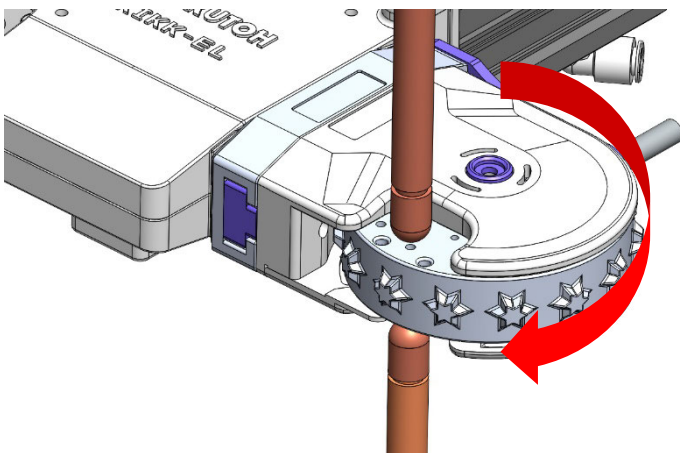
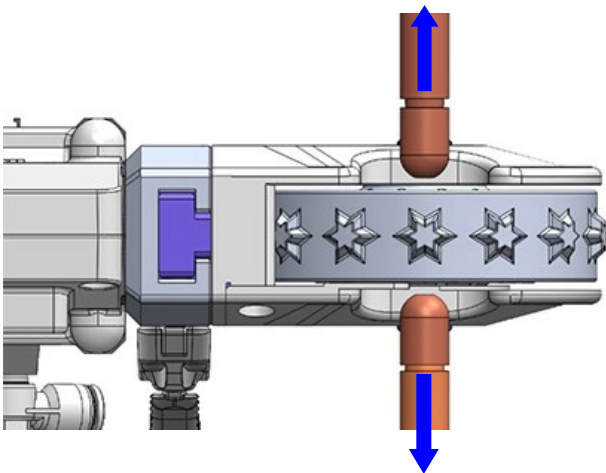
※If used at 100kgf or less, the cap tip may not be inserted.

※When using robots that require thickness setting when pressing, select 9mm (for 1623).



2. Release gun pressing. Check that the revolver rotates automatically, and the following cap tip comes to the front.

※Be sure that the tip release distance is enough not to interfere the revolver (both upper and lower side).

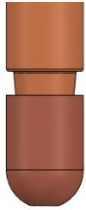


■Teaching of the sensor part (Option).

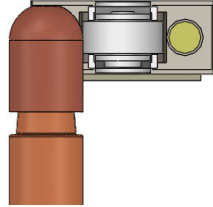
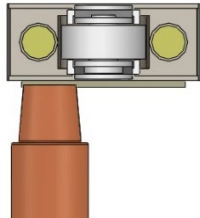
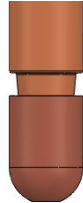
Check cap tip removal (LS)

※The image below shows an example of using the lower cap tip.

<OK>



<NG>



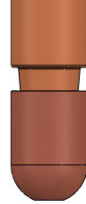
◆For checking the cap tip removal, set as follows.

- If passing without contacting LS, OK
- If passing by hitting LS, NG

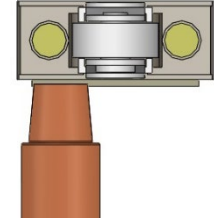
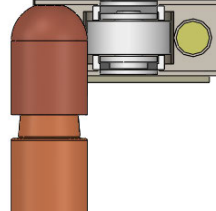
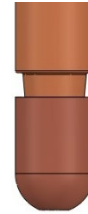
Check cap tip insertion (LS)

※The image below shows an example of using the lower cap tip.

<OK>



<NG>



◆For checking the cap tip removal, set as follows.

- If passing by hitting LS, OK
- If passing without contacting LS, NG

10. Problems and Solutions

Abnormal Condition	Causes and Solution
<p>The magazine cannot be assembled to the adapter or cannot be fixed.</p>	<ul style="list-style-type: none"> * The screw knob is out. →Push the screw knob back in. * Foreign substances or dusts are stuck in the adapter block • magazine. →Clean the foreign substances. * Positions of the magazine poka-yoke system and the adapter poka-yoke system do not match. →Combine the magazine and the adapter correctly.
<p>The cap tip cannot be inserted to the magazine.</p>	<ul style="list-style-type: none"> * The cap tip shape • overall length do not match. →Prepare an appropriate tip for the magazine. * There are contaminations or scratches around the periphery of the cap tip. →Replace with a new cap tip without scratches.
<p>The magazine does not forward the next cap tip.</p>	<ul style="list-style-type: none"> * The inside of the magazine is clogged with foreign substances or dust. →Remove foreign substances and clean. * Spring is damaged. →Disassemble the magazine to replace the spring.
<p>The cap tip cannot be inserted.</p>	<ul style="list-style-type: none"> * Robot teaching is not correct. →Adjust the horizontal • vertical of the robot gun. Perform the insertion operation at the cap tip center location. * Cap tip loading cannot be performed in the correct position of the magazine. →Adjust the position so that the grooves of the cap tip and picker are aligned. * Applied pressure is low. →Set it the recommended applied pressure (150kgf).

11. Consumption Parts List

	<p>Product Name: O-ring Model (for 1623): AS568-334A NBR-70-1(1A)</p> <ul style="list-style-type: none">◆ Required Quantity: 1◆ Exchange Cycle: 2 years
	<p>Product Name: Bearing Model: 6201H-2RS</p> <ul style="list-style-type: none">◆ Required Quantity: 2◆ Exchange Cycle: 1 years
	<p>Product Name: Spring Model (for 1623): MR-SP-1316</p> <ul style="list-style-type: none">◆ Required Quantity: 1◆ Exchange Cycle: 2 years

12. Order Model

■Standard Model

【XR-****U】 is for the upper side, 【XR-****L】 is for the lower side.

Model	Corresponding Shape	Model	Corresponding Shape
XR-162325U		XR-132022U	
XR-162325L		XR-132022L	
XR-1925U		XR-2025U	
XR-1925L		XR-2025L	

■Caution

※Model other than the above shapes is " XR-**-SP**-U or L ".

MEMO

Contact

Contact us if there is any damage or machine defects in our products.



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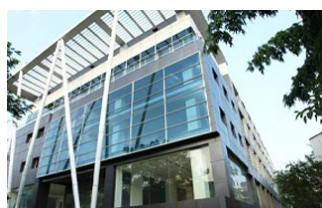


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