

## 2. Important Safety Precautions

Important safety precautions that particularly you should know or follow are summarized below. Please read them before starting to use the product.



# DANGER

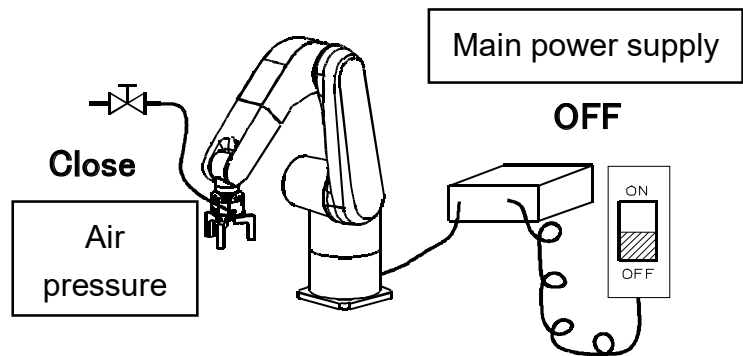
Failure to follow the safety precautions below will result in death or serious injuries.



Be sure to turn off the main power supply when installing, checking, oiling, or replacing the gripper.

Also, shut down the air pressure in the work area.

- During work, the robot or gripper could move abruptly and collide with your body.
- After shutting down the air pressure, release the air pressure remaining inside the gripper.



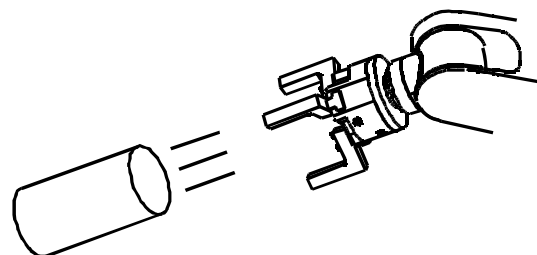
When installing, checking, oiling, or replacing the gripper, post a sign or notice, or provide a fence, and so on to notify people around the machine that work is in progress.

- Notify people around the machine that work is in progress and take measures to keep people other than the operator out of the work area.  
Machine motion not predicted by a third party could cause serious danger.



Take safety measures so that the operator is not injured even if the conveyed workpiece flies out due to the reduced air pressure.

- Observe the legal safety standards defined by each country, such as installation of safeguards or fall prevention covers.





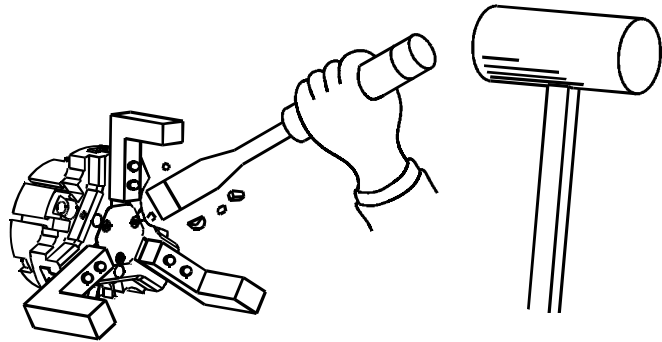
# DANGER

Failure to follow the safety precautions below will result in death or serious injuries.



**Do not modify the gripper.**

- Not only the gripper is damaged but also the gripper and fixed workpiece may fly out.



**If using the gripper as a workpiece fixture when the workpiece is drilled, deburred, welded, or modified additionally, confirm the specifications.**

- If the gripper is used out of the specifications, not only the gripper is damaged but also the fixed workpiece may fly out.



**Be sure to tighten the bolts with the specified torque.**

- Lack of bolt quantity or tightening torque, or excessive torque could damage the bolt, causing the gripper or conveyed workpiece to fly out.
- When tightening the bolts, fix the gripper so that it will not rotate. Failure to do so may result in injury by slipping your hands when tightening the bolts.

Other than piston fixing bolt			Piston fixing bolt		
Bolt Size	Tightening torque		Bolt Size	Tightening torque	
M3	1.0	N·m	M5	6.8	N·m
M4	2.0	N·m	M6	12.7	N·m
M5	4.5	N·m	M8	33.3	N·m
M6	7.65	N·m	M10	72.6	N·m
M8	18.0	N·m			



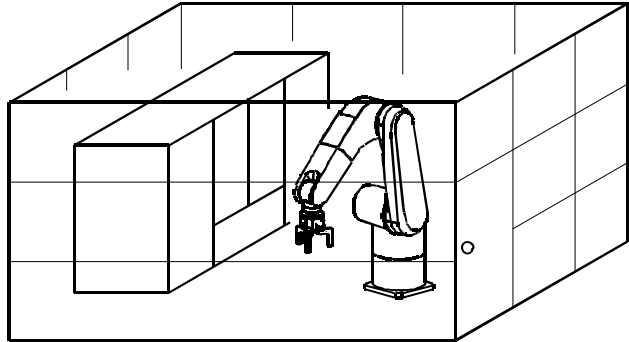
**DANGER**

Failure to follow the safety precautions below will result in death or serious injuries.



Use the gripper in accordance with the legal safety standards.

- Use the gripper in accordance with the legal safety standards defined by each country, such as installation of safeguards or safety covers.





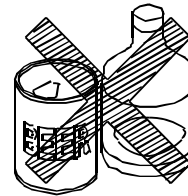
## WARNING

Failure to follow the safety precautions below will result in death or serious injuries.



**Do not operate the machine after drinking alcohol or taking medicine.**

- Impaired judgment or operation mistake may cause serious hazards.



Alcohol

Medicine



**Do not wear clothing or accessories such as a necktie, necklace, etc. which are easy to be caught in.**

- You may be caught in the gripper.



**Use the gripper within the range of specification values.**

- When selecting a gripper, select the model by referring to "Model selection" in page 11.
- Have the gripper grip the conveyed workpiece at the position of its center of gravity.
- If not, not only the gripper is damaged but also the conveyed workpiece may fly out.

