

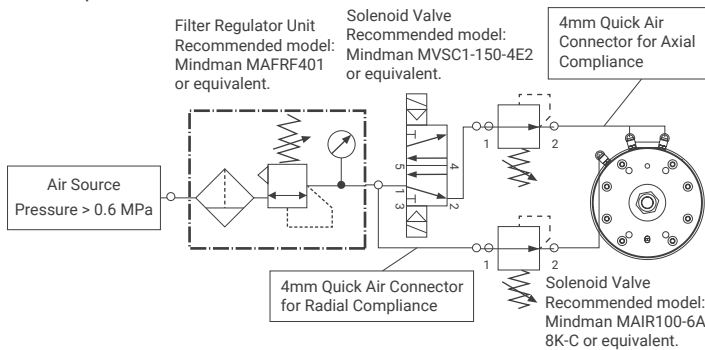


## Maintenance

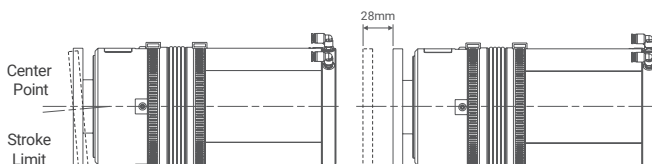
- Daily:** Check whether the grinding tool is damaged or wore, replace it immediately when it has invalid. Check air conditions and make sure the filter cup is not full of water, drain it in time. Check the lubricating oil drip rate is normal.
- Weekly:** Ensure the spindle operates smoothly without weird noises. Make sure compliant tool movements work smoothly, and the spindle is able to return to the CENTER POINT. Shake the spindle gently by hand at the CENTER POINT, and the mechanical gap should be less than 0.5mm. The spindle should be able to reach both forward and backward LIMIT POSITION. If any defect is discovered, please contact your supplier.

## Before Use

- Prepare a suitable air source as shown in the diagram below.  
For LRCZ300, please refer to the appearance dimension diagram. The axial compliance air source and radial compliance air source both use 4mm pneumatic tubes.



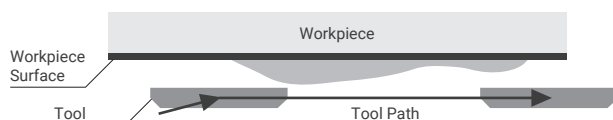
- Check the center point (\*1) of the compliance module. Apply 0.2 MPa of pressure to the compliance air source while the module is in a static state. First, confirm the movement direction corresponding to the air supply connectors. One connector will extend the LRCZ300, another will retract it, and a third will enable radial compliance. Before use, please confirm the directions. Ensure the compliance module can return to the center point, as shown in the diagram below. If it does not return to the center point or is not aligned, please contact your supplier.



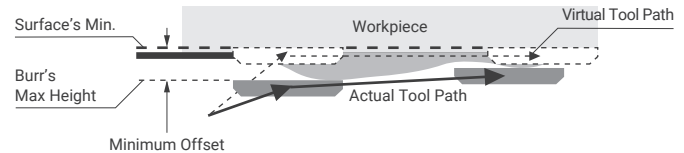
- Install the compliance module to the robot or a fixed position using the screw holes and locating pin holes on the fixed-end flange. (\*2)
- Mount the grinding tool to the moving-end flange using the designated screw holes. Design a suitable fixture based on the shape of your tool. (\*2)
- For horizontal mounting, use the extension port to apply compliance force. For vertical-down mounting (tool facing down), using the extension port results in a net force equal to the tool weight plus the compliance force. Using the retraction port results in net force equal to the tool weight minus the compliance force. Alternate between extension and retraction ports to achieve a wider force range. For vertical-up mounting (tool facing up), the direction of net force is reversed.

## Path Teaching Guidelines

- Keep the compliance tool fully extended. Teach a path where the grinding tool just contacts the workpiece and moves along the grinding areas, maintaining contact without interference.



- Set an offset (virtual depth of cut) along the path of the cutter that you just taught-in. The purpose of the offset is to prevent the cutter from detaching from the workpiece, and to provide a stable contact force (compliant force). The key to setting the offset is to imagine a virtual path of the cutter when the compliance module is fully extended. The offset should absorb all dimensional tolerances, including the depth to be ground, but should not be set too high to avoid over-grinding at the initial contact point or collision with the STROKE LIMIT.



- If the grinding amount is too large to be completed in one pass, the same path can be repeated multiple times.
- If the robot path is a curve, more waypoints are needed compared to a straight path. Additionally, adjust the compliance tool's direction to align with the surface normal of the workpiece to achieve the best grinding results.
- When the tool contacts the workpiece, axial movements (forward and backward) can be performed, along with simultaneous radial angular displacement.

## Cautions

- This product is exclusively designed for robot deburring work, DO NOT use it for other purposes.
- For your safety, DO NOT approach the robot when it is in automatic operation mode.
- Tips and burrs could cause injuries, be cautious when working with them.
- Tips and compliant tools could be damaged by collision. Always check the robot paths before setting it to automatic operation mode.
- Compliant tools could be damaged by severe bouncing of the tips on the workpiece. Always perform checks before setting it to automatic operation mode.
- The air supplied to the precision regulator and compliant force should NOT be lubricated, otherwise, the compliant tools will be damaged.
- The noise from the deburring operation could damage your hearing, always wear ear protection during work.
- The file should only contact the workpiece from its side. Any contact in a direction other than the compliant direction, including the tip or the non-compliant side, will result in damage to the mechanism and is not covered under warranty.

## Appendix

Model	LRCZ300	
Compliant Stroke	(mm)	Axial 28mm, Radial 5°
Compliant Force	(N)	40~100
Compliant Pressure	(MPa)	0.2~0.5 (2~5bar)
Air Supply	(MPa)	≥0.6(6bar)
Air Consumption	(LPM)	Compliance Force: N/A
		Pneumatic Spindle: N/A
Lubricant	(drops/min)	N/A
Pneumatic Spindle Speed	(rpm)	N/A
Collet Size	(mm)	N/A
Ambient Temperature	(°C)	+5~35
Ambient Humidity	(%)	<95
Weight	(kg)	4.5

\*1. The CENTER POINT may not align exactly with the designed position. A tolerance or gap smaller than 0.5mm is normal.

\*2. Please contact your supplier to obtain the 3D and 2D drawings of the compliant tool, or download them from our website.

\*3. The robot can either hold the workpiece or the tool, depending on system integration requirements.