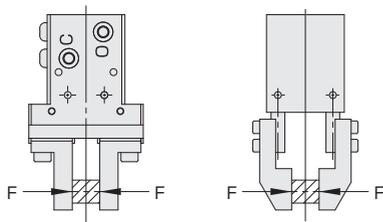


## Terminology of Grippers

Terms and explanation of the grippers used in the catalogue are shown below.

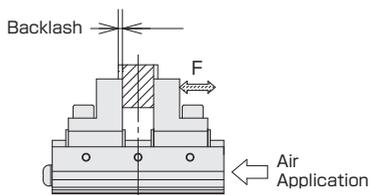
### Gripping Force

Indicates a force where the gripped workpiece is in balance between the gripping levers, so that no total force is generated.



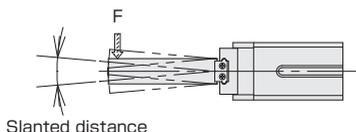
### Horizontal Backlash

If an external force in the lever opening/closing direction is applied to the workpiece or levers when the gripper is gripping a workpiece with air application, minor backlash is generated. This is called parallel backlash.



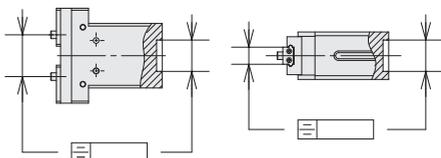
### Vertical Backlash

Indicates the slanted distance of a lever when the vertical bending moment is applied to the lever against the opening/closing direction.



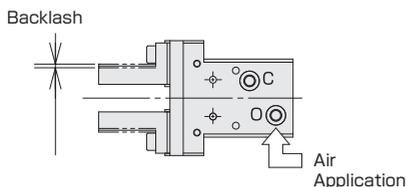
### Centering Accuracy

Indicates runout of the workpiece center and the gripper body positioning hole center while the workpiece is gripped. (The position of the attachment to be used is determined when the width in the opening/closing direction is the pin and that in the vertical direction is the lever. Centering accuracy does not include attachment accuracy.)



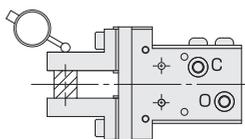
### Opening/Closing Backlash

When the gripper is not gripping a workpiece with air application, there is minor backlash in the lever opening/closing direction. This is called opening/closing backlash.



### Repeat Accuracy

Indicates runout of the workpiece (lever) position after the same workpiece is gripped 10 times repeatedly. (Deflection of the attachment is not included.)



## Terminology of Rotors

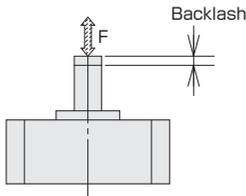
Terms and explanation of the rotors used in the catalogue are shown below.

### Effective Torque

An indication value obtained from the theoretical output torque in consideration of the friction resistance.

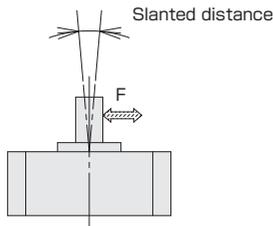
### Thrust Backlash

Indicates backlash when load is applied coaxially to the pivot of the rotor.



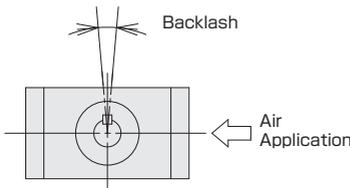
### Radial Backlash

Indicates inclination when load is applied vertically to the pivot of the rotor.



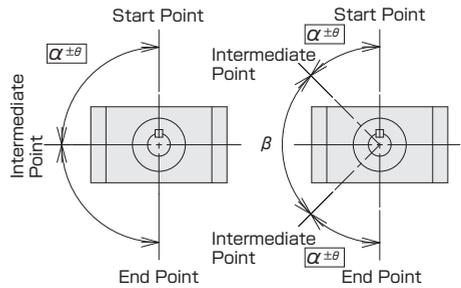
### Backlash

Indicates backlash in the rotation direction of the pivot shaft that is stopped at the swing end with air application.



### $\alpha$ Angle Setting Accuracy

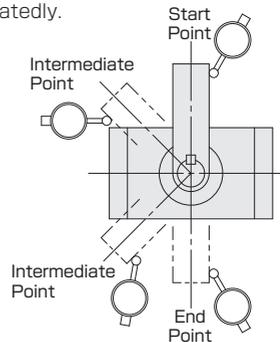
Indicates the tolerance of actual rocking angle of Angle  $\alpha$  for the intermediate stop rotor. The angle  $\alpha$  setting accuracy is allowance accuracy in product assembly. Therefore, you cannot adjust it after the product is completed. The following shows  $\alpha$  setting angle accuracy of each size.



Size	10, 13, 14	16, 18, 22
$\alpha$ angle setting accuracy ( $\theta$ )	$\pm 1.5^\circ$	$\pm 1^\circ$

### Repeat Angle Accuracy

Indicates runout of the stop angle after stopping at each swing end 10 times repeatedly.



Size	All Sizes
Repeat Accuracy	$\pm 0.1^\circ$