

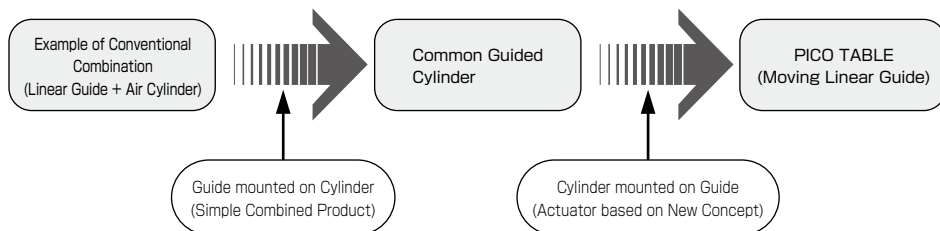
F Series Air Cylinder with Intergrated Precision Linear Bearing

Air-Driven Linear Guides

The F Series is a line of next-generation actuators

Ultimate Space Saver	High Accuracy	High Rigidity
<ul style="list-style-type: none"> ●The F Series actuators are linear guides themselves and take up only about as much space. 	<ul style="list-style-type: none"> ●Running Parallelism 0.003mm(PICO TABLE φ16) ●Mounting Parallelism 0.02mm(PICO TABLE φ16) ●Height Accuracy $\pm 0.02\text{mm}$(PICO TABLE φ16) 	<ul style="list-style-type: none"> ●Basic Static Load Rating $C_0=13330\text{N}$ (PICO TABLE φ16-30)

PICO TABLE

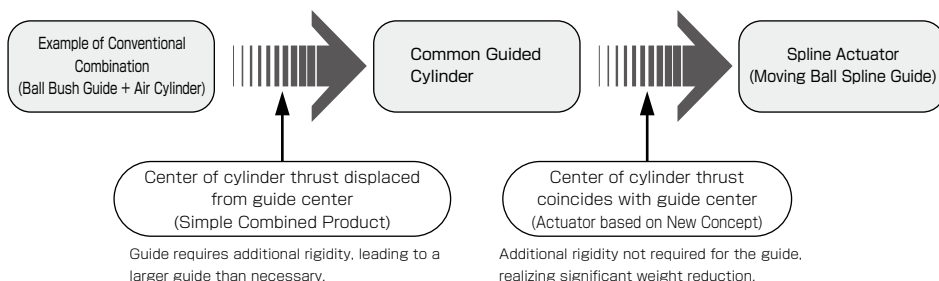


Conventional Combined Product	Common Guided Cylinder	Pico Table
	<p>Based on Cylinder</p>	<p>Based on Guide</p>
<p>"Conventional combinations" have brought out the performance (accuracy and rigidity) and reliability of linear guides but had many disadvantages such as many man-hours required for design and assembly and difficulty in building into compact units.</p>	<p>"Common guided cylinders" have a structure with a linear guide mounted on aluminum, which hinders the compactness, performance (accuracy and rigidity) and reliability of linear guides from being fully utilized.</p>	<p>The structure based on a new concept of mounting a cylinder on a guide allows the compactness, performance (accuracy and rigidity) and reliability of linear guides to be brought out as they are.</p>

evolved from common guided cylinders.

Reliability	Service Life
<ul style="list-style-type: none"> ● High accuracy, high rigidity linear guides are used. 	<ul style="list-style-type: none"> ● Structure features reduced external load on air cylinder.

■ Ball Spline Actuator (Z-Axis Application)



Conventional Combined Product	Common Guided Cylinder	Ball Spline Actuator
<p>Air Cylinder</p> <p>Ball Bush Guide</p>	<p>Linear Guide</p> <p>Stopper</p>	<p>High Accuracy Ball Spline Guide</p>
<p>Conventionally, Z-axis actuators were built mainly by combining ball bush guides and a cylinder. For this reason, they required many man-hours for design and assembly and had disadvantages such as lower accuracy, need for a large space and heavy weight.</p>	<p>The moment generated by the cylinder thrust was applied to the guides, which reduced the performance (accuracy and rigidity) of the guides. This necessitated additional rigidity (to withstand the moment generated by the cylinder thrust) for achieving the required accuracy, which led to disadvantages such as need for a larger space and heavy weight.</p>	<p>The structure with a high-accuracy ball spline axis driven directly by a piston brings the center of the cylinder thrust to coincide with the guide center. Accordingly, the performance (accuracy and rigidity) and reliability of the ball spline guide are not affected and a significant saving of space and weight reduction are achieved for a Z-axis actuator.</p>

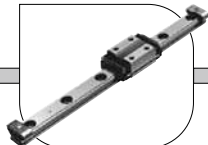
F Series

System Diagram

AIR CYLINDER



HIGH RIGIDITY
LINEAR GUIDE

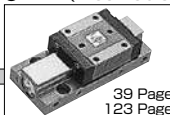


HIGH RIGIDITY
BALL SPLINE



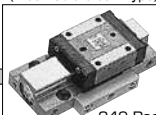
Linear Guide Type

●PPT (Pico Table)



39 Page
123 Page
169 Page
207 Page

●PPTN
(Pico Table Clean Type)



249 Page
283 Page

Table Type

●FMT (Micro Table)



673 Page

●FXTW (Flat Table)



693 Page

Ball Spline Type

●JKX (F Cylinder)



835 Page

●JKXN
(F Cylinder/Clean Type)



877 Page

Rotaring Type

●CTW (Linear Twist)



993 Page

Reciprocating

Reciprocating
Rotaring

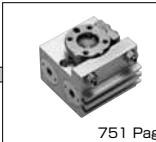
Tool Unit

●PXY (Pico Positioner)



727 Page

●CTR (Pico Rotary)



751 Page

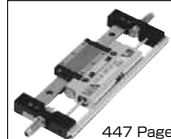
●PPU (Pico Unit)

313 Page
369 Page

●PRZ (Pico Table Long)

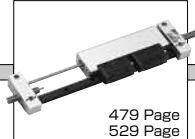
397 Page
425 Page

●PSL (Pico Slider)



447 Page

●PSU (Pico Slider II)

479 Page
529 Page

●PRM2 (Pico Rodless II)

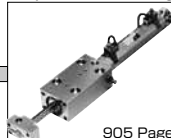


583 Page

●PRD (Pico Rodless)



611 Page

●JKXB
(F Cylinder/Double Bearing Type)

905 Page

●GXA
(Square F Cylinder)

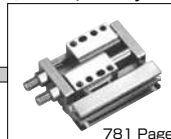
947 Page

●CZL (Mini Swing)



1021 Page

●PST (Pico Synchro)



781 Page

●AFC
(Finger Changer)

805 Page

F Series

Size List

PPT Series



PPU Series



PRZ Series



Linear Block Type (Block Type)

Model	Bore Size (mm)	Stroke (mm)														Page
		5	10	15	20	25	30	45	50	60	100	150	200	250	300	
PPT	φ6 (PPT6Y)	●	●													39
	φ6 (PPT6M)	●	●													123
	φ6 (PPT6)	●	●													169
	φ8	●	●		●											207
	φ10	●	●		●											249
	φ12			●		●										283
PPU	φ10			●			●	●								313
	φ12				●		●	●		●						369
PRZ	φ12								●		●	●	●	●	●	397
	φ16								●		●	●	●	●	●	425

PSL Series



PSU Series



PRM2 Series



PRD Series



Linear Guide Type (Flat Type)

Model	Bore Size (mm)	Stroke (mm)														Page	
		25	40	50	60	75	80	100	125	150	175	200	250	300	~1200		~2000
PSL	φ8		●		●		●	●									447
	φ12		●		●		●	●	●								
PSU	φ16	●		●		●		●	●	●	●	●					479 529
	φ25	●		●		●		●	●	●	●	●					
PRM2	φ8			●				●		●		●	●	●			583
	φ12			●				●		●		●	●	●			
PRD	φ16			●				●		●		●	●	●	●	Note	611
	φ25			●				●		●		●	●	●	●	Note	
	φ32			●				●		●		●	●	●	●	Note	

Note 1: Can be manufactured in increments of 50 mm up to the maximum stroke.

FMT Series



FXTW Series



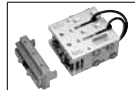
Table Type

Model	Bore Size (mm)	Stroke (mm)							Page
		10	20	30	45	60	80	100	
FMT	φ6	●	●	●					673
	φ10	●	●	●					
FXTW	φ8			●	●	●			693
	φ10			●	●	●			
	φ15			●	●	●	●	●	
	φ20			●	●	●	●	●	

PST Series



AFC Series



CTR Series



Tool Unit Type

Model	Bore Size (mm)	Type of Operation	Opening/Closing Stroke(mm)						Page
			4	6.5	10	14	20	22	
PST	φ6	Double Acting			● <small>Note 2</small>		● <small>Note 2</small>		781
AFC	φ10	Double Acting			●				805
	φ16				●				
	φ20					●			
CTR	06 <small>Note 3</small>	Double Acting	Rocking Angle: 90°, 180°						751
CTRV	1								
	2 <small>Note 3</small>								

Note 2: For PST, the value is given as the opening/closing stroke as it is used as a chuck, rather than the stroke to be indicated in the model No.

Note 3: For CTR, the value is the size indication based on the torque, rather than the bore size.

Ball Spline Type

JKX Series



JKXB Series



GXA Series



Model	Bore Size (mm)	Rod Size (mm)	Stroke(mm)																Page
			10	20	25	40	50	60	75	80	100	125	150	175	200	550	650	700	
JKX	φ12	φ6									● <small>Note 4</small>								835
	φ16	φ8									● <small>Note 4</small>								
	φ20	φ10														● <small>Note 4</small>			
	φ25	φ13															● <small>Note 4</small>		
	φ32	φ13																● <small>Note 4</small>	
JKXB	φ40	φ16																● <small>Note 4</small>	905
GXA	φ10	φ6	●	●		●		●		●	●								947
	φ15	φ8		●		●		●		●	●								
	φ20	φ10			●		●		●		●	●	●	●	●				
	φ25	φ13			●		●		●		●	●	●	●	●				
	φ30	φ16			●		●		●		●	●	●	●	●				

Note 4: Can be manufactured in increments of 1 mm up to the maximum stroke.

CTW

CTX Series



CZL Series









Swing Type

Model	Bore Size (mm)	Rod Size (mm)	Swing Range	Stroke (mm)					Page
				25	50	75	100	150	
CTW	φ25	φ8	90°	●	●	●			993
CTX	φ32	φ10	180°	●	●	●	●		
CZL	φ20	φ8	360°	●	●	●			1021
	φ25	φ10		●	●	●	●		
	φ32	φ12		●	●	●	●	●	

F Series (High Accuracy Guided Cylinders)

LINEAR GUIDE TYPE

The table type high-accuracy guided cylinders feature an integral structure with an air cylinder built in a linear guide, which allows the high accuracy and high rigidity of the linear guide to be fully brought out.

Block Type			Flat Type		
PICO TABLE PPT	PICO UNIT PPU	PICO TABLE LONG PRZ	PICO SLIDER PSL	PICO SLIDER II PSU	PICO RODLESS PRD
$\phi 4, 6, 8, 10, 12, 16, 20$	$\phi 10, 12$	$\phi 12, 16$	$\phi 8, 12$	$\phi 16, 25$	$\phi 16, \phi 25, \phi 32$
5~40 Stroke	15~60 Stroke	50~300 Stroke	40~150 Stroke	25~200 Stroke	50~2000 Stroke
					
39 Page	313 Page	397 Page	447 Page	479 Page	611 Page

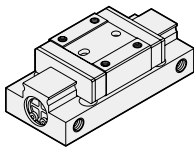
Note: The stroke depends on the bore size.

PICO TABLE Features

PICO TABLE (F Series)

■ Integral Structure

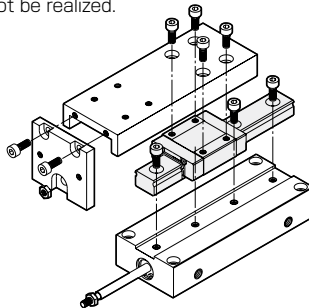
The integral structure with a cylinder built in a linear guide allows the high rigidity and high allowable load and moment of the linear guide to be fully brought out.



Common Guided Cylinder

■ Combined Structure

The aluminum table, body and guide are simply combined and the performance of the linear guide cannot be realized.



■ The integral structure features excellent **Stability of Accuracy** and **Resistance to Impact**.

The integral structure does not have any bolt connection that may affect the performance. This offers long-term stability of accuracy and significantly improves the reliability of the equipment.

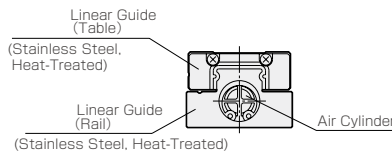
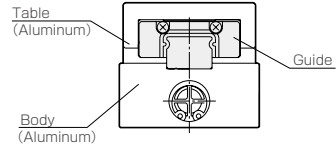
The combined structure may be affected by the strength of bolt connections.

■ The integral structure provides excellent **Rigidity**.

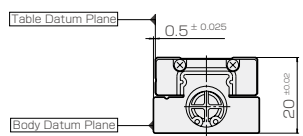
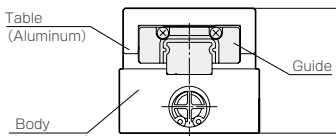
The integral structure uses a table and body of heat-treated stainless steel, which features small elastic deformation.

The combined structure is susceptible to the elastic deformation of the aluminum table and body.

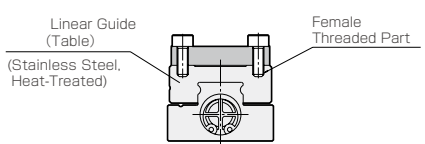
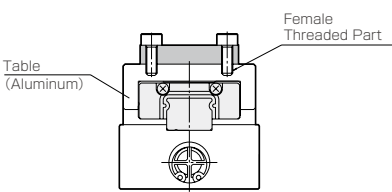
■The integral structure offers excellent **Compactness**.

F Series(Integral Structure)	Common Guided Cylinder(Combined Structure)
 <p>The integral structure offers excellent compactness.</p>	 <p>A product with a combined structure that uses a guide of the same size ends up in larger outside dimensions.</p>

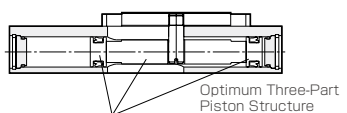
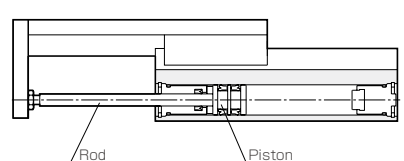
■The integral structure offers excellent **Mounting Accuracy**.

F Series(Integral Structure)	Common Guided Cylinder(Combined Structure)
 <p>The integral structure allows the performance of the linear guide, such as accuracy of the height, datum plane and running parallelism, to be fully brought out. (The dimensions and tolerances in the figure are for PPT10.)</p>	 <p>Height Accuracy X</p> <p>The structure combining a table (aluminum), guide and body (aluminum) fails to offer high accuracy because the dimensional tolerances of the respective components are added up. There is no datum plane, either.</p>

■The integral structure offers reliable **Workpiece Mounting**.

F Series(Integral Structure)	Common Guided Cylinder(Combined Structure)
 <p>The female threaded part is made of heat-treated stainless steel, which offers resistance to frequent mounting and removal.</p>	 <p>The female threaded part is made of aluminum and is not resistant to frequent mounting and removal.</p>

■The integral structure achieves **Long Service Life**.

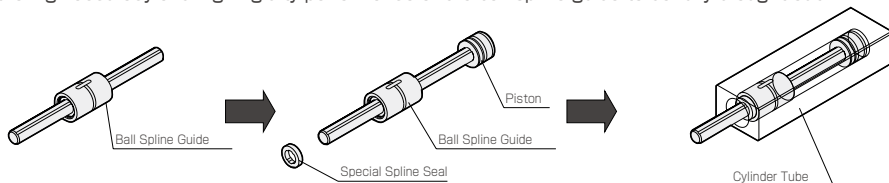
F Series(Integral Structure)	Common Guided Cylinder(Combined Structure)
 <p>Optimum Three-Part Piston Structure</p> <p>The piston is independent of the guide and is not affected by the external load, which provides an ideal structure for the piston seals.</p>	 <p>Rod</p> <p>Piston</p> <p>The piston is connected to the guide through the rod, which makes it susceptible to the external load.</p>

F Series (High Accuracy Guided Cylinders)

BALL SPLINE TYPE

The ball spline type is best suited for high-accuracy Z-axis actuators.

- The special spline seal (patented) developed allows the piston to directly drive the ball spline guide.
- The center of the ball spline guide is coaxial with the center of the cylinder thrust (piston), which allows the high-accuracy and high-rigidity performance of the ball spline guide to be fully brought out.



Benefits of Ball Spline Type

Lightweight


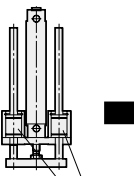




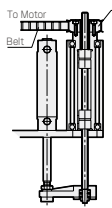
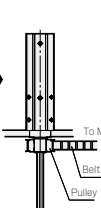

Compact

Reduced Man-Hours

High Accuracy

High Rigidity

Classification and Features

Classification	Model/Appearance	Features	Comparison with Conventional Types
 Linear Type	F CYLINDER JKX Series  835 Page	<ul style="list-style-type: none"> ● Standard type of ball spline cylinder. ● Can be manufactured to have a stroke in increments of 1 mm. ● Air cushion on both sides. ● Clean type (JKXN) available. 	Example of Conventional Combination of Air Cylinder and Guide  F Series GXA  High Accuracy Ball Spline Guide
	F CYLINDER/Double Bearing JKXB Series  905 Page	<ul style="list-style-type: none"> ● High-rigidity version of the JKC Series. ● High accuracy and high rigidity realized by the double bearing structure. ● Can be manufactured to have a stroke in increments of 1 mm. ● Air cushion on both sides. 	
	SQUARE F CYLINDER GXA Series  947 Page	<ul style="list-style-type: none"> ● Direct mounting version of the JKC Series. ● Model with a fall prevention mechanism optionally available. 	
 Linear + Rocking Type	LINEAR TWIST CTW Series  993 Page	<ul style="list-style-type: none"> ● Both linear and rocking motions are air-driven. ● Rotary actuator of a rack-and-pinion type employed for the rocking part. Features "zero" backlash. 	Conventional Scalar Robot Handling Part  F Series CZL  To Motor Belt Pulley
	MINI SWING CZL Series  1021 Page	<ul style="list-style-type: none"> ● Linear motion is air-driven. Rocking motion can be freely controlled externally by using a device such as a motor. ● Model with a fall prevention mechanism optionally available. 	

■ Best suited for Z-Axis

The ball spline type can be used to configure all functions such as the chuck and floating (buffer) mechanism coaxially with the guide. The type also offers many variations.

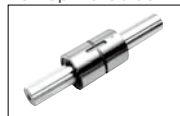
Stroke Adjustment Mechanism

The stroke on the pushing side can be adjusted.

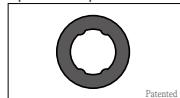
End Lock Mechanism

The rod is locked on the backward end (head side).
(Fall Prevention Mechanism)

Ball Spline Guide

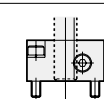


Special Spline Seal

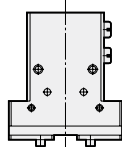


Combination with Chuck

● Adapter for Chuck
F Adapter



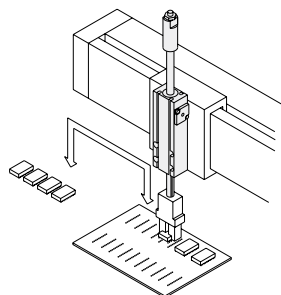
● High-Accuracy
Parallel Chuck



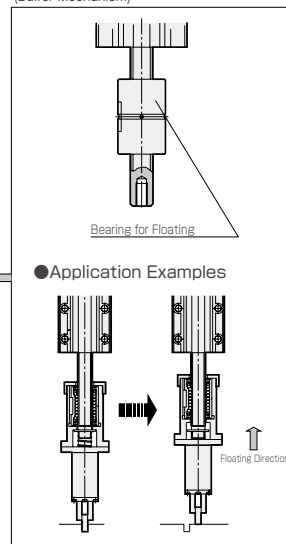
Rod End Shape

Standard	Female-Threaded Rod End
With Flange End Bracket	Male-Threaded Rod End

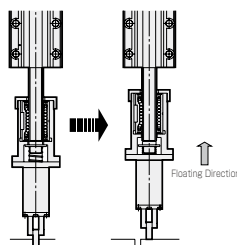
● Application Examples



With Bearing for Floating Mechanism (Buffer Mechanism)



● Application Examples



Combination with Tool Unit (see next page)

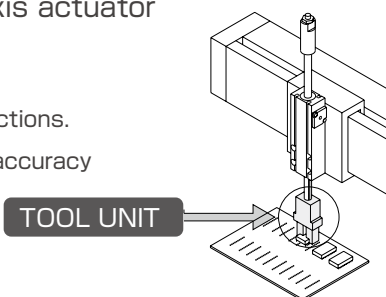
Error Absorbing Unit PXY	Finger-Changeable Chuck AFC
 727 Page	 805 Page
Thin, High-Rigidity Chuck PST	High-Rigidity Rotary CTR
 781 Page	 751 Page

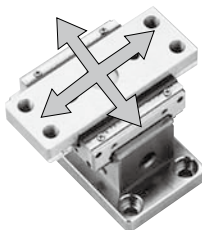
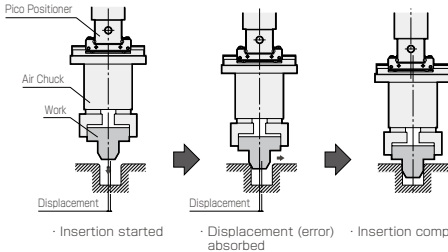
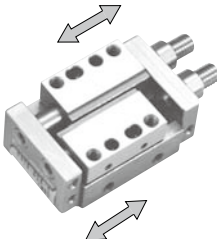
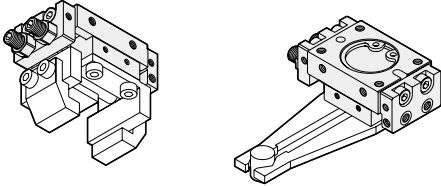
F Series (High Accuracy Guided Cylinders)

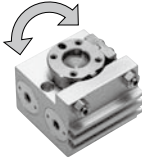
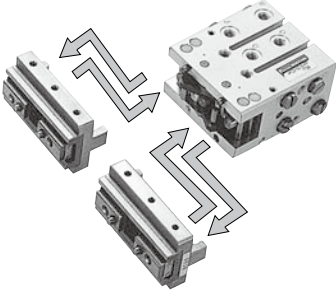
TOOL UNIT

The series of products are used for Z-axis actuator ends and robot handling parts.

- Our original mechanism has realized unique functions.
- Use of linear guides offers compactness, high accuracy and high rigidity.



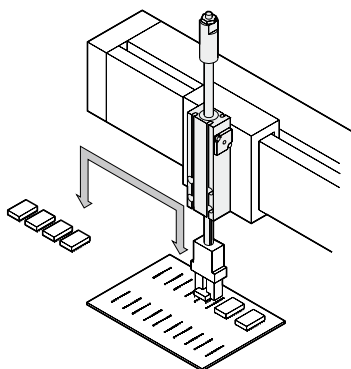
Classification	Feature
<p>Error Absorbing Unit</p> <p>PICO POSITIONER</p> <p>PXY_{Series}</p>  <p>727 Page</p>	<ul style="list-style-type: none"> ● The error absorbing unit has two small linear guides crossing at right angles. ● The built-in cylinder allows returning to and locking at the center by pressurization. ● The unique structure has realized compactness and low cost. ● The body is a linear guide itself and offers excellent rigidity.  <p>· Insertion started · Displacement (error) absorbed · Insertion completed</p>
<p>Small Chuck Unit/Escape Unit</p> <p>PICO SYNCHRO</p> <p>PST_{Series}</p>  <p>781 Page</p>	<ul style="list-style-type: none"> ● The chuck unit has two small linear guides combined in parallel. ● A large opening/closing stroke is ensured with a compact body. ● The opening and closing end positions can be separately adjusted. ● The body is a linear guide itself and offers excellent rigidity. 

Classification	Feature
<p>Rotary Actuator (Rack-and-Pinion Type)</p> <p>PICO ROTARY CTR Series</p>  <p>751 Page</p>	<ul style="list-style-type: none"> Two rolling bearings at the top and the bottom offer high rigidity. Significant size reduction realized by our original structure. <div data-bbox="535 247 994 359"> </div>
<p>Finger-Changeable Chuck Unit</p> <p>FINGER CHAGER AFC Series</p>  <p>805 Page</p>	<ul style="list-style-type: none"> The unit allows automatic change of only the fingers of a high-rigidity chuck. Best suited for handling various workpieces. Our original idea of replacing only the fingers has led to the realization of significantly lower price, compactness and lighter weight as compared with common tool changers. For the fingers, changeover has been considerably simplified thanks to the attaching/detaching repeatability achieved with the positioning pin. <p>●Comparison with Conventional Products</p> <div data-bbox="537 689 1005 890"> </div> <p>●Connecting/Separating Operation</p> <div data-bbox="524 973 1030 1133"> </div>

F SERIES APPLICATION EXAMPLES

Pick and Place

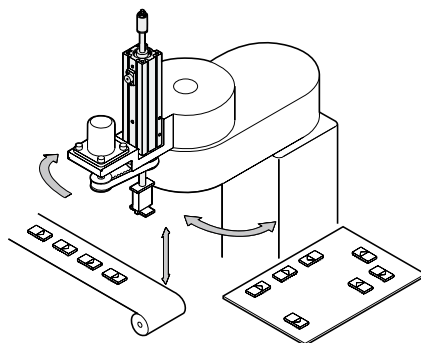
Model	SQUARE F CYLINDER GXA Series (947 Page)
Function	High-accuracy Reciprocation
Feature	Cylinder with built-in Bearing Stroke Adjustment Mechanism End Lock Mechanism Availability of Model with Floating Nut



Workpiece Transfer

Pick and Place

Model	MINI SWING CZL Series (1021 Page)
Function	High-accuracy Reciprocation, High-Accuracy Rocking (external driving force)
Feature	Stroke Adjustment Mechanism End Lock Mechanism Arbitrary Control of Rocking Angle (external driving force) Compact · Lightweight

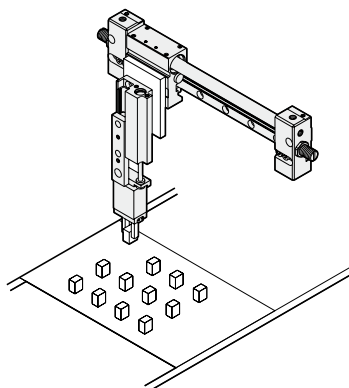


Workpiece Revolution/Transfer

Pick and Place

Model	PICO RODLESS II PRM2 Series(583 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Ultrathin Unit Shock Absorber provided as Standard Equipment

Model	MICRO TABLE FMT Series (673 Page)
Function	High-accuracy Reciprocation
Feature	Ultrathin Unit Compact · Lightweight Availability of Symmetric Model

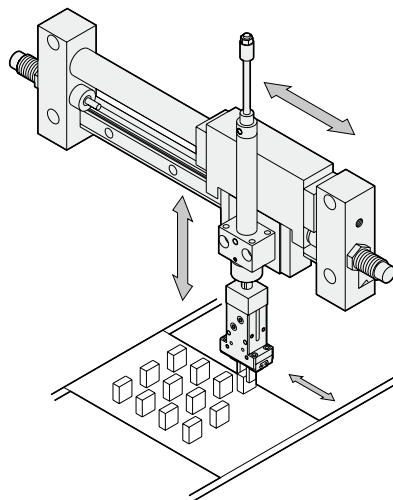


Workpiece Transfer

Pick and Place

Model	PICO RODLESS PRD Series (611 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Ultrathin Unit (original Connection Structure employed) Availability of Models of Two-Axis Type and with Driven Table Shock Absorber provided as Standard Equipment

Model	F CYLINDER JKX Series (835 Page)
Function	High-accuracy Reciprocation
Feature	Cylinder with built-in Bearing Long Strokes supported Stroke Adjustment Mechanism Availability of Clean Room-compatible Model

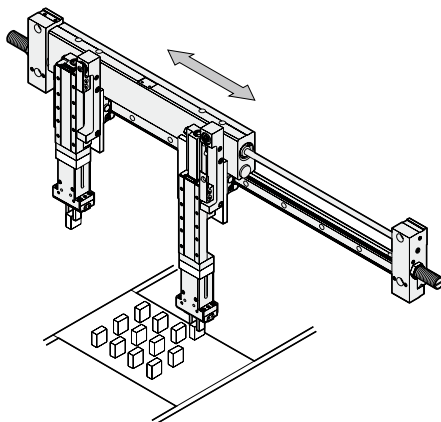


Workpiece Transfer

Pick and Place

Model	PICO SLIDER II PSU Series (479 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Thin Unit Wide Guide Variations Shock Absorber provided as Standard Equipment

Model	PICO UNIT PPU Series (309 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with End Lock Adjustment Mechanism Availability of Model with Stroke Adjustment Mechanism Availability of Model with Shock Absorber

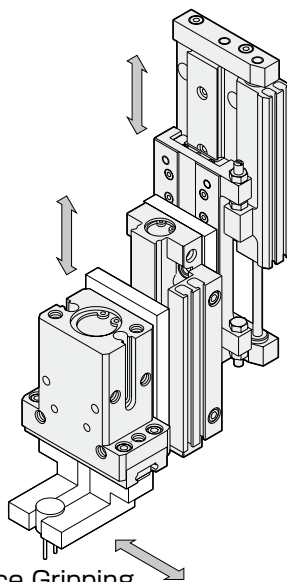


Workpiece Transfer

Uneven Pick and Place

Model	FLAT TABLE FXTW Series (693 Page)
Function	High-accuracy Reciprocation
Feature	Ultrathin Unit Availability of Symmetric Model Stroke Adjustment Mechanism provided as Standard Equipment Positioning Pin Holes provided in Top and Bottom Sides

Model	PICO TABLE PPT Series (39 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with Stroke Adjustment Mechanism Availability of Model with Floating Mechanism Availability of Model with End Lock Adjustment Mechanism

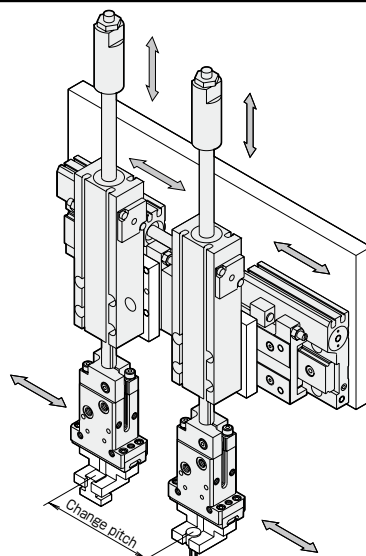


Z-Axis Intermediate Stop and Workpiece Gripping

Pick and Place involving Pitch Change

Model	FLAT TABLE FXTW Series (693 Page)
Function	High-accuracy Reciprocation
Feature	Ultrathin Unit Availability of Symmetric Model Stroke Adjustment Mechanism provided as Standard Equipment Positioning Pin Holes provided in Top and Bottom Sides

Model	SQUARE FCYLINDER GXA Series (947 Page)
Function	High-accuracy Reciprocation
Feature	Cylinder with built-in Bearing Stroke Adjustment Mechanism End Lock Mechanism Availability of Model with Floating Nut

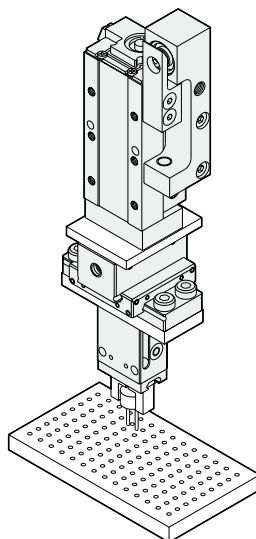


Z-Axis Position Movement and Workpiece Gripping and Transfer

Pick and Place

Model	PICO POSITIONER PXY Series (727 Page)
Function	High-Rigidity · High-Accuracy
Feature	Cross Linear Guide Capability of Center Position Return and Locking Lock off and Center Hold Types Thin, Compact Unit

Model	PICO UNIT PPU Series (309 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with End Lock Adjustment Mechanism Availability of Model with Stroke Adjustment Mechanism Availability of Model with Shock Absorber

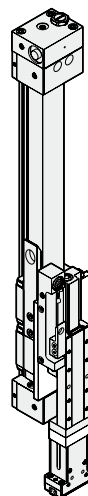


Insertion of Small Parts

Uneven Pick and Place

Model	PICO TABLE LONG PRZ Series (397 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Space-saving Block Shape Shock Absorber provided as Standard Equipment Availability of Model with End Lock Adjustment Mechanism

Model	PICO UNIT PPU Series (309 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with End Lock Adjustment Mechanism Availability of Model with Stroke Adjustment Mechanism Availability of Model with Shock Absorber



Workpiece Transfer

Marking

Model	PICO SLIDER II PSU Series (479 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Thin Unit Wide Guide Variations Shock Absorber provided as Standard Equipment

Model	PICO UNIT PPU Series (309 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with End Lock Adjustment Mechanism Availability of Model with Stroke Adjustment Mechanism Availability of Model with Shock Absorber

Stamper Transfer

Rocking

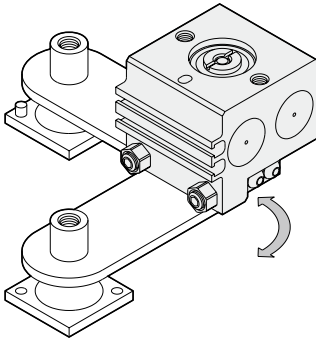
Model	PICO POSITIONER PXY Series (727 Page)
Function	High-Rigidity · High-Accuracy
Feature	Cross Linear Guide Capability of Center Position Return and Locking Lock off and Center Hold Types Thin, Compact Unit

Model	SQUARE F CYLINDER GXA Series (947 Page)
Function	High-accuracy Reciprocation
Feature	Cylinder with built-in Bearing End Lock Mechanism Availability of Model with Floating Nut

Workpiece Transfer

Part Transfer

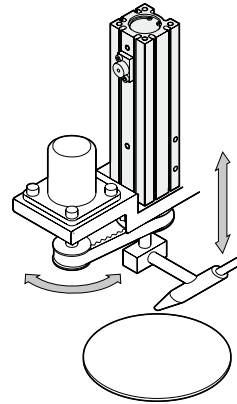
Model	PICO ROTARY CTR Series (751 Page)
Function	High-Accuracy Rocking
Feature	High Rigidity by Two Rolling Bearings at Top and Bottom Original Structure realizing significant Size Reduction



Double Arm Movement

Application

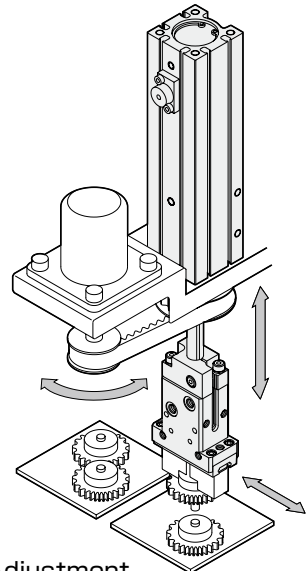
Model	MINI SWING CZL Series (1021 Page)
Function	High-accuracy Reciprocation, High-Accuracy Rocking (external driving force)
Feature	Stroke Adjustment Mechanism End Lock Mechanism Arbitrary Control of Rocking Angle (external driving force) Compact · Lightweight



Dispenser Nozzle Movement

Gear Assembly by Image Processing

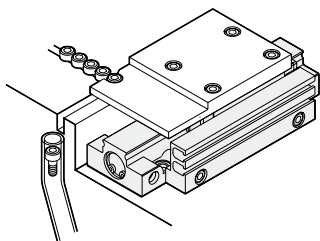
Model	MINI SWING CZL Series (1021 Page)
Function	High-accuracy Reciprocation, High-Accuracy Rocking (external driving force)
Feature	Stroke Adjustment Mechanism End Lock Mechanism Arbitrary Control of Rocking Angle (external driving force) Compact · Lightweight



Gear Gripping, Transfer and Phase Adjustment

Escapement

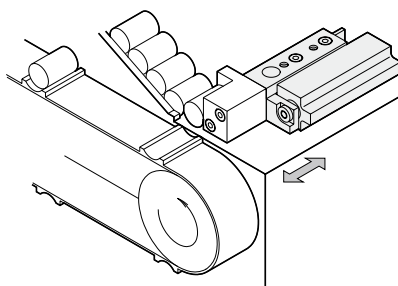
Model	PICO TABLE PPT Series (39 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with Stroke Adjustment Mechanism Availability of Clean Room-compatible Model



Workpiece Escapement

Escapement

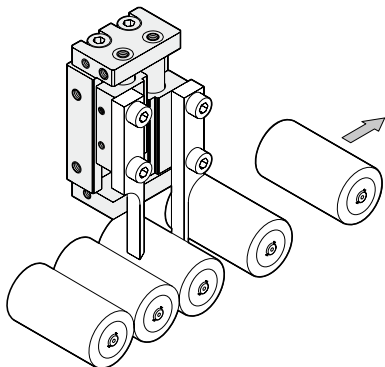
Model	MICRO TABLE FMT Series (673 Page)
Function	High-accuracy Reciprocation
Feature	Compact · Lightweight · High-accuracy Availability of Symmetric Model



Workpiece Escapement

Escapement

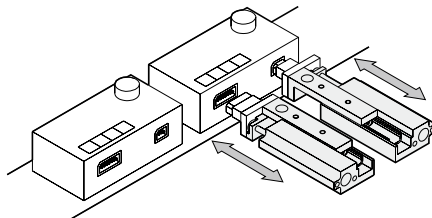
Model	PICO SYNCHRO PST Series (781 Page)
Function	High-Rigidity · High-Accuracy Gripping
Feature	Linear Guide employed for Finger Guide Availability of Model with Stroke Adjustment Mechanism Opening/Closing Stroke ensured with Small Unit



Workpiece Escapement

Conductivity and Operation Inspection

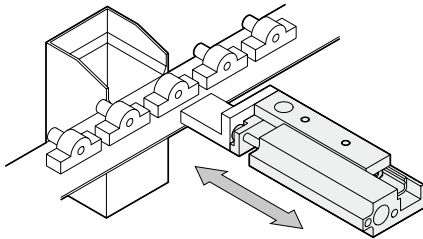
Model	MICRO TABLE FMT Series (673 Page)
Function	High-accuracy Reciprocation
Feature	Compact · Lightweight · High-accuracy Availability of Symmetric Model



Attachment and Detachment of Connectors

Ejection of Rejected Parts

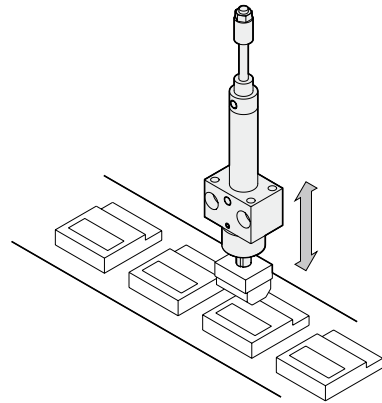
Model	MICRO TABLE FMT Series (673 Page)
Function	High-accuracy Reciprocation
Feature	Compact · Lightweight · High-accuracy Availability of Symmetric Model



Pusher Plate Movement

Marking

Model	F CYLINDER JKX Series (835 Page)
Function	High-accuracy Reciprocation
Feature	Cylinder with built-in Bearing Long Strokes supported Stroke Adjustment Mechanism Availability of Clean Room-compatible Model

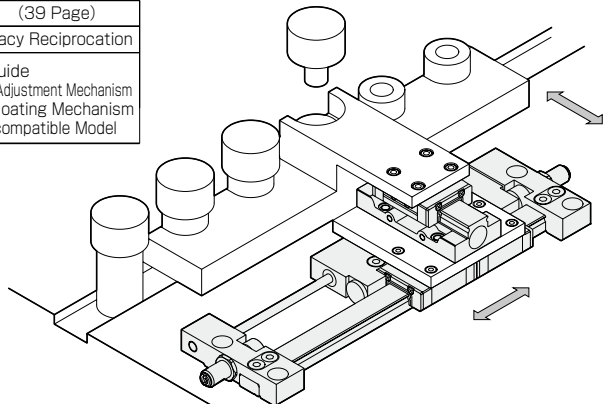


Marker Movement

Intermittent Feeding

Model	PICO SLIDER PSL Series (447 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Ultrathin Unit (original Connection Structure) Availability of Double Table Model (Long Stroke) Shock Absorber provided as Standard Equipment Plate Piping and Body Piping allowed

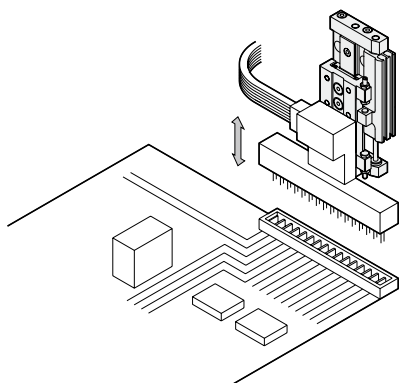
Model	PICO TABLE PPT Series (39 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with Stroke Adjustment Mechanism Availability of Model with Floating Mechanism Availability of Clean Room-compatible Model



Square Motion of Feed Plate

Conductivity and Operation Inspection

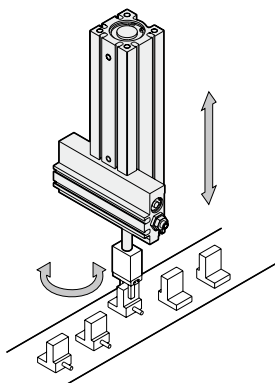
Model	FLAT TABLE FXTW Series (693 Page)
Function	High-accuracy Reciprocation
Feature	Ultrathin Unit Availability of Symmetric Model Stroke Adjustment Mechanism provided as Standard Equipment Positioning Pin Holes provided in Top and Bottom Sides



Attachment and Detachment of Connectors

Pick and Place

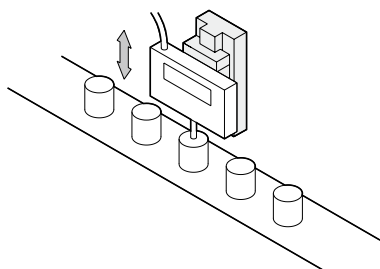
Model	LINEAR TWIST CTW · CTX Series (993 Page)
Function	High-accuracy Reciprocation, High-Accuracy Rocking
Feature	Stroke Adjustment Mechanism Rocking Angle Adjustment Mechanism (with no Backlash)



Workpiece Revolution/Transfer

Workpiece Height Measurement

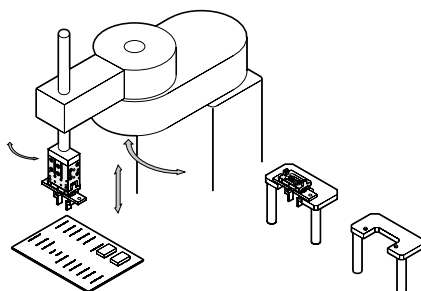
Model	PICO TABLE PPT Series (39 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with Stroke Adjustment Mechanism Availability of Model with End Lock and Floating Mechanism Availability of Clean Room-compatible Model



Movement of Measuring Instrument

Changeover

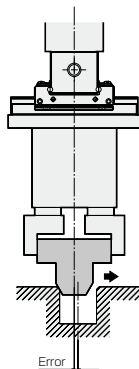
Model	FINGER CHANGER AFC Series (805 Page)
Function	High-Rigidity and High-Accuracy Gripping and Automatic Change of Attachments
Feature	Automatic Change of Fingers alone without Changing Chuck Unit Finger Fall Prevention Mechanism integrated Availability of Model with Finger Attachment/Detachment Sensor



Change of Attachment

Insertion

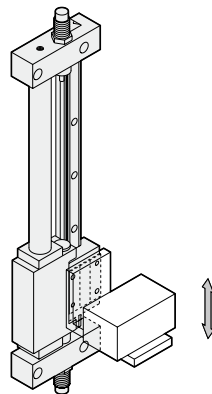
Model	PICO POSITIONER PXY Series (727 Page)
Function	High-Rigidity · High-Accuracy
Feature	Cross Linear Guide Capability of Center Position Return and Locking Thin, Compact Unit



Absorption of Error during Workpiece Insertion

Lifting

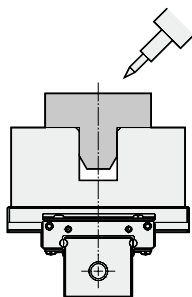
Model	PICO RODLESS PRD Series (611 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Ultrathin Unit (original Connection Structure employed) Availability of Models of Two-Axis Type and with Driven Table Shock Absorber provided as Standard Equipment



Workpiece Lifting

Assembly

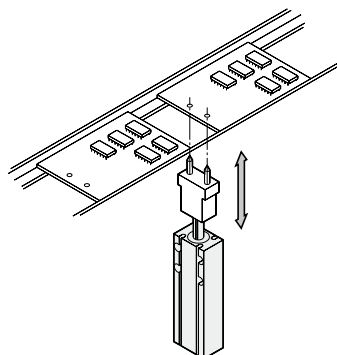
Model	PICO POSITIONER PXY Series (727 Page)
Function	High-Rigidity · High-Accuracy
Feature	Cross Linear Guide Capability of Center Position Return and Locking Thin, Compact Unit



Absorption of Error of Work Table

Board Positioning

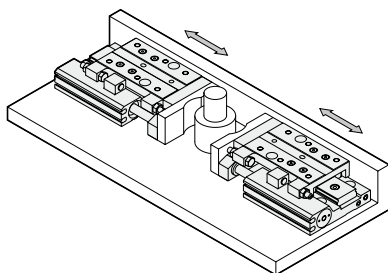
Model	SQUARE F CYLINDER GXA Series (947 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder with built-in Bearing Stroke Adjustment Mechanism End Lock Mechanism Availability of Model with Floating Nut



Positioning Pin Movement

Positioning

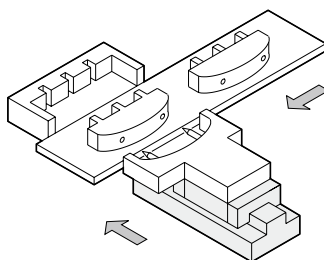
Model	FLAT TABLE FXTW Series (693 Page)
Function	High-accuracy Reciprocation
Feature	Ultrathin Unit Availability of Symmetric Model Stroke Adjustment Mechanism provided as Standard Equipment Positioning Pin Holes provided in Top and Bottom Sides



Workpiece Clamping

Positioning

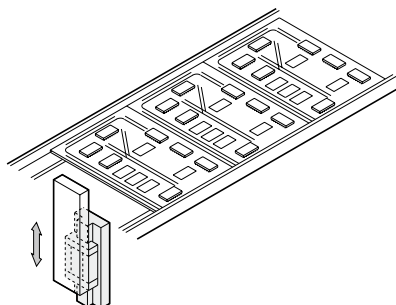
Model	PICO TABLE PPT Series (39 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with Stroke Adjustment Mechanism Availability of Model with Floating Mechanism Availability of Model with End Lock Adjustment Mechanism



Workpiece Clamping

Board Positioning

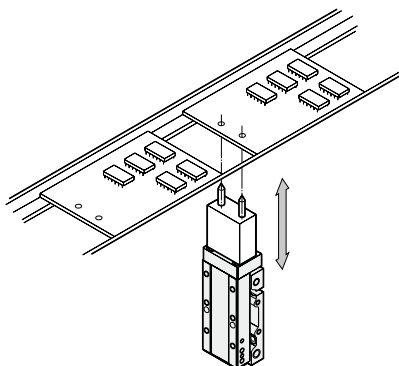
Model	PICO TABLE PPT Series (39 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with Stroke Adjustment Mechanism Availability of Model with Floating Mechanism Availability of Model with End Lock Adjustment Mechanism



Stopper Movement

Board Positioning

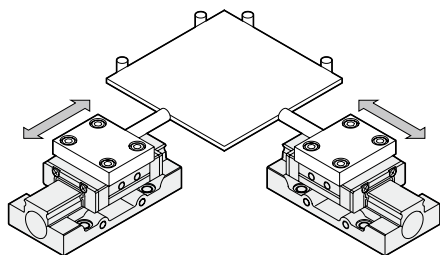
Model	PICO UNIT PPU Series (309 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with Stroke Adjustment Mechanism Availability of Model with Shock Absorber



Positioning Pin Movement

Positioning

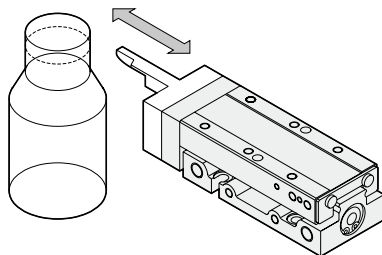
Model	PICO TABLE PPT Series (39 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with Stroke Adjustment Mechanism Availability of Model with Floating Mechanism Availability of Model with End Lock Adjustment Mechanism



Clamp Pin Movement

Knife Cutting of Plastic Containers

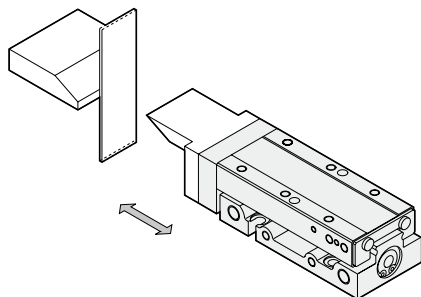
Model	PICO UNIT PPU Series (309 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with Stroke Adjustment Mechanism Availability of Model with Shock Absorber



Knife Movement

Tape Cutting

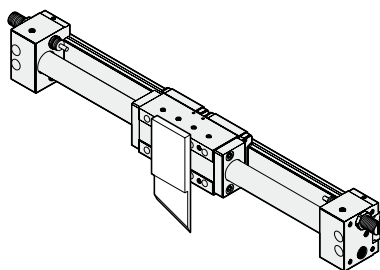
Model	PICO UNIT PPU Series (309 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with Stroke Adjustment Mechanism Availability of Model with Shock Absorber



Cutter Movement

Film Cutting

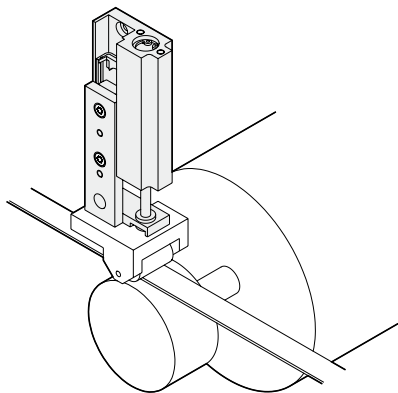
Model	PICO TABLE LONG PRZ Series (397 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Space-saving Block Shape Shock Absorber provided as Standard Equipment Availability of Model with One-Side Concentrated Piping



Cutter Movement

Film Feeding

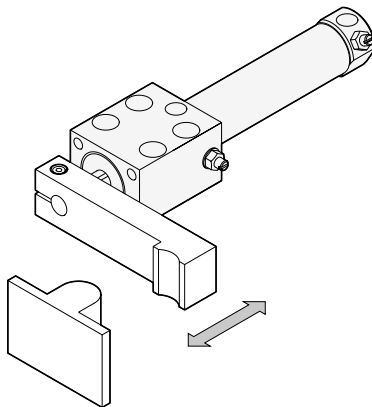
Model	MICRO TABLE FMT Series (673 Page)
Function	High-accuracy Reciprocation
Feature	Compact · Lightweight High-Accuracy Availability of Symmetric Model



Roller Movement

Clamping at Offset Position

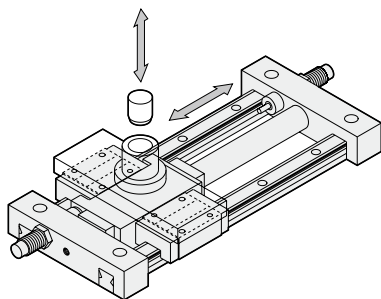
Model	F CYLINDER Double Bearing Type JKXB Series (905 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder with built-in Bearing Two Bearings provided in Series Long Strokes supported Availability of Model with Stroke Adjustment Mechanism



Clamp Bar Movement

Press-fitting

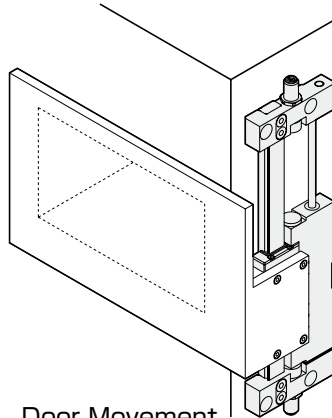
Model	PICO RODLESS PRD Series (611 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Ultrathin Unit (original Connection Structure employed) Availability of Models of Two-Axis Type and with Driven Table Shock Absorber provided as Standard Equipment



Workpiece Long Stroke Movement and Press-fitting Load Support

Door Opening/Closing

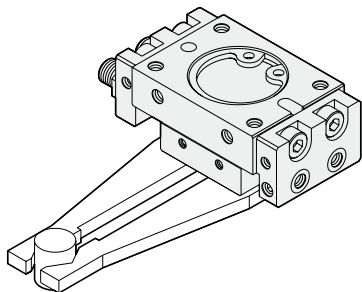
Model	PICO SLIDER PSL Series (447 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Ultrathin Unit (original Connection Structure) Availability of Double Table Model (Long Stroke) Shock Absorber provided as Standard Equipment Plate Piping and Body Piping allowed



Door Movement

Chuckling of Small Parts

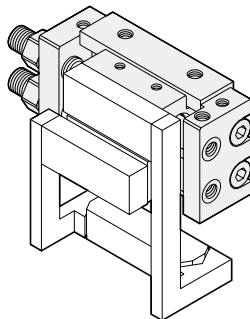
Model	PICO SYNCHRO PST Series (781 Page)
Function	High-Rigidity · High-Accuracy Gripping
Feature	Linear Guide employed for Finger Guide Availability of Model with Stroke Adjustment Mechanism Opening/Closing Stroke ensured with Small Unit



Gripping of Small Parts

Chuckling of Small Parts

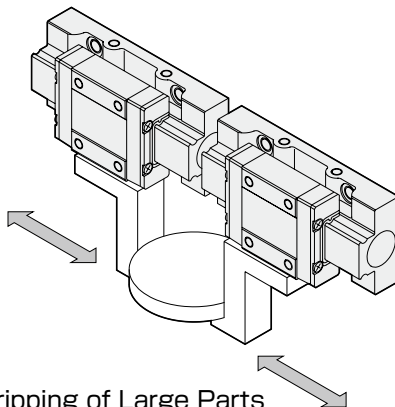
Model	PICO SYNCHRO PST Series (781 Page)
Function	High-Rigidity · High-Accuracy Gripping
Feature	Linear Guide employed for Finger Guide Availability of Model with Stroke Adjustment Mechanism Opening/Closing Stroke ensured with Small Unit



Gripping of Small Parts

Chuckling of Large Parts

Model	PICO TABLE PPT Series (39 Page)
Function	High Rigidity · High-accuracy Reciprocation
Feature	Cylinder built in Linear Guide Availability of Model with Stroke Adjustment Mechanism Availability of Model with Floating Mechanism Availability of Model with End Lock Adjustment Mechanism



Gripping of Large Parts