

YP-X Series

Product Lineup

PICK & PLACE ROBOTS

Ideal for small components high-speed pick & place work.
Positioning is made by servo control, so no complex mechanical
adjustments are needed.



Full lineup of 6 models in all from 2 axes to 4 axes

2 axes type

P.555

3 axes type

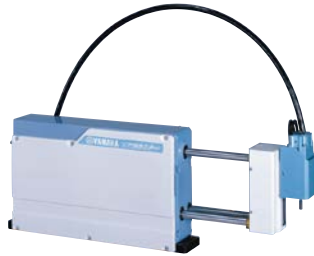
P.557

4 axes type

P.560



YP220BX/YP320X



YP220BXR/YP320XR/YP330X



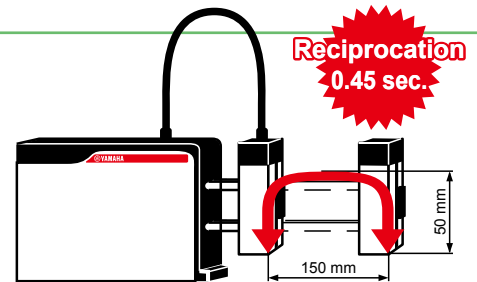
YP340X

Model	Axis	Structure				Maximum payload (kg)	Cycle time (sec.)	Page
		X-axis	Y-axis	Z-axis	R-axis			
YP220BX	2 axes	Belt	-	Belt	-	3	0.45	P.555
YP320X		Ball screw	-	Belt	-	3	0.57	P.556
YP220BXR	3 axes	Belt	-	Belt	Rotation axis	1	0.62	P.557
YP320XR		Ball screw	-	Belt	Rotation axis	1	0.67	P.558
YP330X		Ball screw	Ball screw	Belt	-	3	0.57	P.559
YP340X	4 axes	Ball screw	Ball screw	Belt	Rotation axis	1	0.67	P.560

POINT 1

High speed

Super high-speed pick & place operation with a standard cycle time of 0.45 sec. (YP220BX with up/down 50 mm, back/forth 150 mm, arch amount 50, load 1 kg) greatly contributes to improvement of the productivity. Since it is possible to output a signal to turn on/off any external equipment from any position while the axis is moving, the actual production cycle time is further improved.



POINT 2

Compact

Use of a compact size with an overall width of 109 mm (YP220BX) makes it possible to make the production line compact and simple. The moving arm structure with less interference with surroundings contributes to space saving.

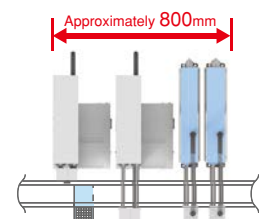
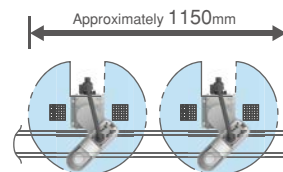
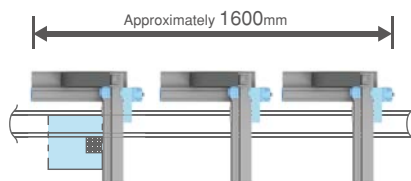
Reference examples of robot layout comparisons

■ Line using YAMAHA's compact Cartesian robot PXYx
X-axis stroke: 250 mm
Y-axis stroke: 250 mm

■ Line using YAMAHA's compact SCARA robot YK250XG

■ Line using pick & place utilizing space saving

The compactness can be checked by comparing the occupied spaces when the YP-X series and YAMAHA's Cartesian/SCARA robots are laid out.



POINT 3

High accuracy

Both extremely high-speed performance and high repeated positioning accuracy of +/- 0.02 mm (YP320X, YP320XR, YP330X, YP340X) are assured.

POINT 4

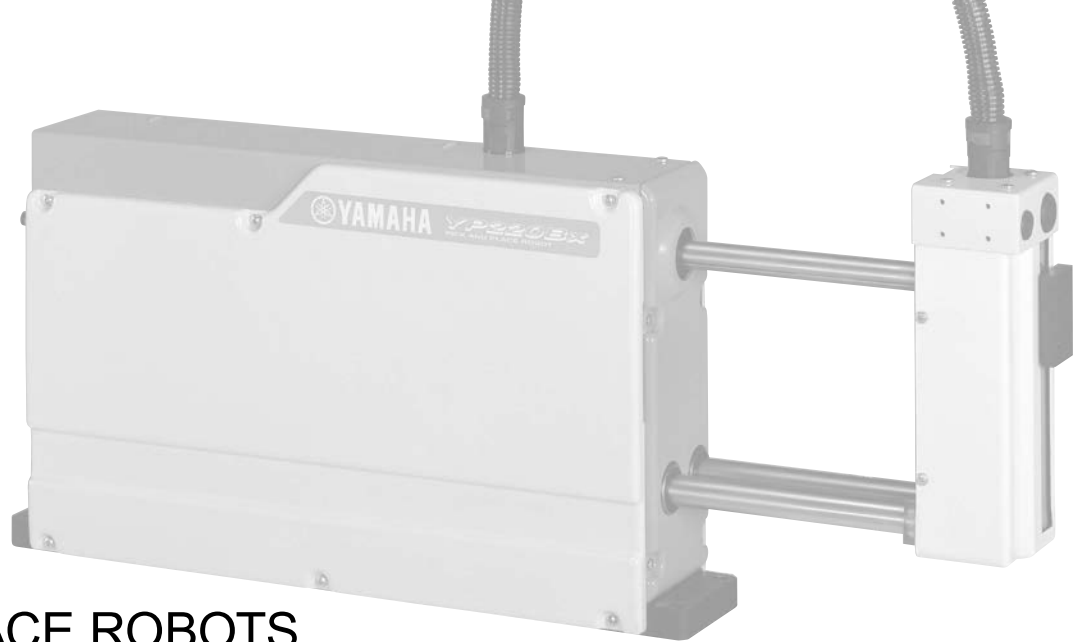
Complete absolute position system

As the complete absolute position system is used, no return-to-origin operation is needed.

POINT 5

Versatility

Use of YAMAHA's unique servo system makes it possible to freely program the stop point and operation pattern settings. This robot is applicable to production of many models in small quantities that cannot be supported by the cam type robot.



PICK & PLACE ROBOTS

YP-X SERIES

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3 AXES

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4 AXES

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YA	Articulated robots
LCM	Linear conveyor modules
CX	Single-axis robots
Robonity	Motor-less single axis actuator
TRANSEVO	Compact single-axis robots
FLIP-X	Single-axis robots
PHASER	Linear motor single-axis robots
XY-X	Cartesian robots
YK-X	SCARA robots
YP-X	Pick & place robots
CLEAN	
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2-axes	
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4-axes	

YP-X SPECIFICATION SHEET

Type	Model	Maximum payload (kg)	Cycle time (sec) ^{Note 1}	Structure	Moving range	Detailed info page
2-axes	YP220BX	3	0.45	X-axis: Belt Z-axis: Belt	200mm 100mm	P.555
	YP320X	3	0.57	X-axis: Ball screw Z-axis: Belt	330mm 100mm	P.556
3-axes	YP220BXR	1	0.62	X-axis: Belt Z-axis: Belt R-axis: Rotation axis	200mm 100mm +/-180°	P.557
	YP320XR	1	0.67	X-axis: Ball screw Z-axis: Belt R-axis: Rotation axis	330mm 100mm +/-180°	P.558
	YP330X	3	0.57	X-axis: Ball screw Y-axis: Ball screw Z-axis: Belt	330mm 150mm 100mm	P.559
4-axes	YP340X	1	0.67	X-axis: Ball screw	330mm	P.560
				Y-axis: Ball screw	150mm	
				Z-axis: Belt	100mm	
				R-axis: Rotation axis	+/-180°	

Note 1. Cycle time is the time required for moving back and forth 150mm (arch 50) and vertically 50mm (during rough-positioning motion with 1kg load).

Robot ordering method description

In the order format for the YAMAHA pick & place robots YP-X series, the notation (letters/numbers) for the mechanical section is shown linked to the controller section notation.

[Example]

■ 2-axis specifications

● Mechanical ▶ YP220BX

- Robot cable length ▶ 3.5m

● Controller ▶ RCX320

● Ordering method

YP220BX-3L-RCX320-2-N-NS-2

Mechanical section

Controller section

① Model	② Cable length	③ Controller	④ No. of controllable axes	⑤ Safety standards	⑥ Controller option A (OP.A)	⑦ Controller option B (OP.B)	⑧ Vision System	⑨ Absolute battery
YP220BX	3L 3.5m	RCX320						
YP320X	5L 5m 10L 10m	RCX222						

To find detailed controller information see the controller page. [RCX320 ▶ P.660](#), [RCX222 ▶ P.670](#)

■ 3 / 4 axis specifications

● Mechanical ▶ YP340X

- Robot cable length ▶ 5m

● Controller ▶ RCX340

● Ordering method

YP340X-5L-RCX340

Mechanical section

Controller section

① Model	② Cable length	③ Controller	④ No. of controllable axes	⑤ Safety standards	⑥ Controller option A (OP.A)	⑦ Controller option B (OP.B)	⑧ Controller option C (OP.C)	⑨ Controller option D (OP.D)	⑩ Controller option E (OP.E)	⑪ Absolute battery
YP220BXR	3L 3.5m	RCX340								
YP320XR	5L 5m									
YP330X	10L 10m									
YP340X										

To find detailed controller information see the controller page. [RCX340 ▶ P.678](#)

Robot ordering method terminology

① Model	Enter the robot unit model.
② Cable length	Select the length of the robot cable connecting the robot and controller. 3L: 3.5m 5L: 5m 10L: 10m
③ Controller	2-axis specifications: Select either the RCX320 or RCX222. 3 / 4 axis specifications: Select the RCX340.

YP220BX 2 axes



Ordering method

YP220BX

Model	Cable length
	3L: 3.5m
	5L: 5m
	10L: 10m

RCX320-2

Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Vision System	Absolute battery
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Specify various controller setting items. RCX320 ▶ **P.660**

RCX222

Controller	Usable for CE	I/O selection 1	I/O selection 2
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Specify various controller setting items. RCX222 ▶ **P.670**

Specifications

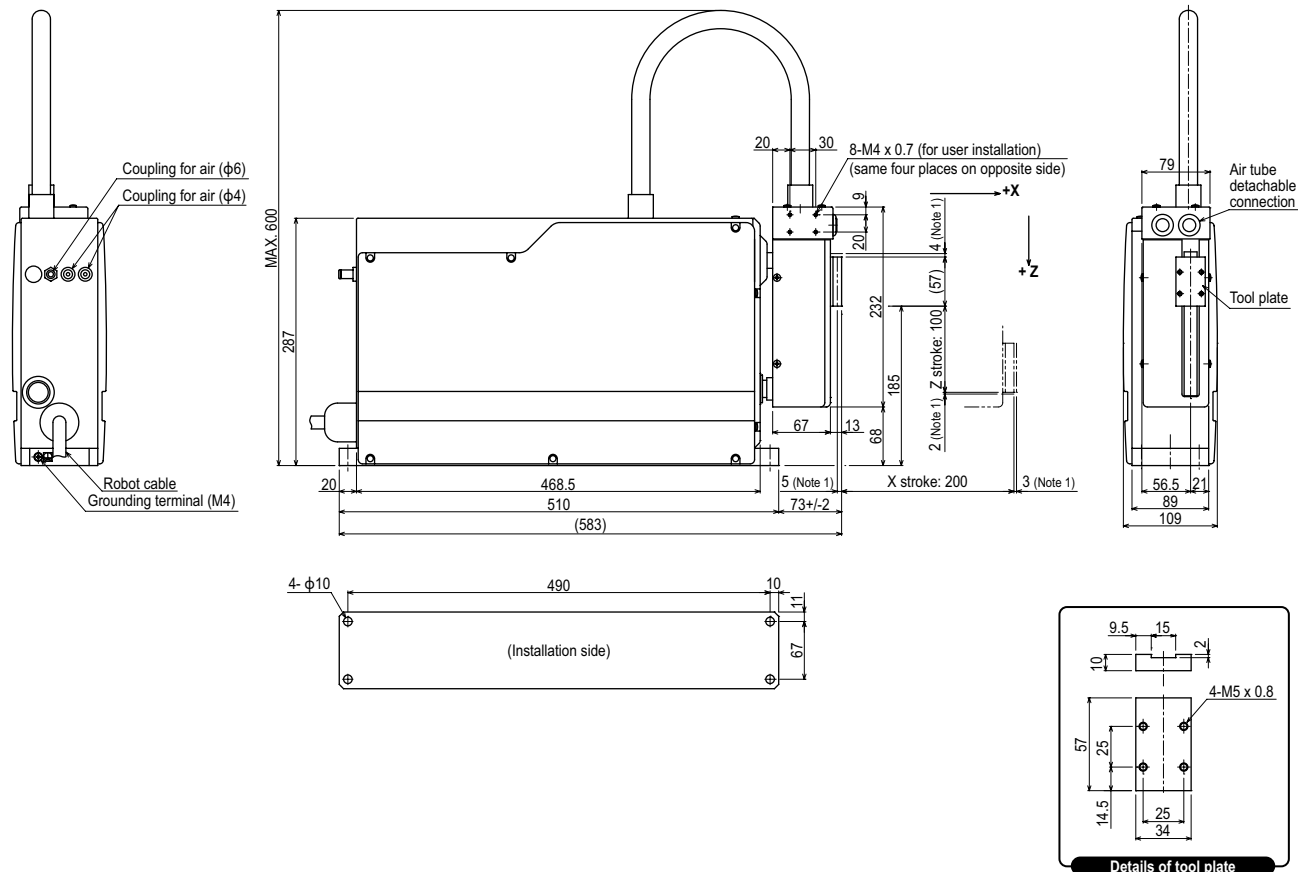
	X axis	Z axis
AC servo motor output (W)	200	200
Repeatability ^{Note 1} (mm)	+/-0.05	+/-0.05
Drive system	Timing belt	Timing belt
Deceleration ratio (mm)	Equivalent to lead 24	Equivalent to lead 20
Maximum speed ^{Note 2} (mm/sec)	1440	1200
Moving range (mm)	200	100
Cycle time (sec)	0.45 ^{Note 3}	
Maximum payload (kg)	3	
Robot cable length (m)	Standard: 3.5 Option: 5,10	
Weight (kg)	17	

Note 1. Positioning repeatability precision in a single swing when residual vibration is stabilized (variable depending on the load and stroke).
 Note 2. When the moving stroke is short, the maximum speed may not be reached.
 Note 3. Reciprocating time in vertical direction (50mm) and longitudinal direction (150mm) with the arch amount of 50 (when executing rough-positioning arch motion with 1kg load).

Controller

Controller	Power consumption (VA)	Operating method
RCX320 RCX222	500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

YP220BX



Note 1. Distance to mechanical stopper.
 Note 2. Return-to-origin on the YP220BX is by absolute reset. So the origin position must be set the first time (making initial settings) but after that is not required.

Articulated robots
YA

Linear conveyor modules
LCM

Single-axis robots
CX

Motor-less single axis actuator
Robonity

Compact single-axis robots
TRANSEVO

Single-axis robots
FLIP-X

Linear motor single-axis robots
PHASER

Cartesian robots
XY-X

SCARA robots
YK-X

Pick & place robots
YP-X

CLEAN

CONTROLLER INFORMATION

2-axes

3-axes

4-axes

YP320X 2 axes



Ordering method

YP320X

Model

Cable length
 3L: 3.5m
 5L: 5m
 10L: 10m

RCX320-2

Controller /
Number of controllable axes

Safety
standard

Option A
(OP.A)

Option B
(OP.B)

Vision
System

Absolute
battery

Specify various controller setting items. RCX320 ▶ **P.660**

RCX222

Controller

Usable for CE

I/O selection 1

I/O selection 2

Specify various controller setting items. RCX222 ▶ **P.670**

Specifications

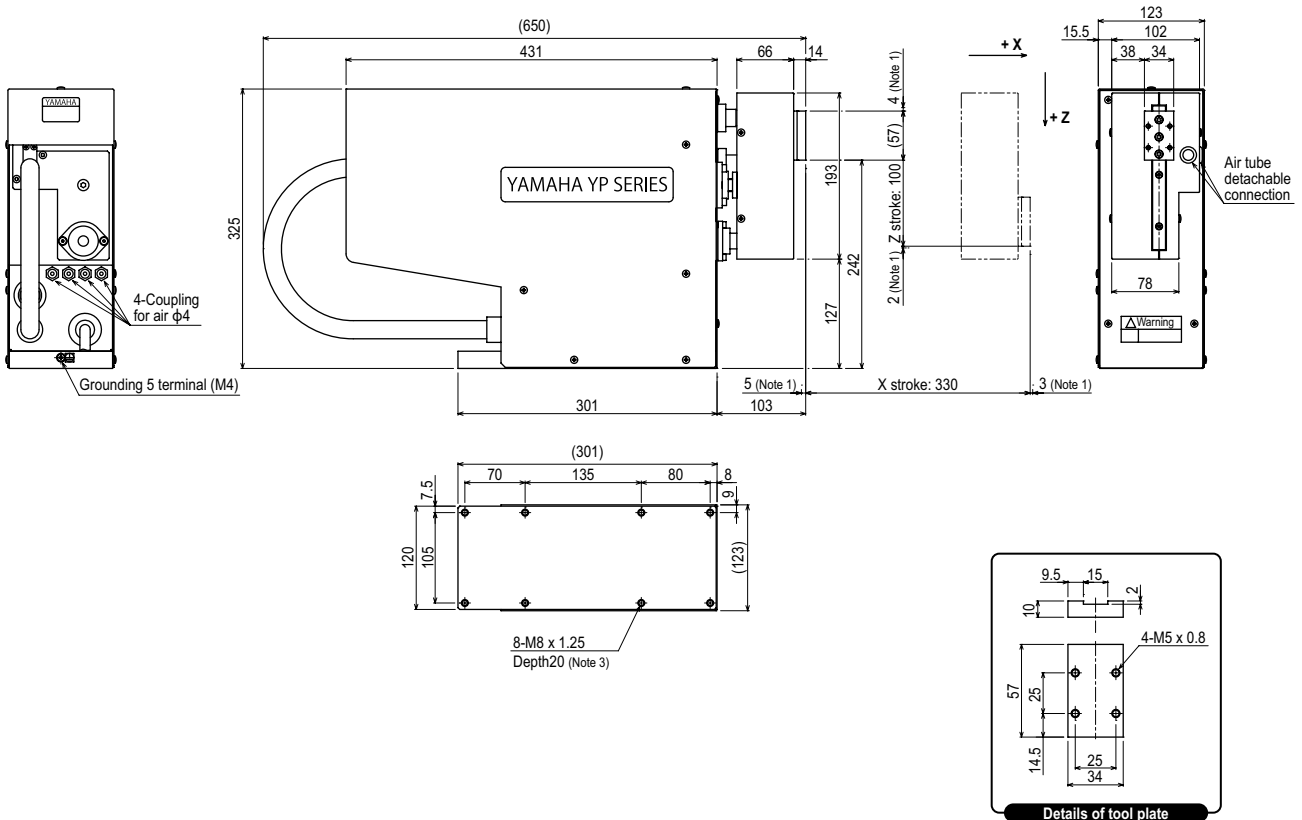
	X axis	Z axis
AC servo motor output (W)	200	200
Repeatability ^{Note 1} (mm)	+/-0.02	+/-0.05
Drive system	Ball screw φ15	Timing belt
Deceleration ratio (mm)	Equivalent to lead 20	Equivalent to lead 25
Maximum speed ^{Note 2} (mm/sec)	1500	1500
Moving range (mm)	330	100
Cycle time (sec)	0.57 ^{Note 3} , 0.78 ^{Note 4}	
Maximum payload (kg)	3	
Robot cable length (m)	Standard: 3.5 Option: 5,10	
Weight (kg)	21	

Note 1. Positioning repeatability precision in a single swing when residual vibration is stabilized (variable depending on the load and stroke).
 Note 2. When the moving stroke is short, the maximum speed may not be reached.
 Note 3. Reciprocating time in vertical direction (50mm) and longitudinal direction (150mm) with the arch amount of 50 (when executing rough-positioning arch motion with 1kg load).
 Note 4. Reciprocating time in vertical direction (25mm) and longitudinal direction (300mm) with the arch amount of 25 (when executing rough-positioning arch motion with 1kg load).

Controller

Controller	Power consumption (VA)	Operating method
RCX320 RCX222	500	Programming / I/O point trace / Remote command / Operation using RS-232C communication

YP320X



Note 1. Distance to mechanical stopper.
 Note 2. Return-to-origin on the YP320X is by absolute reset. So the origin position must be set the first time (making initial settings) but after that is not required.
 Note 3. Do not use bolts longer than 20mm (robot bottom plate thickness).

YP220BXR

3 axes



Ordering method

YP220BXR

RCX340-3

Model	Cable length	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ **P.678**

Specifications

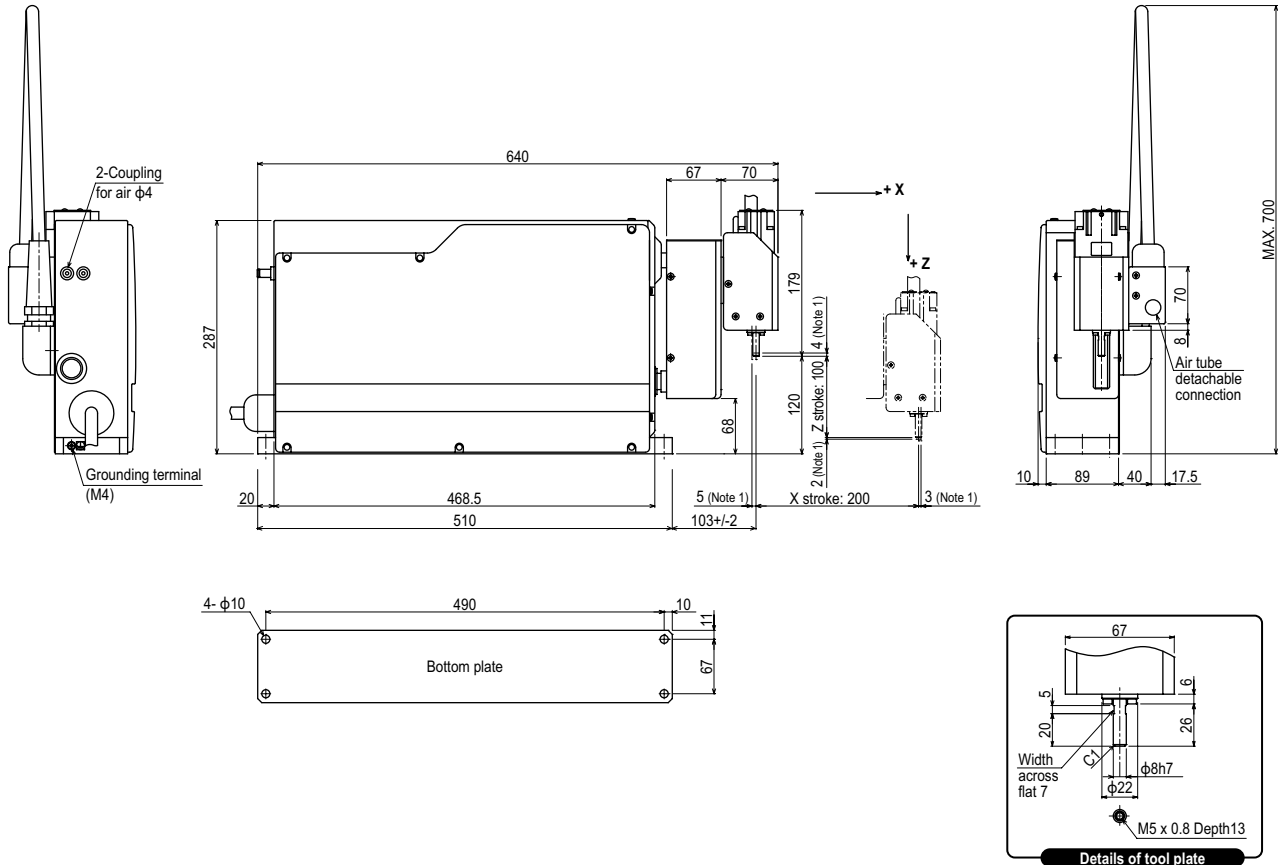
	X axis	Z axis	R axis
AC servo motor output (W)	200	200	60
Repeatability ^{Note 1} (mm)	+/-0.05	+/-0.05	+/-0.1
Drive system	Timing belt	Timing belt	Ball Reducer
Deceleration ratio (mm)	Equivalent to lead 24	Equivalent to lead 20	1/18
Maximum speed ^{Note 2} (XZ: mm/sec) (R: °/sec)	1440	1200	1000
Moving range (XZ: mm) (R: °)	200	100	+/-180
Cycle time (sec)	0.62 ^{Note 3}		
Maximum payload (kg)	1		
R-axis allowable moment inertia (kgm ² [kgfcm ²])	0.00098 [0.01]		
Robot cable length (m)	Standard: 3.5 Option: 5,10		
Weight (kg)	19		

Note 1. Positioning repeatability precision in a single swing when residual vibration is stabilized (variable depending on the load and stroke).
 Note 2. When the moving stroke is short, the maximum speed may not be reached.
 Note 3. Reciprocating time in vertical direction (50mm) and longitudinal direction (150mm) with the arch amount of 50 (when executing rough-positioning arch motion with 1kg load).

Controller

Controller	Power consumption (VA)	Operating method
RCX340	700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

YP220BXR



Note 1. Distance to mechanical stopper.
 Note 2. Return-to-origin on the YP220BXR is by absolute reset. So the origin position must be set the first time (making initial settings) but after that is not required.

YP320XR 3 axes



Ordering method

YP320XR		RCX340-3							
Model	Cable length	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ **P.678**

Specifications

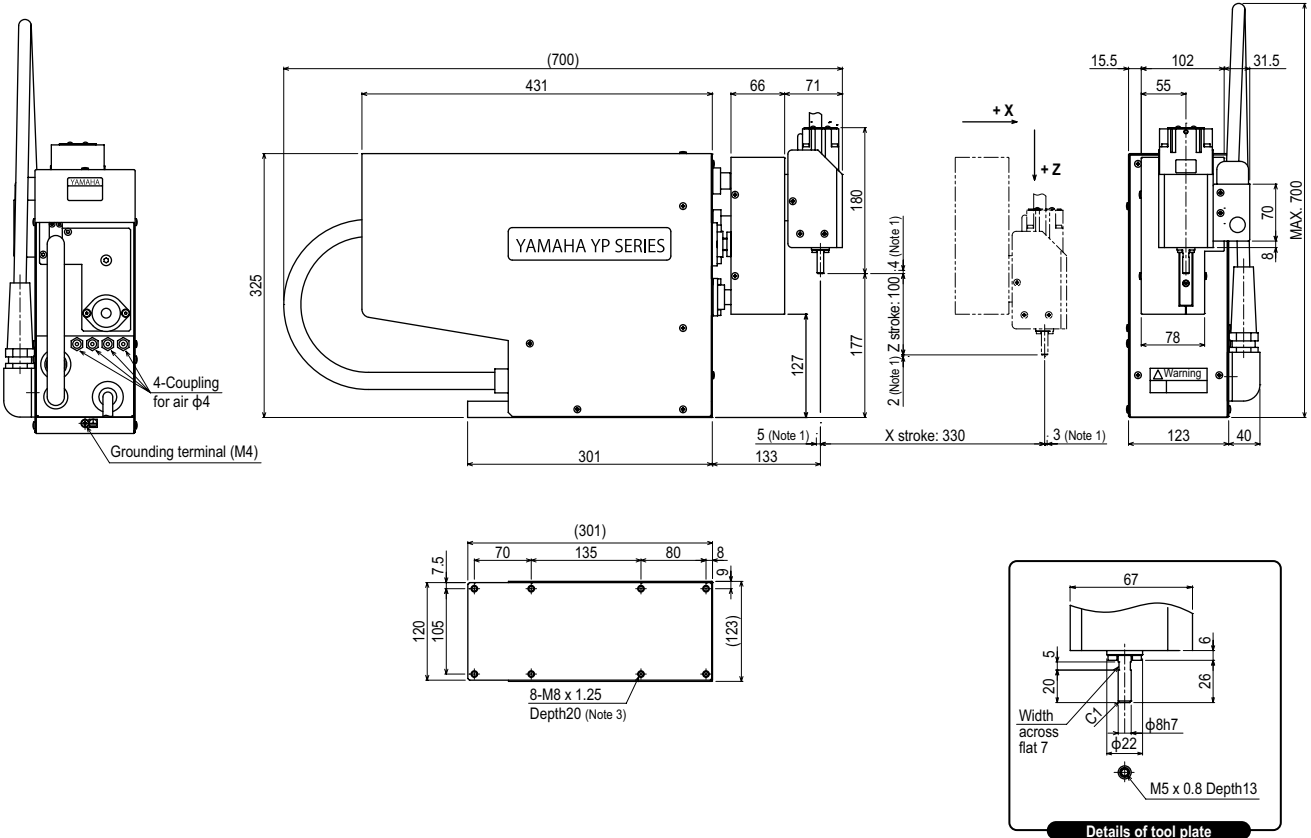
	X axis	Z axis	R axis
AC servo motor output (W)	200	200	60
Repeatability^{Note 1} (XZ: mm) (R: °)	+/-0.02	+/-0.05	+/-0.1
Drive system	Ball screw φ15	Timing belt	Ball Reducer
Deceleration ratio (mm)	Equivalent to lead 20	Equivalent to lead 25	1/18
Maximum speed^{Note 2} (XZ: mm/sec) (R: °/sec)	1500	1500	1000
Moving range (XZ: mm) (R: °)	330	100	+/-180
Cycle time (sec)	0.67 ^{Note 3} , 0.87 ^{Note 4}		
Maximum payload (kg)	1		
R-axis allowable moment inertia (kgm²[kgfcm²])	0.00098 [0.01]		
Robot cable length (m)	Standard: 3.5 Option: 5,10		
Weight (kg)	23		

Note 1. Positioning repeatability precision in a single swing when residual vibration is stabilized (variable depending on the load and stroke).
 Note 2. When the moving stroke is short, the maximum speed may not be reached.
 Note 3. Reciprocating time in vertical direction (50mm) and longitudinal direction (150mm) with the arch amount of 50 (when executing rough-positioning arch motion with 1kg load).
 Note 4. Reciprocating time in vertical direction (25mm) and longitudinal direction (300mm) with the arch amount of 25 (when executing rough-positioning arch motion with 1kg load).

Controller

Controller	Power consumption (VA)	Operating method
RCX340	700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

YP320XR



Note 1. Distance to mechanical stopper.
 Note 2. Return-to-origin on the YP320XR is by absolute reset. So the origin position must be set the first time (making initial settings) but after that is not required.
 Note 3. Do not use bolts longer than 20mm (robot bottom plate thickness).

YP330X 3 axes



Ordering method

YP330X

RCX340-3

Model	Cable length	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ **P.678**

Specifications

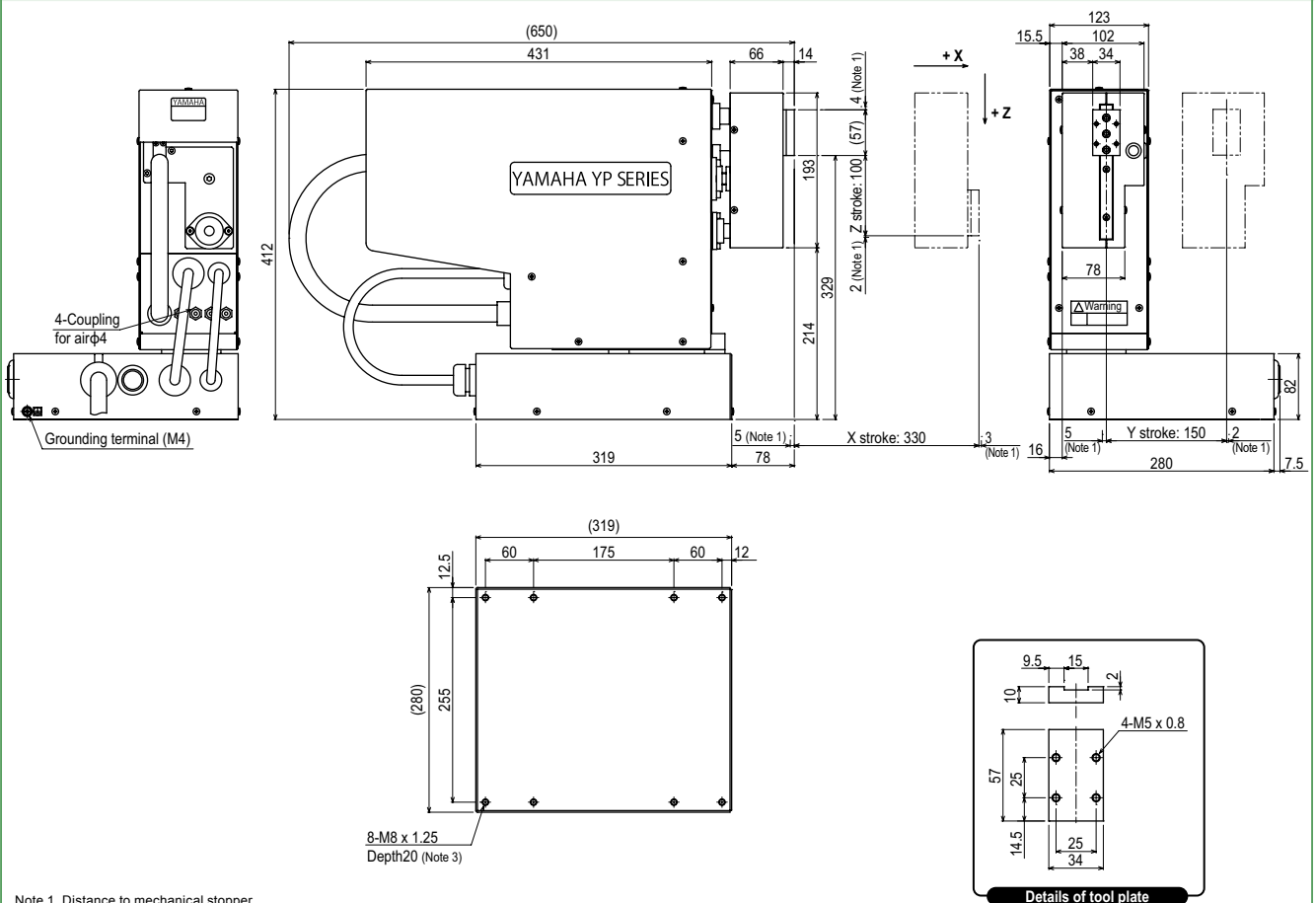
	X axis	Y axis	Z axis
AC servo motor output (W)	200	200	200
Repeatability ^{Note 1} (mm)	+/-0.02	+/-0.02	+/-0.05
Drive system	Ball screw φ15	Ball screw φ15	Timing belt
Deceleration ratio (mm)	Equivalent to lead 20	Equivalent to lead 20	Equivalent to lead 25
Maximum speed ^{Note 2} (mm/sec)	1500	1000	1500
Moving range (mm)	330	150	100
Cycle time (sec)	0.57 ^{Note 3} , 0.78 ^{Note 4}		
Maximum payload (kg)	3		
Robot cable length (m)	Standard: 3.5 Option: 5,10		
Weight (kg)	32		

Note 1. Positioning repeatability precision in a single swing when residual vibration is stabilized (variable depending on the load and stroke).
 Note 2. When the moving stroke is short, the maximum speed may not be reached.
 Note 3. Reciprocating time in vertical direction (50mm) and longitudinal direction (150mm) with the arch amount of 50 (when executing rough-positioning arch motion with 1kg load).
 Note 4. Reciprocating time in vertical direction (25mm) and longitudinal direction (300mm) with the arch amount of 25 (when executing rough-positioning arch motion with 1kg load).

Controller

Controller	Power consumption (VA)	Operating method
RCX340	700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

YP330X



Note 1. Distance to mechanical stopper.
 Note 2. Return-to-origin on the YP330X is by absolute reset. So the origin position must be set the first time (making initial settings) but after that is not required.
 Note 3. Do not use bolts longer than 20mm (robot bottom plate thickness).

Articulated robots
YA

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Pick & place robots
YP-X

CLEAN CONTROLLER INFORMATION

2-axes

3-axes

4-axes

YP340X 4 axes



Ordering method

YP340X **RCX340-4**

Model	Cable length	Controller / Number of controllable axes	Safety standard	Option A (OP.A)	Option B (OP.B)	Option C (OP.C)	Option D (OP.D)	Option E (OP.E)	Absolute battery
	3L: 3.5m 5L: 5m 10L: 10m								

Specify various controller setting items. RCX340 ▶ P.678

Specifications

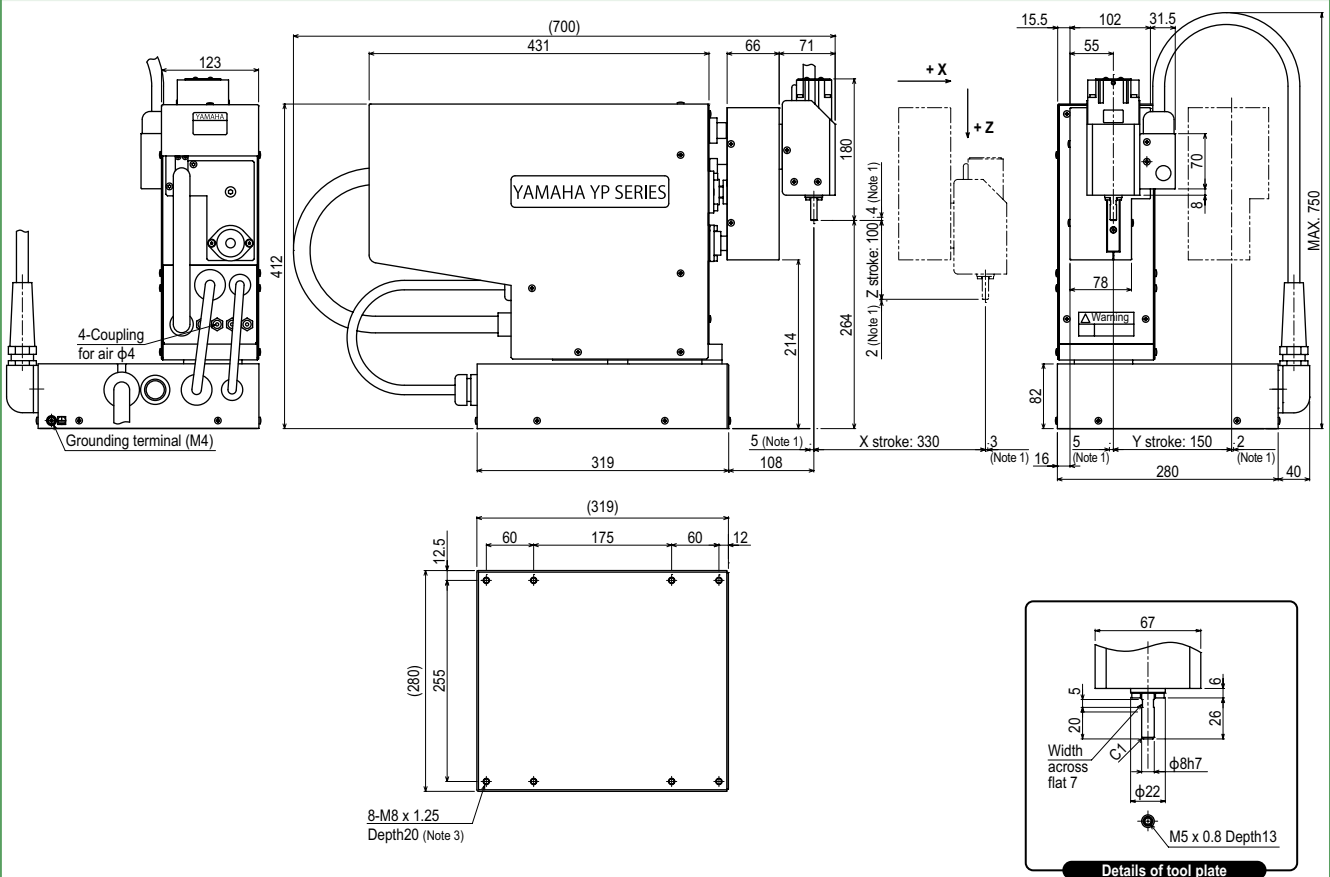
	X axis	Y axis	Z axis	R axis
AC servo motor output (W)	200	200	200	60
Repeatability ^{Note 1} (XYZ: mm)(R: °)	+/-0.02	+/-0.02	+/-0.05	+/-0.1
Drive system	Ball screw φ15	Ball screw φ15	Timing belt	Ball Reducer
Deceleration ratio (mm)	Equivalent to lead 20	Equivalent to lead 20	Equivalent to lead 25	1/18
Maximum speed ^{Note 2} (XYZ: mm/sec) (R: °/sec)	1500	1000	1500	1000
Moving range (XYZ: mm) (R: °)	330	150	100	+/-180
Cycle time (sec)	0.67 ^{Note 3} , 0.87 ^{Note 4}			
Maximum payload (kg)	1			
R-axis allowable moment inertia (kgm²[kgfcm²])	0.00098 [0.01]			
Robot cable length (m)	Standard: 3.5 Option: 5,10			
Weight (kg)	34			

Note 1. Positioning repeatability precision in a single swing when residual vibration is stabilized (variable depending on the load and stroke).
 Note 2. When the moving stroke is short, the maximum speed may not be reached.
 Note 3. Reciprocating time in vertical direction (50mm) and longitudinal direction (150mm) with the arch amount of 50 (when executing rough-positioning arch motion with 1kg load).
 Note 4. Reciprocating time in vertical direction (25mm) and longitudinal direction (300mm) with the arch amount of 25 (when executing rough-positioning arch motion with 1kg load).

Controller

Controller	Power consumption (VA)	Operating method
RCX340	800	Programming / I/O point trace / Remote command / Operation using RS-232C communication

YP340X



Note 1. Distance to mechanical stopper.
 Note 2. Return-to-origin on the YP340X is by absolute reset. So the origin position must be set the first time (making initial settings) but after that is not required.
 Note 3. Do not use bolts longer than 20mm (robot bottom plate thickness).