

Two new additions to
YK-XE SCARA Robot series
Increased maximum
payload capacity
10 kg

High performance



Durability



Economy



Efficiency In Production

Efficiency and reliability in production at affordable price

YAMAHA SCARA ROBOTS
LOW COST HIGH PERFORMANCE MODEL
YK400XE-4 / YK610XE-10 / YK710XE-10

YK-XE series

New addition of higher payload models to YK-XE series.

In addition to existing 400 mm horizontal arm reach YK400-XE, models with 10 kg payload capacity and 610 mm and 710 mm arm reach are added to YK-XE lineup.



► **Optimal for transfer and assembly of automotive parts**

Maximum payload **10kg**^{Note}

Note. For YK610XE-10 and YK710XE-10

Providing Efficiency and Quality in production with Affordable price.

► **Improvement of productivity by high-speed operation**

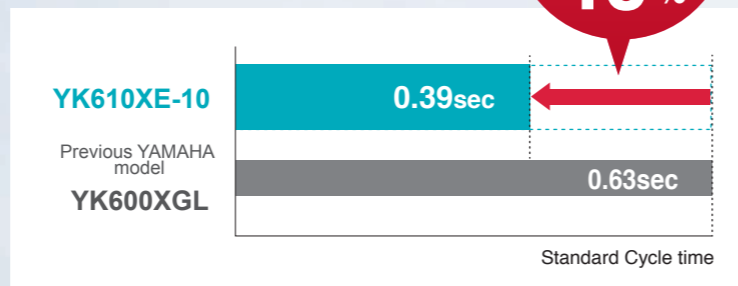
By reviewing the arm structure, the vibration is reduced and the motion is optimized to shorten the standard cycle time.

High-speed, less-vibration, and agile operation contributes to improvement of the productivity.

Reduced by approx. **40%**

Standard cycle time **0.39sec**^{Note}

Note. For YK610XE-10



Model	Arm length	Maximum payload	Standard cycle time	R-axis tolerable moment of inertia
YK400XE-4	400mm	4kg	0.41sec	0.05kgm ²
NEW YK610XE-10	610mm	10kg	0.39sec	0.3kgm ²
NEW YK710XE-10	710mm	10kg	0.42sec	0.3kgm ²

YK-XE series



► For a wide variety of applications Maximum payload 4kg to 10kg

- Assembly Packaging Palletizing Sorting Inspection Labelling Soldering

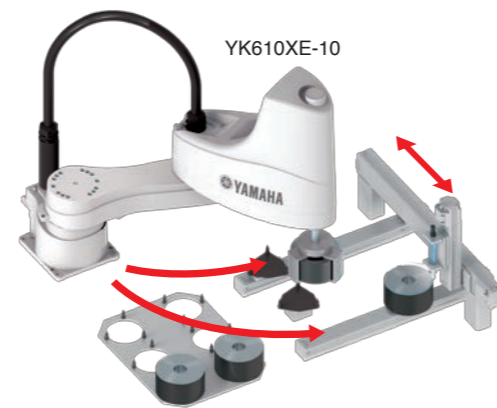
The models support a wide variety of fields such as assembly work that requires a high precision or food sorting work that requires a high-speed operation. As the maximum payload is 10 kg, heavy workpieces such as automotive parts can also be supported.

► Application Examples

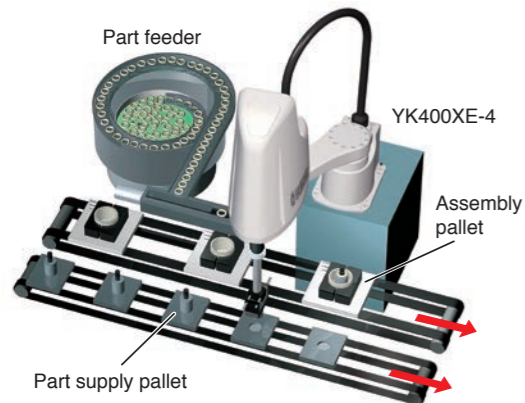
Palletizing



Loading and unloading



Assembly (or Pick & Place)



Inspection



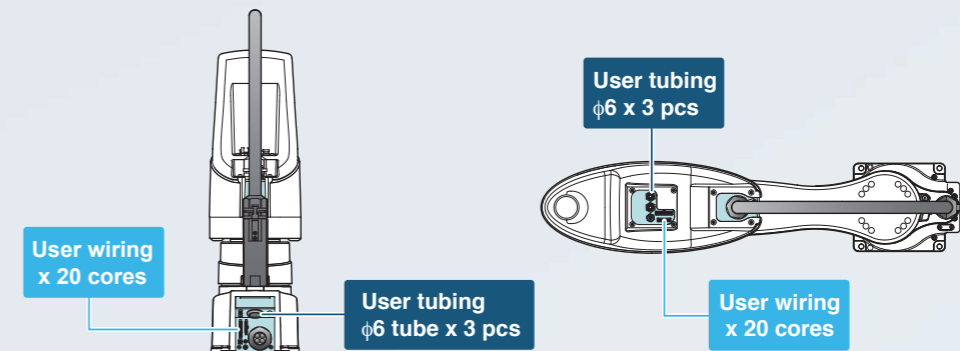
► Affordable Price and Improved Performance

Both the high operation performance and affordable price are achieved. Production equipment with high cost performance can be constructed.



► Improved User Interface

Enhanced size and numbers of air tubes and user I/O for end effectors. Tubes and wires are positioned for easy layout and reduced risk of disconnection. (YK610XE-10 and YK710XE-10)



* YK400XE-4 provides the user wiring x 10 cores and the User tubing φ4 x 3 pcs.

► In Yamaha YK-XE series Acceleration/Deceleration is optimized automatically

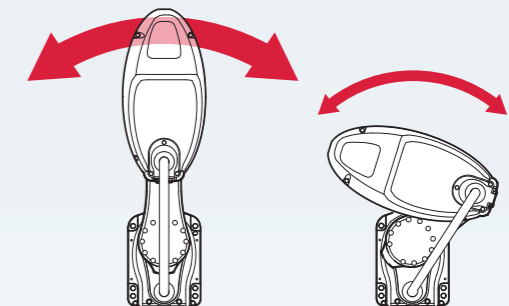
The optimal acceleration and deceleration are automatically selected from the arm posture at the time of operation start and the arm posture at the time of operation end.

The motor peak torque or the tolerable peak torque of the speed reducer is not exceeded by inputting only three parameters*.

The full power of the motor is always output to maintain the high acceleration/deceleration.

* Payload, R-axis moment of inertia, and offset amount of R-axis moment of inertia

Inertia of extended arm can be as high as 5 times of that of folded arm

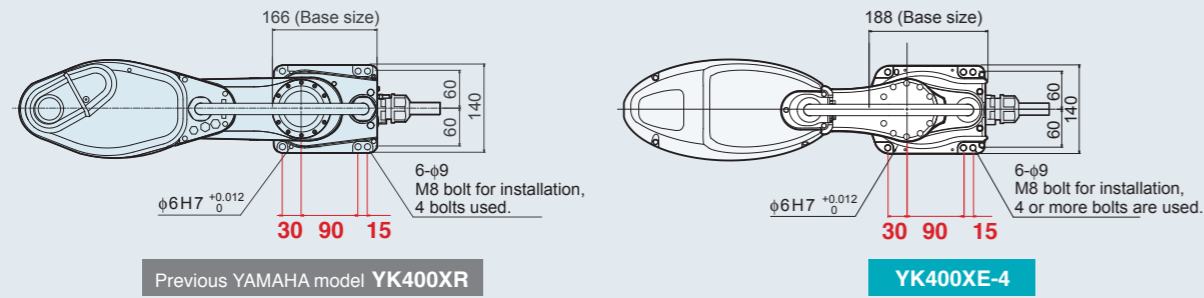


This optimization feature helps:

- Extends service/maintenance period
- Minimizes vibration during operation
- Controllability in motion
- Keeps peak torque within a tolerance to prevent premature failure

Drop-In upgrade by common platform design

The installation position of the YK400XE-4 is fully compatible with that of the conventional model YK400XR. This ensures easy replacement work.



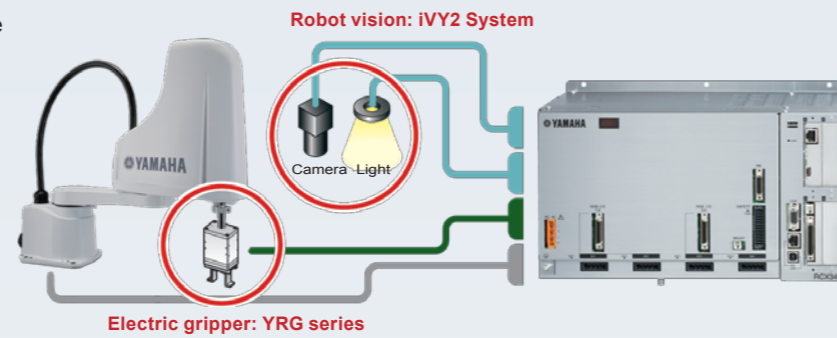
Easier operation in combination with the RCX340 controller

RCX340 comprehensive controller brings out maximum potential of YK400XE robot system. Optional integrated vision system "iVY2" provides simplified image processing. Choice of PC Programming Software or Teaching Pendant available.



Simple and Easy integration of Vision System

Robot controller with vision and gripper interface



Compatible with various field networks

The robot is compatible with full field networks such as CC-Link, EtherNet/IP™, DeviceNet™, PROFIBUS, PROFINET, and EtherCAT.



Reliability backed by 43-year experience of SCARA robot development

Originally developed in-house to provide durable and accurate motion control in harsh environment of motorcycle manufacturing, Yamaha SCARA robot has been "road tested" and proven over 43 years in various fields.

* The product release was 1984.



YK400XE-4

Standard type: Small type

LOW COST HIGH PERFORMANCE MODEL

Arm length 400mm Maximum payload 4kg

Ordering method

YK400XE	4	150	RCX340-4																
Model	Maximum payload	Return-to-origin method S: Sensor T: Stroke end	Z axis stroke	Hollow shaft No entry: None S: With hollow shaft	Cable 3L: 3.5m 5L: 5m 10L: 10m	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						

Note. For details about controller, refer to the RCX340 catalog or view YAMAHA's website.

Specifications

Axis specifications	X-axis	Y-axis	Z-axis	R-axis
Arm length	225 mm	175 mm	150 mm	-
Rotation angle	+/-132 °	+/-150 °	-	+/-360 °
AC servo motor output	200 W	100 W	100 W	100 W
Deceleration mechanism	Transmission method	Direct-coupled		Timing belt
	Motor to speed reducer	Direct-coupled		Timing belt
Speed reducer to output	Direct-coupled		Timing belt	
	Repeatability ^{Note 1}	+/-0.01 mm	+/-0.01 mm	+/-0.01 °
Maximum speed	6 m/sec	1.1 m/sec	2600 °/sec	
Maximum payload	4 kg (Standard specification), 3 kg (Option specifications ^{Note 4})			
Standard cycle time: with 2kg payload ^{Note 2}	0.41 sec			
R-axis tolerable moment of inertia ^{Note 3}	0.05 kgm ² (0.5 kgfcm ²)			
User wiring	0.2 sq × 10 wires			
User tubing (Outer diameter)	φ 4 × 3			
Travel limit	1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length	Standard: 3.5 m Option: 5 m, 10 m			
Weight	17 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)

Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions and performing the coarse positioning arch operation.

Note 3. The acceleration coefficient is set automatically in accordance with the tip weight and offset amount for R-axis moment of inertia settings.

Note 4. Maximum payload of option specifications (with user wiring/tubing through spline type) is 3kg.

Controller

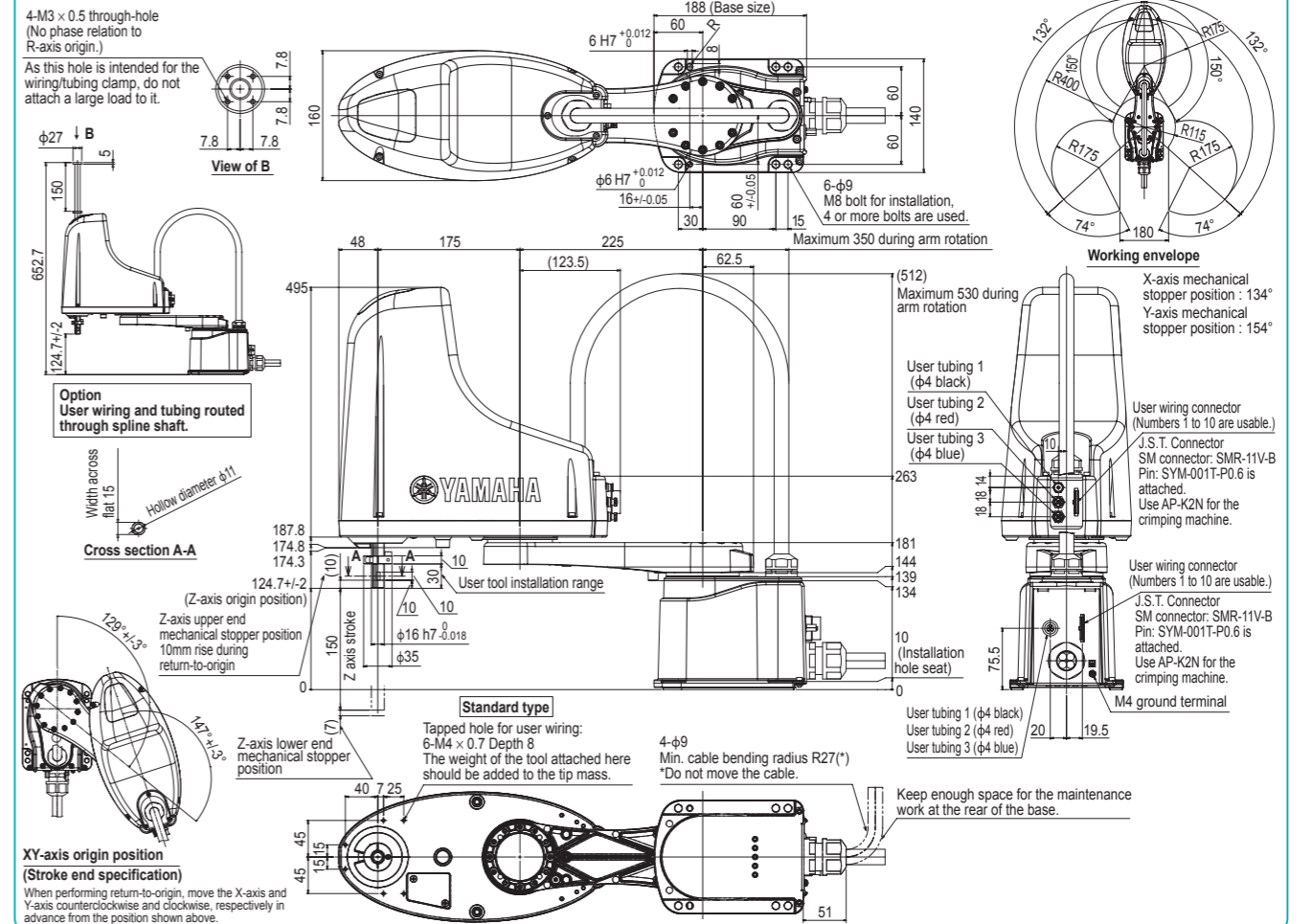
Controller	Power capacity (VA)	Operation method
RCX340	1000	Programming / Remote command / Operation using RS-232C communication

Note. The movement range can be restricted by adding the X- and Y-axis mechanical stoppers. (The maximum movement range was set at shipment.) See our robot manuals (installation manuals) for detailed information.

Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

Our robot manuals (installation manuals) can be downloaded from our website at the address below:
<https://global.yamaha-motor.com/business/robot/>

YK400XE-4



YK610XE-10

Standard type: Medium type

● LOW COST HIGH PERFORMANCE MODEL



● Arm length 610mm ● Maximum payload 10kg

Ordering method

YK610XE-10-200		RCX340-4															
Model	Maximum payload	Z axis stroke	Tool flange	Hollow shaft	Cable	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				
			No entry: None F: With tool flange	No entry: None S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m												

Note. For details about controller, refer to the RCX340 catalog or view YAMAHA's website.
Note. The return-to-origin method is provided only in the sensor specifications, but not in the stroke end specifications.

Specifications

Axis specifications	Arm length	X-axis	Y-axis	Z-axis	R-axis
Rotation angle		+/-134 °	+/-152 °	-	+/-360 °
AC servo motor output		400 W	200 W	200 W	200 W
Deceleration mechanism	Transmission method	Direct-coupled		Timing belt	
		Speed reducer to output		Timing belt	
Repeatability ^{Note 1}		+/-0.01 mm		+/-0.01 mm	+/-0.01 °
Maximum speed		8.6 m/sec		2 m/sec	2600 °/sec
Maximum payload		10 kg (Standard specification), 9 kg (Option specifications ^{Note 4})			
Standard cycle time: with 2kg payload ^{Note 2}		0.39 sec			
R-axis tolerable moment of inertia ^{Note 3}		0.3 kgm ²			
User wiring		0.2 sq × 20 wires			
User tubing (Outer diameter)		φ 6 × 3			
Travel limit		1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length		Standard: 3.5 m Option: 5 m, 10 m			
Weight		25 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions and performing the coarse positioning arch operation.
Note 3. The acceleration coefficient is set automatically in accordance with the tip weight and offset amount for R-axis moment of inertia settings.
Note 4. Maximum payload of option specifications (with user wiring/tubing through spline type) is 9kg.

Controller

Controller	Power capacity (VA)	Operation method
RCX340	1700	Programming / Remote command / Operation using RS-232C communication

Note. The movement range can be restricted by adding the X- and Y-axis mechanical stoppers. (The maximum movement range was set at shipment.)
See our robot manuals (installation manuals) for detailed information.

Note. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details.

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YK710XE-10

Standard type: Large type

● LOW COST HIGH PERFORMANCE MODEL



● Arm length 710mm ● Maximum payload 10kg

Ordering method

YK710XE-10-200		RCX340-4															
Model	Maximum payload	Z axis stroke	Tool flange	Hollow shaft	Cable	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				
			No entry: None F: With tool flange	No entry: None S: With hollow shaft	3L: 3.5m 5L: 5m 10L: 10m												

Note. For details about controller, refer to the RCX340 catalog or view YAMAHA's website.
Note. The return-to-origin method is provided only in the sensor specifications, but not in the stroke end specifications.

Specifications

Axis specifications	Arm length	X-axis	Y-axis	Z-axis	R-axis
Rotation angle		+/-134 °	+/-152 °	-	+/-360 °
AC servo motor output		400 W	200 W	200 W	200 W
Deceleration mechanism	Transmission method	Direct-coupled		Timing belt	
		Speed reducer to output		Timing belt	
Repeatability ^{Note 1}		+/-0.02 mm		+/-0.01 mm	+/-0.01 °
Maximum speed		9.5 m/sec		2 m/sec	2600 °/sec
Maximum payload		10 kg (Standard specification), 9 kg (Option specifications ^{Note 4})			
Standard cycle time: with 2kg payload ^{Note 2}		0.42 sec			
R-axis tolerable moment of inertia ^{Note 3}		0.3 kgm ²			
User wiring		0.2 sq × 20 wires			
User tubing (Outer diameter)		φ 6 × 3			
Travel limit		1.Soft limit 2.Mechanical stopper (X,Y,Z axis)			
Robot cable length		Standard: 3.5 m Option: 5 m, 10 m			
Weight		26 kg			

Note 1. This is the value at a constant ambient temperature. (X,Y axes)
Note 2. When reciprocating 300mm in horizontal and 25mm in vertical directions and performing the coarse positioning arch operation.
Note 3. The acceleration coefficient is set automatically in accordance with the tip weight and offset amount for R-axis moment of inertia settings.
Note 4. Maximum payload of option specifications (with user wiring/tubing through spline type) is 9kg.

Controller

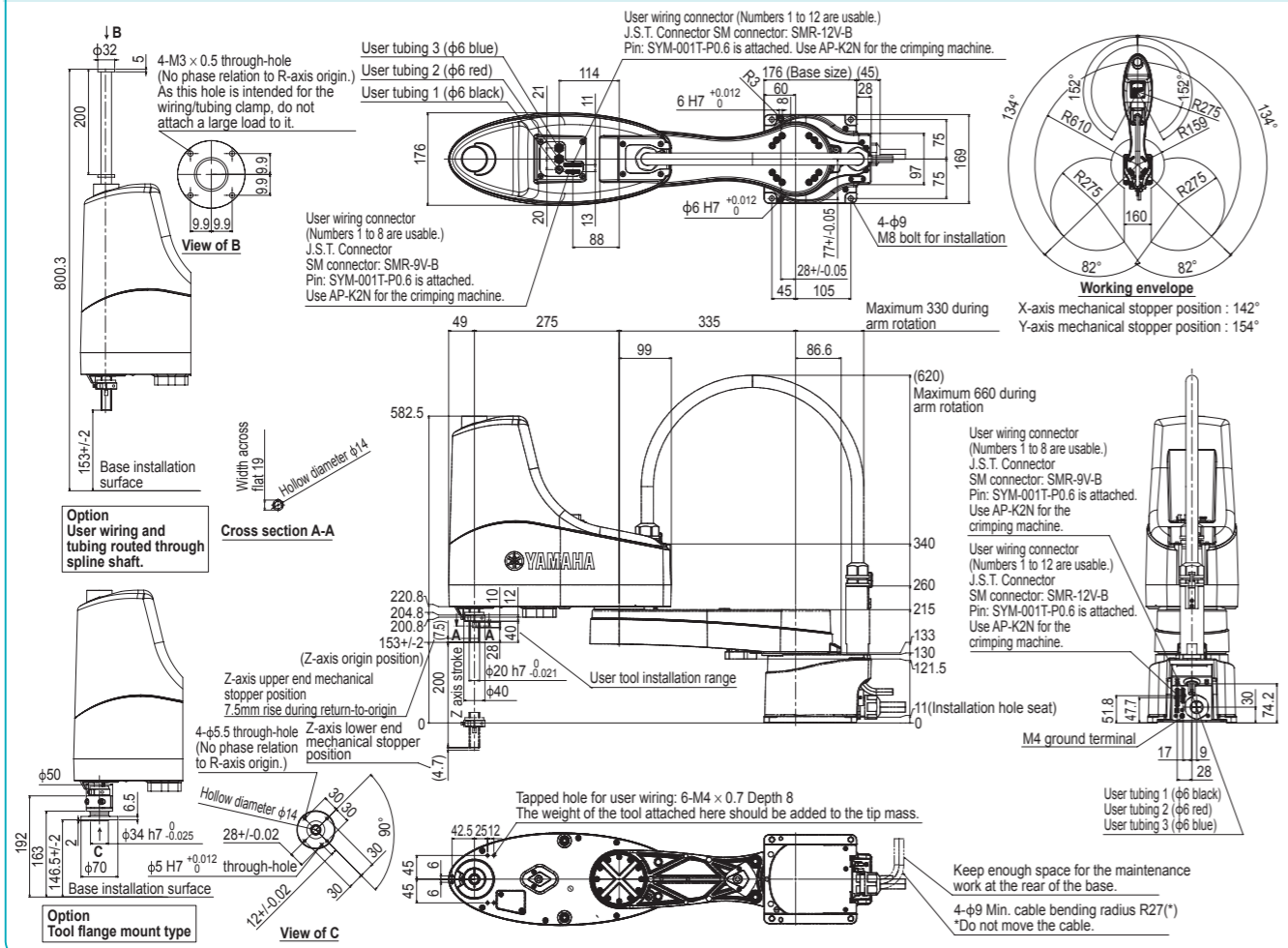
Controller	Power capacity (VA)	Operation method
RCX340	1700	Programming / I/O point trace / Remote command / Operation using RS-232C communication

Note. The movement range can be limited by changing the positions of X and Y axis mechanical stoppers. (The movement range is set to the maximum at the time of shipment.)
See our robot manuals (installation manuals) for detailed information.

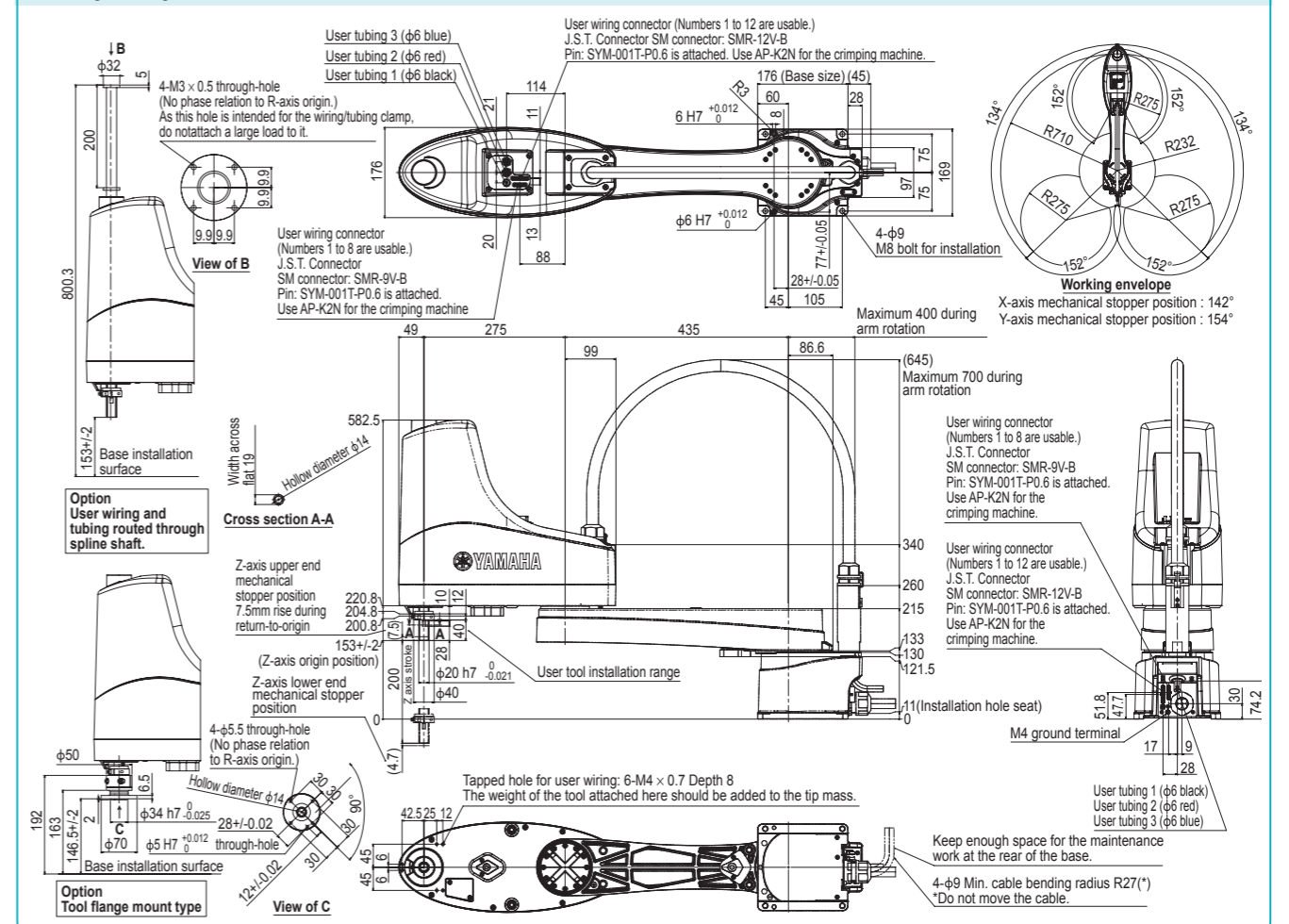
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YK610XE-10



YK710XE-10



Wide variation of models with an arm length ranging from 120 mm to 1200 mm.
Wall hanging, dust/drip proof, and clean room specifications are also supported.

Standard type / Wall mount • inverse type / Dust-proof & drip-proof type

Type	Model	Arm length (mm) and XY axis resultant maximum speed (m/s)												Standard cycle time (sec) ^{Note 1}	Maximum payload (kg)	R-axis tolerable moment of inertia (kgm ²)	Completely beltless structure ^{Note 2}			
		120	150	180	220	250	300	350	400	500	600	700	800					900	1000	1200
Orbit type	YK350TW	5.6												0.32	5.0	0.005 (Rated) 0.05 (Maximum)				
	YK500TW	6.8												0.29	5.0	0.005 (Rated) 0.05 (Maximum)				
Standard type	Extra small type	YK120XG	3.3														0.33	1.0	0.01	●
		YK150XG	3.4														0.33	1.0	0.01	●
		YK180XG	3.3														0.33	1.0	0.01	●
		YK180X	3.3														0.39	1.0	0.01	●
		YK220X	3.4														0.42	1.0	0.01	●
		YK250XG	4.5														0.43	5.0	0.05	●
	Small type	YK350XG	5.6												0.44	5.0	0.05	●		
		YK400XE-4	6.0												0.41	4.0	0.05			
		YK400XG	6.1												0.45	5.0	0.05	●		
		YK500XGL	5.1												0.48	5.0	0.05	●		
		YK500XG	7.6												0.42	10.0	0.30	●		
		YK610XE-10	8.6												0.39	10.0	0.30			
Medium type	YK600XGL	4.9												0.54	5.0	0.05	●			
	YK600XG	8.4												0.43	10.0	0.30	●			
	YK600XGH	7.7												0.47	20.0	1.0	●			
	YK710XE-10	9.5												0.42	10.0	0.30				
	YK700XGL	9.2												0.50	10.0	0.30	●			
	YK700XG	8.4												0.42	20.0	1.0	●			
Large type	YK800XG	9.2												0.48	20.0	1.0	●			
	YK900XG	9.9												0.49	20.0	1.0	●			
	YK1000XG	10.6												0.49	20.0	1.0	●			
	YK1200X	7.4												0.91	50.0	2.45				
	Wall mount / inverse type	YK300XGS	4.4												0.49	5.0	0.05	●		
		YK400XGS	6.1												0.49	5.0	0.05	●		
YK500XGS		7.6												0.45	10.0	0.3	●			
YK600XGS		8.4												0.46	10.0	0.3	●			
YK700XGS		8.4												0.42	20.0	1.0	●			
YK800XGS		9.2												0.48	20.0	1.0	●			
YK900XGS		9.9												0.49	20.0	1.0	●			
YK1000XGS		10.6												0.49	20.0	1.0	●			
Dust-proof & drip-proof type		YK250XGP	4.5												0.50	4.0	0.05	●		
		YK350XGP	5.6												0.52	4.0	0.05	●		
	YK400XGP	6.1												0.50	4.0	0.05	●			
	YK500GLP	5.1												0.66	4.0	0.05	●			
	YK500XGP	7.6												0.55	10.0	0.3	●			
	YK600GLP	4.9												0.71	4.0	0.05	●			
	YK600XGP	8.4												0.56	10.0	0.3	●			
	YK600XGHP	7.7												0.57	18.0	1.0	●			
	YK700XGP	8.4												0.52	20.0	1.0	●			
	YK800XGP	9.2												0.58	20.0	1.0	●			
YK900XGP	9.9												0.59	20.0	1.0	●				
YK1000XGP	10.6												0.59	20.0	1.0	●				

Note 1. The standard cycle time is measured under the following conditions.
 • During back and forth movement 25mm vertically and 100mm horizontally (extra small type)
 • During back and forth movement 25mm vertically and 300mm horizontally (small type / medium type / large type)

Note 2. Maintains high accuracy over long periods because the beltless structure drastically cuts down on wasted motion.
 Operation is also nearly maintenance-free for long periods with no worries about belt breakage, stretching or deterioration over time.

CLEAN type

Type	Model	Arm length (mm) and XY axis resultant maximum speed (m/s)												Standard cycle time (sec)	Maximum payload (kg)	R-axis tolerable moment of inertia (kgm ²)
		120	150	180	220	250	300	350	400	500	600	700	800			
Extra small type	YK180XC	3.3m/s												0.42	1.0	0.01
	YK220XC	3.4m/s												0.45	1.0	0.01
Small type	YK250XGC	4.5m/s												0.50	4.0	0.05
	YK350XGC	5.6m/s												0.52	4.0	0.05
	YK400XGC	6.1m/s												0.50	4.0	0.05
Medium type	YK500XGLC	5.1m/s												0.66	4.0	0.05
	YK500XC	4.9m/s												0.53	10.0	0.12
	YK600XGLC	4.9m/s												0.71	4.0	0.05
	YK600XC	5.6m/s												0.56	10.0	0.12
Large type	YK700XC	6.7m/s												0.57	20.0	0.32
	YK800XC	7.3m/s												0.57	20.0	0.32
	YK1000XC	8.0m/s												0.60	20.0	0.32

MEMO