

HEADQUARTERS & FACTORY



TECHNICAL CENTER



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- Italy ● 18 MACAM S.r.l.(Rivoli)
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- Spain ● 21 MECMAN INDUSTRIAL, S.L.(Barcelona)
- Canada ● 23 En-Plas,Inc.(Toronto)



**HST**  
HST SERIES 150/250/400



Safety information

- These products are industrial robots as defined in the labor safety rules. Always take great care when operating any robots.
- To improve visual clarity, these robots may be shown without the safety guards that are identified in the safety rules. Never operate the robots without all safety guards in place.
- Before using any product introduced in this literature, all operators must read and understand the instruction manual and other related documents for proper and safe equipment operation.

\* The contents in this catalog are subject to change without notice.

Yushin commits itself to contributions to the creation of more eco-sensitive technologies by employing eco-friendly principles.

# HST series

## HIGH SPEED

**25.4%**  
Weight Reduction

**9.2%**  
Faster Take-out Time

Optimum Design Engineering

Reduced Mass of Moving Components

Faster Take-out Times

Improved Productivity

## VIBRATION CONTROL

**98.6%**  
Shorter Settling Time

Design Optimization + CFRP + Anti-vibration Controls

Shorter Settling Times & Improved Vibration Damping

Shorter Timers & More Stable Take-Out

Improves Productivity

\* Robots are available in 2 different colors



### Design Optimization

- Co-Researched with Kyoto University -

Design Optimization is what Yushin Calls the practice of applying CAE (computer-aided engineering) to seek the most theoretically optimal form for a robot based on its mechanism and motions. This advanced approach is used to design lighter weight and increased reliability into automobiles and aircraft. Yushin's design optimization efforts began by co-researching end-of-arm tool design with Kyoto University. After successfully optimizing robot tools, Yushin employed the process with HSA, TSXA, YC, SC, and now HST robots.

### Japan Society of Mechanical Engineers Technology Award Winner

The JSME presented their prestigious Technology Award in 2011 to Yushin's project to use structural optimization technology to develop a take-out robot for high-performance injection molding machines.



### Expanded Lineup

The HST has 11 more traverse and vertical stroke length configurations than its predecessor.

### More Standard Features

Six features, formerly options, are standard equipped on HST robots.

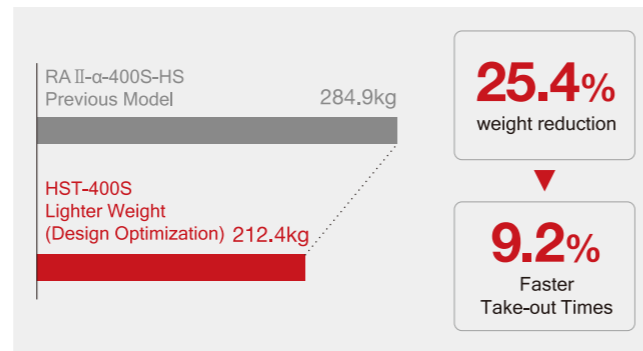
### Your Choice of Controller

HST robots are available with either the high-performance E-touch II or more economical E-touch Compact controller.

# HIGH SPEED

## Built Lighter & Faster

Yushin R&D employed design optimization to enhance the shape and structure of many HST parts and components for lighter weight. The effort trimmed 72.5kg from the HST's moving components, 25.4% lighter than the previous RAII- $\alpha$ -HS series model. The HST also enjoys 9.2% faster speeds than the RAII- $\alpha$ -HS without a motor size increase. But design changes on the HST were not simply for lighter weight, but rather "Lighter weight through optimum design, which preserves superior rigidity."



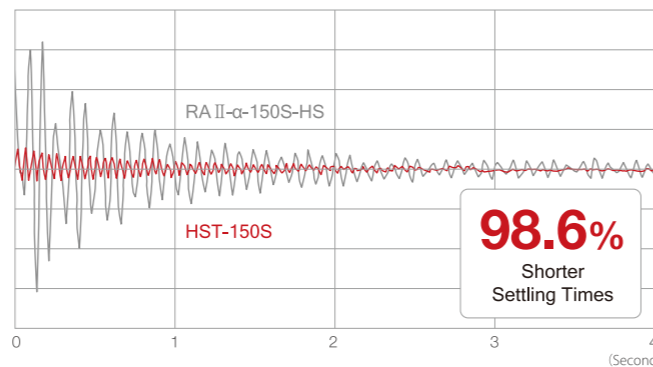
Comparing the weight of HST-400's moving components

# VIBRATION CONTROL

## Shorter Settling Times

Design Optimization + CFRP + Anti-Vibration Controls

By examining such factors as natural oscillation and damping characteristics, design optimization led to much better vibration control for the HST. Specifically, settling time (time required for oscillations to calm down to within a set value) was reduced by 98.6%.



Measurement of HST-150S at take-out position.

## BENEFITS

### Shorter Timers

With such an extreme reduction in settling time, each wait timer on the HST can be shortened to allow for faster overall molding cycles.

### Smooth, Stable Take-out

HST robots excel at high-speed take-out of even precision micro-molded products, thanks to its excellent vibration damping and very little oscillation during starts and stops.

Improves Productivity

# Expanded Lineup

HST robots are available in 11 more stroke configurations than our previous high-speed robot series.

	HST-150	HST-250	HST-400
Traverse Stroke	1500	1500	—
	1700	1700	1700
	1900	1900	1900
	2200	2200	2200
	2500	2500	2500

	HST-150	HST-250	HST-400
Vertical Stroke	850	—	—
	950	950	—
	1100	1100	1100
	1300	1300	1300

Strokes in red are standard strokes newly available with the HST series.

# More Standard Features

Six features, formerly options, are standard equipped on the HST series.

Reject Circuit	Initial Shots Discharge Motion	Sampling Motion
Under-Cut Motion	Wait on Traverse	Wait for Descent Order

# Your Choice of Controller

HST robots are available with either the high-performance E-touch II or more economical E-touch Compact controller.



### E-touch II

- 10.4in full-color touchscreen
- Voice Guidance feature
- Predictive Maintenance feature is standard
- Take-out Robot Simulator is standard feature
- Lead Through Teaching is standard feature



### E-touch compact

- 7.5in full-color touchscreen
- Predictive Maintenance feature is standard
- Lead Through Teaching is standard feature

# HST series

## Standard Specifications

Power Source	Drive Method	Control Method	Air Pressure	Wrist Flip Angle
3 phase AC200V/220V (50/60Hz)	Digital servo motor 3/5-axis	Micro computer control	0.49MPa Maximum air pressure 0.7MPa	90deg

## HST-150



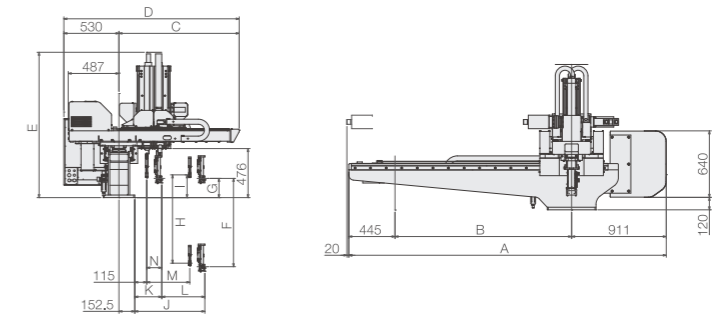
### Specifications

Model	Maximum Power Consumption	Traverse Stroke (mm)	Kick Stroke (mm)		Vertical Stroke (mm)		Air Consumption (Nl/cycle)	Maximum Payload (kg)	Clamping Force (tf)
			Main Arm	Sub Arm	Main Arm	Sub Arm			
HST-150S	3 phase AC200V 14.4 A Max.	1500 [1700] [1900] [2200]	550	—	850 [950] [1100]	—	3.6	3	100 ~ 220
HST-150D	3 phase AC200V 18.8 A Max.	[2500]	414.5	414.5	[1300]	850 [950] [1100] [1300]			

S type: equipped with main arm only D type: equipped with main arm and sub arms  
 [ ]=Extended stroke  
 Maximum payload includes the end-of-arm-tool.  
 Higher payloads possible, depending on take-out settings and speeds.

### Dimensions (mm)

[ ]=Extended stroke



Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
HST-150S	2856 [3056] [3256] [3556] [3856]	1500 [1700] [1900] [2200] [2500]	1157.5	1687.5	1321 [1374] [1454] [1546]	850 [950] [1100]	185	—	—	674.5	124.5	550	—	—
HST-150D					1399 [1452] [1532] [1624]	[1300]		850 [950] [1100] [1300]	219		260	414.5	414.5	145

## HST-250

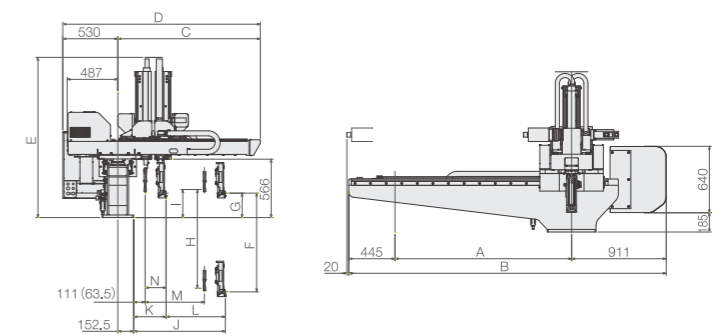


Model	Maximum Power Consumption	Traverse Stroke (mm)	Kick Stroke (mm)		Vertical Stroke (mm)		Air Consumption (Nl/cycle)	Maximum Payload (kg)	Clamping Force (tf)
			Main Arm	Sub Arm	Main Arm	Sub Arm			
HST-250S	3 phase AC200V 17.3 A Max.	1500 [1700] [1900] [2200] [2500]	760	—	—	—	4.3	—	—
HST-250D	3 phase AC200V 23.1 A Max.	[2500]	570	570	950 [1100] [1300]	950 [1100] [1300]	5	180 ~ 300	
HST-250DS	3 phase AC200V 26.0 A Max.		720	720			8.4		

S type: equipped with main arm only D type: equipped with main arm and sub arms  
 [ ]=Extended stroke  
 Maximum payload includes the end-of-arm-tool.  
 Higher payloads possible, depending on take-out settings and speeds.

### Dimensions (mm)

[ ]=Extended stroke  
 ( )=DS type dimensions



Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
HST-250S	2856 [3056] [3256] [3556] [3856]	1500 [1700] [1900] [2200] [2500]	1371.5	1901.5	1542 [1622] [1714]	950 [1100] [1300]	235	—	—	882.5	122.5	760	—	—
HST-250D								950 [1100] [1300]	270	882.5	312.5	570	570	201.5
HST-250DS			1521.5	2051.5					235	1032.5		720	720	249

## HST-400

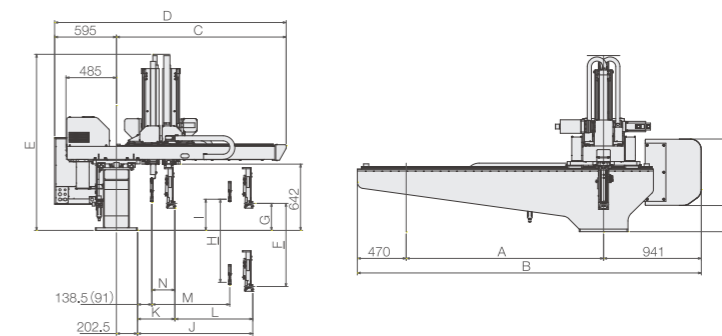


Model	Maximum Power Consumption	Traverse Stroke (mm)	Kick Stroke (mm)		Vertical Stroke (mm)		Air Consumption (Nl/cycle)	Maximum Payload (kg)	Clamping Force (tf)
			Main Arm	Sub Arm	Main Arm	Sub Arm			
HST-400S	3 phase AC200V 17.3 A Max.	1700 [1900] [2200] [2500]	950	—	—	—	5.4	—	—
HST-400D	3 phase AC200V 23.1 A Max.	[2500]	750	750	1100 [1300]	1100 [1300]	10	280 ~ 450	
HST-400DS	3 phase AC200V 26.0 A Max.		850	850			10.6		

S type: equipped with main arm only D type: equipped with main arm and sub arms  
 [ ]=Extended stroke  
 Maximum payload includes the end-of-arm-tool.  
 Higher payloads possible, depending on take-out settings and speeds.

### Dimensions (mm)

[ ]=Extended stroke  
 ( )=DS type dimensions



Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
HST-400S	3111 [3311] [3611] [3911]	1700 [1900] [2200] [2500]	1634	2229	1695 [1787]	1100 [1300]	260	—	—	1110	160	950	—	—
HST-400D								1100 [1300]	300	1110	360	750	750	221.5
HST-400DS			1734	2329					260	1210		850	850	269