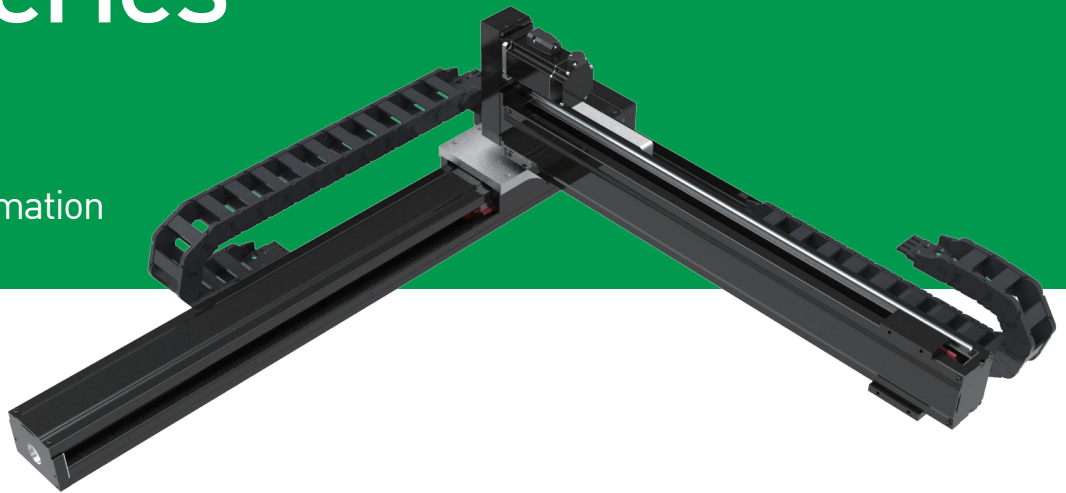


Cartesian Robot - KK Series

Technical Information



HIWIN Support



About HIWIN



Semiconductor Subsystem

Semiconductor / LED / Panel

- EFEM
(Equipment Front End Module)
- Wafer Robot
- Load Port
- Wafer Aligner



Multi-Axis Robot

Pick-and-Place / Assembly /
Array and Packaging / Semiconductor /
Electro-Optical Industry /
Automotive Industry / Food Industry

- Articulated Robot
- SCARA Robot
- Electric Gripper
- Integrated Electric Gripper



Single-Axis Robot

Precision / Semiconductor /
Medical / FPD

- KK, SK
- KS, KA
- KU, KE, KC
- KA B-TYPE
- KC B-TYPE



Torque Motor Rotary Table

Medical / Automotive Industry /
Machine Tools / Machinery Industry

- RAB Series
- RAS Series
- RCV Series
- RCH Series

Wire-cut EDM / Die-sinker EDM /
Small-hole Drilling EDM

- RAS-E Series
- RCV-E Series
- RCH-E Series



Ball screw

Precision Ground / Rolled

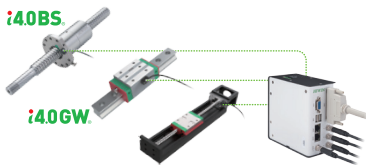
- Super S Series
- Super T Series
- Mini Roller
- Ecological & Economical
Lubrication Module E2
- Auxiliary Lubrication Module EL
- Rotating Nut (R1, R2)
- Energy-Saving & Thermal-
Controlling (Cool Type)
- Heavy Load Series (RD)



Linear Guideway

Automation / Semiconductor / Medical

- Ball Type-HG, EG, WE, MG, CG
- Quiet Type-QH, QE, QW, QR
- Other-Stainless Steel, AG, RG, E2, EL,
PG, SE, RC



i-Series

Semiconductor / Automation
Equipment / Industrial Machines /
Machine Tools

- Intelligent 4.0 Ball screw
- Intelligent 4.0 Guideway
- Intelligent Single-Axis Robot



DATORKER® Strain Wave Gear

Robot / Automation / Semiconductor /
Machine Tools

- Standard-DSC, DSH Type
- Heavy Load-DGC, DGH Type
- Lightweight-DLC Type



Ball Spline

Robot / Medical / Automation
Equipment / Industrial Machines /
Machine Tools / Semiconductor

- Linear ball spline-
RS Type, FS Type, FSR Type
- Compound ball spline-FBR Type



Bearing

Machine Tools / Robot /
Industrial Machines / Automation

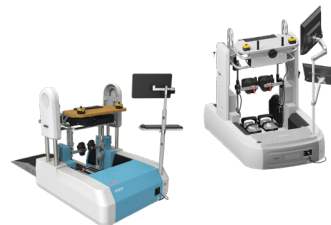
- Crossed Roller Bearing
- Support Unit



Controller / Drive/ AC Servo Motor

Semiconductor / SMT / 3C Electronics /
Automation Equipment /
New Energy Equipment /
Industrial Machinery

- Controller-HIMC3
- Drives-E1, E2, D1, D2T/D2T-LM Series
- Motors-E, FR Series



Medical Equipment

Hospital / Rehabilitation Centers /
Long-term Care Facility

- Robotic Gait Training System MRG-P110
- Robotic Gait Training System MRG-P100



Linear Motor / Linear Motor System

Automated Transport /
AOI Application /
Precision Positioning /
Semiconductor Application

- Ironcore Linear Motor
- Ironless Linear Motor
- Tubular Motors
- Air Bearing Platform
- XY Stage • Gantry Systems
- Single-Axis Linear Motor Stage



Torque Motor / Direct Drive Motor

Machine Tools / Lithium-ion Battery /
Gear Machining and Inspection

- Torque Motor-
TM-5, IM-2, TMRW, TM-5(J0) Series

Display / Automation / Semiconductor /
Lithium-ion Battery / Robot /
Laser Cutting / AOI Inspection

- Direct Drive Motor-
DMS, DMY, DMN, DMT, DMH Series

Product feature /

Quick Assembly

Easy Operation

Comprehensive Coverage

Cost-effective



**High Rigidity • High Precision •
High Load Capacity**



Single-Axis Robot KK Series
(U-rail - Steel Material)



E1 Series: AC Servo Motor & Drive



HCR4 Controller

Software

In the HRSim offline virtual environment, users can pre-build their automation configuration and program the robot. Through the HCR0S operating interface, users enjoy a fast and intuitive experience to get started quickly.

Control

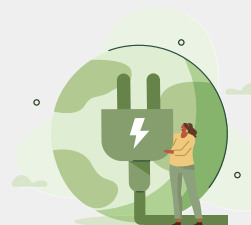
- Motion control – including multi-axis simultaneous movement
- Various setup parameters
- Composite speed
- Gear ratio conversion

Mechanics

Utilizing the KK single-axis robot series, featuring high rigidity and high precision. Equipped with labyrinth-type protective covers for enhanced protection, and standard adapter plates for rapid mechanical assembly and integration.



Replaces hydraulic and
pneumatic cylinders
**Reduces energy
consumption and waste**



Minimizes human error in
manufacturing
Reduces resource waste

HIWIN Cartesian Robots – A High Value Choice!

HIWIN offers you professional consulting services and solutions.

Improve production efficiency and market competitiveness!

Industrial applications /

Wide range of uses, suitable for general automation equipment across various industries. Examples: screw fastening, dispensing, loading and unloading, material transfer, assembly, welding, packaging, inspection, cutting, and more.



Semiconductor and electronics



Automotive parts manufacturing

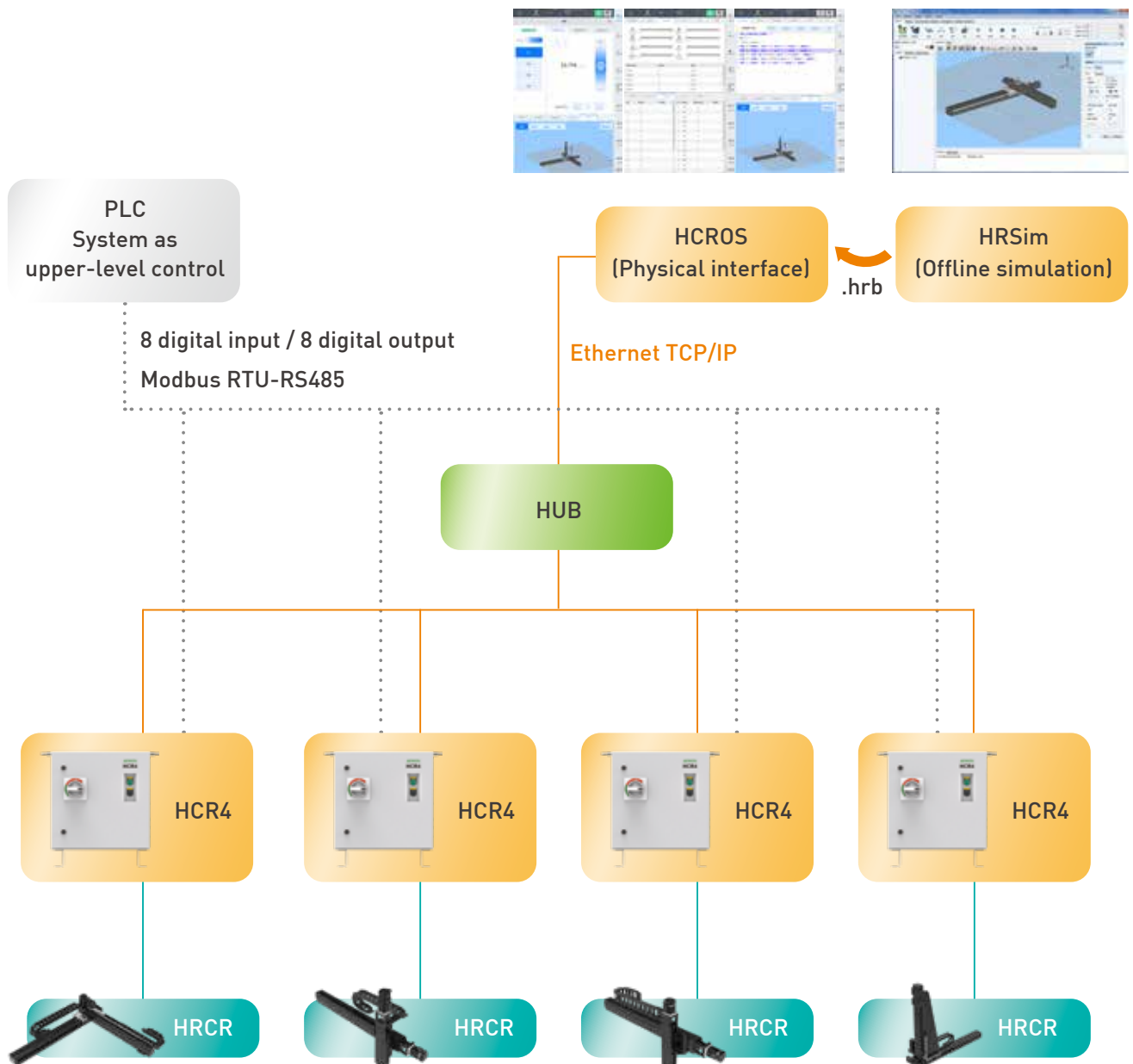


General industrial machinery



Medical and biotechnology

System architecture /



Product specifications /

HRCR - KK 10 86 60 - T1 1 S - X - Y - Z - E1 - S

HIWIN Robot
Cartesian Robot

K :
KK series

X axis size
KK100 : code 10
KK86 : code 86
KK60 : code 60
KK50 : code 50
Unspecified :
code XX

Y axis size
KK100 : code 10
KK86 : code 86
KK60 : code 60
KK50 : code 50
Unspecified :
code XX

Z axis size
KK100 : code 10
KK86 : code 86
KK60 : code 60
KK50 : code 50
Unspecified :
code XX

S : KK- Aluminum cover
(Mounting from the top of the rail)
B : KK-Labyrinth cover
(Mounting from the bottom of the rail)

Assembly Orientation:
Please refer to the assembly orientation diagram

Type
T1, T6 : Cantilever type
T2 : Cross type (Wall-mounted, Horizontal)
T3 : Moving arm type (Horizontal, Wall-mounted, Vertical)
T4, T8 : Polar type
T5, T7 : Gantry type

Shipping method
S : Assembled
shipping
K : KIT shipping
(Unassembled)

Servo motor
0 : Not included
C : Provided by customer
E1 : HIWINMIKRO E1 series
HCR4 : HCR4 controller

Z axis
Effective stroke

Y axis
Effective stroke

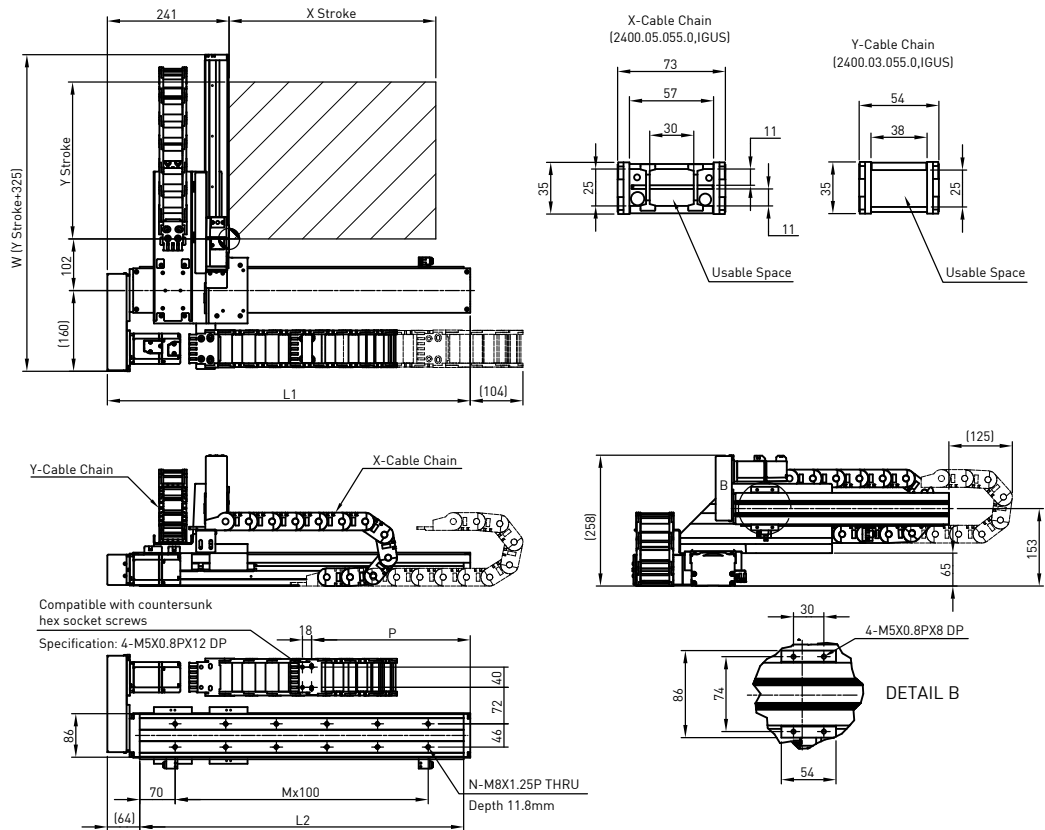
X axis
Effective stroke

Code	Type	Number of axis / Axis type	Illustration
T1	Cantilever type	2 / XY	
T2	Cross type	2 / (Horizontal XY / Wall-mounted YZ)	
T3	Moving arm type	2 / (Horizontal XY / Wall-mounted YZ / Vertical ZY)	
T4	Polar type	2 / XZ	

Code	Type	Number of axis / Axis type	Illustration
T5	Gantry type	2 / XY	
T6	Cantilever type	3 / XYZ	
T7	Gantry type	3 / XYZ	
T8	Polar type	3 / XYZ	

Dimensional drawing /

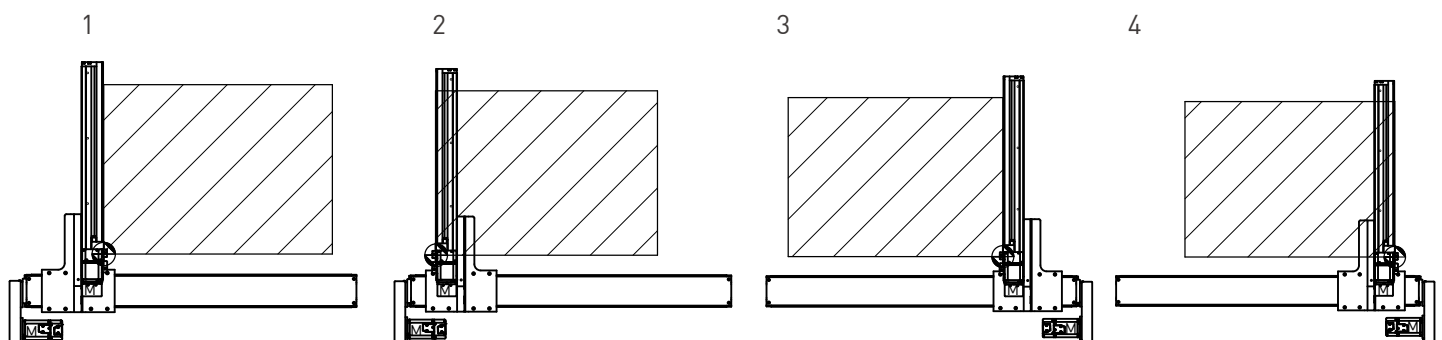
HRCR-KK8660XX-T1 Cantilever type



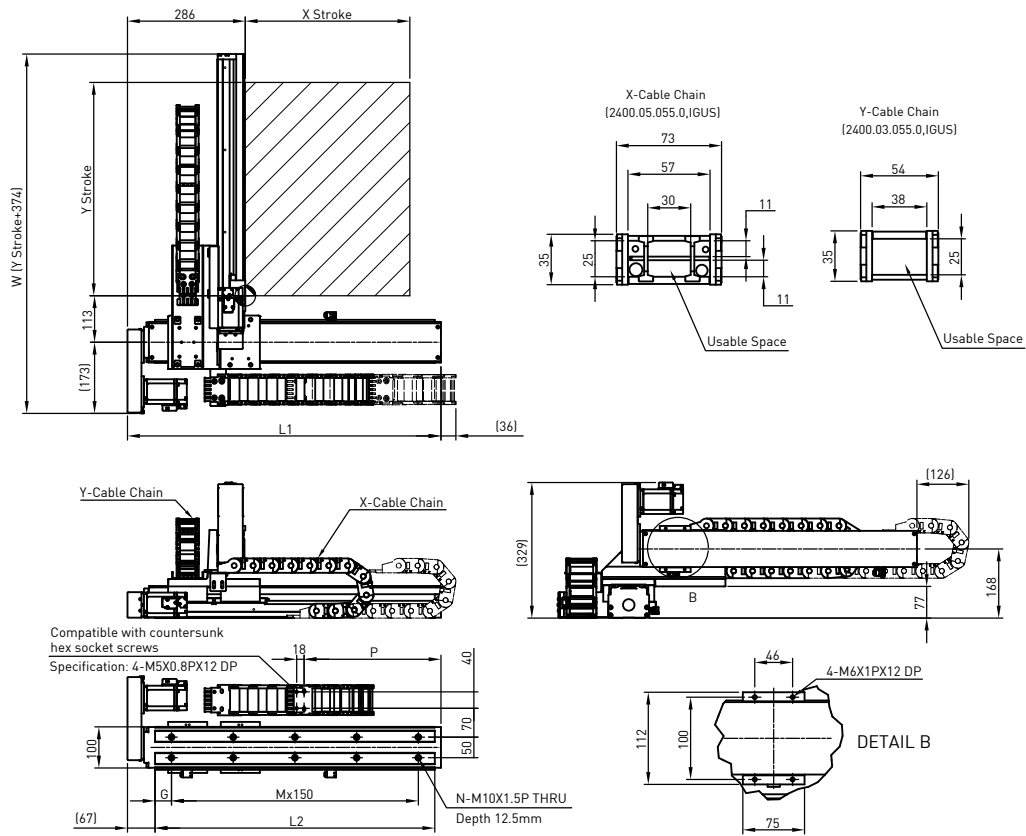
Item	X axis	Y axis	X axis effective stroke	100	200	300	400	500	600	700	800	900	1000
Series specification	KK86D	KK60D	L1	417	517	617	717	817	917	1017	1117	1217	1317
Repeatability(mm)	±0.005	±0.005	L2	340	440	540	640	740	840	940	1040	1140	1240
Ballscrew outer dia. (mm)	15	12	M	2	3	4	5	6	7	8	9	10	11
Ballscrew lead(mm)	20	10	N	6	8	10	12	14	16	18	20	22	24
Max. speed(mm/s)*1	1000	500	P	214	264	264	314	364	414	464	514	564	614
Standard stroke (in 100 mm interval)	100~1000	100~500	Max. operating speed (mm/s)	1000					875	699	571	475	402
AC servo motor power (W)	200	100	Y axis effective stroke	100		200		300		400		500	
Operating environment	0℃~50℃ , Humidity: 35~80% (non-condensing)		W	425		525		625		725		825	
			Max. operating speed (mm/s)	500									
			Max. load capacity (kg)	25		25		20		15		10	

* 1: Maximum speed is based on a motor speed of 3000 rpm.

● Assembly orientation



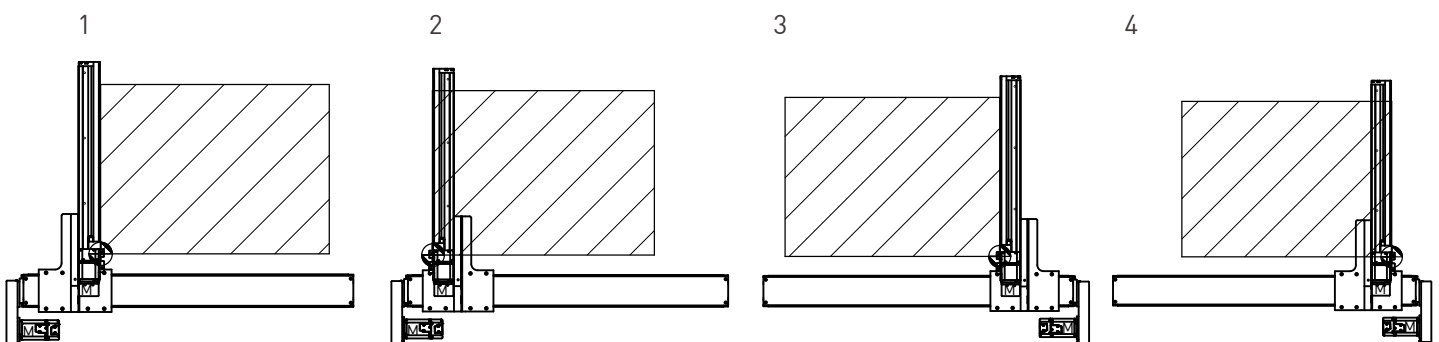
HRCR-KK1086XX-T1 Cantilever type



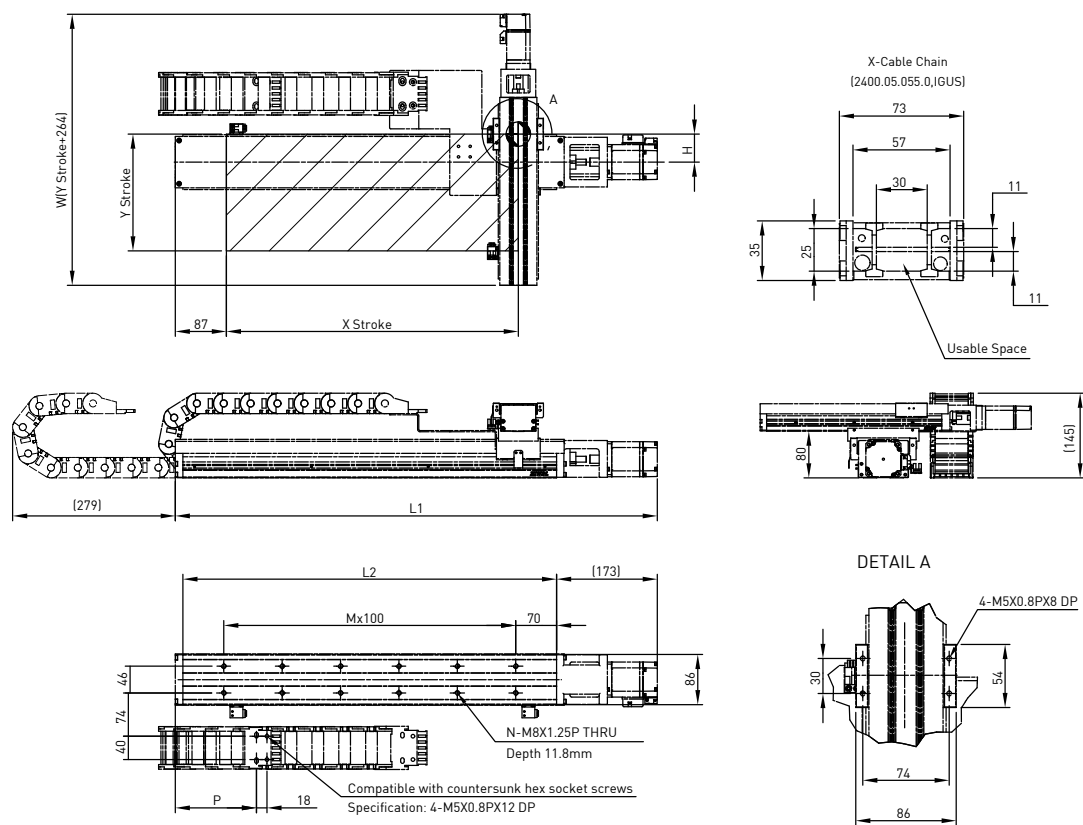
Item	X axis	Y axis	X axis effective stroke	150	250	350	450	550	650	750	850	950	1050
Series specification	KK100	KK86D	L1	562	662	762	862	962	1062	1162	1262	1362	1462
Repeatability(mm)	±0.01	±0.005	L2	480	580	680	780	880	980	1080	1180	1280	1380
			M	3	3	4	5	5	6	7	7	8	9
Ballscrew outer dia. (mm)	20	15	N	8	8	10	12	12	14	16	16	18	20
			G	15	65	40	15	65	40	15	65	40	15
Ballscrew lead(mm)	10	10	P	283	283	333	383	433	483	533	583	633	683
Max. speed(mm/s)*1	500	500	Max. operating speed (mm/s)	500					414	341	286	243	209
Standard stroke (in 100 mm interval)	150~1050	200~600	Y axis effective stroke	200		300		400		500		600	
			W	574		674		774		874		974	
AC servo motor power (W)	400	200	Max. operating speed (mm/s)	500								436	
Operating environment	0°C~50°C , Humidity: 35~80% (non-condensing)		Max. load capacity (kg)	40		28		20		15		12	

* 1: Maximum speed is based on a motor speed of 3000 rpm.

Assembly orientation



HRCR-KK8660XX-T2 Cross type (Horizontal)

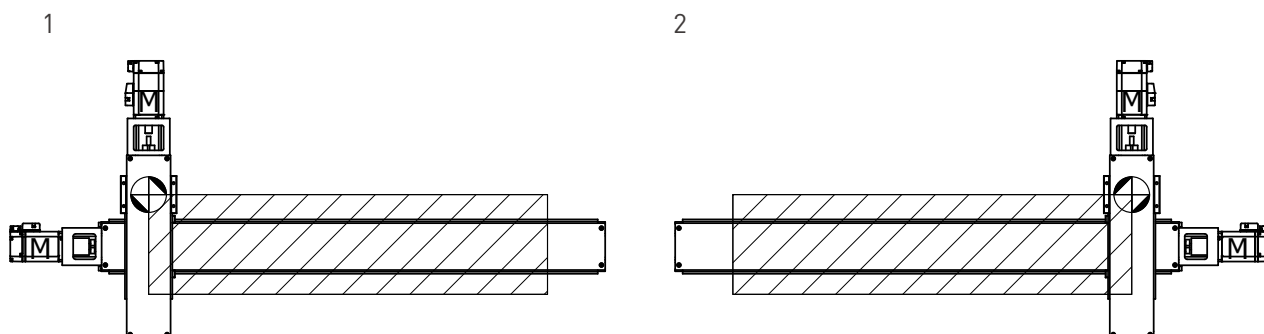


Unit:mm

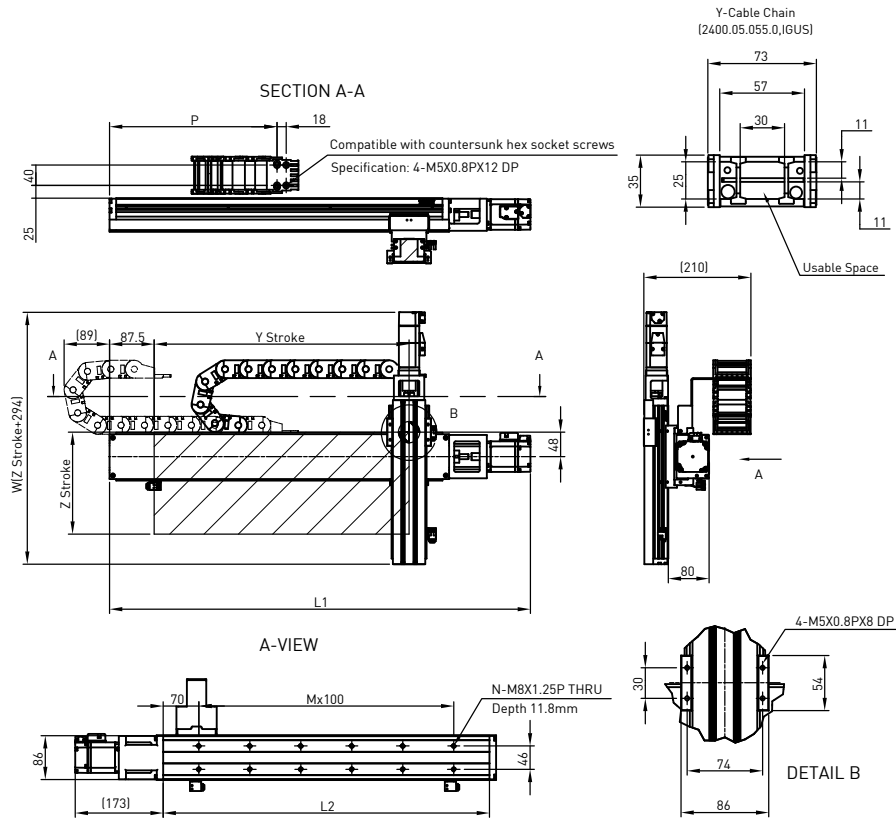
Item	X axis	Y axis	X axis effective stroke	300	400	500	600	700	800	900	1000	1100
Series specification	KK86D	KK60D	L1	625	725	825	925	1025	1125	1225	1325	1425
			L2	440	540	640	740	840	940	1040	1140	1240
Repeatability(mm)	±0.005	±0.005	M	3	4	5	6	7	8	9	10	11
Ballscrew outer dia. (mm)	15	12	N	8	10	12	14	16	18	20	22	24
			P	42	92	142	192	242	292	342	392	442
Ballscrew lead(mm)	20	10	Max. operating speed (mm/s)	1000				875	699	571	475	402
Max. speed(mm/s)*1	1000	500	Y axis effective stroke	100	200	300	400	500	600			
Standard stroke (in 100 mm interval)	300~1100	100~600	W	364	464	564	664	764	864			
AC servo motor power (W)	200	100	H	48	48	148	148	248	248			
			Max. operating speed (mm/s)	500								489
Operating environment	0℃~50℃ , Humidity: 35~80% (non-condensing)		Max. load capacity (kg)	25	25	25	18	15	10			

* 1: Maximum speed is based on a motor speed of 3000 rpm.

- Assembly orientation



HRCR-KKXX8660-T2 Cross type (Wall-mounted)

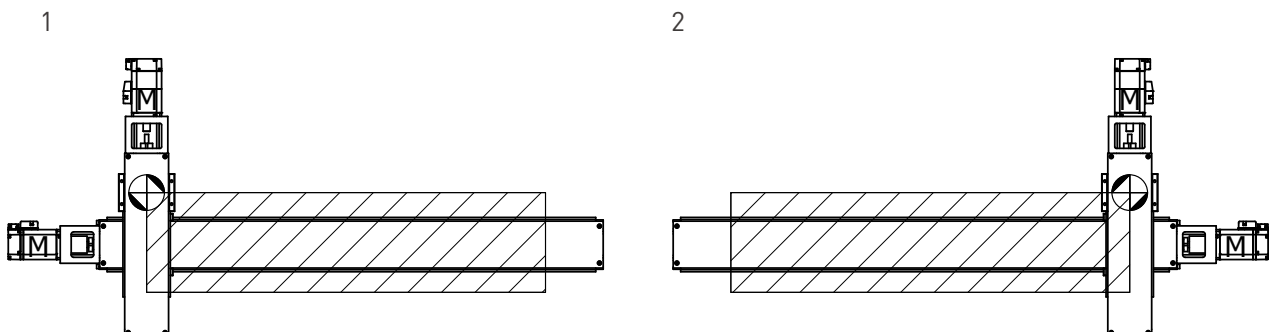


Unit:mm

Item	Y axis	Z axis	Y axis effective stroke	300	400	500	600	700	800	900	1000	1100
Series specification	KK86D	KK60D	L1	625	725	825	925	1025	1125	1225	1325	1425
			L2	440	540	640	740	840	940	1040	1140	1240
Repeatability(mm)	±0.005	±0.005	M	3	4	5	6	7	8	9	10	11
Ball screw outer dia. (mm)	15	12	N	8	10	12	14	16	18	20	22	24
			P	229	279	329	379	429	479	529	579	629
Ball screw lead(mm)	20	5	Max. operating speed (mm/s)	1000				875	699	571	475	402
Max. speed(mm/s)*1	1000	250	Z axis effective stroke	100	200	300	400	500	600			
Standard stroke (in 100 mm interval)	300~1100	100~600	W	364	464	564	664	764	864			
AC servo motor power (W)	200	100 with brake	H	48								
			Max. operating speed (mm/s)	250								245
Operating environment	0℃~50℃ , Humidity: 35~80% (non-condensing)		Max. load capacity (kg)	15								

* 1: Maximum speed is based on a motor speed of 3000 rpm.

● Assembly orientation

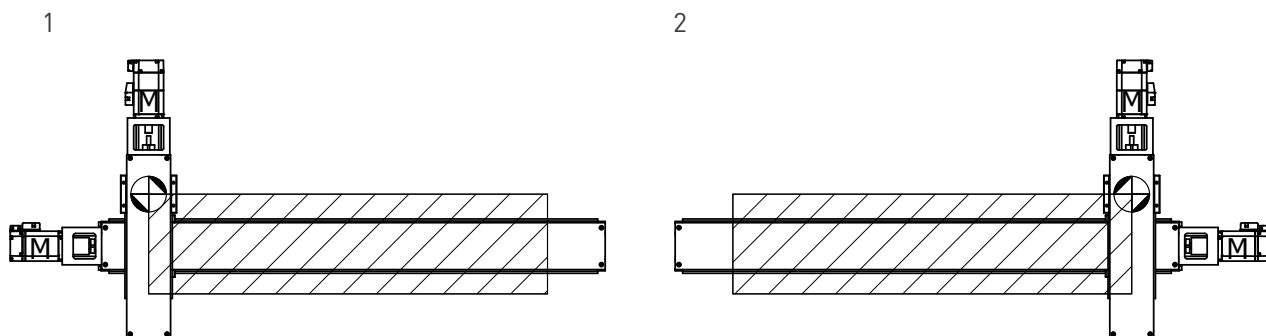


HRCR-KK1086XX-T2 Cross type (Horizontal)

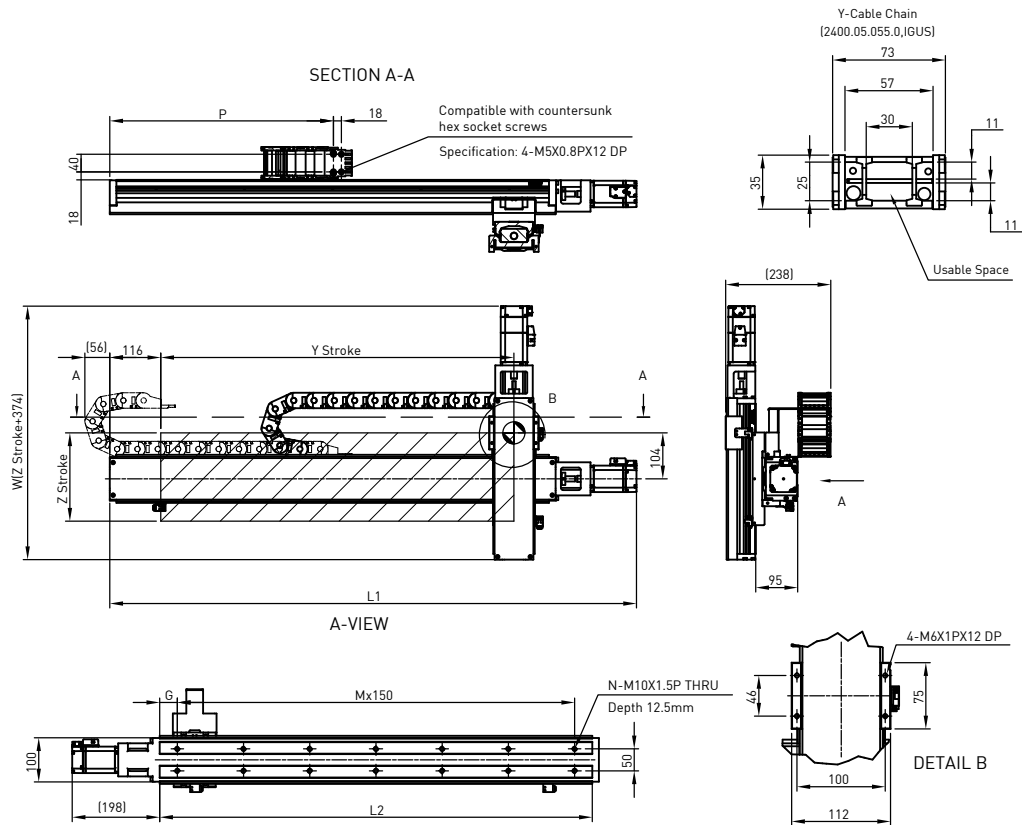


* 1: Maximum speed is based on a motor speed of 3000 rpm.

- Assembly orientation



HRCR-KKXX1086-T2 Cross type (Wall-mounted)



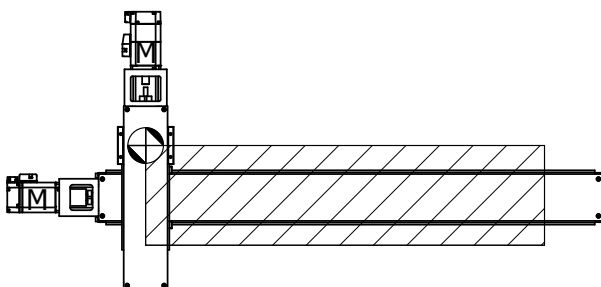
Unit:mm

Item	Y axis	Z axis	Y axis effective stroke	300	400	500	600	700	800	900	1000	1100	1200		
Series specification	KK100	KK86D	L1	693	793	893	993	1093	1193	1293	1393	1493	1593		
			L2	480	580	680	780	880	980	1080	1180	1280	1380		
Repeatability(mm)	±0.01	±0.005	M	3	3	4	5	5	6	7	7	8	9		
Ballscrew outer dia. (mm)	20	15	N	8	8	10	12	12	14	16	16	18	20		
			G	15	65	40	15	65	40	15	65	40	15		
Ballscrew lead(mm)	20	10	P	257	307	357	407	457	507	557	607	657	707		
			Max. operating speed (mm/s)	1000						886	729	611	519	447	
Max. speed(mm/s)*1	1000	500	Z axis effective stroke	200		300		400		500		600		700	
Standard stroke (in 100 mm interval)	300~1200	200~700	W	526		626		726		826		926		1026	
AC servo motor power (W)	400	400 with brake	H	104											
			Max. operating speed (mm/s)	500										436	
Operating environment	0°C~50°C , Humidity: 35~80% (non-condensing)		Max. load capacity (kg)	30											

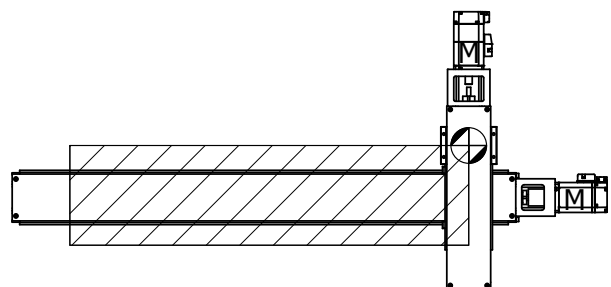
* 1: Maximum speed is based on a motor speed of 3000 rpm.

● Assembly orientation

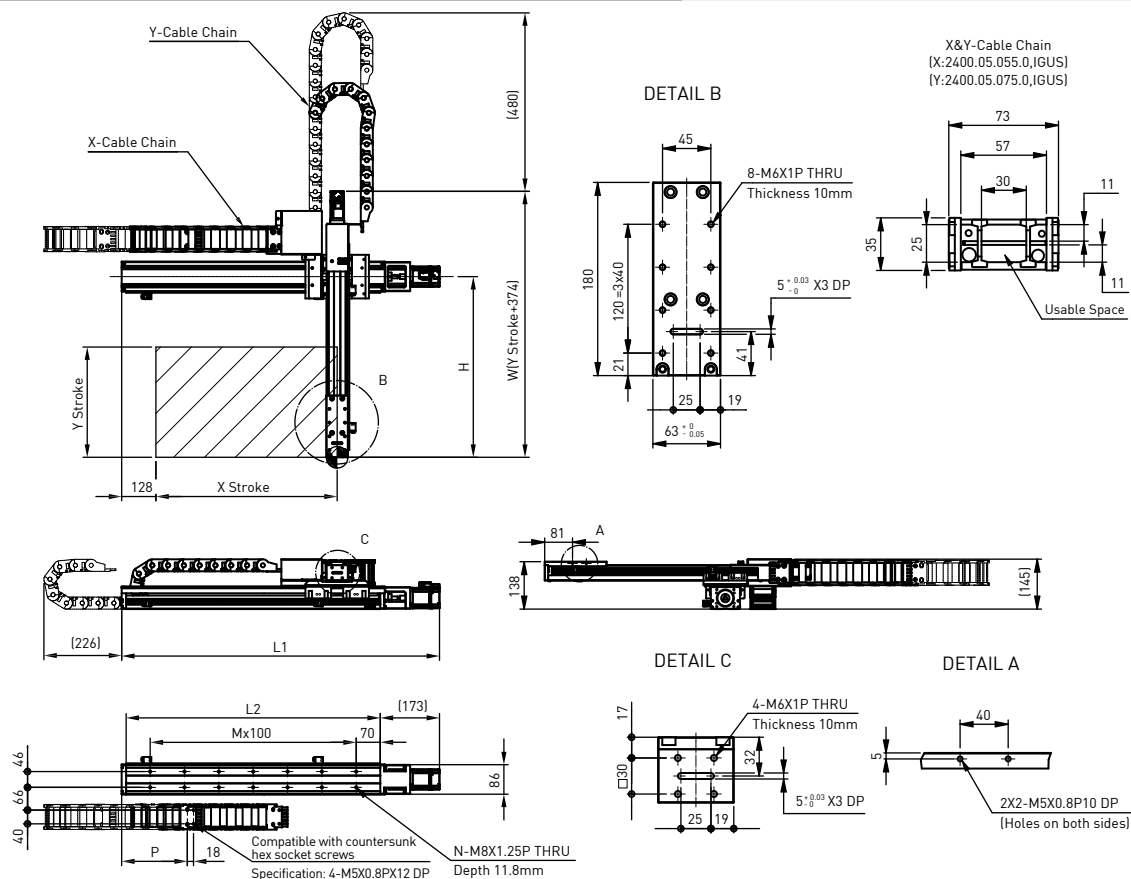
1



2



HRCR-KK8660XX-T3 Moving arm type (Horizontal)



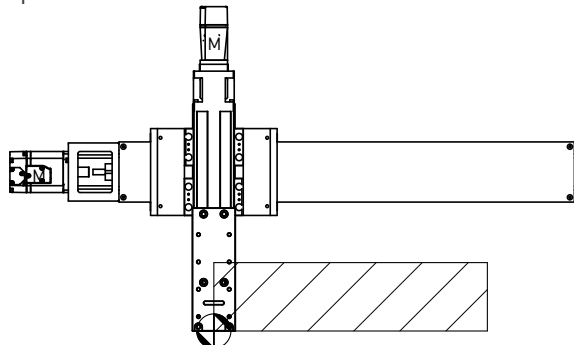
Unit:mm

Item	X axis	Y axis	X axis effective stroke	100	200	300	400	500	600	700	800	900	1000
Series specification	KK86D	KK60D	L1	526	626	726	826	926	1026	1126	1226	1326	1426
Repeatability(mm)	±0.005	±0.005	L2	340	440	540	640	740	840	940	1040	1140	1240
Ball screw outer dia. (mm)	15	12	M	2	3	4	5	6	7	8	9	10	11
			N	6	8	10	12	14	16	18	20	22	24
			P	41	91	91	141	191	241	291	341	391	441
Ball screw lead(mm)	20	5	Max. operating speed (mm/s)	1000					875	699	571	475	402
Max. speed(mm/s)*1	1000	250	Y axis effective stroke	100		200		300		400			
Standard stroke (in 100 mm interval)	100~1000	100~400	W	474		574		674		774			
AC servo motor power (W)	200	100	H	226		326		426		526			
			Max. operating speed (mm/s)	250									
Operating environment	0℃~50℃ , Humidity: 35~80% (non-condensing)		Max. load capacity (kg)	11		7		4		2			

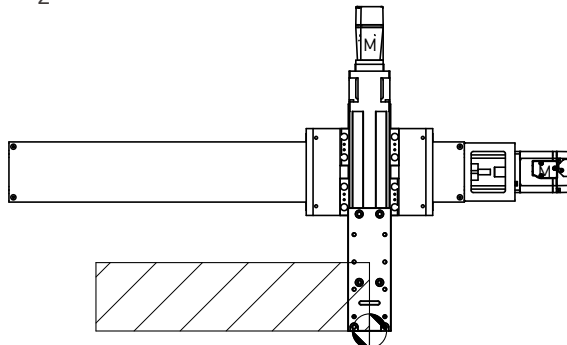
* 1: Maximum speed is based on a motor speed of 3000 rpm.

● Assembly orientation

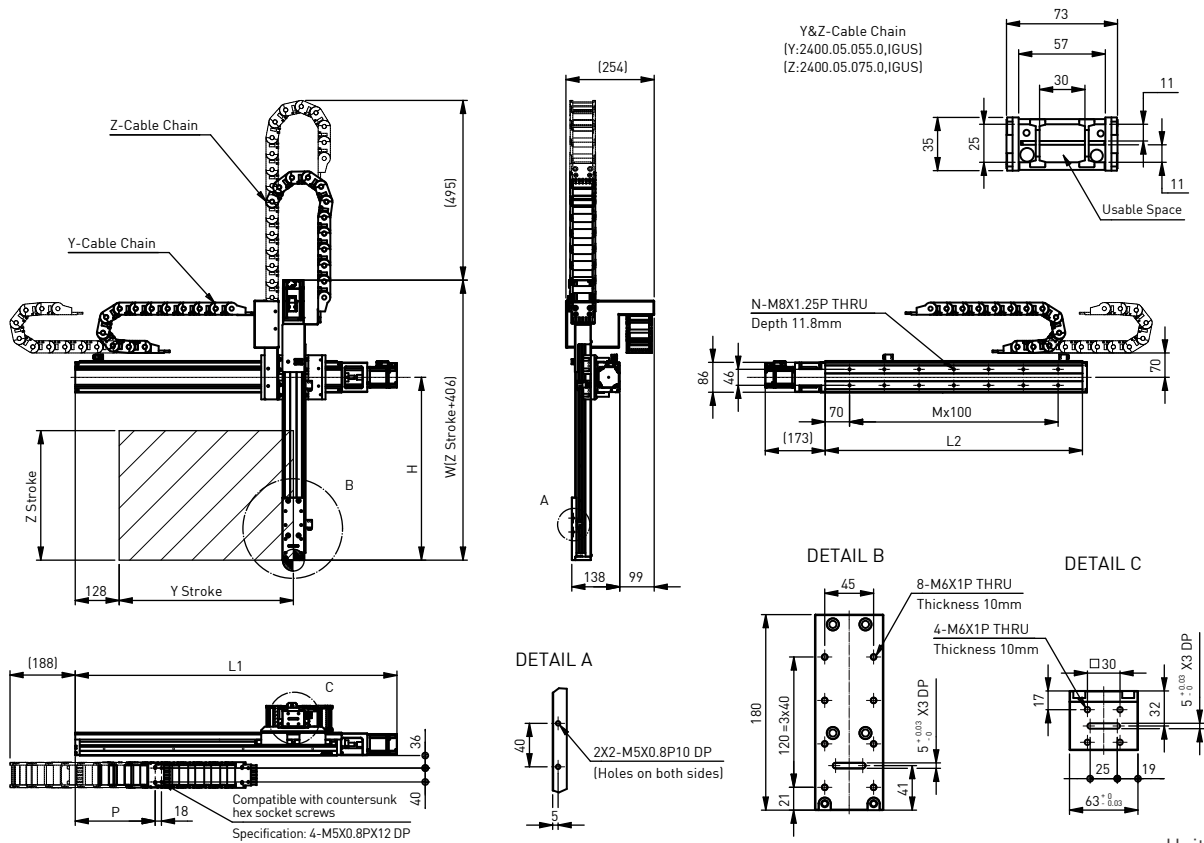
1



2



HRCR-KKXX8660-T3 Moving arm type (Wall-mounted)

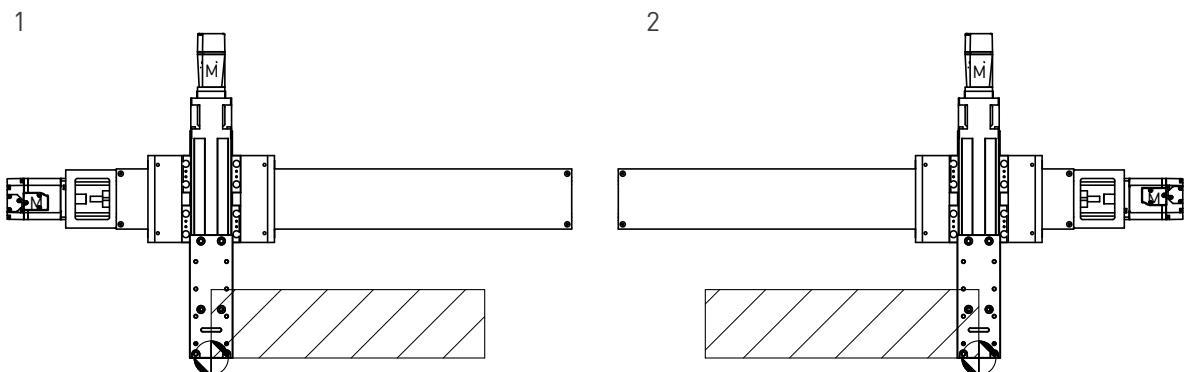


Unit:mm

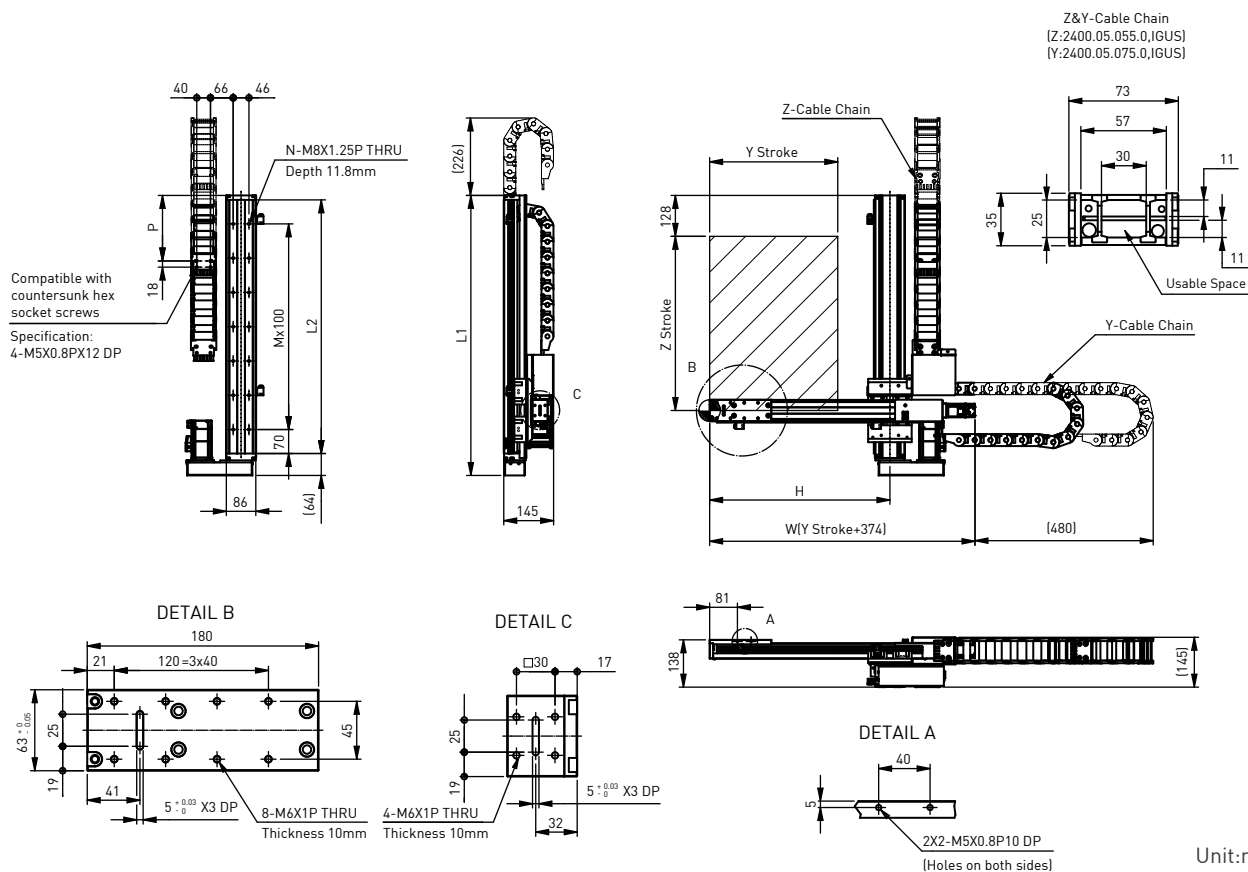
Item	Y axis	Z axis	Y axis effective stroke	100	200	300	400	500	600	700	800	900	1000
Series specification	KK86D	KK60D	L1	526	626	726	826	926	1026	1126	1226	1326	1426
Repeatability(mm)	±0.005	±0.005	L2	340	440	540	640	740	840	940	1040	1140	1240
Ballscrew outer dia. (mm)	15	12	M	2	3	4	5	6	7	8	9	10	11
Ballscrew lead(mm)	20	5	N	6	8	10	12	14	16	18	20	22	24
Max. speed(mm/s)*1	1000	250	P	80	130	130	180	230	280	330	380	430	480
Standard stroke (in 100 mm interval)	100~1000	100~500	Max. operating speed (mm/s)	1000					875	699	571	475	402
AC servo motor power (W)	200	200 with brake	Z axis effective stroke	100	200	300	400	500					
Operating environment	0°C~50°C + Humidity: 35~80% (non-condensing)		W	474	574	674	774	874					
			H	226	326	426	526	626					
			Max. operating speed (mm/s)	250									245
			Max. load capacity (kg)	12	11	11	10	9					

* 1: Maximum speed is based on a motor speed of 3000 rpm.

Assembly orientation



HRCR-KKXX6086-T3 Moving arm type (Vertical)

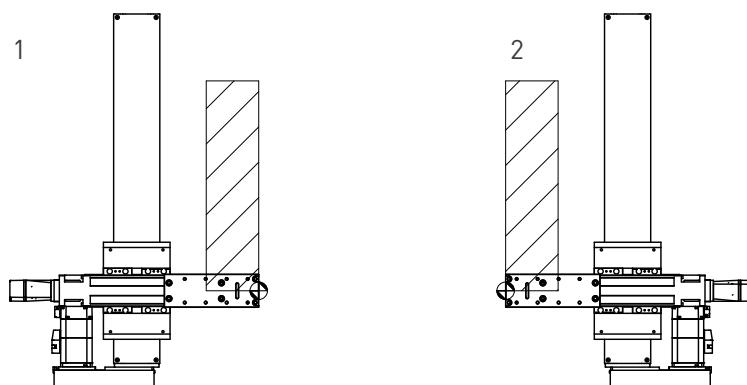


Unit:mm

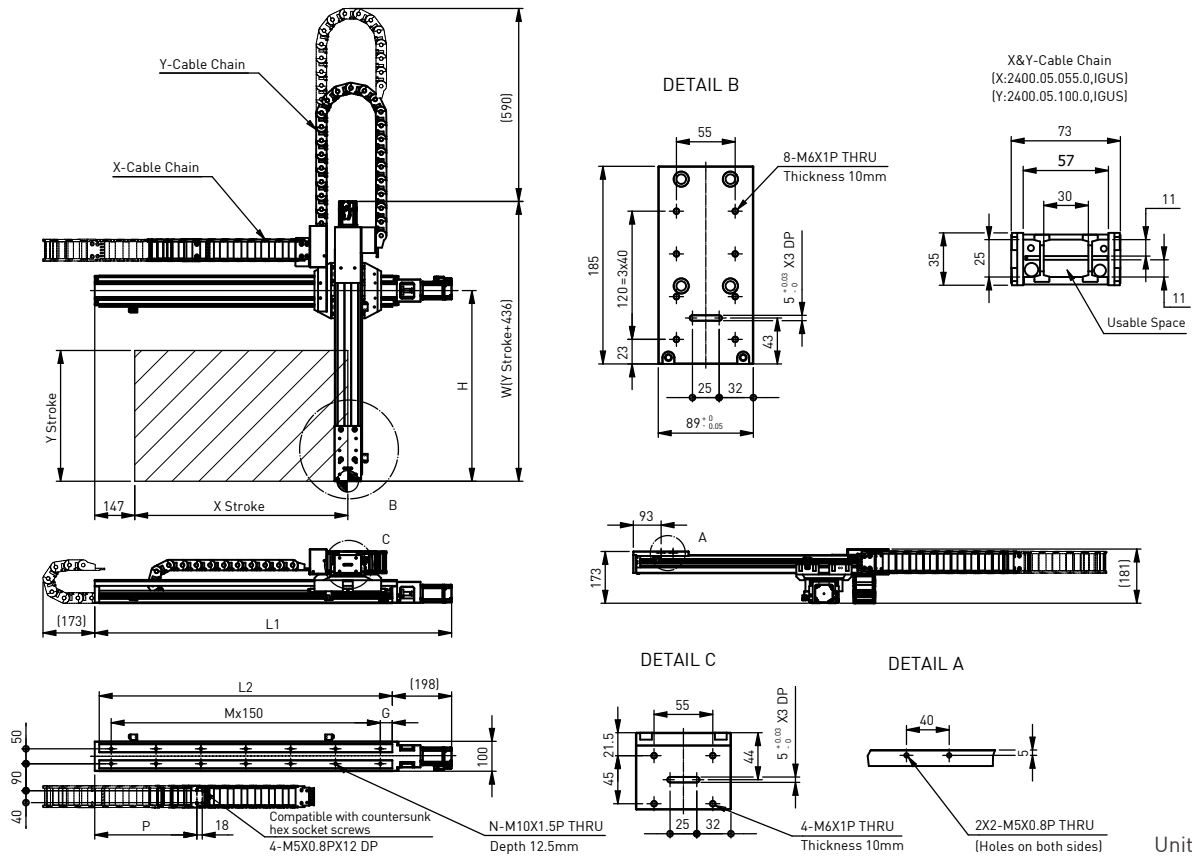
Item	Z axis	Y axis	Z axis effective stroke	100	200	300	400	500	600	700	800	900	1000
Series specification	KK86D	KK60D	L1	526	626	726	826	926	1026	1126	1226	1326	1426
			L2	340	440	540	640	740	840	940	1040	1140	1240
Repeatability(mm)	±0.005	±0.005	M	2	3	4	5	6	7	8	9	10	11
Ballscrew outer dia. (mm)	15	12	N	6	8	10	12	14	16	18	20	22	24
Ballscrew lead(mm)	10	5	P	41	91	91	141	191	241	291	341	391	441
Max. operating speed (mm/s)				500					436	348	285	237	200
Max. speed(mm/s)*1	500	250	Y axis effective stroke	100	200	300	400	500					
Standard stroke (in 100 mm interval)	100~1000	100~500	W	474	574	674	774	874					
AC servo motor power (W)	200 with brake	100	H	226	326	426	526	626					
Operating environment	0°C~50°C · Humidity: 35~80% (non-condensing)		Max. operating speed (mm/s)	250								245	
			Max. load capacity (kg)	13	12	10	9	9					

* 1: Maximum speed is based on a motor speed of 3000 rpm.

● Assembly orientation



HRCR-KK1086XX-T3 Moving arm type (Horizontal)

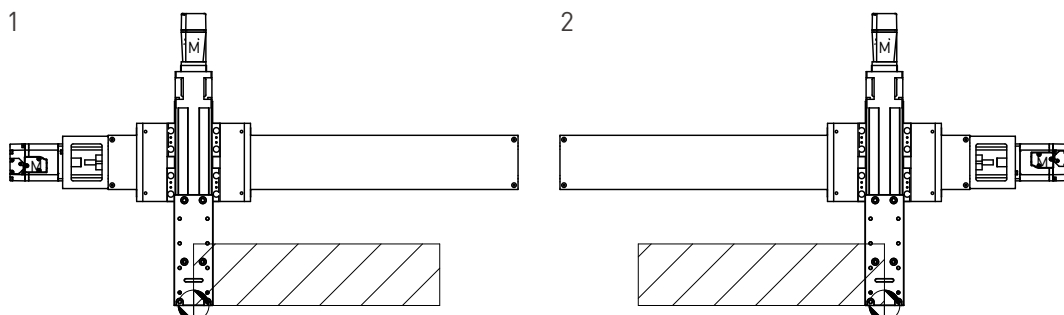


Unit:mm

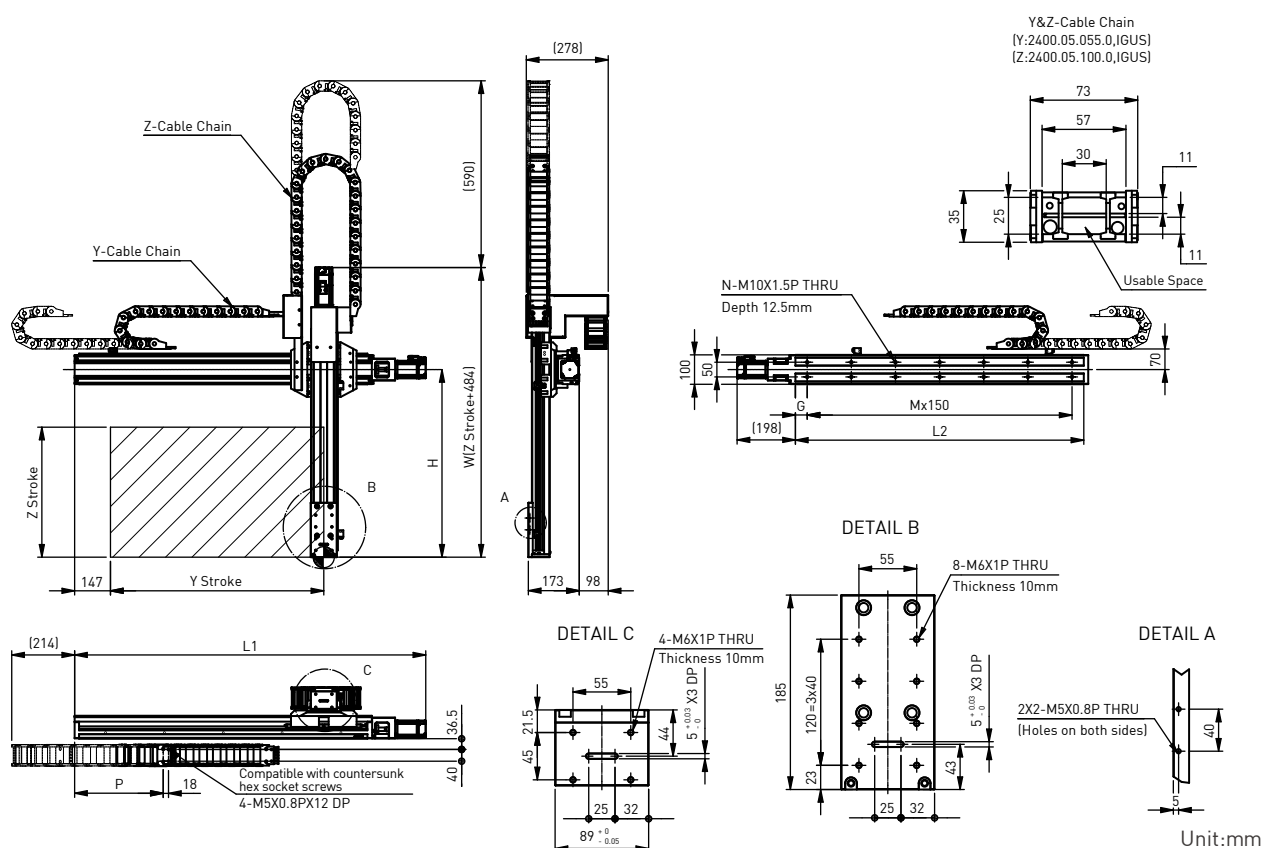
Item	X axis	Y axis	X axis effective stroke	150	250	350	450	550	650	750	850	950	1050
Series specification	KK100	KK86D	L1	693	793	893	993	1093	1193	1293	1393	1493	1593
			L2	480	580	680	780	880	980	1080	1180	1280	1380
Repeatability(mm)	±0.01	±0.005	M	3	3	4	5	5	6	7	7	8	9
Ballscrew outer dia. (mm)	20	15	N	8	8	10	12	12	14	16	16	18	20
			G	15	65	40	15	65	40	15	65	40	15
Ballscrew lead(mm)	20	10	P	141	141	191	241	291	341	391	441	491	541
			Max. operating speed (mm/s)	1000						886	729	611	519
Max. speed(mm/s)*1	1000	500	Y axis effective stroke	100		200		300		400			
Standard stroke (in 100 mm interval)	150~1050	100~400	W	536		636		736		836			
AC servo motor power (W)	400	200	H	237		337		437		537			
			Max. operating speed (mm/s)	500									
Operating environment	0°C~50°C , Humidity: 35~80% (non-condensing)		Max. load capacity (kg)	25		21		13		7			

* 1: Maximum speed is based on a motor speed of 3000 rpm.

● Assembly orientation



HRCR-KKXX1086-T3 Moving arm type (Wall-mounted)



Item	Y axis	Z axis
Series specification	KK100	KK86D
Repeatability(mm)	±0.01	±0.005
Ballscrew outer dia. (mm)	20	15
Ballscrew lead(mm)	20	10
Max. speed(mm/s)*1	1000	500
Standard stroke (in 100 mm interval)	150~1050	100~600
AC servo motor power (W)	400	400 with brake
Operating environment	0°C~50°C · Humidity: 35~80% [non-condensing]	

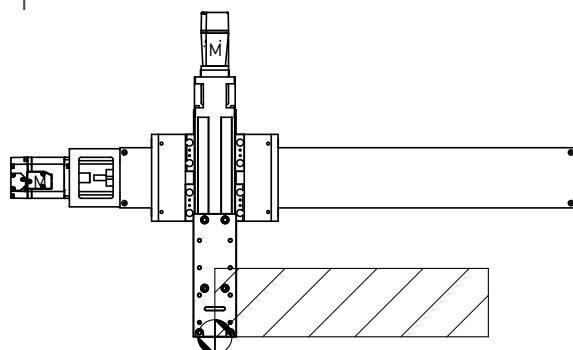
Y axis effective stroke	150	250	350	450	550	650	750	850	950	1050
L1	693	793	893	993	1093	1193	1293	1393	1493	1593
L2	480	580	680	780	880	980	1080	1180	1280	1380
M	3	3	4	5	5	6	7	7	8	9
N	8	8	10	12	12	14	16	16	18	20
G	15	65	40	15	65	40	15	65	40	15
P	101	101	151	201	251	301	351	401	451	501
Max. operating speed (mm/s)	1000					886	729	611	519	447

Z axis effective stroke	100	200	300	400	500	600
W	584	684	784	884	984	1084
H	237	337	437	537	637	737
Max. operating speed (mm/s)	500					436
Max. load capacity (kg)	25	24	24	23	22	21

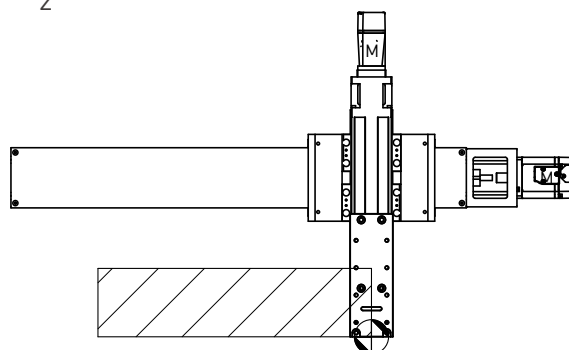
* 1: Maximum speed is based on a motor speed of 3000 rpm.

● Assembly orientation

1



2



DETAIL C

4-M6X1P THRU
Thickness 10mm

45 21.5

55

32 25

44

5 ± 0.03 X3 DP

DETAIL B

5 ± 0.03 X3 DP

43

8-M6X1P THRU
Thickness 10mm

89 ± 0.05

32 25

23

120

185

55

DETAIL A

40 90 50

18

P

Mx150

L2

L1

173

6

100

67

Compatible with countersunk hex socket screws
4-M5X0.8PX12 DP

N-M10X1.5P THRU
Depth 12.5mm

Z&Y-Cable Chain
(Z:2400.05.055.0,IGUS)
(Y:2400.05.100.0,IGUS)

73

57

30

35

25

11

11

Usable Space

Z-Cable Chain

Y-Cable Chain

Y Stroke

147

Z Stroke

173

B

H

W(Y Stroke+436)

590

93

A

173

181

2X2-M5X0.8PX12 THRU
(Holes on both sides)

40

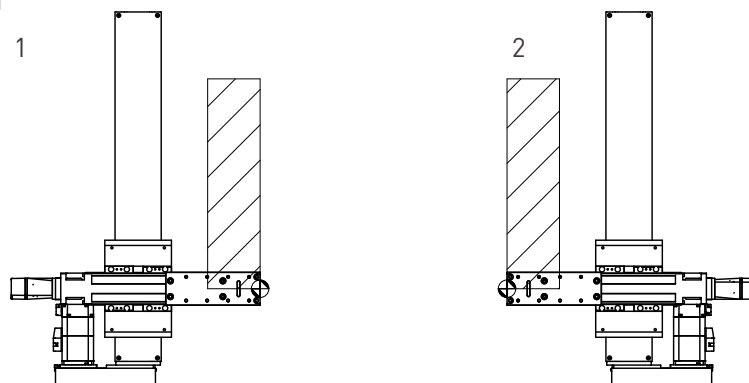
5

Un

Unit:mm

Item	Z axis	Y axis	Z axis effective stroke	150	250	350	450	550	650	750	850	950	1050	
Series specification	KK100	KK86D	L1	693	793	893	993	1093	1193	1293	1393	1493	1593	
Repeatability(mm)	±0.01	±0.005	L2	480	580	680	780	880	980	1080	1180	1280	1380	
Ballscrew outer dia. (mm)	20	15	M	3	3	4	5	5	6	7	7	8	9	
			N	8	8	10	12	12	14	16	16	18	20	
			G	15	65	40	15	65	40	15	65	40	15	
Ballscrew lead(mm)	10	10	P	141	141	191	241	291	341	391	441	491	541	
			Max. operating speed (mm/s)	500						414	341	286	243	209
Max. speed(mm/s)*1	500	500	Y axis effective stroke	100		200		300		400		500		600
Standard stroke (in 100 mm interval)	150~1050	100~600	W	536		636		736		836		936		1036
AC servo motor power (W)	400 with brake	200	H	237		337		437		537		637		737
			Max. operating speed (mm/s)	500										
Operating environment	0℃~50℃ , Humidity: 35~80% (non-condensing)		Max. load capacity (kg)	17		15		14		13		12		10

- Assembly orientation

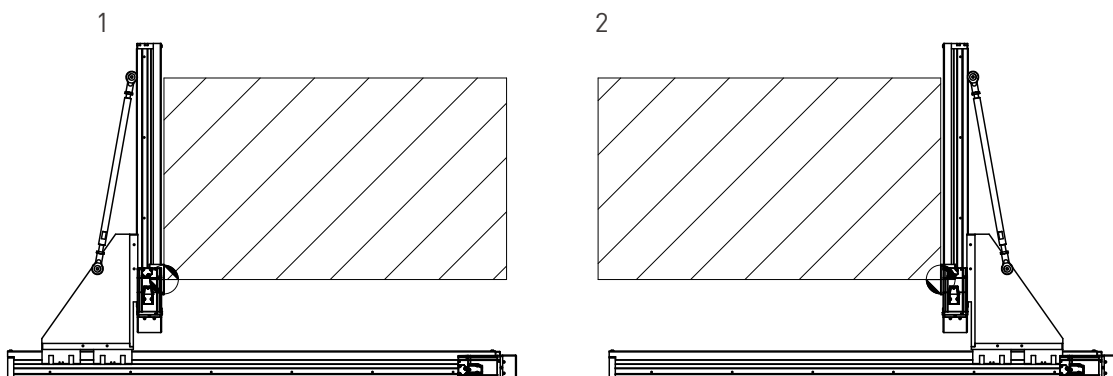


HRCR-KK86XX60-T4 Polar type

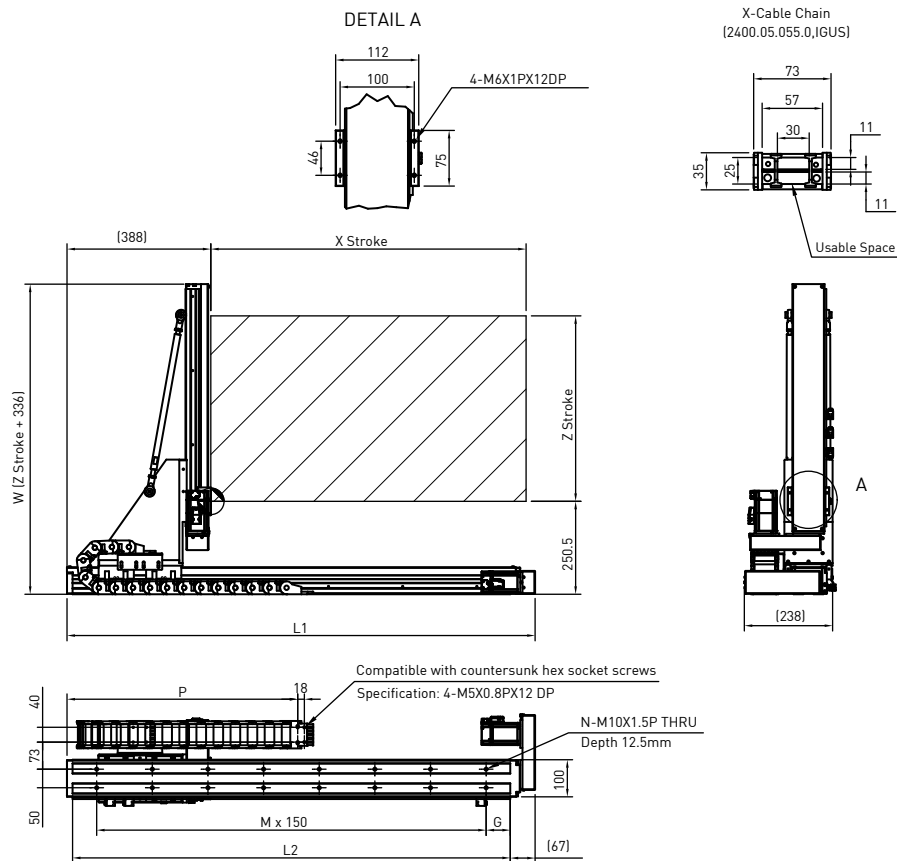


* 1: Maximum speed is based on a motor speed of 3000 rpm.

- Assembly orientation



HRCR-KK10XX86-T4 Polar type

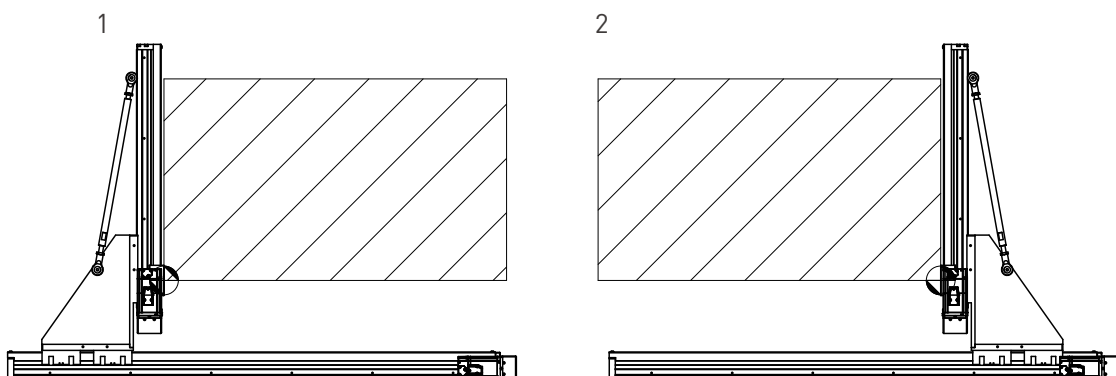


Unit:mm

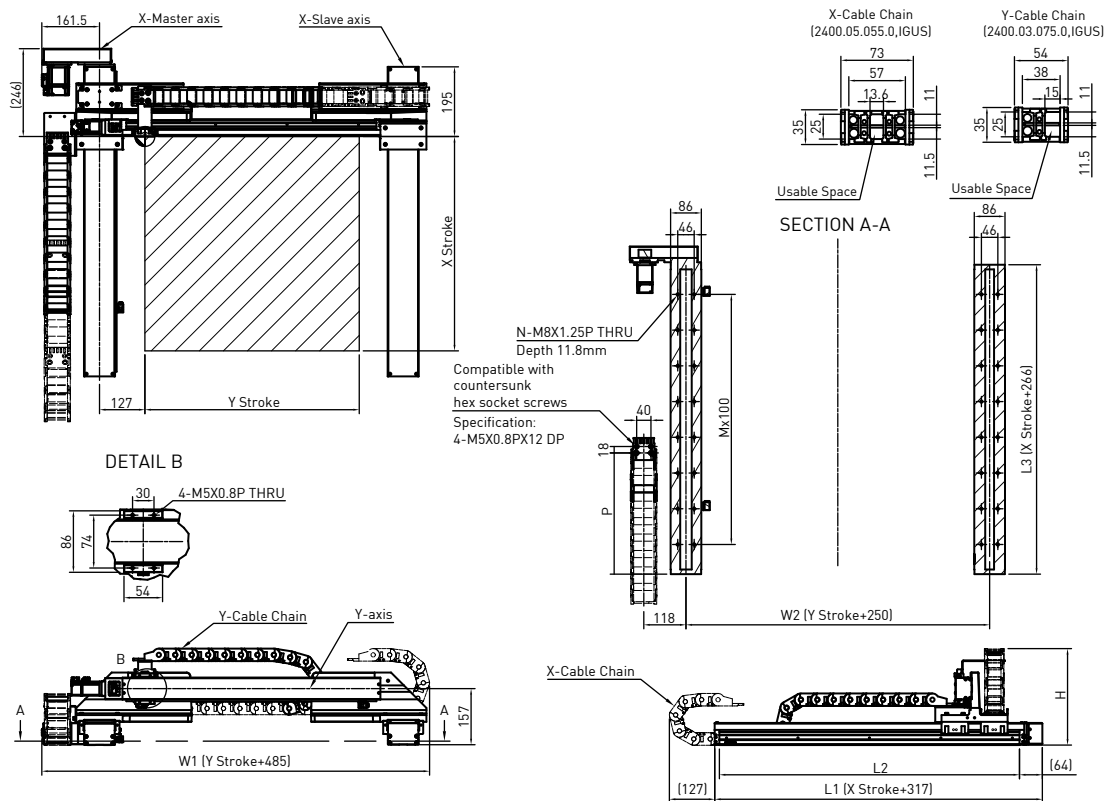
Item	X axis	Z axis	X axis effective stroke	150	250	350	450	550	650	750	850	950	1050
Series specification	KK100	KK86D	L1	562	662	762	862	962	1062	1162	1262	1362	1462
Repeatability(mm)	±0.01	±0.005	L2	480	580	680	780	880	980	1080	1180	1280	1380
Ballscrew outer dia. (mm)	20	15	M	3	3	4	5	5	6	7	7	8	9
Ballscrew lead(mm)	10	10	N	8	8	10	12	12	14	16	16	18	20
Max. speed(mm/s)*1	500	500	G	15	65	40	15	65	40	15	65	40	15
Standard stroke (in 100 mm interval)	150~1050	200~1100	P	350	350	400	450	500	550	600	650	700	750
AC servo motor power (W)	400	200 with brake	Max. operating speed (mm/s)	500					414	341	286	243	209
Operating environment	0°C~50°C · Humidity: 35~80% (non-condensing)		Z axis effective stroke	200	300	400	500	600	700	800	900	1000	1100
			W	536	636	736	836	936	1036	1136	1236	1336	1436
			Max. operating speed (mm/s)	500					436	348	285	237	200
			Max. load capacity (kg)	28									

* 1: Maximum speed is based on a motor speed of 3000 rpm.

● Assembly orientation



HRCR-KK8660XX-T5 Gantry type

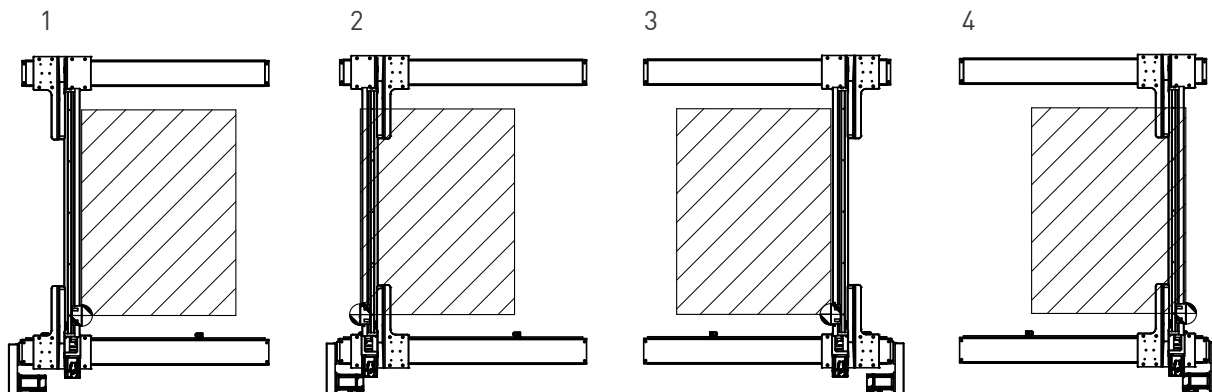


Unit:mm

Item	X axis	Y axis	X auxiliary axis	X axis effective stroke	100	200	300	400	500	600	700	800	900	1000
Series specification	KK86D	KK60D	KK86D	L1	417	517	617	717	817	917	1017	1117	1217	1317
				L2	340	440	540	640	740	840	940	1040	1140	1240
Repeatability(mm)	±0.005	±0.005	N/A	L3	366	466	566	666	766	866	966	1066	1166	1266
Ballscrew outer dia. (mm)	15	12		M	2	3	4	5	6	7	8	9	10	11
				N	6	8	10	12	14	16	18	20	22	24
Ballscrew lead(mm)	20	10		P	90	140	190	240	290	340	390	440	490	540
Max. speed(mm/s)*1	1000	500		Max. operating speed (mm/s)	1000						875	941	571	475
				Y axis effective stroke	500					600				
Standard stroke (in 100 mm interval)	100~1000	500~600	100~1000	W1	985					1085				
				W2	750					850				
AC servo motor power (W)	200	100	N/A	Max. operating speed (mm/s)	500					489				
Operating environment	0℃~50℃ , Humidity: 35~80% (non-condensing)			H	270									
				Max. load capacity (kg)	20					20				

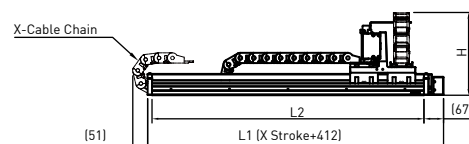
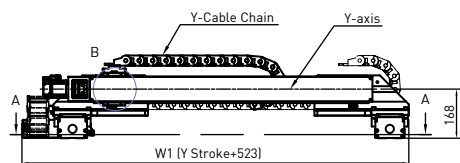
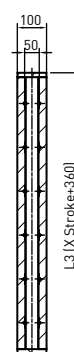
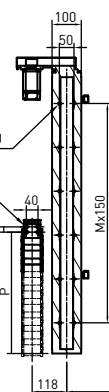
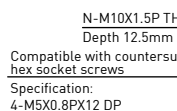
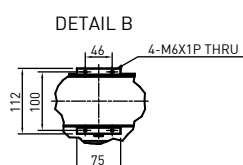
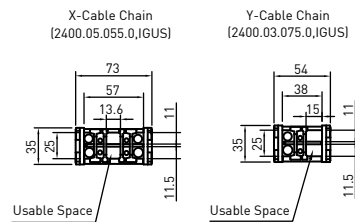
* 1: Maximum speed is based on a motor speed of 3000 rpm.

- Assembly orientation



Technical drawing of the X-Y-Z stage showing dimensions and axis labels:

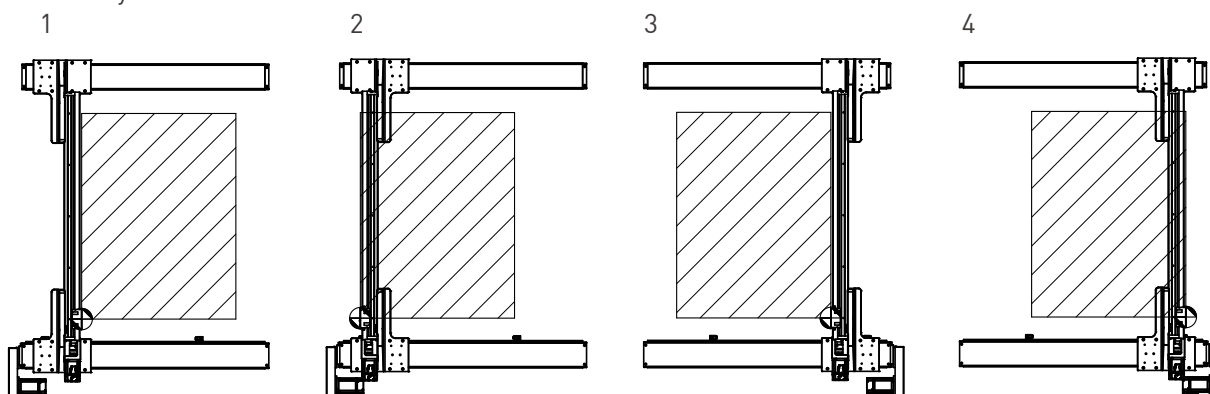
- Dimensions:**
 - 173 (mm)
 - 284 (mm)
 - 143 (mm)
 - 232 (mm)
- Axis Labels:**
 - X-Master axis
 - X-Slave axis
 - X Stroke
 - Y Stroke



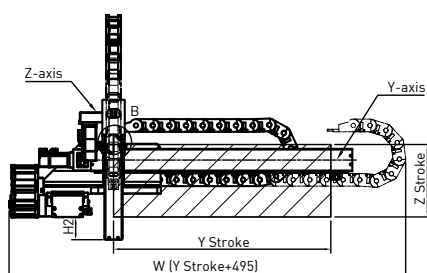
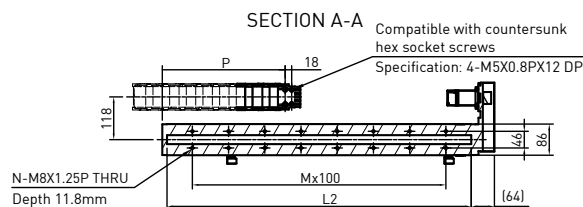
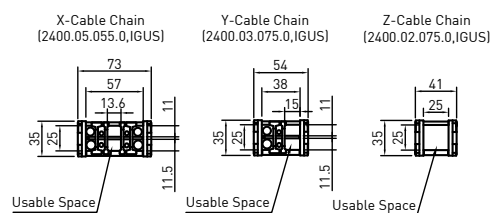
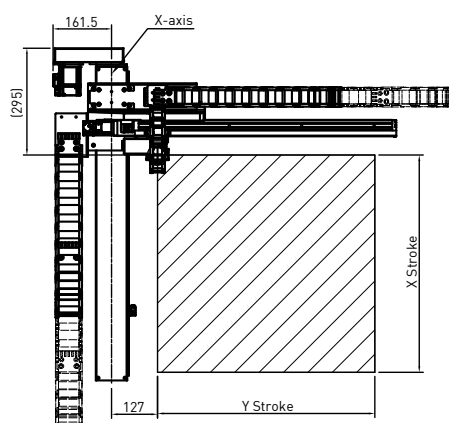
Item	X axis	Y axis	X auxiliary axis	X auxiliary power shaft (with gantry control)
Series specification	KK100	KK86D	KK100	KK100
Repeatability(mm)	±0.01	±0.005	N/A	±0.01
Ballscrew outer dia. (mm)	20	15		20
Ballscrew lead(mm)	20	20		20
Max. speed(mm/s)*1	1000	1000		1000
Standard stroke (in 100 mm interval)	150~1050	500~1000	150~1050	150~1050
AC servo motor power (W)	400	200	N/A	400
Operating environment	0°C~50°C , Humidity: 35~80% (non-condensing)			

X axis effective stroke	150	250	350	450	550	650	750	850	950	1050		
L1	562	662	762	862	962	1062	1162	1262	1362	1462		
L2	480	580	680	780	880	980	1080	1180	1280	1380		
L3	510	610	710	810	910	1010	1110	1210	1310	1410		
M	3	3	4	5	5	6	7	7	8	9		
N	8	8	10	12	12	14	16	16	18	20		
P	190	240	290	340	390	440	490	540	590	640		
Max. operating speed (mm/s)	1000					886	729	611	519	447		
Y axis effective stroke	500		600		*700		*800		*900		*1000	
W1	1023		1123		1223		1323		1423		1523	
W2	785		885		985		1085		1185		1285	
Max. operating speed (mm/s)	1000				875		941		571		475	
H	283											
Max. load capacity (kg)	32		31		30		29		27		24	

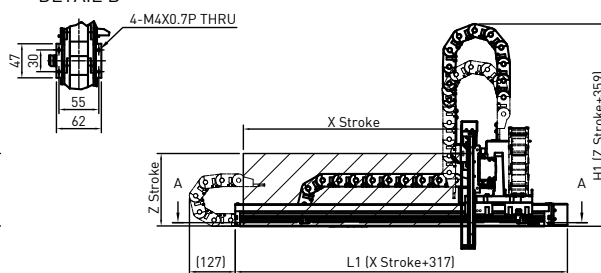
- Assembly orientation



HRCR-KK866050-T6 Cantilever type



DETAIL B



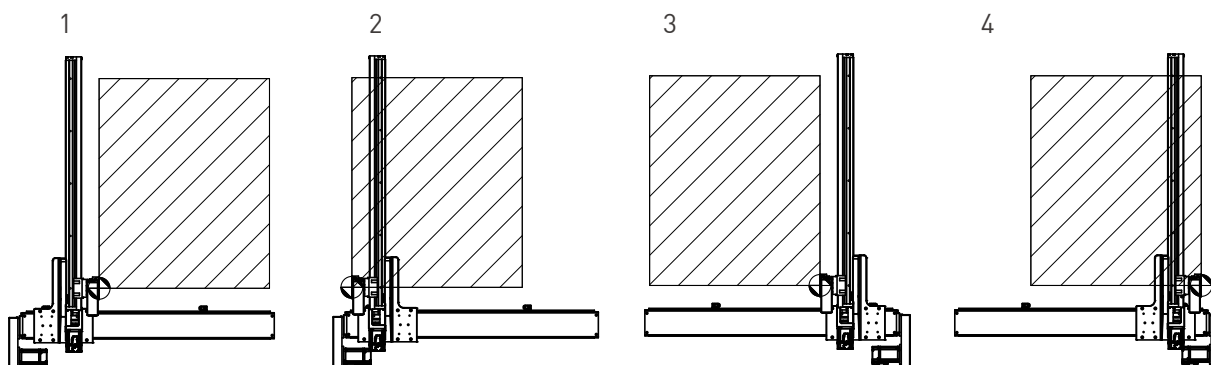
Unit:mm

Item	X axis	Y axis	Z axis
Series specification	KK86D	KK60D	KK50
Repeatability(mm)	±0.005	±0.005	±0.005
Ballscrew outer dia. (mm)	15	12	8
Ballscrew lead(mm)	20	10	5
Max. speed(mm/s)*1	1000	500	250
Standard stroke (in 100 mm interval)	100~1000	50~400	100~200
AC servo motor power (W)	200	100	50 with brake
Operating environment	0°C~50°C , Humidity: 35~80% (non-condensing)		

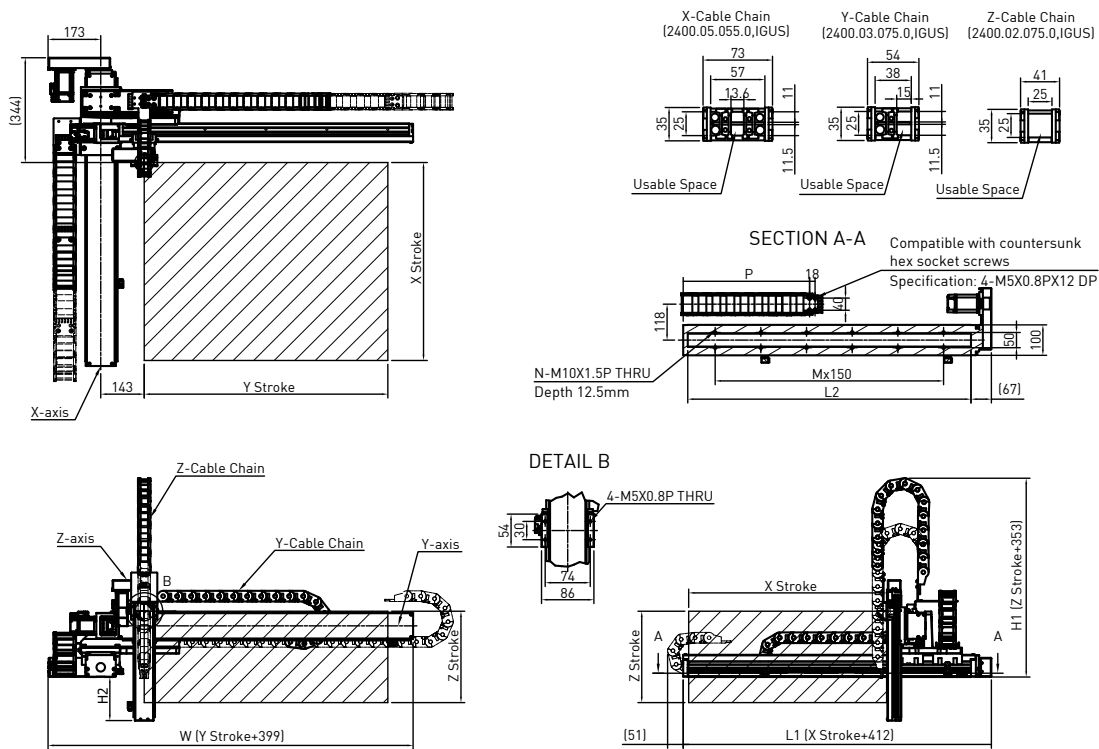
X axis effective stroke	100	200	300	400	500	600	700	800	900	1000
L1	417	517	617	717	817	917	1017	1117	1217	1317
L2	340	440	540	640	740	840	940	1040	1140	1240
M	2	3	4	5	6	7	8	9	10	11
N	6	8	10	12	14	16	18	20	22	24
P	89	139	189	239	289	339	389	439	489	539
Max. operating speed (mm/s)	1000					875	941	571	475	402
Y axis effective stroke	100		200		300		400			
W	595		695		795		895			
Max. operating speed (mm/s)	500									
Z axis effective stroke	100			150			200			
H1	459			509			559			
H2	-38			12			62			
Max. operating speed (mm/s)	250									
Max. load capacity (kg)	6.5			6.5			6.5			

* 1: Maximum speed is based on a motor speed of 3000 rpm.

● Assembly orientation



HRCR-KK108660-T6 Cantilever type



Unit:mm

Item	X axis	Y axis	Z axis
Series specification	KK100	KK86D	KK60D
Repeatability(mm)	±0.01	±0.005	±0.005
Ballscrew outer dia. (mm)	20	15	12
Ballscrew lead(mm)	20	20	5
Max. speed(mm/s)*1	1000	1000	250
Standard stroke (in 100 mm interval)	150~1050	200~500	100~300
AC servo motor power (W)	400	200	100 with brake
Operating environment	0°C~50°C · Humidity: 35~80% (non-condensing)		

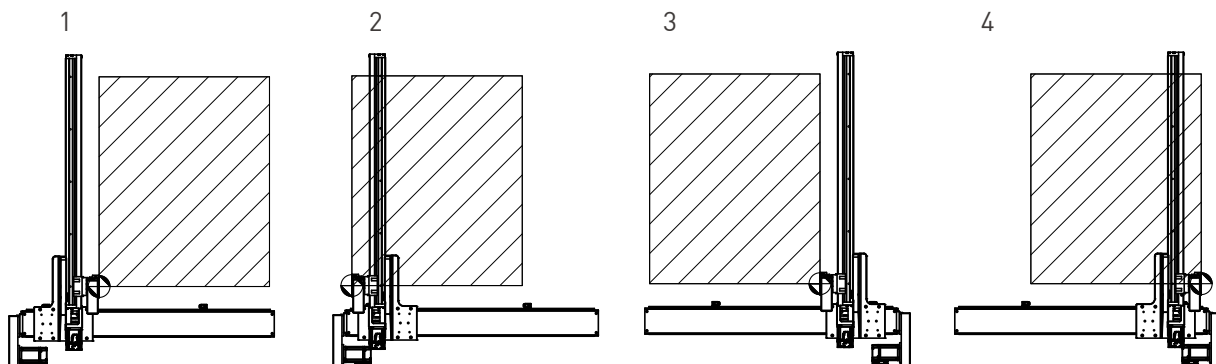
X axis effective stroke	150	250	350	450	550	650	750	850	950	1050
L1	562	662	762	862	962	1062	1162	1262	1362	1462
L2	480	580	680	780	880	980	1080	1180	1280	1380
M	3	3	4	5	5	6	7	7	8	9
N	8	8	10	12	12	14	16	16	18	20
P	190	240	290	340	390	440	490	540	590	640
Max. operating speed (mm/s)	1000			886			729	611	519	447

Y axis effective stroke	100	200	300	400	500
W	499	599	699	799	899
Max. operating speed (mm/s)	1000				

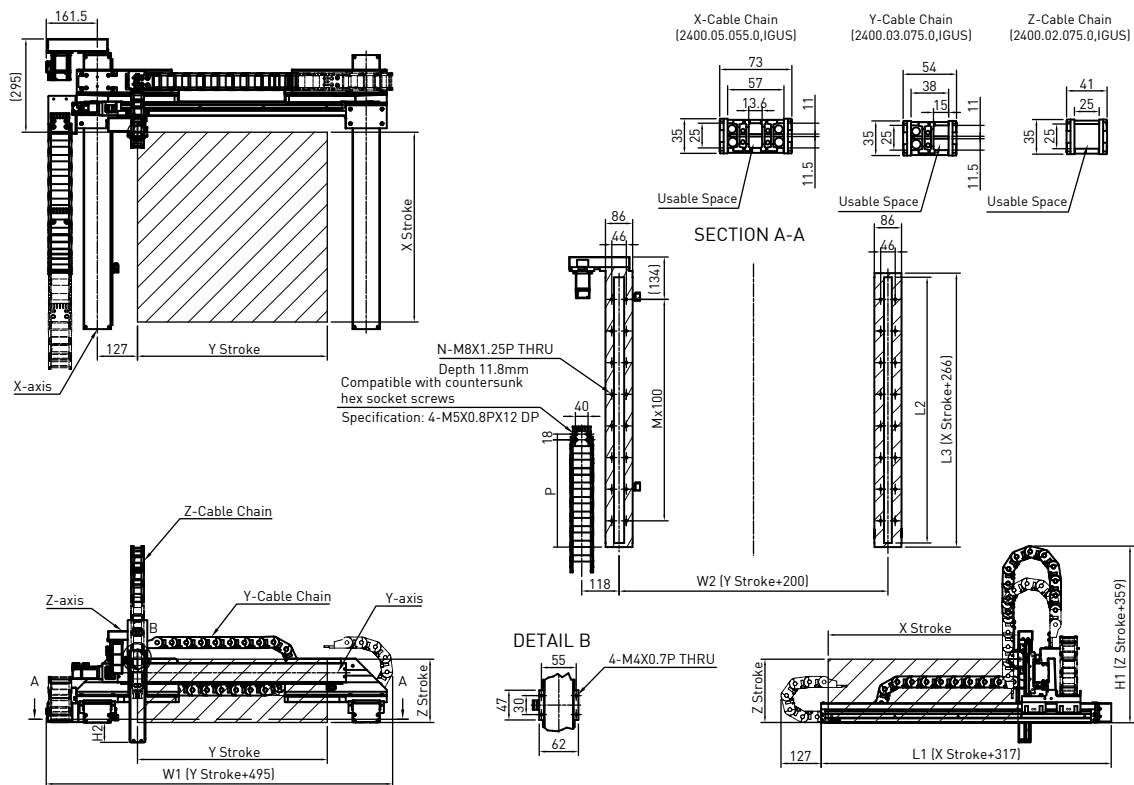
Z axis effective stroke	100	200	300
H1	453	553	653
H2	-57	43	143
Max. operating speed (mm/s)	250		
Max. load capacity (kg)	10	10	10

* 1: Maximum speed is based on a motor speed of 3000 rpm.

● Assembly orientation



HRCR-KK866050-T7 Gantry type



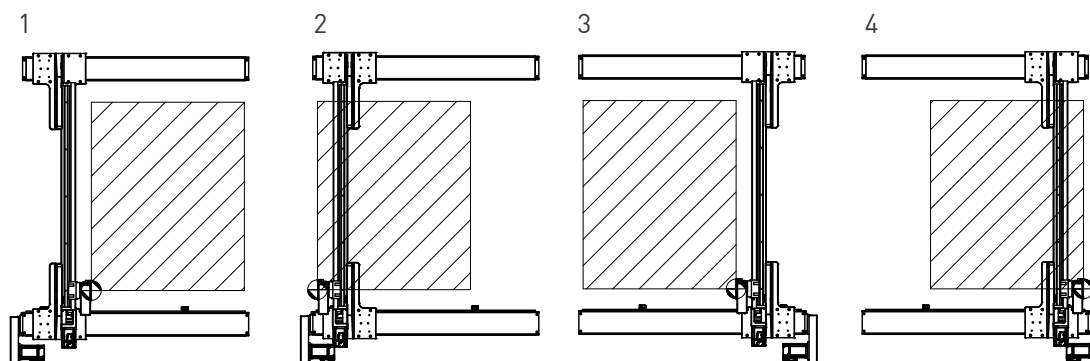
Unit:mm

Item	X axis	Y axis	Z axis	X auxiliary axis		
Series specification	KK86D	KK60D	KK50	KK86D		
	Repeatability(mm)	±0.005	±0.005	±0.005		
		Ball screw outer dia. (mm)	15	12	8	
			Ball screw lead(mm)	20	10	5
				Max. speed(mm/s)*1	1000	500
Standard stroke (in 100 mm interval)	100~1000		500~600	100~200	100~1000	
AC servo motor power (W)	200	100	50 with brake	N/A		
Operating environment	0℃~50℃ , Humidity: 35~80% (non-condensing)					

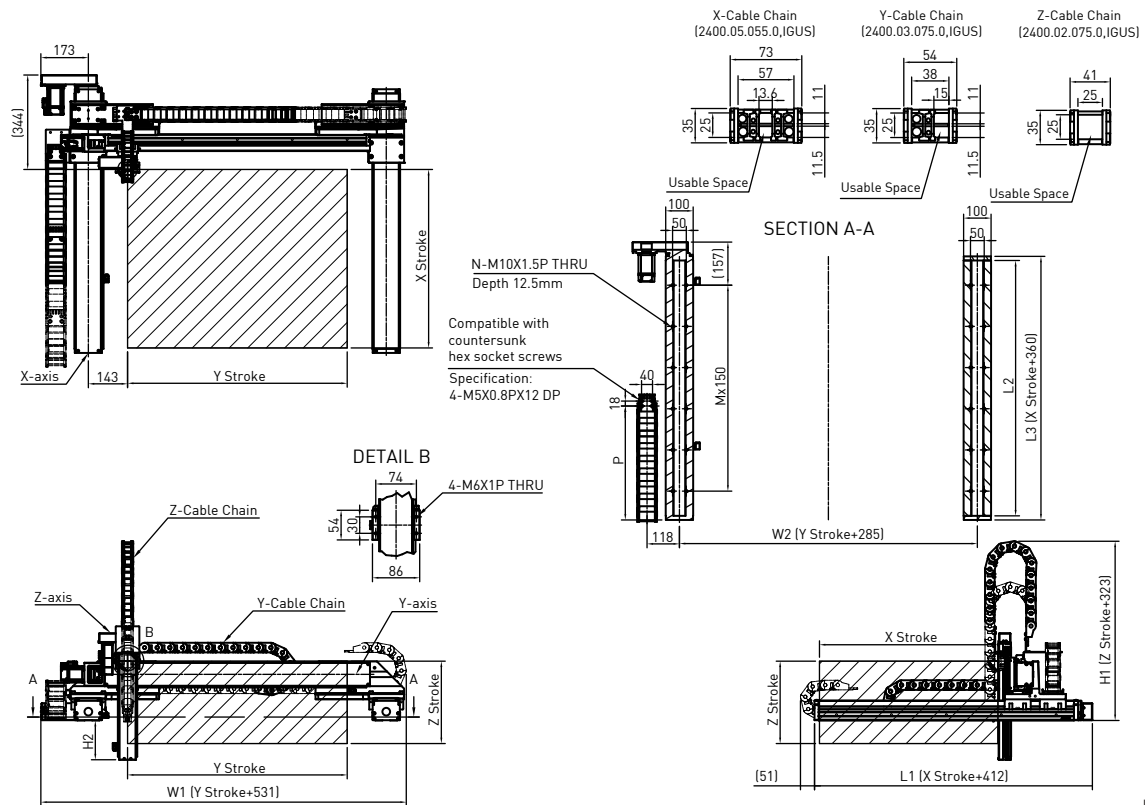
X axis effective stroke	100	200	300	400	500	600	700	800	900	1000
L1	417	517	617	717	817	917	1017	1117	1217	1317
L2	340	440	540	640	740	840	940	1040	1140	1240
L3	366	466	566	666	766	866	966	1066	1166	1266
M	2	3	4	5	6	7	8	9	10	11
N	6	8	10	12	14	16	18	20	22	24
P	89	139	189	239	289	339	389	439	489	539
Max. operating speed (mm/s)	1000					875	941	571	475	402
Y axis effective stroke	500					600				
W1	995					1095				
W2	700					800				
Max. operating speed (mm/s)	500					489				
Z axis effective stroke	100			150			200			
H1	459			509			559			
H2	-38			12			62			
Max. operating speed (mm/s)	250									
Max. load capacity (kg)	6.5			6.5			6.5			

* 1: Maximum speed is based on a motor speed of 3000 rpm.

● Assembly orientation



HRCR-KK108660-T7 Gantry type



Unit:mm

Item	X axis	Y axis	Z axis	X auxiliary axis	X auxiliary power shaft [with gantry control]
Series specification	KK100	KK86D	KK60D	KK100	KK100
Repeatability(mm)	±0.01	±0.005	±0.005	N/A	±0.01
Ballscrew outer dia. (mm)	20	15	12		20
Ballscrew lead(mm)	20	20	10		20
Max. speed(mm/s)*1	1000	1000	500		1000
Standard stroke (in 100 mm interval)	150~1050	500~1000	100~300	150~1050	150~1050
AC servo motor power (W)	400	200	100 with brake	N/A	400
Operating environment	0℃~50℃ , Humidity: 35~80% (non-condensing)				

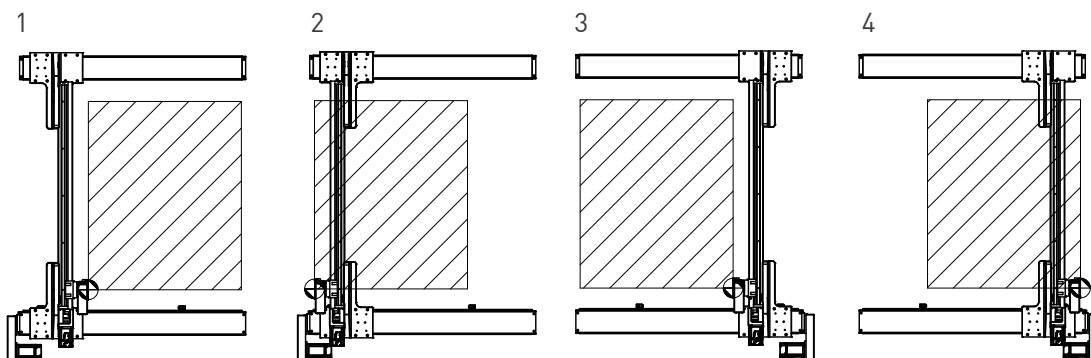
X axis effective stroke	150	250	350	450	550	650	750	850	950	1050
L1	562	662	762	862	962	1062	1162	1262	1362	1462
L2	480	580	680	780	880	980	1080	1180	1280	1380
L3	510	610	710	810	910	1010	1110	1210	1310	1410
M	3	3	4	5	5	6	7	7	8	9
N	8	8	10	12	12	14	16	16	18	20
P	190	240	290	340	390	440	490	540	590	640
Max. operating speed (mm/s)	1000					886	729	611	519	447

Y axis effective stroke	500	600	*700	*800	*900	*1000
W1	1030	1130	1230	1330	1430	1530
W2	785	885	985	1085	1185	1285
Max. operating speed (mm/s)	1000		875	941	571	475

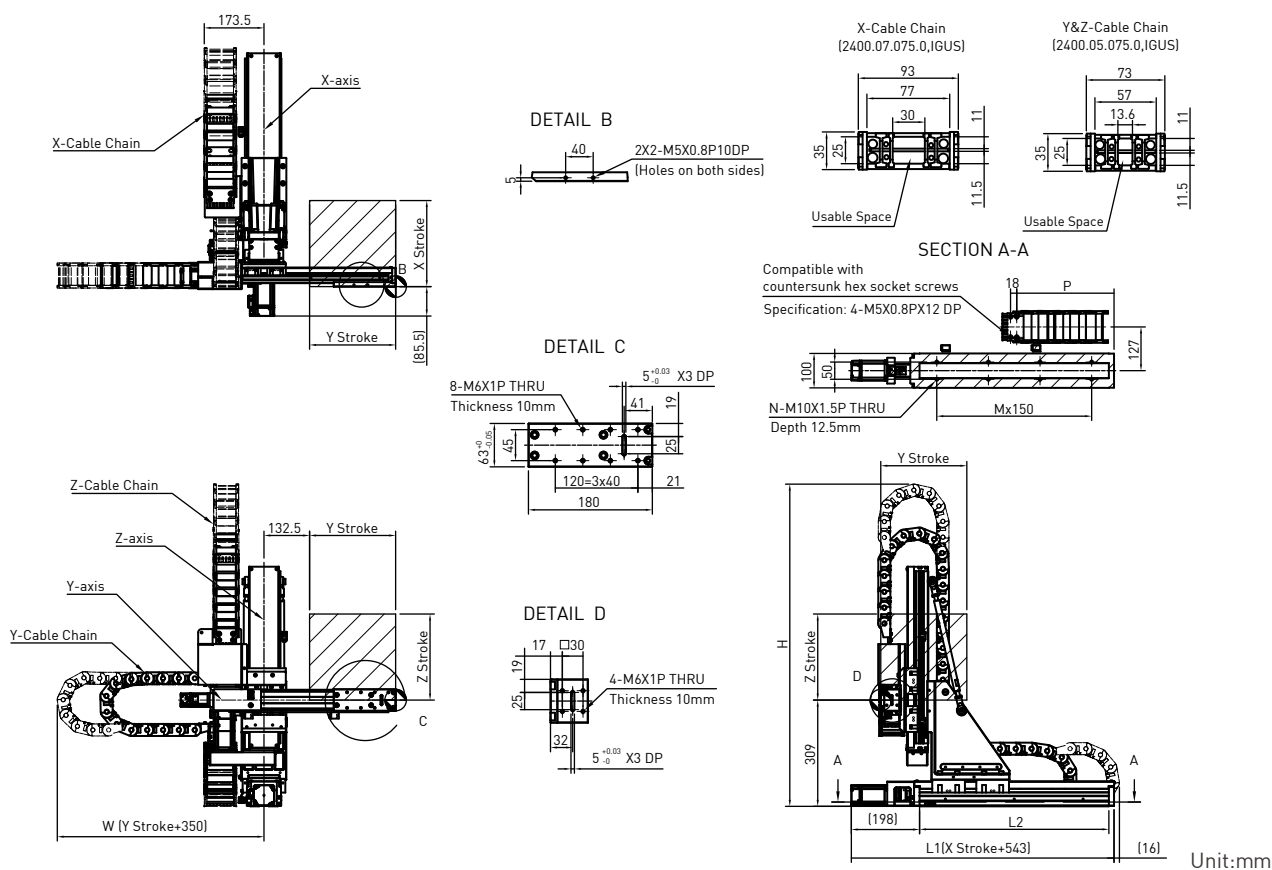
Z axis effective stroke	100	200	300
H1	423	523	623
H2	-57	43	143
Max. operating speed (mm/s)	500		
Max. load capacity [kg]	11	11	11

* 1: Maximum speed is based on a motor speed of 3000 rpm.

● Assembly orientation



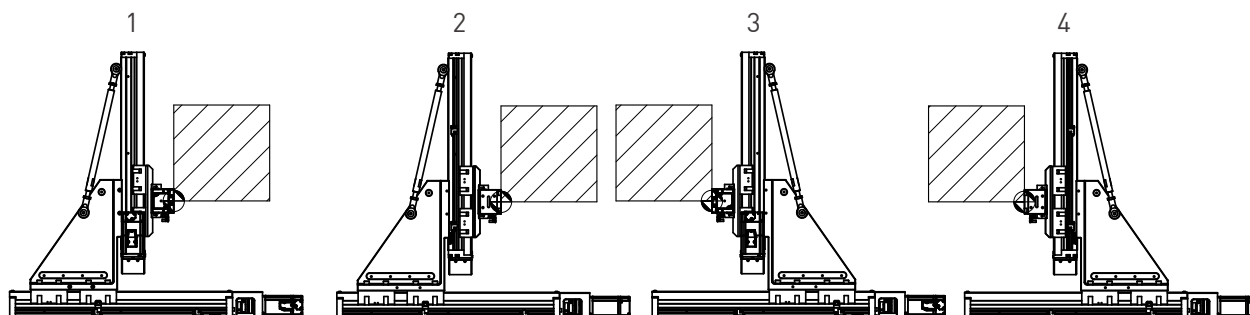
HRCR-KK106086-T8 Polar type



Item	X axis	Y axis	Z axis	X axis effective stroke	150	250	350	450	550	650	750	850	950	1050
Series specification	KK100	KK60D	KK86D	L1	693	793	893	993	1093	1193	1293	1393	1493	1593
				L2	480	580	680	780	880	980	1080	1180	1280	1380
Repeatability(mm)	±0.01	±0.005	±0.005	M	3	3	4	5	5	6	7	7	8	9
				N	8	8	10	12	12	14	16	16	18	20
Ballscrew outer dia. (mm)	20	12	15	P	248	298	348	398	448	498	548	598	648	698
				Max. operating speed (mm/s)	1000					886	729	611	519	447
Ballscrew lead(mm)	20	10	10	Y axis effective stroke	100		200		300		400			
				W	450		550		650		750			
Max. speed(mm/s)*1	1000	500	500	Max. operating speed (mm/s)	500									
Standard stroke (in 100 mm interval)	150~1050	100~400	100~1000	Max. load capacity (kg)	13		12		12		9			
AC servo motor power (W)	400	100	200 with brake	Z axis effective stroke	100	200	300	400	500	600	700	800	900	1000
				H	830	930	1030	1130	1230	1330	1430	1530	1630	1730
Operating environment	0℃~50℃， Humidity: 35~80% (non-condensing)			Max. operating speed (mm/s)	500					436	348	285	237	200

* 1: Maximum speed is based on a motor speed of 3000 rpm.

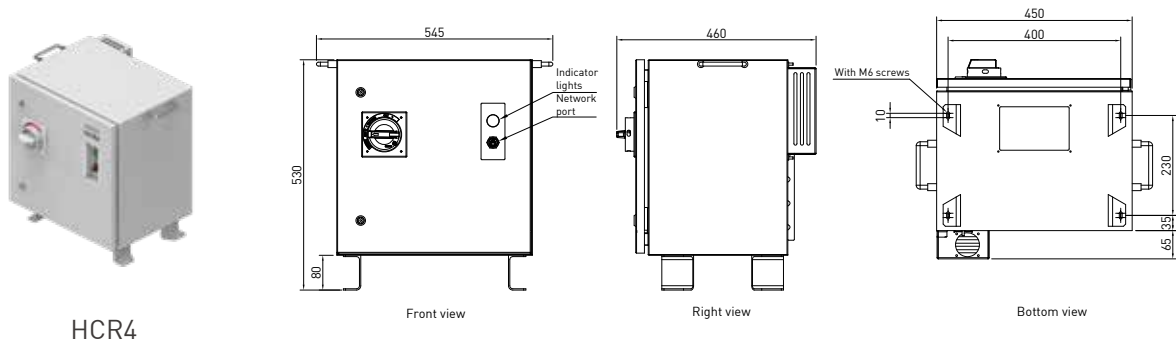
- Assembly orientation



Software • Hardware code /

Item	Abbreviation code	Full name / Description	HIWIN cartesian robot item
Software	HRSim	HIWIN robot simulation	Offline-simulation software
	HCR0S	HIWIN cartesian robot operation system	UI-user interface
Hardware	HCR4	HIWIN vartesian robot 4 axis controller	Controller-4 axis controller
	HRCR	HIWIN Robot Cartesian Robot	Machine-mechanism (KK series)

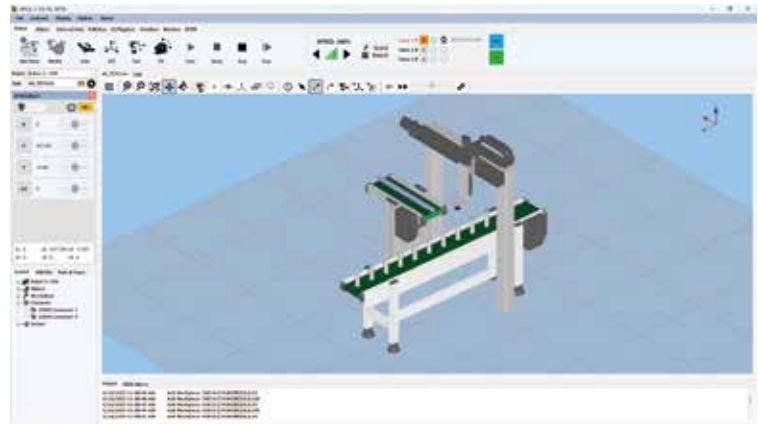
Controller /



Basic specifications	Compatible robot arm models		Cartesian robot
	Controller box dimensions		(W) 545mm x (H) 530mm x (D) 460mm
	Controller box weight		26kg
	AC control power supply	Input voltage range (VAC)	Single phase 220V AC +/-10%
		Power frequency (Hz)	50/60
Axis control	Number of controlled axes		4 axes
	Drive method		Servo control
	Pulse output method		Pulse 5Mpps
	Pulse output format		CW/CCW , AB phase , Pulse/DIR
	Control method		PTP motion (point to point), linear interpolation
	Coordinate system		Cartesian coordinates
	Position display unit		Pulses, mm (1/1000 steps), degree (1/1000 steps)
Programming	Programming language		HRSS
	Memory capacity	Number of teaching points	5000
		Number of program lines	10000
External input/output	SAFETY	Input	Dual loop
	External communication		Modbus RTU : 1CH
	Functional input / output		Input: 24 / Output: 24
	Digital input / output		Input: 8 / Output: 8
General specifications	Operating temperature		0 to 45°C
	Storage temperature		0 to 55°C
	Operating humidity		20 to 75% RH (Non-condensing)
	Protection rating (IP rating)		IP52

HRSim robot simulation software /

HRSim is the abbreviation for HIWIN Robot Simulation, an offline robot simulation software independently developed by HIWIN Technologies. According to the user's automation planning and design, 3D model files in the .stl format can be imported to construct a virtual working environment. As shown on the right image, conveyor belts, bottles, and bottle cap models are imported. Through motion simulation of



HRSim (Cartesian Robot)

the Cartesian robot and peripheral equipment, users can verify the robot's working stroke and interference issues. This provides users with a way to evaluate the benefits and feasibility of automation planning early in the project before building the actual machine.

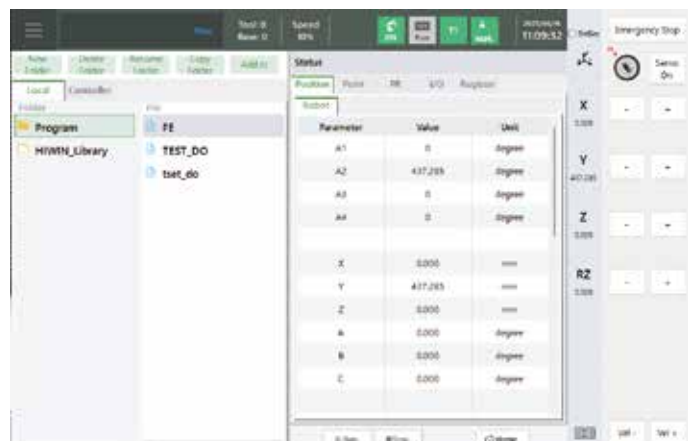
In addition to offline simulation and programming, HRSim can also load the simulated program into the HCR4 controller via HCROS, the real machine operation interface software. The robot's program files can be transmitted bi-directionally, which greatly reduces the time operators spend on site for teaching points. Beyond common loading/unloading and handling or assembly operations, it is especially suitable for applications requiring trajectory control such as gluing, cutting, and welding, effectively achieving seamless integration of virtual simulation and real-world operation.

HCROS user interface software /

HCROS, short for HIWIN Cartesian Robot Operation System, is the real machine operation interface software independently developed by HIWIN Technologies. It can be installed on tablets or laptops and connects to the HCR4 controller via Ethernet TCP/IP network interface. HCROS is used for actual robot operation and control. The software features a brand-new graphical user interface design, allowing users in this field to easily understand and quickly become proficient with the system.



HCROS (user interface)
(IP configuration link to HCR4)



HCROS (user interface)

Cartesian Robot Requirement Data Sheet

Customer name		Contact person		Phone number	
Email		Sales contact		Date	

Other usage condition parameters	Select product model (please refer to page 4):				
	Load weight W(kg):	Load center of gravity offset	x(mm):	● : GG of load W : Mass of load (kg) O : Origin i : Gear ratio	
			y(mm):		
			z(mm):		
	X axis stroke (mm):		Repeatability accuracy (mm):	Linear velocity (mm/s):	Acceleration (g):
	Y axis stroke (mm):		Repeatability accuracy (mm):	Linear velocity (mm/s):	Acceleration (g):
	Z axis stroke (mm):		Repeatability accuracy (mm):	Linear velocity (mm/s):	Acceleration (g):
*The above condition parameters are mandatory fields.					

Operating environment	☐ General operating environment – Temperature 0°C ~ 50°C, Humidity 35~80% (Non-condensing)				
	☐ Special operating environment (Ambient Temperature: _____ °C)				
	☐ Oil contamination, dust, cutting fluid, etc.				
	☐ Cleanroom environment				
	☐ Other special conditions:				

Motor & Drive	☐ None				
	☐ HIWIN-E1 servo series, cable length: ☐ 3M ☐ 5M ☐ 7M ☐ 10M				
	☐ Other brand specification information : _____				

Control mode	☐ Position Control (Pulse) ☐ EtherCAT(CoE) ☐ Others				
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Upper controller	☐ None				
	☐ PLC/Brand name:		Type:		
	☐ HCR4 controller				

Other brand specification information or additional requirements.

Cartesian Robot - KK Series Technical Information

Publication Date : August 2025, first edition

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