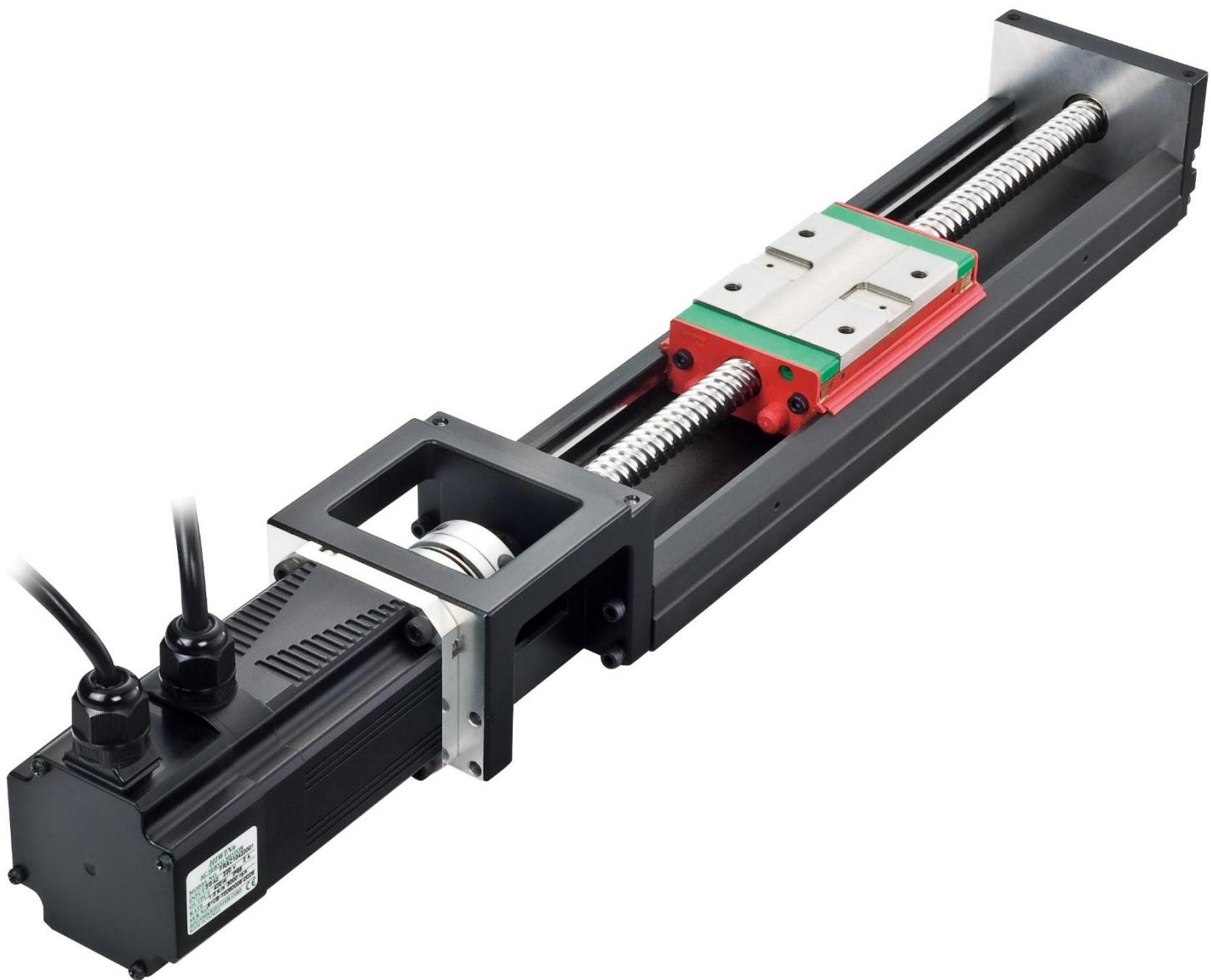


Aratron

Set your thoughts in motions

KK Linear axis

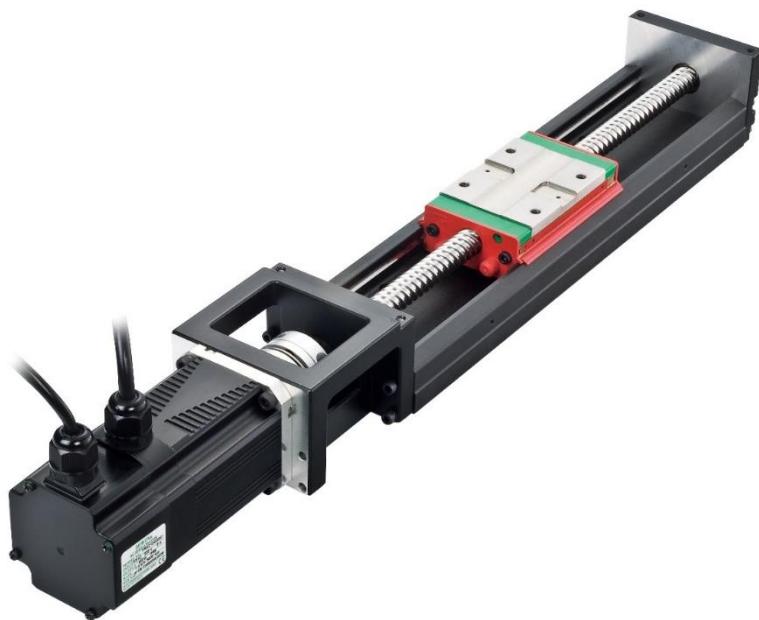
Compact Single Axis Robot Units



	Page
Introduction	5-8
Model Number and Order Codes	9
Technical Specifications	10
Accuracy Grade	11
Maximum Speeds	12
Lifetime Calculation	13
Lubrication	14
KK Series Without Cover	15-20
KK Series With Aluminium Cover	21-26
Motor Housing and Couplings	27-32
Options Bellow Cover Protection	33
Limit Switches	34
Cross Table Adapter for X – Y Combinations	35
Servomotordriver D2	36-37
Servomotors	38-39
Stepermotors & Drivers	40-42
Inquiry Formular (Requested data about your application)	43

Please ask Aratron about KK systems and special customized combinations

HIWIN



Please ask Aratron about KK systems and special customized combinations

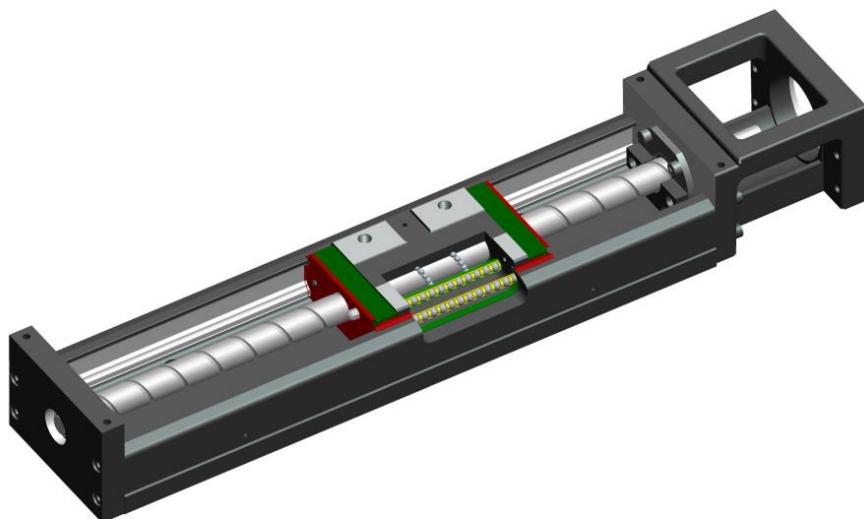
HIWIN



Single Axis Robot

KK Series

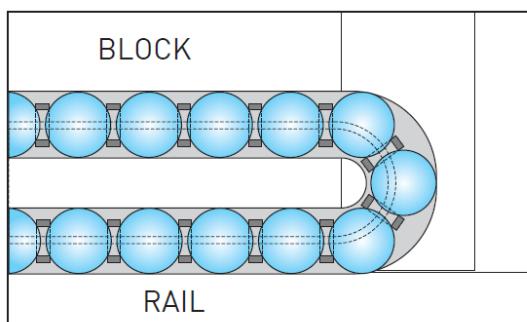
HIWIN KK linear units are very compact made of robust steel profiles. The U-profile acts as a broad rail guide with ground ball tracks on the inside. The carriage has externally recirculating steelballs and a built-in integrated ballscrew nut. HIWIN KK units can either be delivered as system with stepper or servo motors or as a single components without motors but with flanges adapting to any motor manufacturer and motor types. KK linear units are available in different tolerance classes C class with repeatability of +/- 0.01mm and P class with repeatability within +/- 0,003mm.



SK Series available only for size 60 and 86

SynchMotion™ Technology:

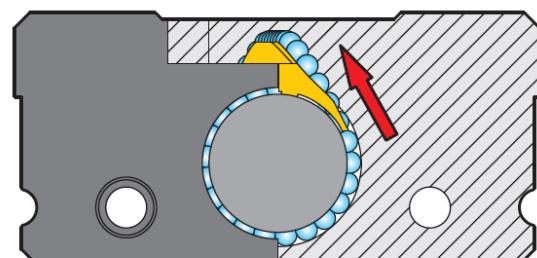
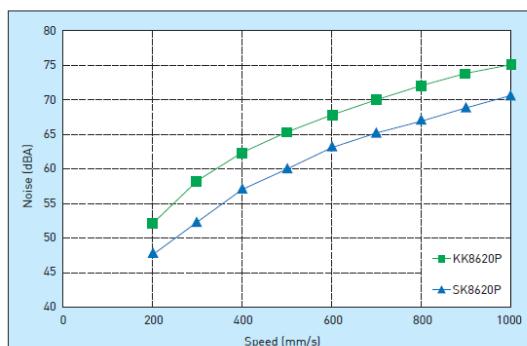
With SynchMotion™ Technology, rolling elements are interposed between the partitions of SynchMotion™ to provide improved circulation. Due to the elimination of contact between the rolling elements, collision noise and sound levels are drastically reduced.



◆ Tangent Circulation Technology:

Balls enter circulation system by following spiral pathway. It can diminish the impact while balls are entering the circulation system, improve the speed, acceleration, smoothness of traditional external circulation, reduce the noise while balls are entering the circulation system. In so doing, it acts high speed and low noise performance.

Noise Test



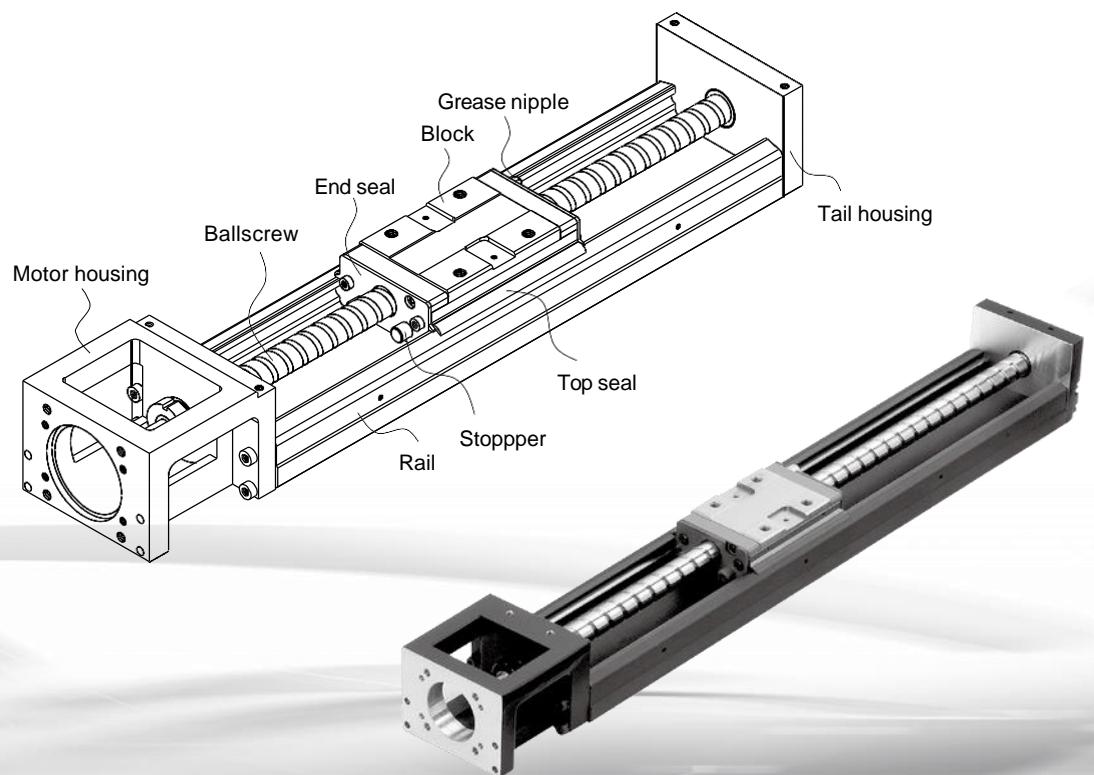
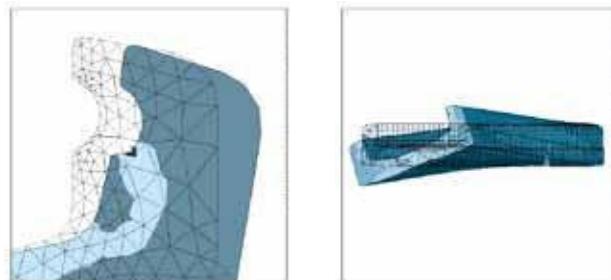
Single Axis Robot

KK Series

The HIWIN KK Single Axis Robot is driven by a ballscrew while a guideway slides on an optimized U-rail to achieve higher accuracy and greater stiffness.

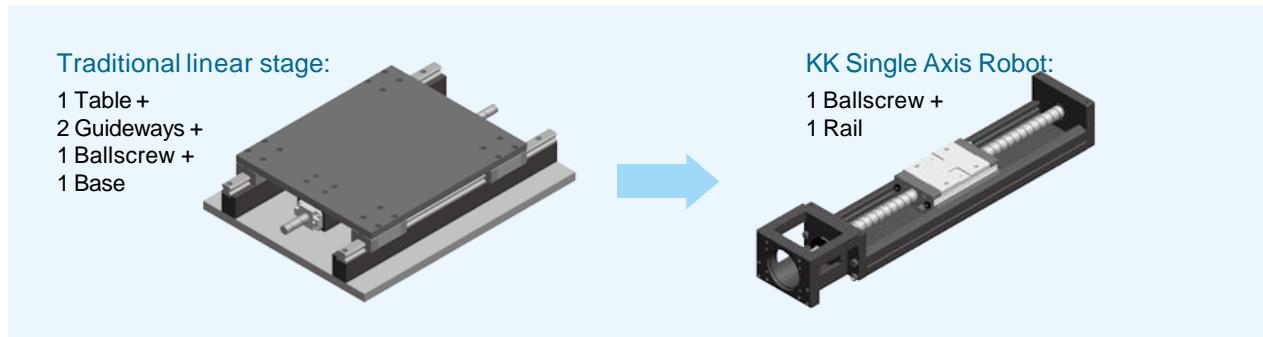
1.1 Features

- An integrated system
- Easy installation and maintenance
- Compact and lightweight
- High accuracy
- High stiffness
- Complete line of accessories



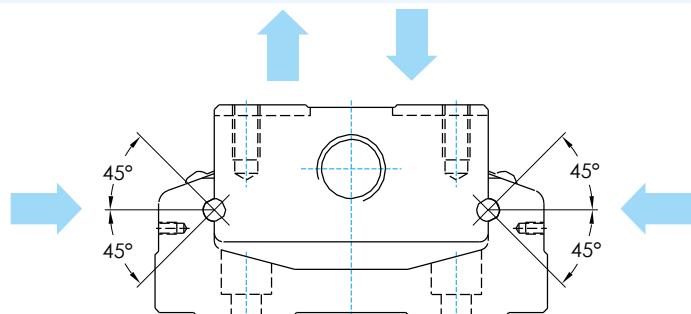
1.1.1 Modulization

The KK Single Axis Robot integrating a ballscrew and guideway forms a modularized product. The modularized design can help customers save time, cost and system inspection. Therefore, installation efficiency and a space-saving design are also promoted.



1.1.2 Equivalent Load

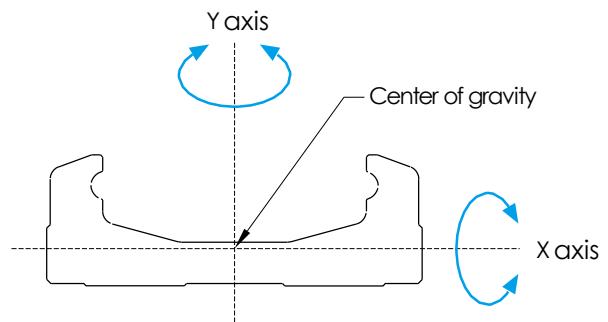
The gothic arch contact design sustains load from all directions and offers high rigidity and accuracy.



1.1.3 High Stiffness

Using finite element analysis on the U-shaped cross section allows the volume and rigidity to be made balanced, therefore, a high rigidity rail, compact design and a light weight design are also accomplished simultaneously.

Moment of inertia			Unit:mm ⁴
Model no.	I _x	I _y	
KK30	7.554 x 10 ²	12.726 x 10 ⁴³	
KK40	3.533 x 10 ³	5.317 x 10 ⁴	
KK50	9.6 x 10 ³	1.34 x 10 ⁵	
KK60	2.056 x 10 ⁴	2.802 x 10 ⁵	
KK80	6.711 x 10 ⁴	8.444 x 10 ⁵	
KK86	7.445 x 10 ⁴	1.134 x 10 ⁶	
KK100	1.296 x 10 ⁵	2.035 x 10 ⁶	
KK130	2.546 x 10 ⁵	5.073 x 10 ⁶	



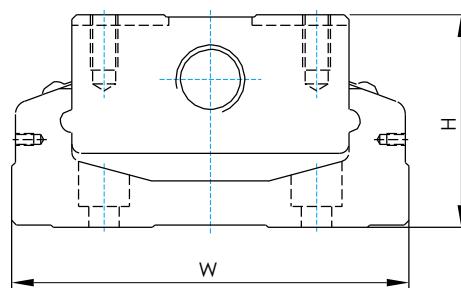
I_x : Moment of inertia computed about X axis

I_y : Moment of inertia computed about Y axis

1.1.4 Various Specification

KK Single Axis Robots of various specifications are developed, providing customers with different choices relating to space and loading conditions.

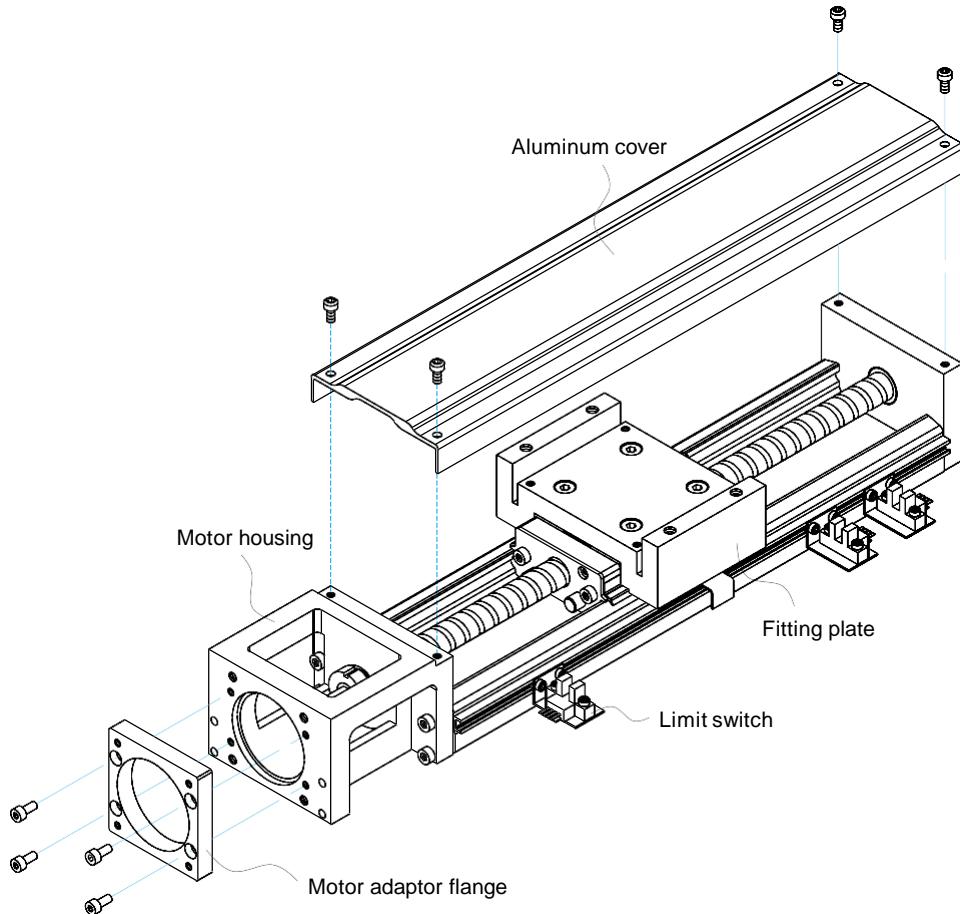
Model no.	W	H
KK30	30	15
KK40	40	20
KK50	50	26
KK60	60	33
KK80	80	45
KK86	86	46
KK100	100	55
KK130	130	65



1.2 Accessories

Accessories of KK Single Axis Robot are also supported for specific demands, such as an aluminum cover, bellows, motor adaptor flange and limit switchs.

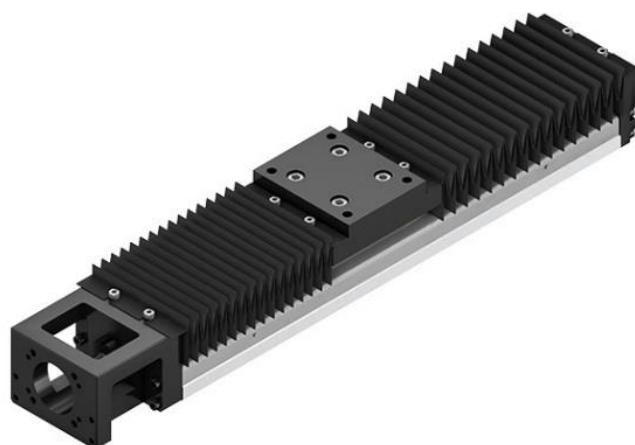
- Aluminum cover and bellow: contamination protection
- Motor adaptor flange: connection for different types of motors
- Limit switchs: starting point, positioning and other safety matters



Aluminum cover

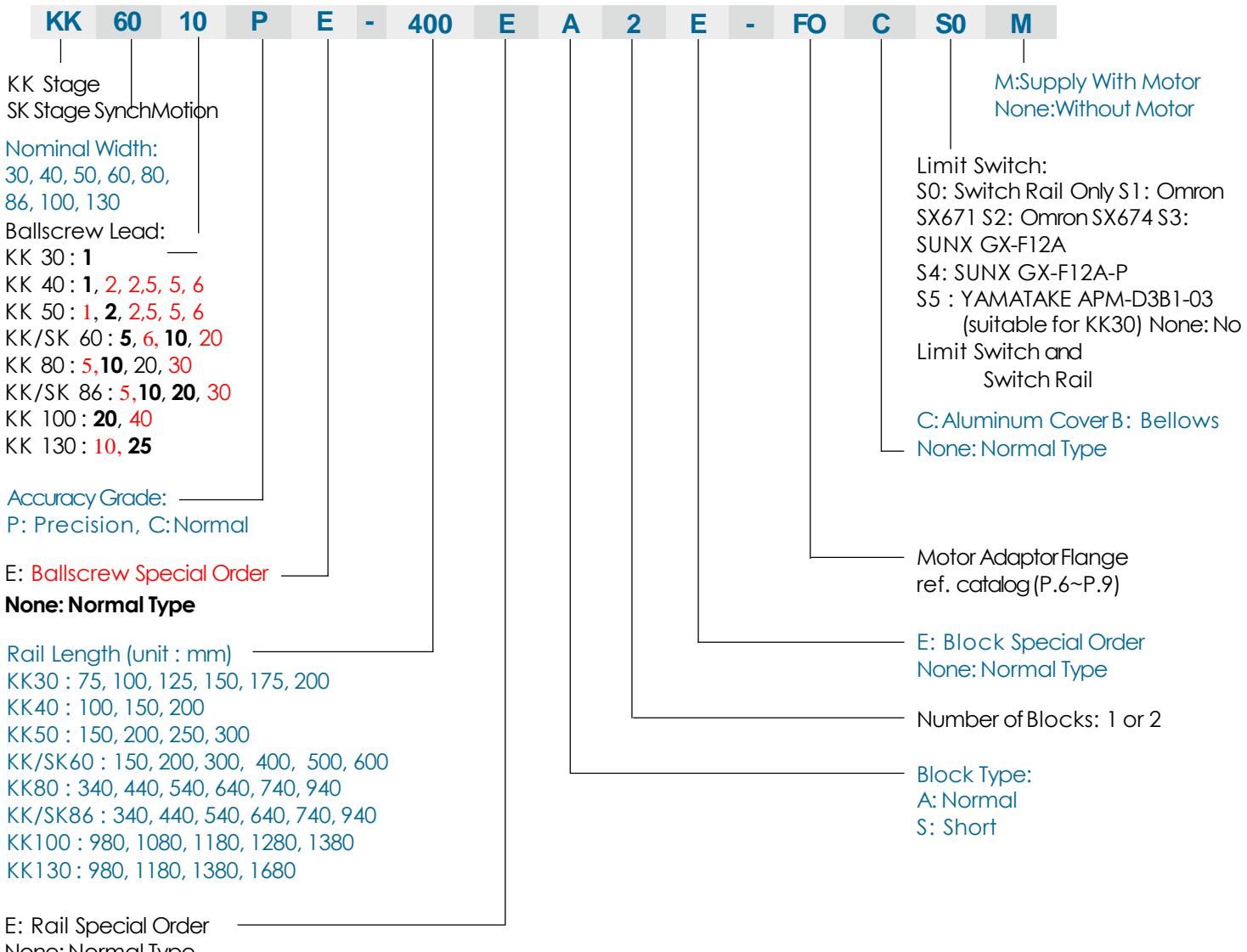


Bellows cover



1.3 Model Number and Order Codes of KK Series

Example: KK6010P-400A1-F1CS0



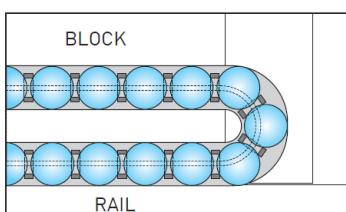
Please note! Many different special ballscrew lead's are possible

SK Stage

only available for size 60 and 86

SynchMotion™ Technology:

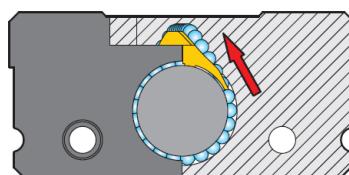
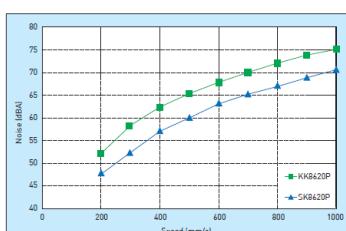
With SynchMotion™ Technology, rolling elements are interposed between the partitions of SynchMotion™ to provide improved circulation. Due to the elimination of contact between the rolling elements, collision noise and sound levels are drastically reduced.



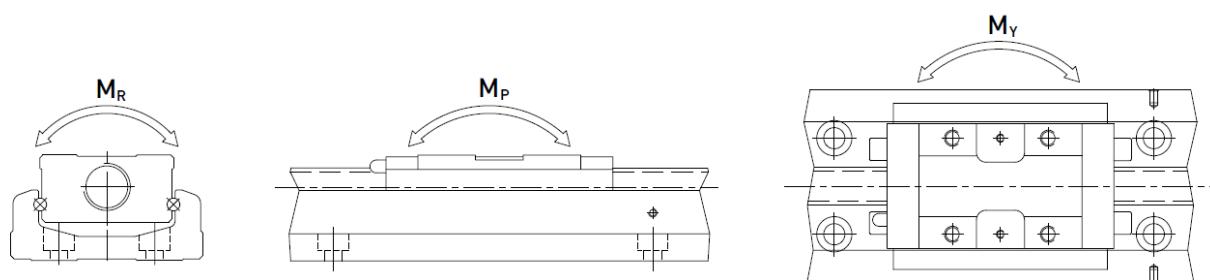
◆ Tangent Circulation Technology:

Balls enter circulation system by following spiral pathway. It can diminish the impact while balls are entering the circulation system, improve the speed, acceleration, smoothness of traditional external circulation, reduce the noise while balls are entering the circulation system. In so doing, it acts high speed and low noise performance.

Noise Test



1.4 Specifications



Model No.		Ballscrew				Guideway																	
		Nominal Diameter (mm)	Lead (mm)	Basic Dynamic Load (N)	Basic Static Load (N)	Basic Dynamic Load Rating (N)		Basic Static Load Rating (N)		Static Rated Moment													
						Allowable Static Moment M_p (N·m) (pitching)		Allowable Static Moment M_y (N·m) (yawing)				Allowable Static Moment M_r (N·m) (rolling)											
						Block A	Block S	Block A	Block S	Block A1	Block A2	Block S1	Block S2	Block A1	Block A2	Block S1	Block S2	Block A1	Block A2	Block S1	Block S2		
KK3001	Precision	6	1	647	1088	2210	-	3510	-	14	73	-	-	14	73	-	-	41	82	-	-		
	Normal			618	1079																		
KK4001	Precision	8	1	735	1538	3920	-	6468	-	33	182	-	-	33	182	-	-	81	162	-	-		
	Normal			676	1284																		
KK5002	Precision	8	2	2136	3489	8007	-	12916	-	116	545	-	-	116	545	-	-	222	444	-	-		
	Normal			1813	2910																		
KK6005	Precision	12	5	3744	6243	13230	7173	21462	11574	152	760	72	367	152	760	72	367	419	838	241	482		
	Normal			3377	5625																		
KK6010	Precision	12	10	2410	3743	13230	7173	21462	11574	152	760	72	367	152	760	72	367	419	838	241	482		
	Normal			2107	3234																		
KK8010	Precision	15	10	7144	12642	31458	21051	50764	29475	622	3050	228	1309	622	3050	228	1309	1433	2866	800	1600		
	Normal			6429	11387																		
KK8020	Precision	15	20	4645	7655	31458	21051	50764	29475	622	3050	228	1309	622	3050	228	1309	1433	2866	800	1600		
	Normal			4175	6889																		
KK8610	Precision	15	10	7144	12642	31458	21051	50764	29475	622	3050	228	1309	622	3050	228	1309	1507	3014	847	1694		
	Normal			6429	11387																		
KK8620	Precision	15	20	4645	7655	31458	21051	50764	29475	622	3050	228	1309	622	3050	228	1309	1507	3014	847	1694		
	Normal			4175	6889																		
KK10020	Precision	20	20	7046	12544	39200	-	63406	-	960	4763	-	-	960	4763	-	-	2205	4410	-	-		
	Normal			4782	9163																		
KK13025	Precision	25	25	7897	15931	48101	-	84829		1536	7350	-	-	1536	7350	-	-	3885	7770	-	-		
	Normal			7092	14352																		

Other special ballscrew lead's are possible. See model number page 8

1.5 Accuracy Grade

Unit : mm

Model	Rail Length	Repeatability		Accuracy		Running Parallelism		Starting Torque(N-cm)	
		Precision	Normal	Precision	Normal	Precision	Normal	Precision	Normal
KK30	75	± 0.003	± 0.004	0.02	0.04	0.01	0.02	1.2	0.8
	100								
	125								
	150								
	175								
	200								
KK40	100	± 0.003	± 0.01	0.02	-	0.01	-	1.2	0.8
	150								
	200								
KK50	150	± 0.003	± 0.01	0.02	-	0.01	-	4	2
	200								
	250								
	300								
KK60	150	± 0.003	± 0.01	0.02	-	0.01	-	15	7
	200								
	300								
	400	± 0.003	± 0.01	0.025	-	0.015	-	15	7
	500								
	600								
KK80	340	± 0.003	± 0.01	0.025	-	0.015	-	15	10
	440								
	540								
	640								
	740	± 0.003	± 0.01	0.03	-	0.02	-	17	10
	940	± 0.003	± 0.01	0.04	-	0.03	-	25	10
KK86	340	± 0.003	± 0.01	0.025	-	0.015	-	15	10
	440								
	540								
	640								
	740	± 0.003	± 0.01	0.03	-	0.02	-	17	10
	940	± 0.003	± 0.01	0.04	-	0.03	-	25	10
KK100	980	± 0.005	± 0.01	0.035	-	0.025	-	17	12
	1080								
	1180	± 0.005	± 0.01	0.04	-	0.03	-	20	12
	1280	± 0.005	± 0.01	0.045	-	0.035	-	23	15
	1380								
KK130	980	± 0.005	± 0.01	0.035	-	0.025	-	25	15
	1180								
	1380	± 0.007	± 0.012	0.04	-	0.03	-	25	15
	1680								

1.6 Maximum Speed Limit for standard ballscrews

Higher speeds are possible with special ballscrew lead

Model	Ballscrew Lead (mm)	Rail Length (mm)	Speed (mm/sec)	
			Precision	Normal
KK30	01	75	160	160
		100	160	160
		125	160	160
		150	160	160
		175	160	160
		200	160	160
KK40	01 06	100	190	Ask Aratron
		150	190	-
		200	190	-
		250	-	-
KK50	02 06	150	270	-
		200	270	-
		250	270	-
		300	270	-
KK60	05	150	550	390
		200	550	390
		300	550	390
		400	550	390
		500	550	390
		600	340	340
	10 20	150	1100	1900
		200	1100	1900
		300	1100	1900
		400	1100	1900
		500	1100	1900
		600	670	1300
KK80	10	340	740	520
		440	740	520
		540	740	520
		640	740	520
		740	740	520
		940	610	430
	20 30	340	1480	2100
		440	1480	2100
		540	1480	2100
		640	1480	2100
		740	1480	2100
		940	1220	1800
KK86	10	340	740	520
		440	740	520
		540	740	520
		640	740	520
		740	740	520
		940	610	430
	20 30	340	1480	2100
		440	1480	2100
		540	1480	2100
		640	1480	2100
		740	1480	2100
		940	1220	1800
KK100	20 40	980	1120	2100
		1080	980	1700
		1180	750	1400
		1280	630	1100
		1380	530	1000
KK130	25	980	1120	800
		1180	1120	800
		1380	830	800
		1680	550	550

7. Life Calculations

1. Service Life

Under repeated stress between the raceway and the rolling elements, pitting and flaking will occur as it reaches fatigue failure. The service life of the KK Single Axis Robot is defined as the distance traveled before any failure of the raceway or rolling elements appear.

2. Nominal Life (L)

The service life varies greatly even when the KK units are manufactured in the same way or operated under the same conditions. For this reason, nominal life is used as the criteria for predicting the service life of a KK unit.

3. Nominal Life Calculation

The calculating formulas are divided into two parts, guideway and ballscrew. The smaller value of the two would be the recommended nominal life of the KK unit.

Nominal life formulas for both the guideway and ballscrew depend on several parameters and are shown below.

Guideway

$$L = \left(\frac{f_t}{f_w} \cdot \frac{C}{P_n} \right)^3 \times 50 \text{ km}$$

L : Life Rating (km)
 f_t : Contact Coefficient (ref. Table 1)
 f_w : Loading Coefficient (ref. Table 2)
 C : Basic Dynamic Load Rating (N)
 P_n : Calculated Loading (N)

Table 1

Block Type	Contact Coefficient f_t
A1, S1	1.0
A2, S2	0.81

Table 2

Operating Condition		Loading Coefficient f_w
Thrust and Vibration	Velocity (V)	
No Thrust	$V < 15\text{m/min}$	1.0 ~ 1.5
Low Vibration	$15\text{m/min} < V < 60\text{m/min}$	1.5 ~ 2.0
High Vibration	$V > 60\text{m/min}$	2.0 ~ 3.5

Ballscrew and Bearing

$$L = \left(\frac{1}{f_w} \cdot \frac{C_a}{P_{a,n}} \right)^3 \times 10^6 \text{ rev}$$

L : Life Rating (rev.)
 f_w : Loading Coefficient (ref. Table 2)
 C_a : Basic Dynamic Load Rating (N)
 $P_{a,n}$: Axial Loading (N)

1.8 Lubrication

Insufficient lubrication of the guideway would lead to a reduction of the service life.

The lubricant provides the following functions:

- Reducing rolling friction and avoiding abrasion
- Providing a lubricating film and extending the service life
- Anti-rusting

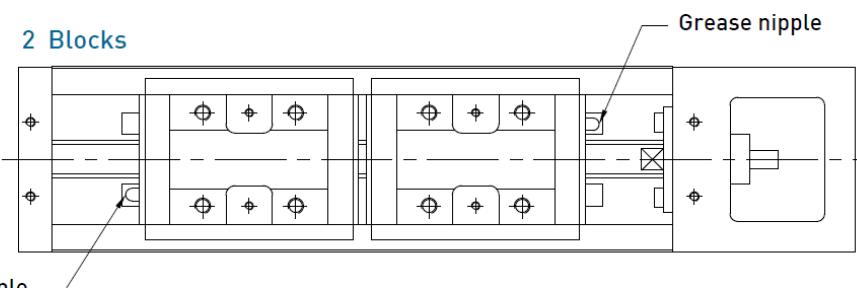
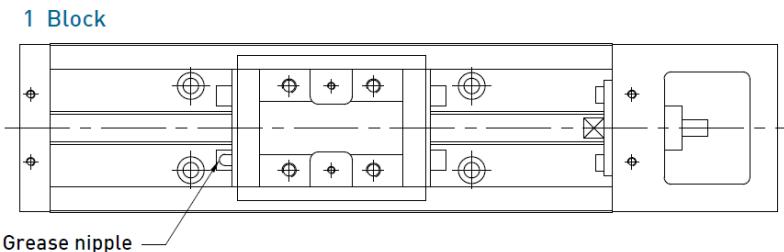
1.8.1 Lubricating Grease

Re-lubricating the KK Single Axis Robot every 100km is recommended. Generally, grease is applied for speeds under 60 m/min. For operating speeds over 60 m/min, a grease with a higher viscosity should be used.

$$T = \frac{100 \times 1000}{V_e \times 60} \quad T : \text{Lubricating frequency (hrs)}$$

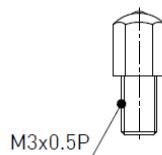
V_e : Speed (m/min)

1.8.2 Grease Nipple



Types of grease nipple

KK40



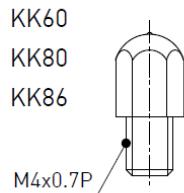
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KK50

KK60

KK80

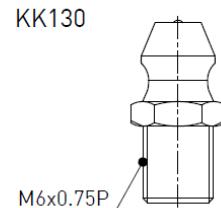
KK86



NO. 34310002

KK100

KK130

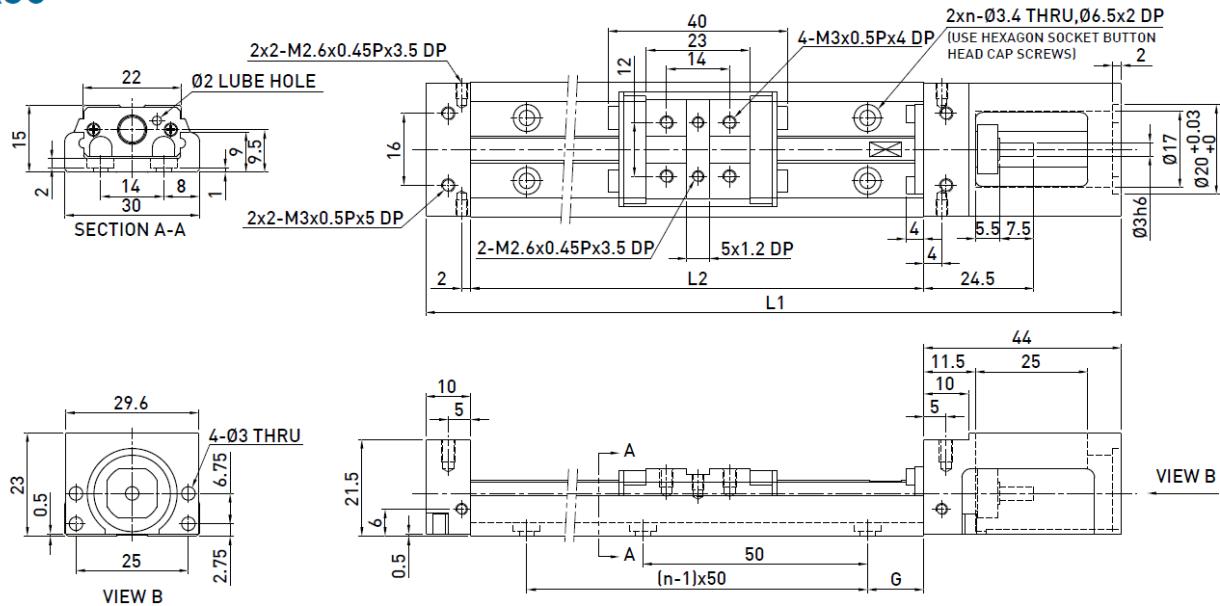


NO. 34310008

1.9 Dimensions

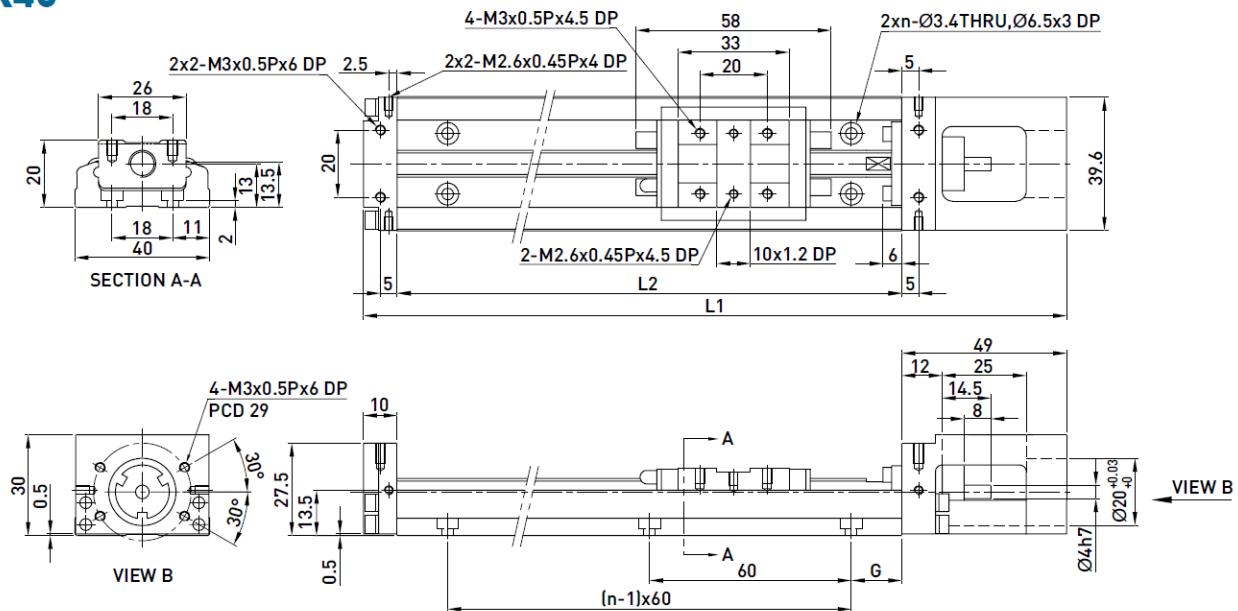
1.9.1 Without cover

KK30

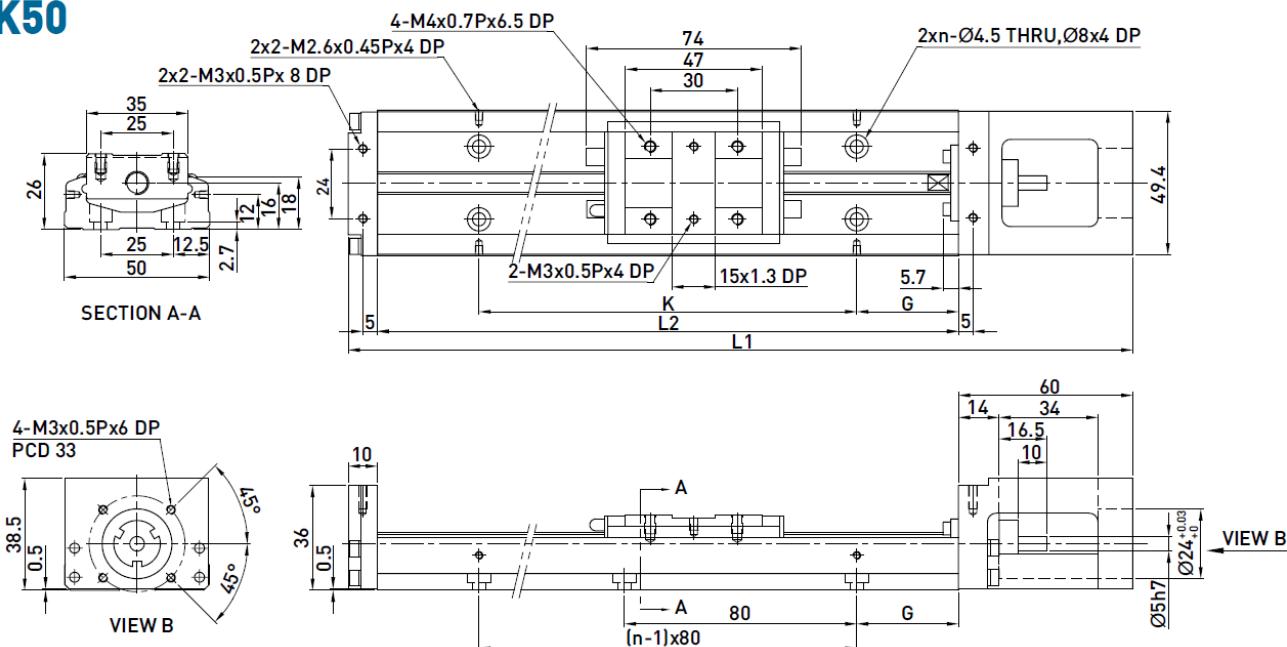


Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	n	Mass (kg)	
		A1 Block	A2 Block			A1 Block	A2 Block
75	129	31	-	12.5	2	0.2	-
100	154	56	-	25	2	0.23	-
125	179	81	45	12.5	3	0.26	0.3
150	204	106	70	25	3	0.29	0.33
175	229	131	95	12.5	4	0.32	0.36
200	254	156	120	25	4	0.35	0.39

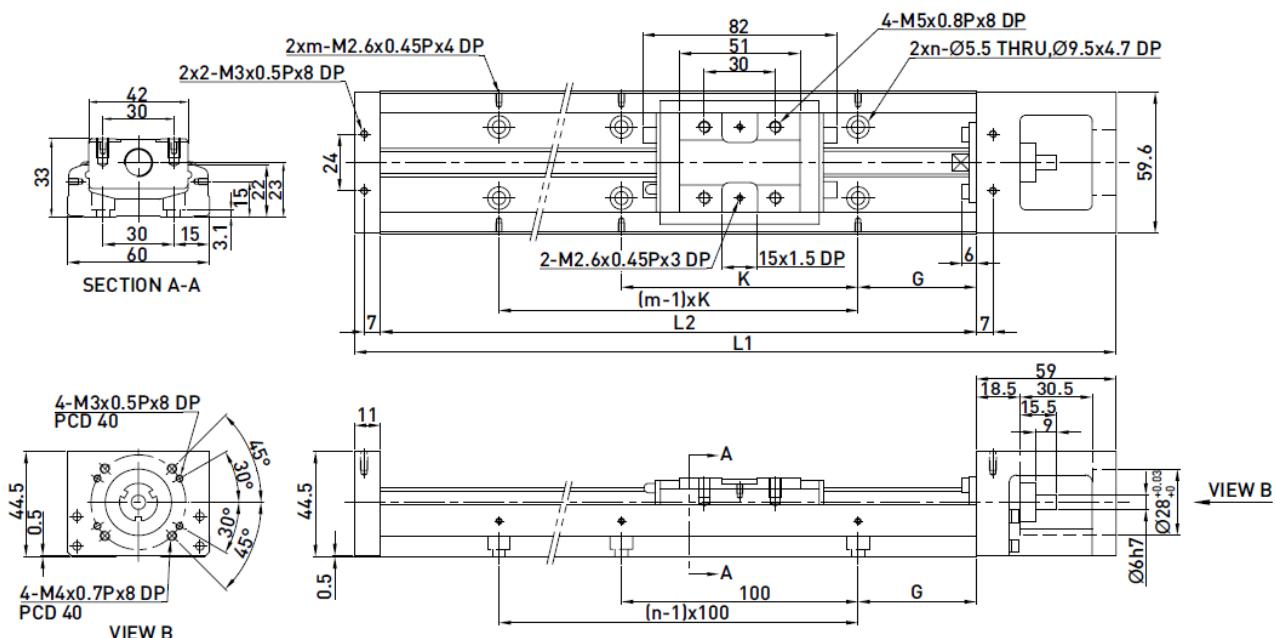
KK40



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	n	Mass (kg)	
		A1 Block	A2 Block			A1 Block	A2 Block
100	159	36	-	20	2	0.48	-
150	209	86	34	15	3	0.6	0.67
200	259	136	84	40	3	0.72	0.79

KK50

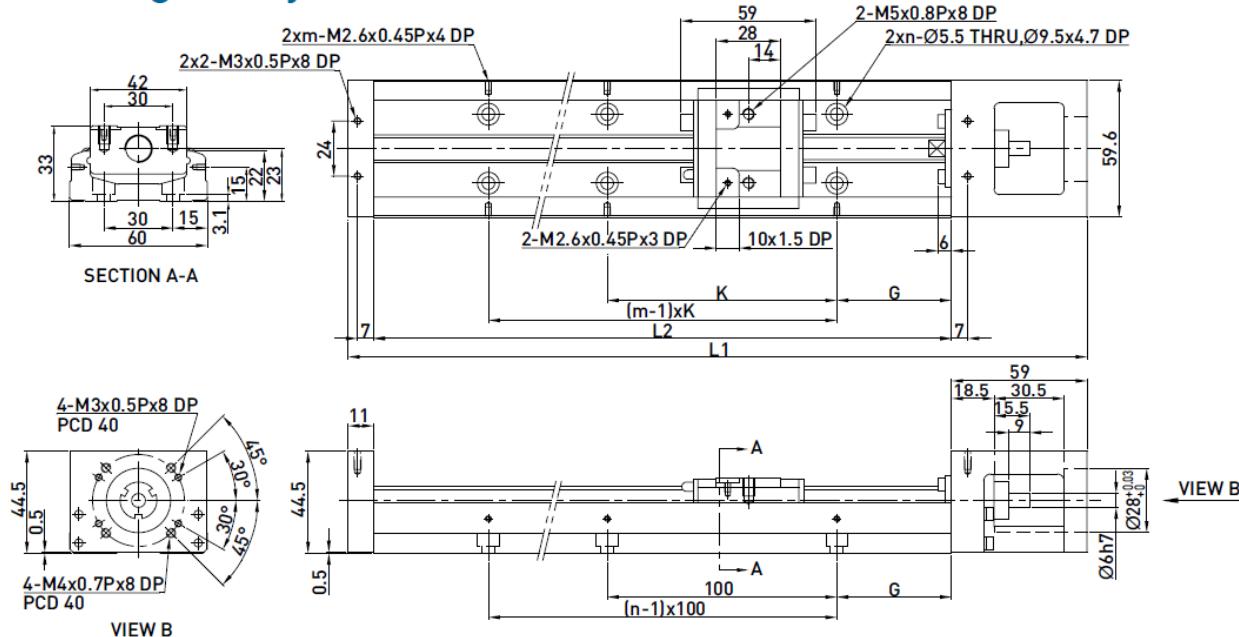
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	K (mm)	n	Mass (kg)	
		A1 Block	A2 Block				A1 Block	A2 Block
150	220	70	-	35	80	2	1	-
200	270	120	55	20	160	3	1.2	1.4
250	320	170	105	45	160	3	1.4	1.6
300	370	220	155	30	240	4	1.6	1.8

KK60 (Standard)

Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	K (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block					A1 Block	A2 Block
150	220	60	-	25	100	2	2	1.5	-
200	270	110	-	50	100	2	2	1.8	-
300	370	210	135	50	200	3	2	2.4	2.7
400	470	310	235	50	100	4	4	3	3.3
500	570	410	335	50	200	5	3	3.6	3.9
600	670	510	435	50	100	6	6	4.2	4.6

Note: Special ballscrew spindle end of 8 mm diameter is available, please contact hiwin if necessary.

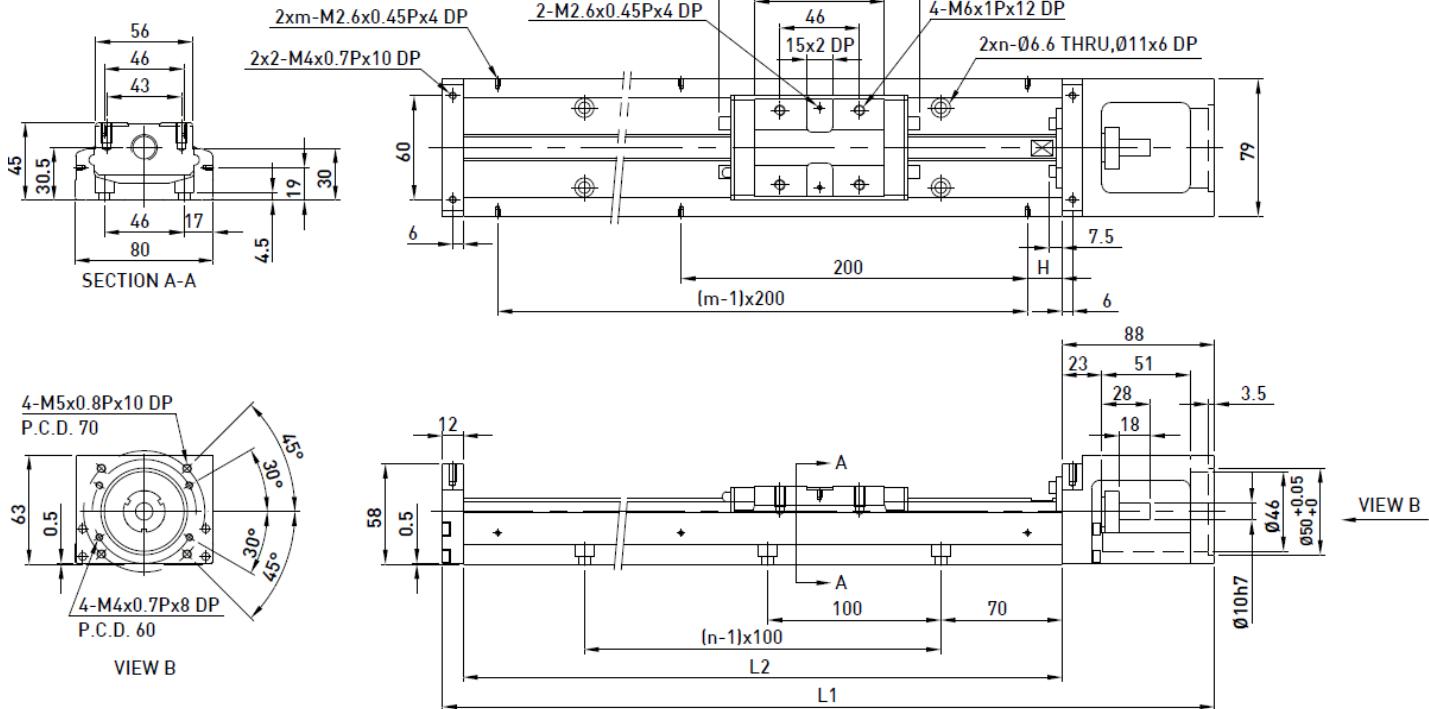
KK60 (Light Duty)



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	K (mm)	n	m	Mass (kg)	
		S1 Block	S2 Block					S1 Block	S2 Block
150	220	85	34	25	100	2	2	1.4	1.6
200	270	135	84	50	100	2	2	1.7	1.9
300	370	235	184	50	200	3	2	2.3	2.5
400	470	335	284	50	100	4	4	2.9	3.1
500	570	435	384	50	200	5	3	3.5	3.7
600	670	535	484	50	100	6	6	4.1	4.3

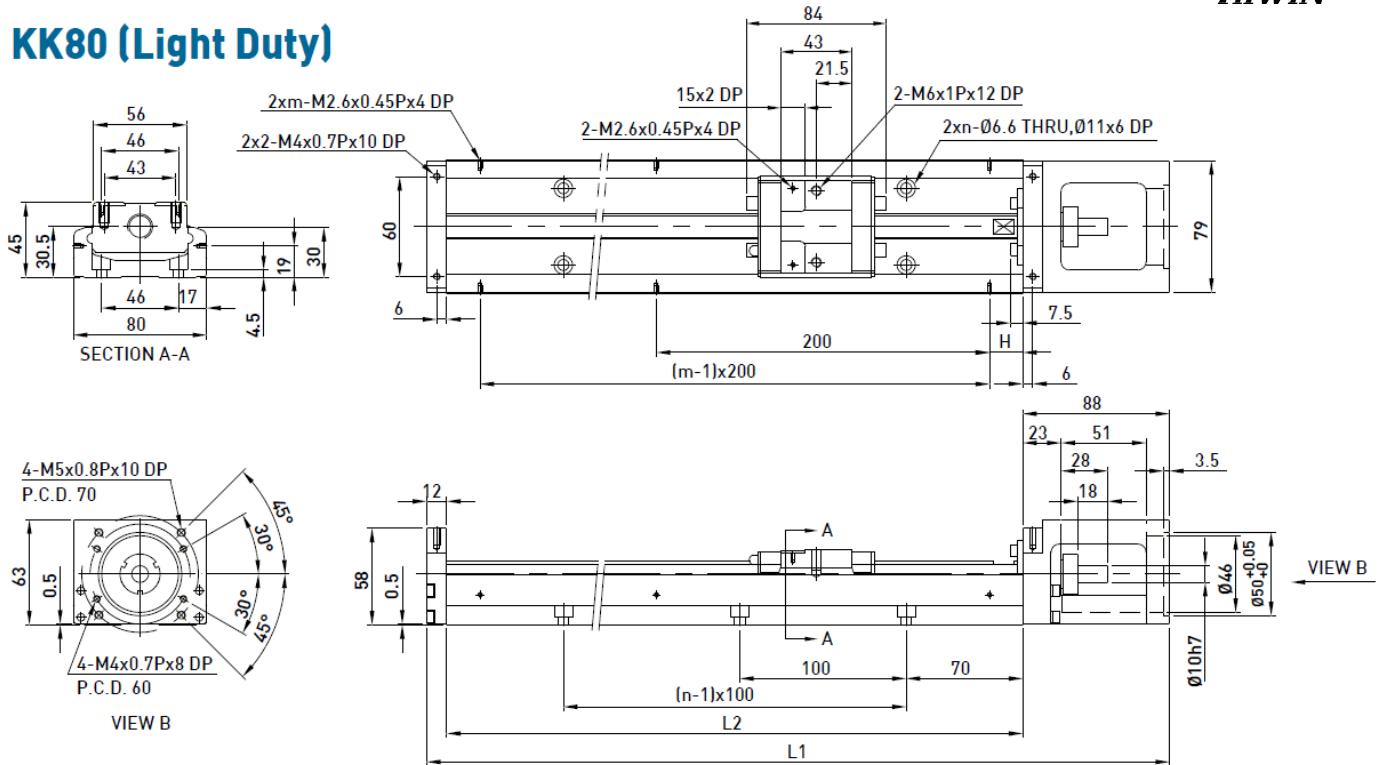
Note: Special ballscrew spindle end of 8 mm diameter is available, please contact hiwin if necessary.

KK80 (Standard)



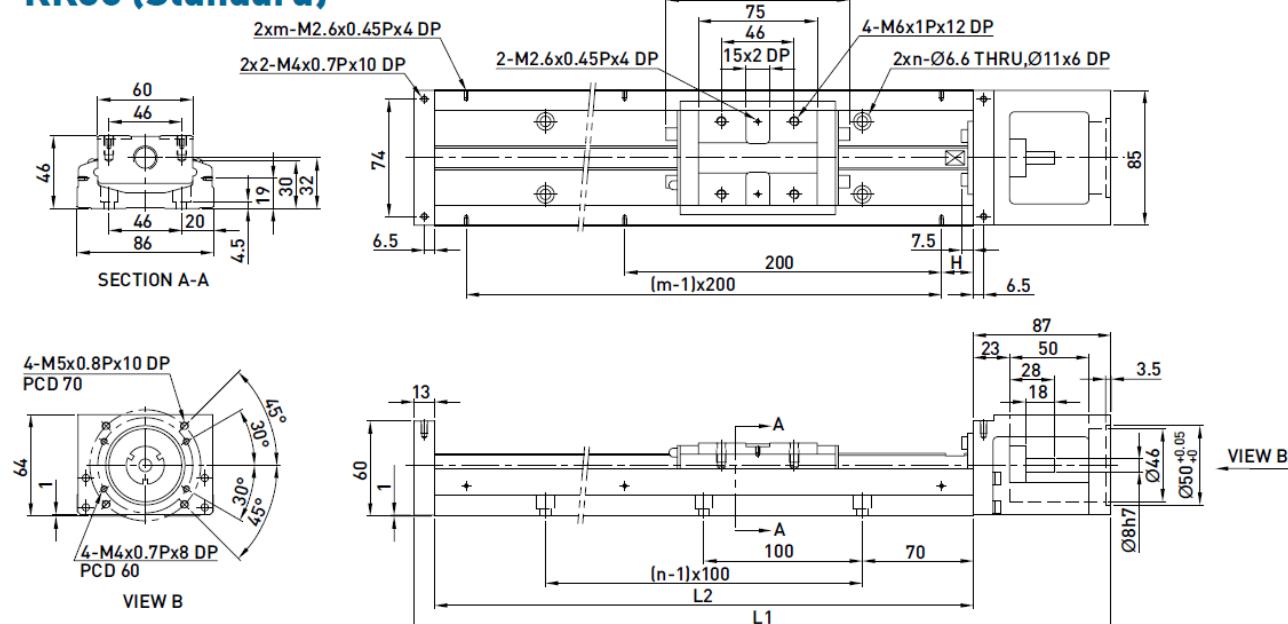
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block				A1 Block	A2 Block
340	440	216.5	108.5	70	3	2	5.3	6
440	540	316.5	208.5	20	4	3	6.5	7.2
540	640	416.5	308.5	70	5	3	7.6	8.3
640	740	516.5	408.5	20	6	4	8.8	9.5
740	840	616.5	508.5	70	7	4	10	10.7
940	1040	816.5	708.5	70	9	5	12.4	13.1

KK80 (Light Duty)



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		S1 Block	S2 Block				S1 Block	S2 Block
340	440	248.5	172.5	70	3	2	5	5.4
440	540	348.5	272.5	20	4	3	6.2	6.6
540	640	448.5	372.5	70	5	3	7.3	7.7
640	740	548.5	472.5	20	6	4	8.5	8.9
740	840	648.5	572.5	70	7	4	9.7	10.1
940	1040	848.5	772.5	70	9	5	12.1	12.5

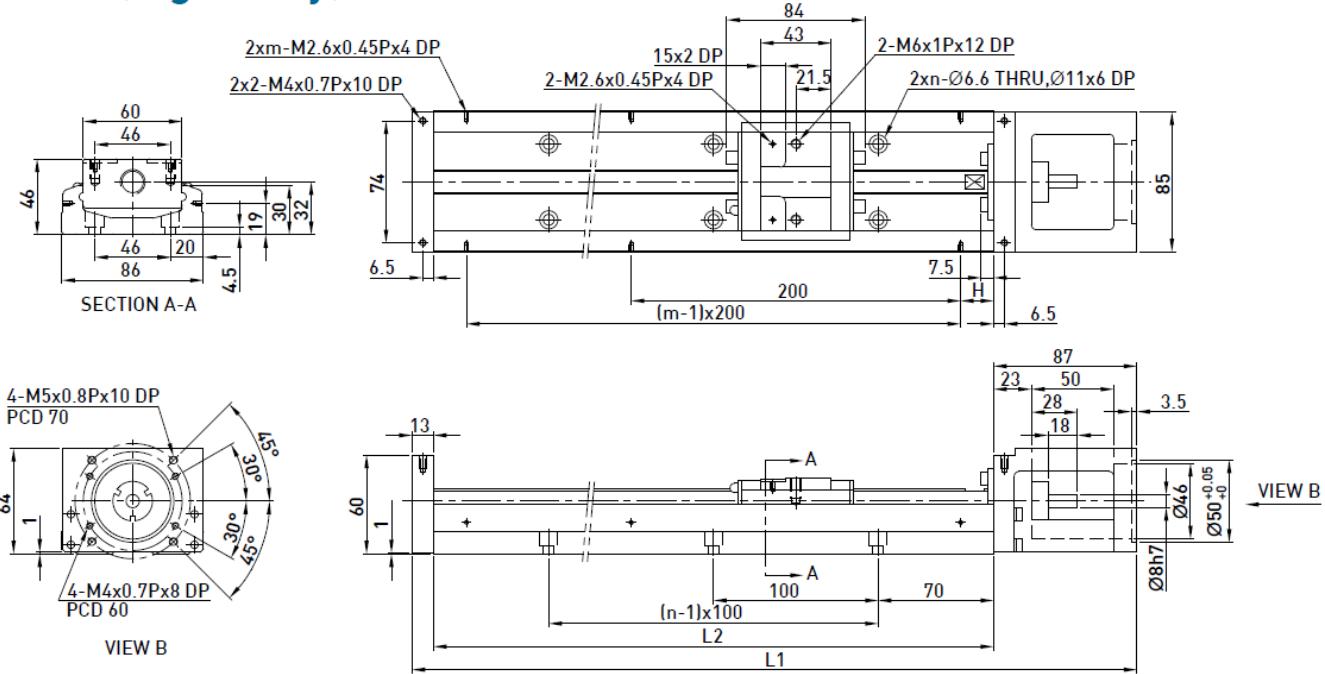
KK86 (Standard)



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block				A1 Block	A2 Block
340	440	216.5	108.5	70	3	2	5.7	6.5
440	540	316.5	208.5	20	4	3	6.9	7.7
540	640	416.5	308.5	70	5	3	8.0	8.8
640	740	516.5	408.5	20	6	4	9.2	10.0
740	840	616.5	508.5	70	7	4	10.4	11.2
940	1040	816.5	708.5	70	9	5	11.6	12.4

Note: Special ballscrew spindle end of 10 mm diameter is available, please contact hiwin if necessary.

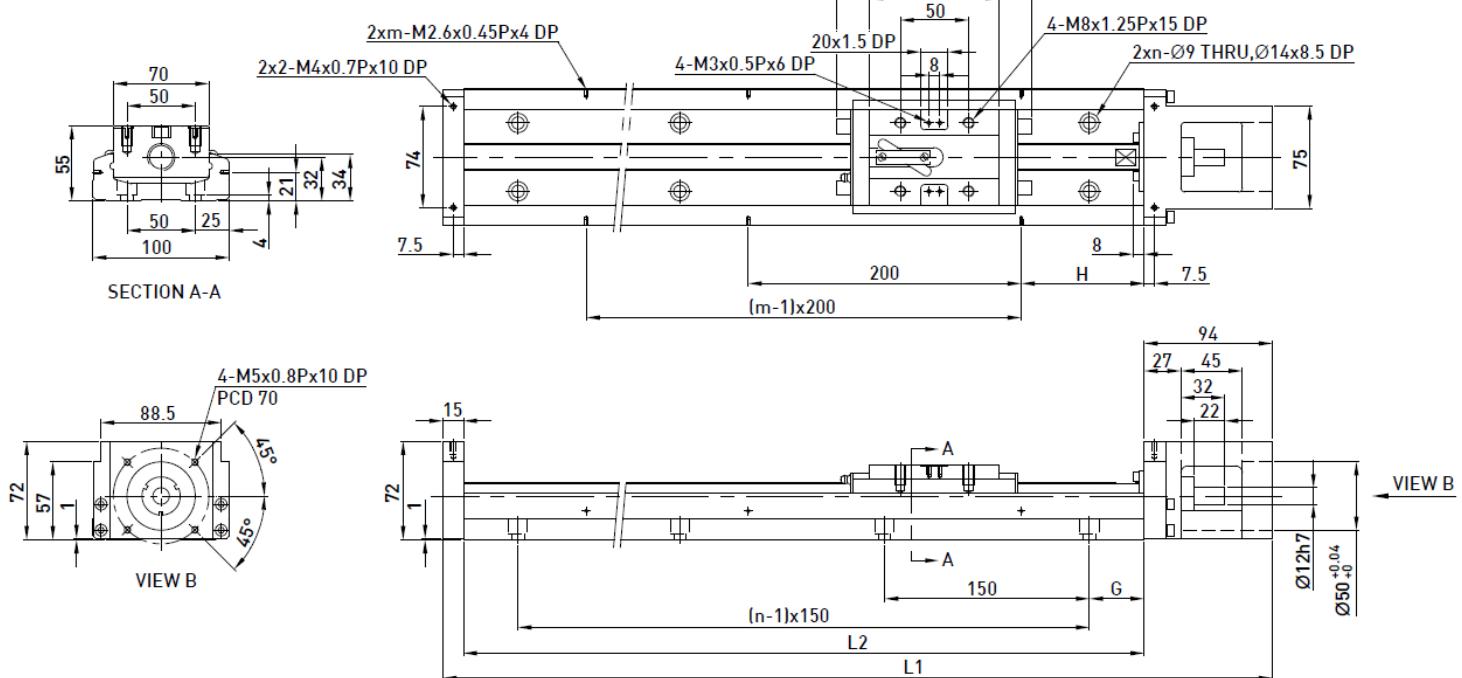
KK86 (Light Duty)



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		S1 Block	S2 Block				S1 Block	S2 Block
340	440	248.5	172.5	70	3	2	5.4	5.9
440	540	348.5	272.5	20	4	3	6.6	7.1
540	640	448.5	372.5	70	5	3	7.7	8.2
640	740	548.5	472.5	20	6	4	8.9	9.4
740	840	648.5	572.5	70	7	4	10.1	10.6
940	1040	848.5	772.5	70	9	5	11.3	11.8

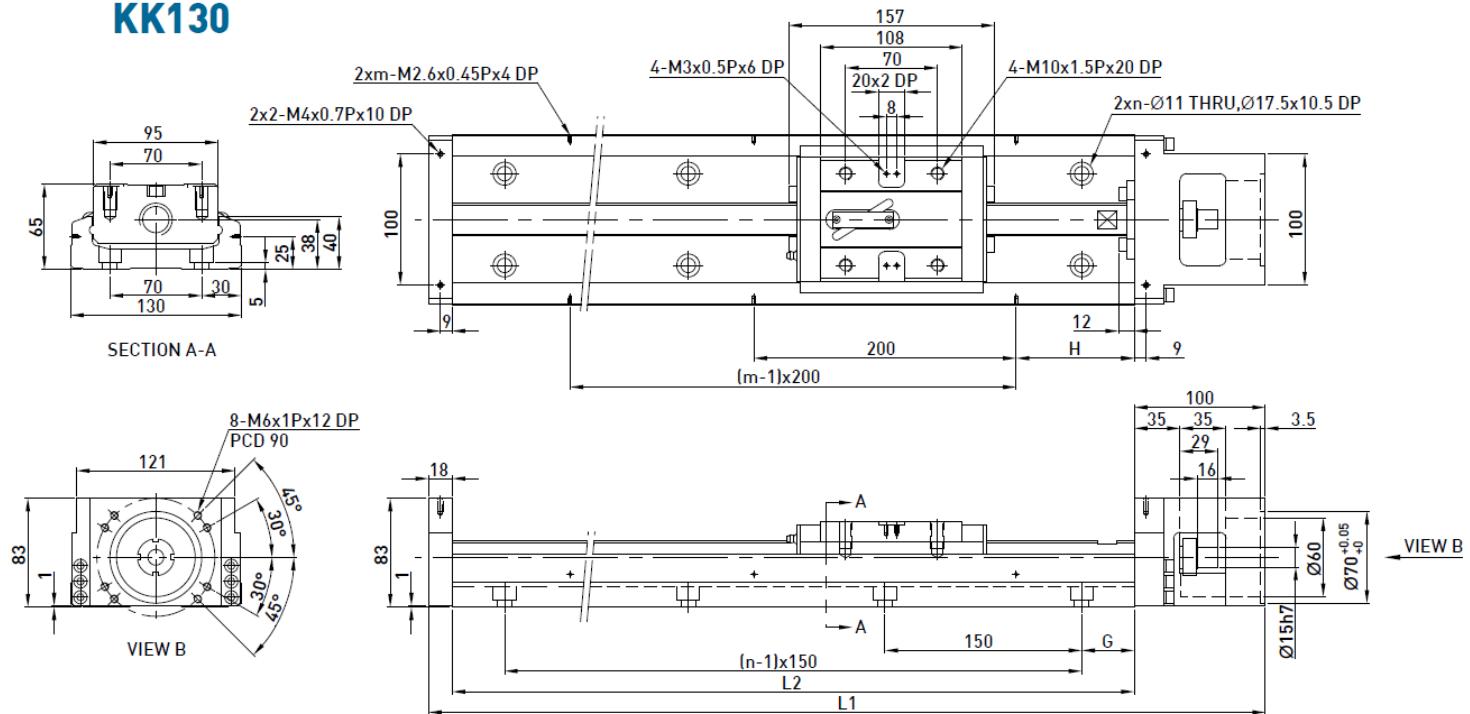
Note: Special ballscrew spindle end of 10 mm diameter is available, please contact hiwin if necessary.

KK100



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	H (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block					A1 Block	A2 Block
980	1089	828	700	40	90	7	5	18.6	20.3
1080	1189	928	800	15	40	8	6	20.3	22.0
1180	1289	1028	900	65	90	8	6	22.0	23.7
1280	1389	1128	1000	40	40	9	7	23.6	25.3
1380	1489	1228	1100	15	90	10	7	25.3	27.0

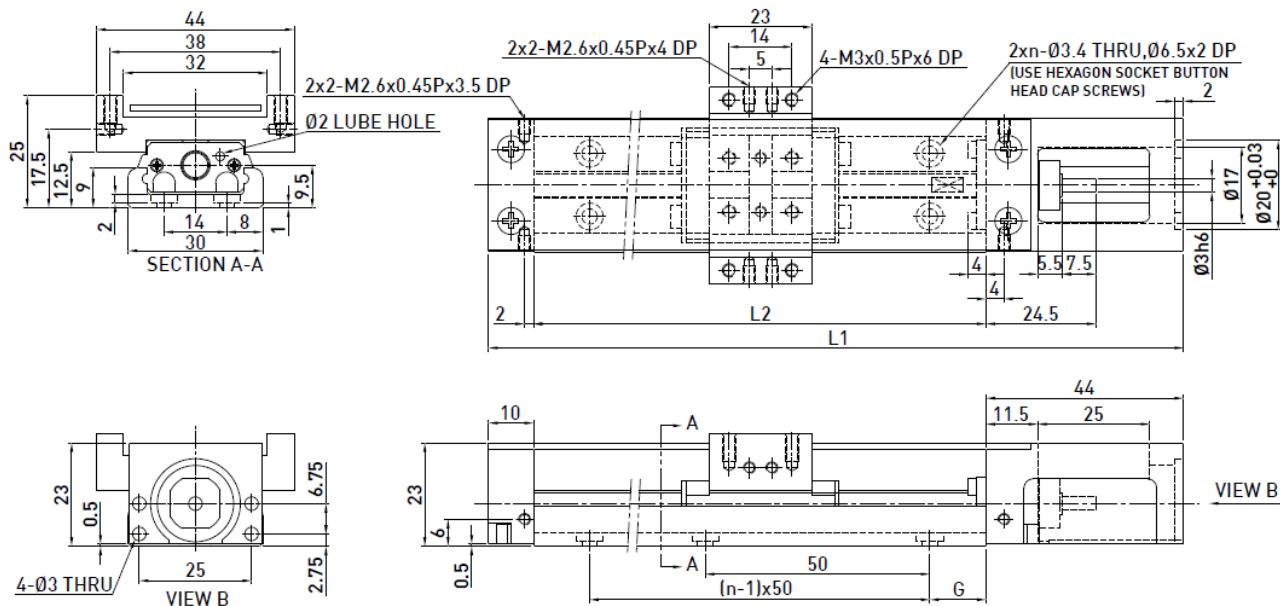
KK130



Rail Length L2 [mm]	Total Length L1 [mm]	Maximum Stroke [mm]		G [mm]	H [mm]	n	m	Mass [kg]	
		A1 Block	A2 Block					A1 Block	A2 Block
980	1098	811	659	40	90	7	5	29.4	32.3
1180	1298	1011	859	65	90	8	6	34.3	37.2
1380	1498	1211	1059	90	90	9	7	39.2	42.1
1680	1798	1511	1359	90	40	11	9	46.5	49.4

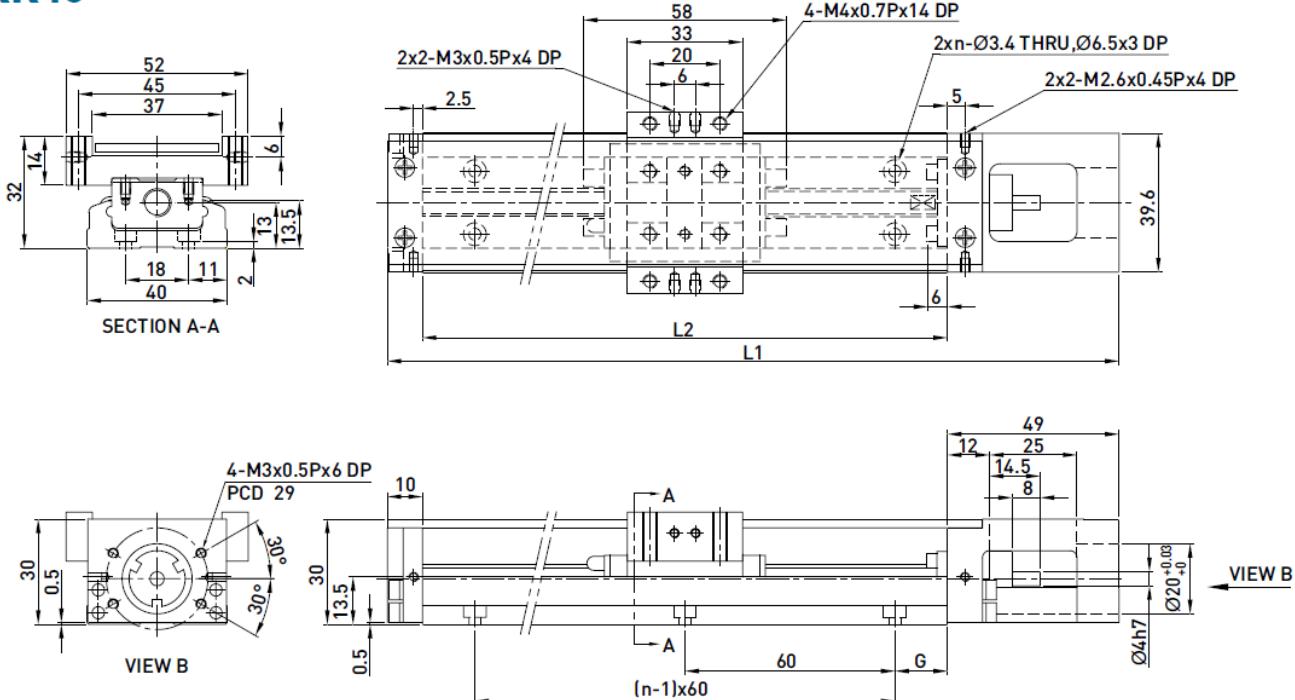
1.9.2 With cover

KK30

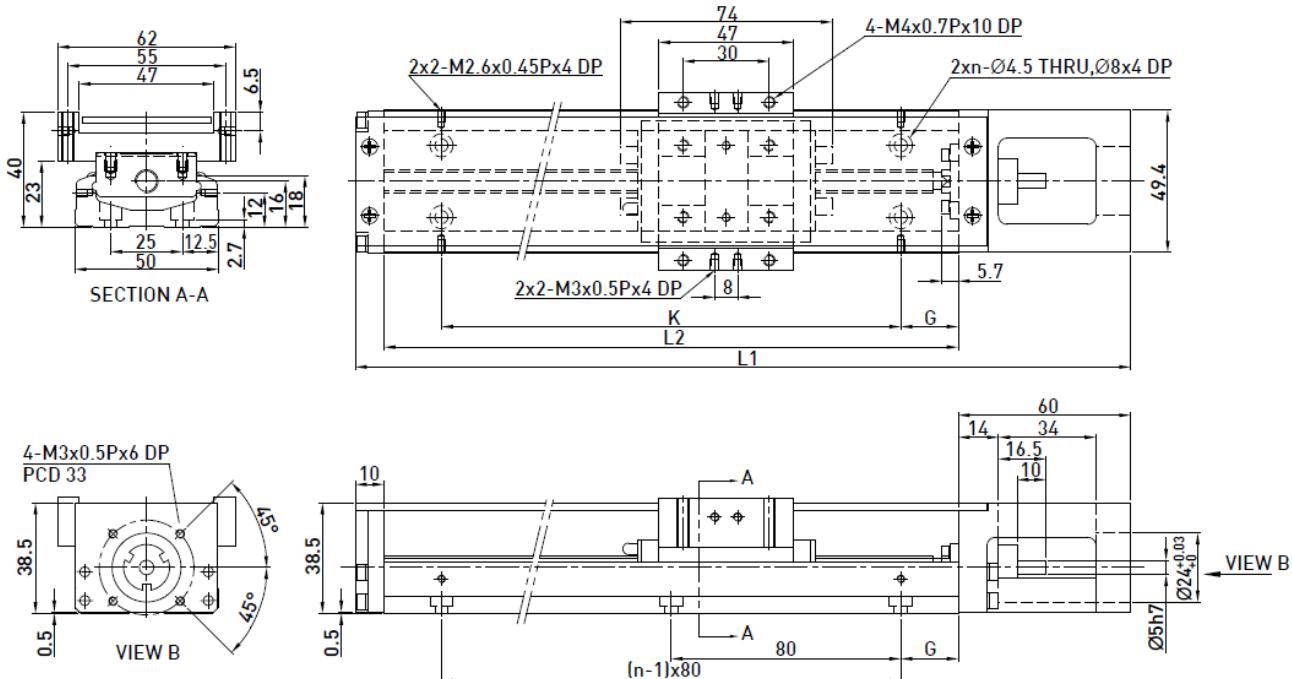


Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	n	Mass (kg)	
		A1 Block	A2 Block			A1 Block	A2 Block
75	129	31	-	12.5	2	0.2	-
100	154	56	-	25	2	0.23	-
125	179	81	45	12.5	3	0.26	0.3
150	204	106	70	25	3	0.29	0.33
175	229	131	95	12.5	4	0.32	0.36
200	254	156	120	25	4	0.35	0.39

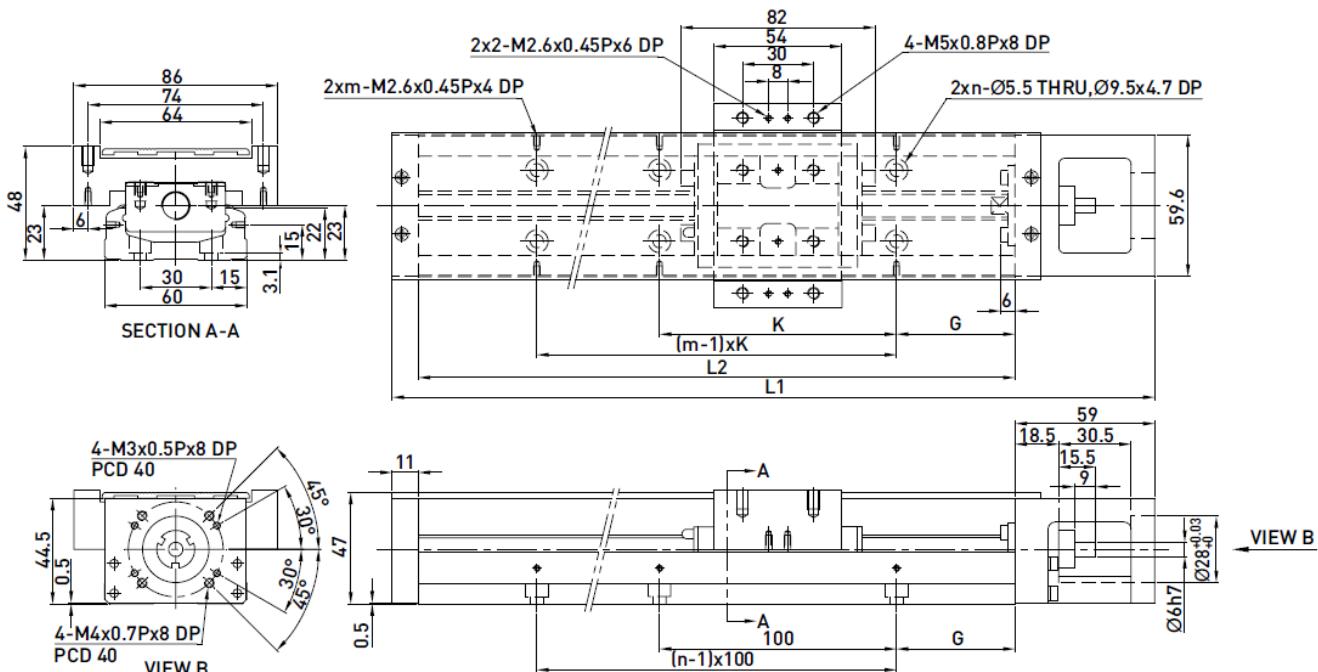
KK40



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	n	Mass (kg)	
		A1 Block	A2 Block			A1 Block	A2 Block
100	159	36	-	20	2	0.55	-
150	209	86	34	15	3	0.68	0.76
200	259	136	84	40	3	0.82	0.89

KK50

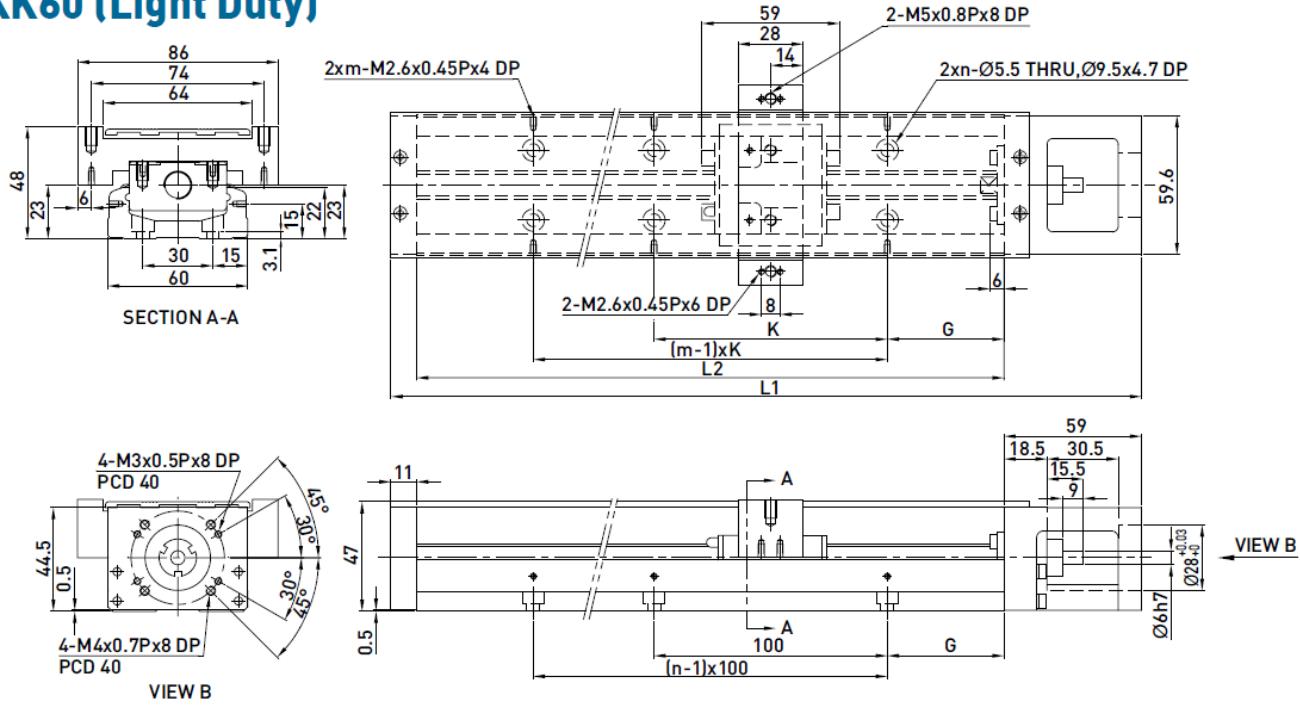
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	K (mm)	n	Mass (kg)	
		A1 Block	A2 Block				A1 Block	A2 Block
150	220	70	-	35	80	2	1.1	-
200	270	120	55	20	160	3	1.3	1.5
250	320	170	105	45	160	3	1.6	1.8
300	370	220	155	30	240	4	1.8	2.0

KK60 (Standard)

Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	K (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block					A1 Block	A2 Block
150	220	60	-	25	100	2	2	1.7	-
200	270	110	-	50	100	2	2	2.1	-
300	370	210	135	50	200	3	2	2.7	3.0
400	470	310	235	50	100	4	4	3.3	3.6
500	570	410	335	50	200	5	3	3.9	4.2
600	670	510	435	50	100	6	6	4.6	5.0

Note: Special ballscrew spindle end of 8 mm diameter is available, please contact hiwin if necessary.

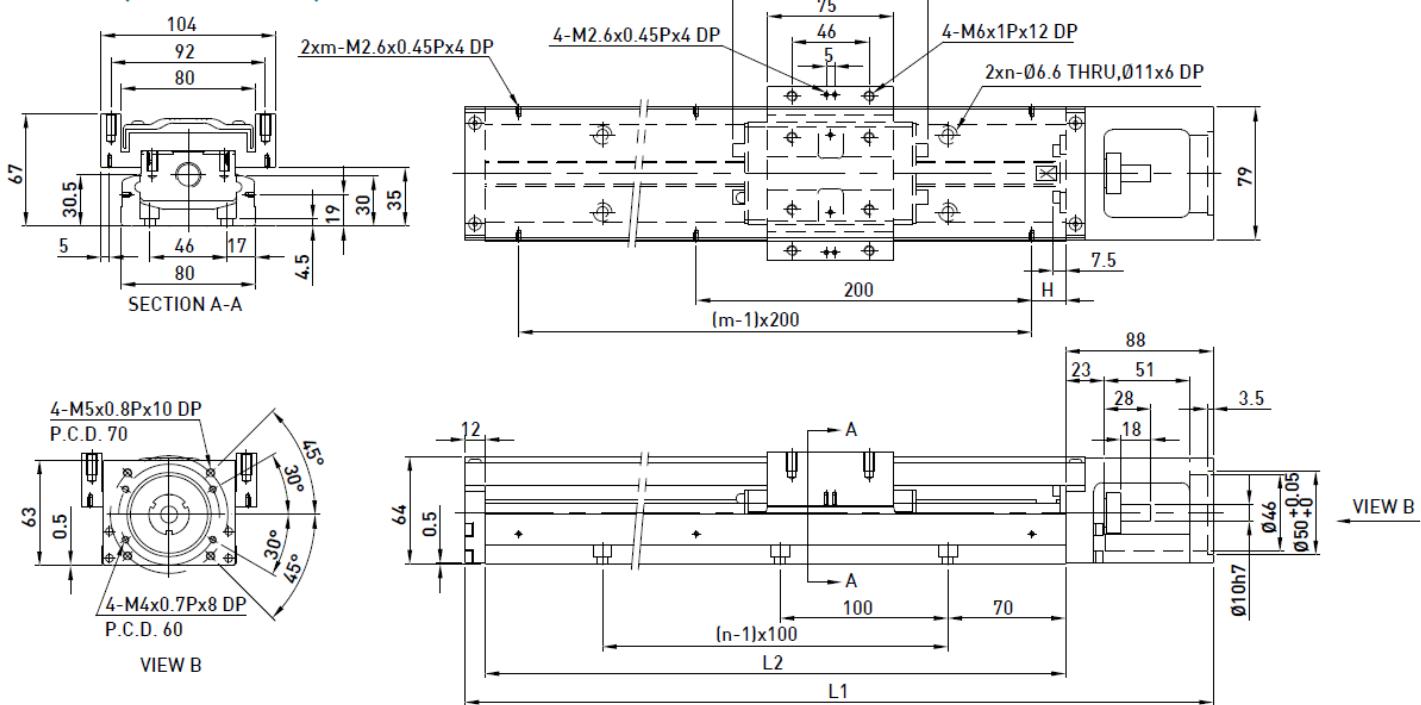
KK60 (Light Duty)



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	K (mm)	n	m	Mass (kg)	
		S1 Block	S2 Block					S1 Block	S2 Block
150	220	85	34	25	100	2	2	1.6	1.8
200	270	135	84	50	100	2	2	1.9	2.1
300	370	235	184	50	200	3	2	2.5	2.7
400	470	335	284	50	100	4	4	3.1	3.3
500	570	435	384	50	200	5	3	3.7	3.9
600	670	535	484	50	100	6	6	4.4	4.6

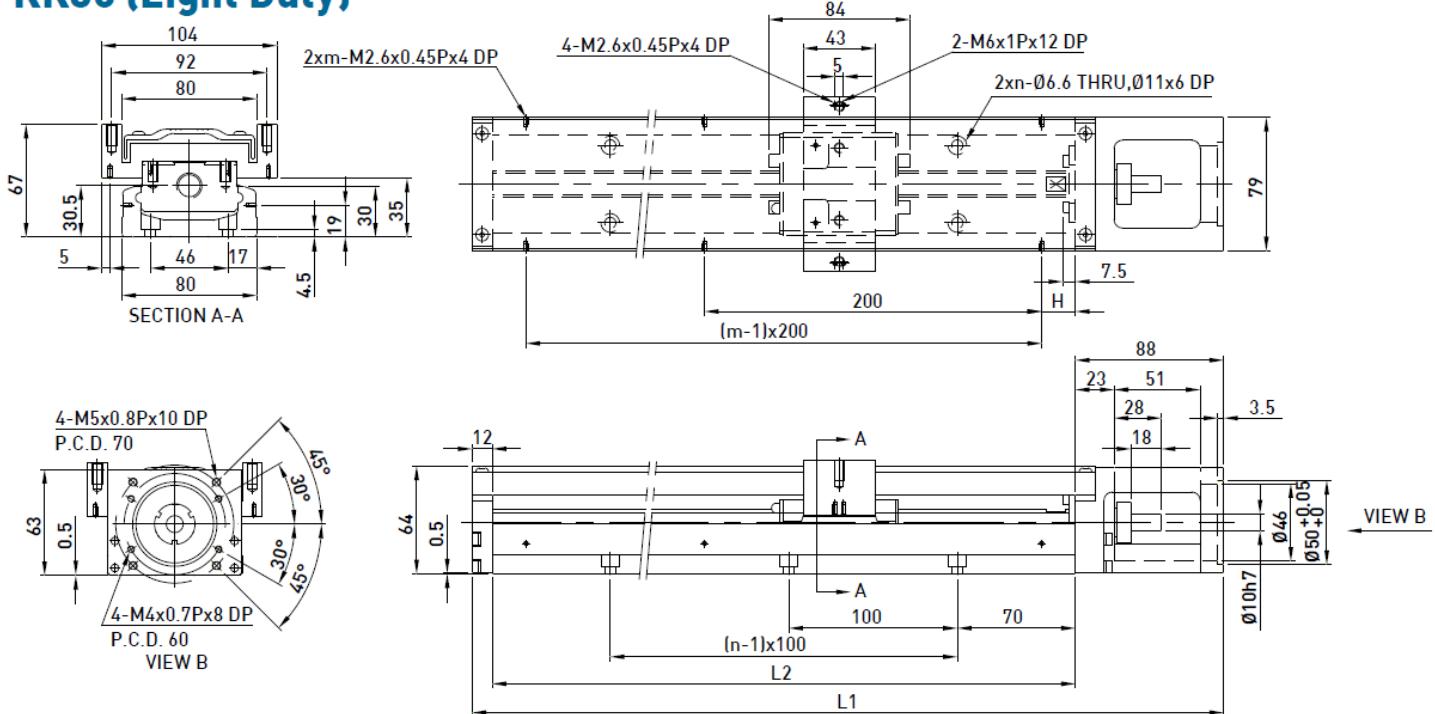
Note: Special ballscrew spindle end of 8 mm diameter is available, please contact hiwin if necessary.

KK80 (Standard)



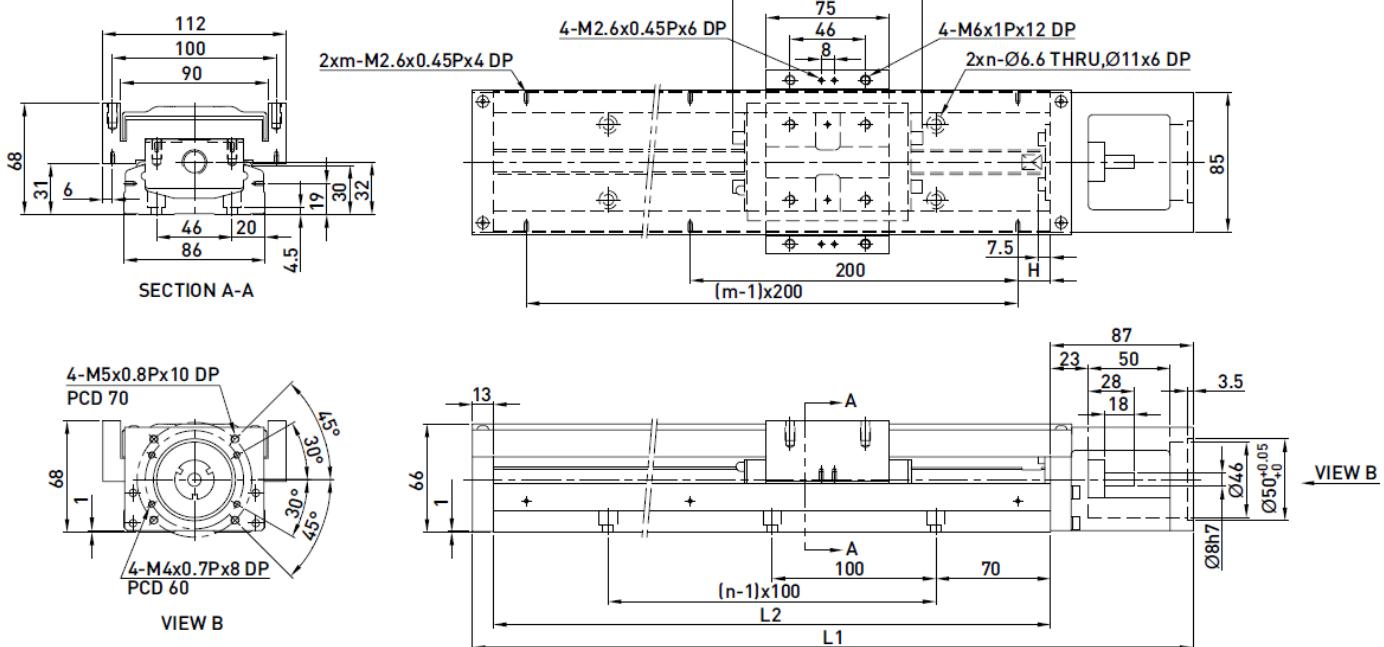
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block				A1 Block	A2 Block
340	440	216.5	108.5	70	3	2	6	7.1
440	540	316.5	208.5	20	4	3	7.2	8.3
540	640	416.5	308.5	70	5	3	8.4	9.5
640	740	516.5	408.5	20	6	4	9.7	10.8
740	840	616.5	508.5	70	7	4	10.9	12
940	1040	816.5	708.5	70	9	5	13.5	14.6

KK80 (Light Duty)



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		S1 Block	S2 Block				S1 Block	S2 Block
340	440	248.5	172.5	70	3	2	5.5	6.1
440	540	348.5	272.5	20	4	3	6.8	7.4
540	640	448.5	372.5	70	5	3	7.9	8.5
640	740	548.5	472.5	20	6	4	9.2	9.8
740	840	648.5	572.5	70	7	4	10.5	11.1
940	1040	848.5	772.5	70	9	5	13	13.6

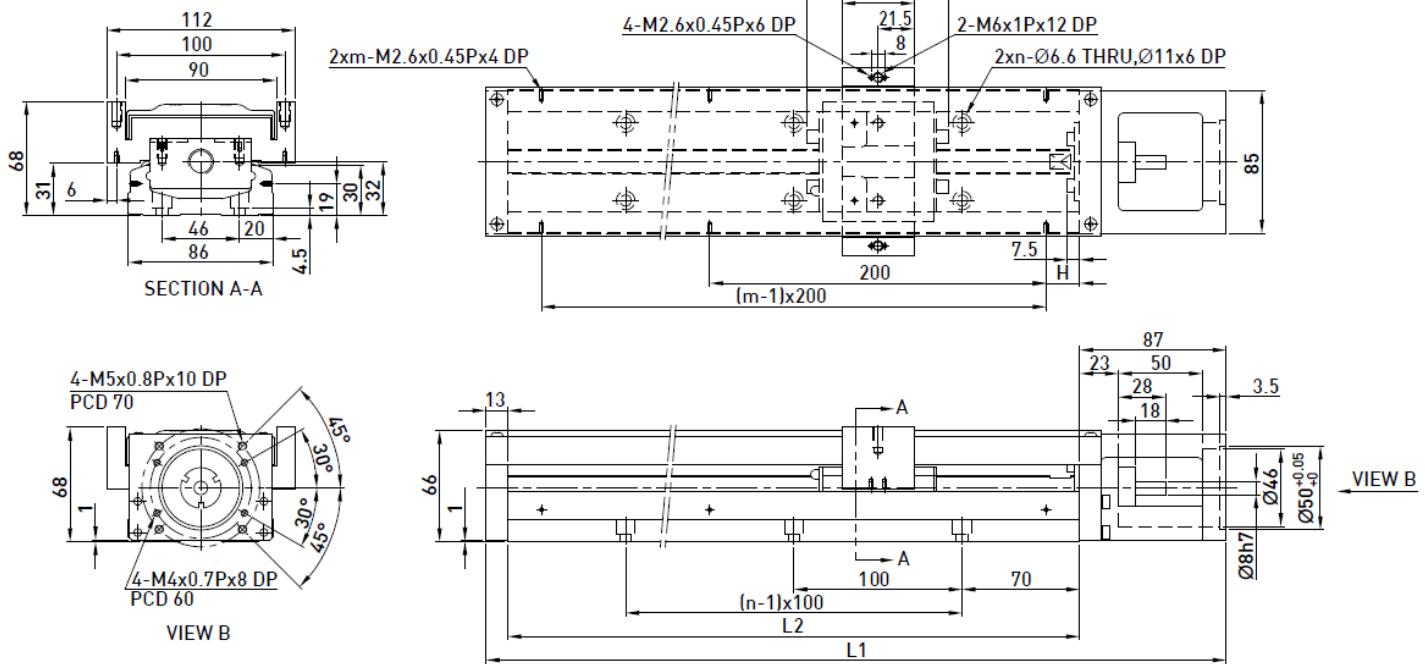
KK86 (Standard)



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block				A1 Block	A2 Block
340	440	216.5	108.5	70	3	2	6.5	7.3
440	540	316.5	208.5	20	4	3	7.8	8.6
540	640	416.5	308.5	70	5	3	9.0	9.8
640	740	516.5	408.5	20	6	4	10.3	11.3
740	840	616.5	508.5	70	7	4	11.6	12.4
940	1040	816.5	708.5	70	9	5	13.0	13.8

Note: Special ballscrew spindle end of 10 mm diameter is available, please contact hiwin if necessary.

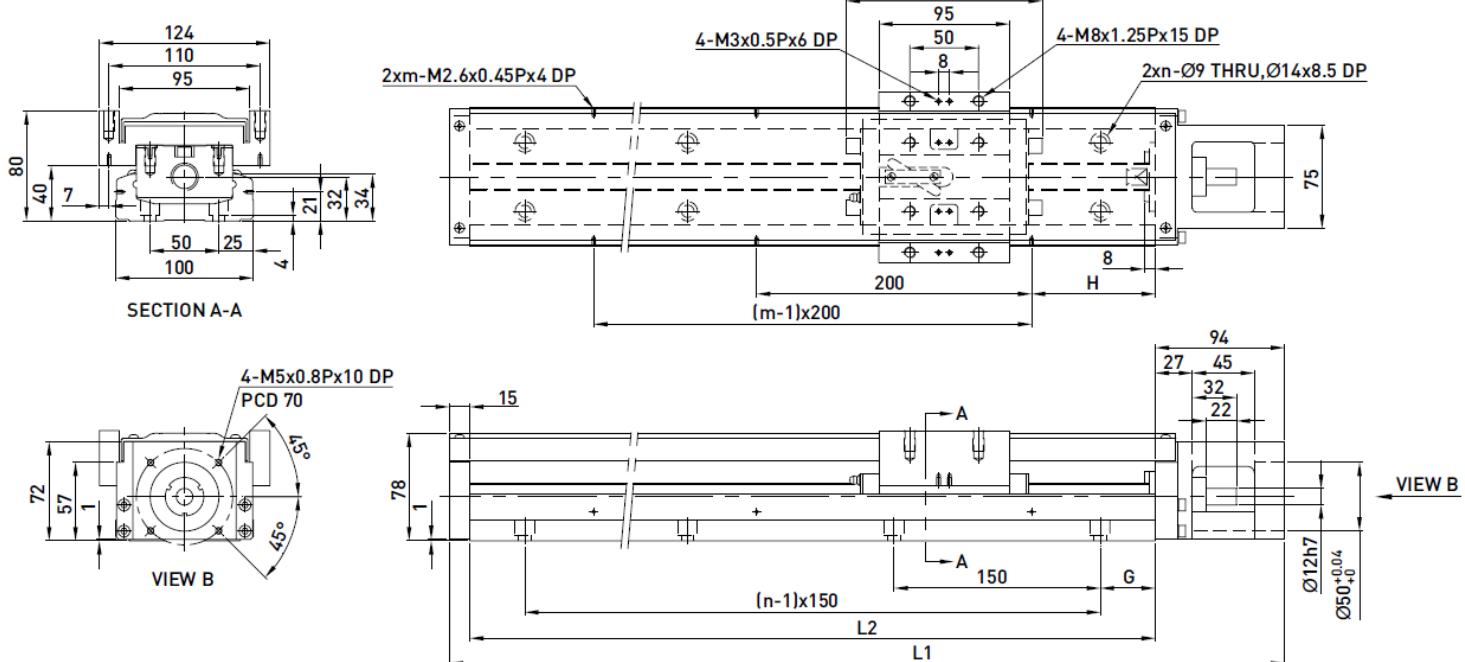
KK86 (Light Duty)



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		S1 Block	S2 Block				S1 Block	S2 Block
340	440	248.5	172.5	70	3	2	6.3	7.1
440	540	348.5	272.5	20	4	3	7.6	8.4
540	640	448.5	372.5	70	5	3	8.8	9.6
640	740	548.5	472.5	20	6	4	10.1	11.1
740	840	648.5	572.5	70	7	4	11.4	12.2
940	1040	848.5	772.5	70	9	5	12.8	13.6

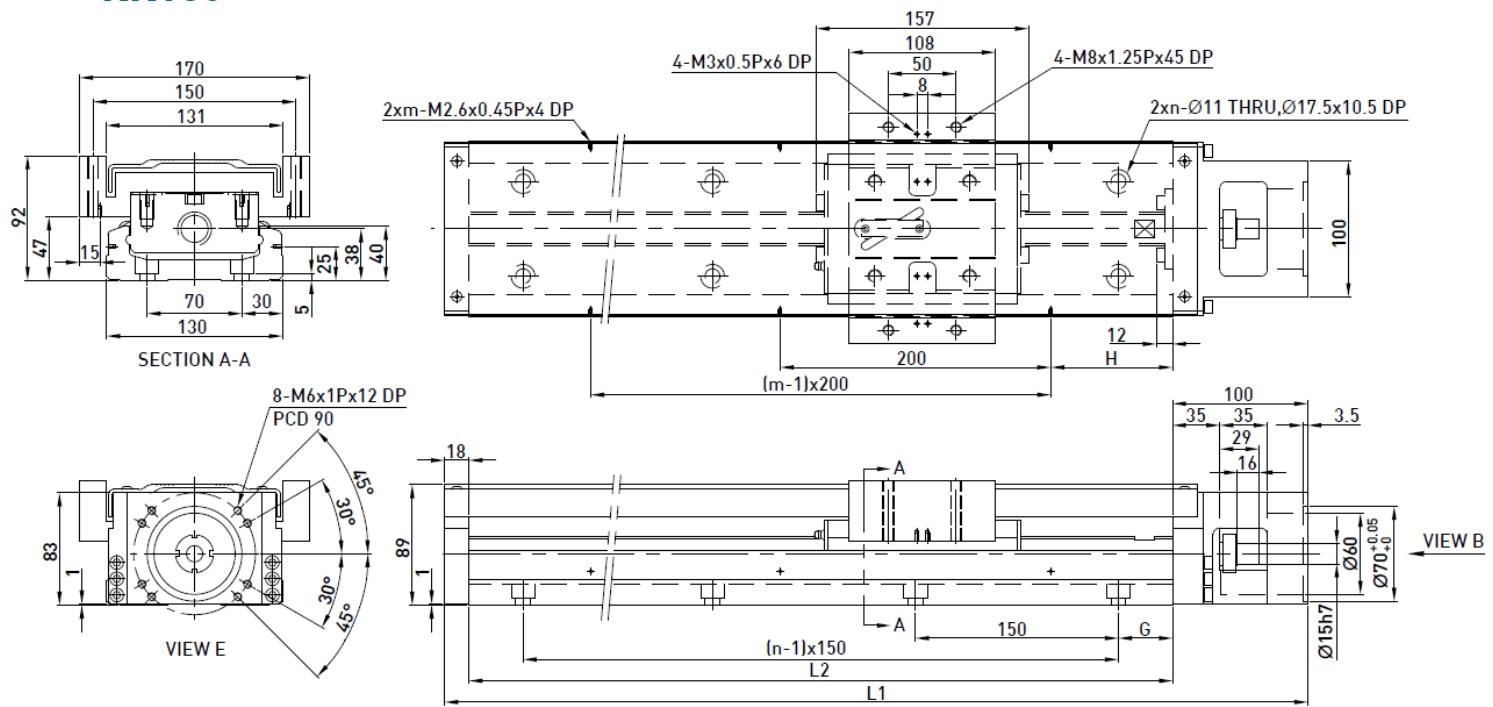
Note: Special ballscrew spindle end of 10 mm diameter is available, please contact hiwin if necessary.

KK100



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	H (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block					A1 Block	A2 Block
980	1089	828	700	40	90	7	5	20.4	22.1
1080	1189	928	800	15	40	8	6	22.2	23.9
1180	1289	1028	900	65	90	8	6	24.0	25.7
1280	1389	1128	1000	40	40	9	7	25.7	27.4
1380	1489	1228	1100	15	90	10	7	27.5	29.2

KK130



Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	H (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block					A1 Block	A2 Block
980	1098	811	659	40	90	7	5	31.9	35.9
1180	1298	1011	859	65	90	8	6	37.1	41.1
1380	1498	1211	1059	90	90	9	7	42.2	46.2
1680	1798	1511	1359	90	40	11	9	49.9	53.9

1.10 Motor Housing and Motor Adaptor Flange

1.10.1 Motor Selection

HIWIN Mikrosystem Servo Motor

Motor Output	Motor	Weight (kg)	Flange Selection								+Brake Weight (kg)	Driver	Weight (kg)	Remarks
			KK30	KK40	KK50	KK60	KK80	KK86	KK100	KK130				
50W	FRLS052□□A4□	0.45	-	F2	F2	F2	F3	F3	-	-	0.58	D2	1.25	220V
100W	FRLS102□□A4□	0.6	-	F2	F2	F2	F3	F3	-	-	0.76			220V
200W	FRLS202□□06□	1	-	-	-	-	F0	F0	F0	F1	1.5			220V
400W	FRLS402□□06□	1.45	-	-	-	-	F0	F0	F0	F1	1.86			220V
750W	FRMS752□□08□	2.66	-	-	-	-	-	-	F1	F2	3.32			220V

HIWIN Mikosystem Step Motor

Series	Model	Flange Selection								Weight (kg)	Built in Motor	Weight (kg)	Remarks
		KK30	KK40	KK50	KK60	KK80	KK86	KK100	KK130				
ST40	FRST011024	-	F3	F3	F5	-	-	-	-	0.3	STD-24A	0.09	single axis
ST55	FRST021024	-				-	-	-	-	0.55			
	FRST022024	-	F3	F3	F5	-	-	-	-	0.8			single axis
	FRST023024	-				-	-	-	-	1.18			
	FRST121024	-				-	-	-	-	0.58			
	FRST122024	-	F3	F3	F5	-	-	-	-	0.83			
	FRST123024	-				-	-	-	-	0.21			axis of symmetry

Motor couplings and customized motoradaptor flanges

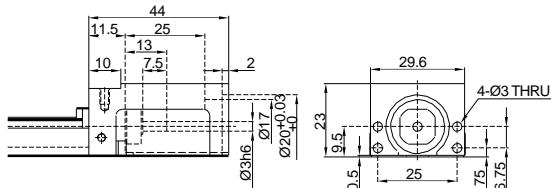
For other motor brands and motor types than HIWIN please consult Aratron to help you select the right motorflange and coupling combination



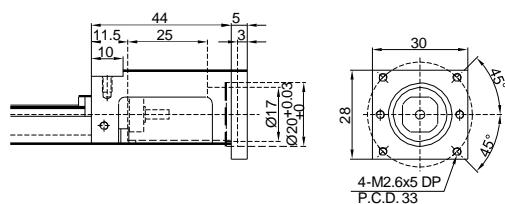
1.10.2 Motor Housing and Motor Adaptor Flange

KK30

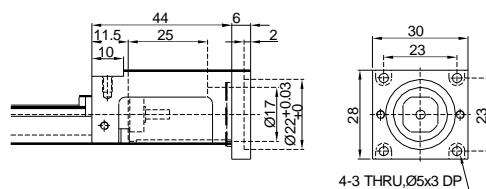
Motor Housing F0



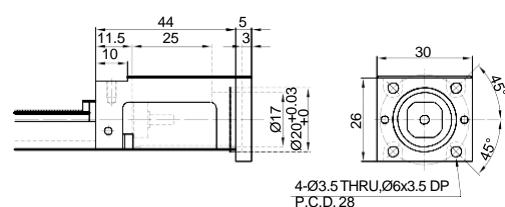
Motor Adaptor Flange F1



Motor Adaptor Flange F3

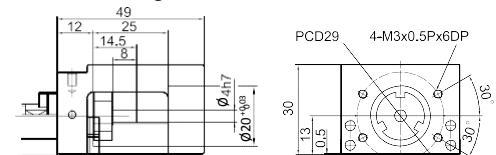


Motor Adaptor Flange F2

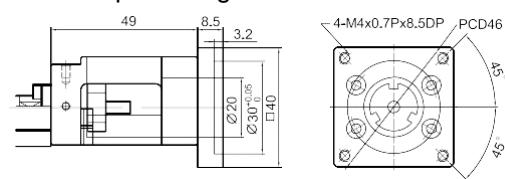


KK40

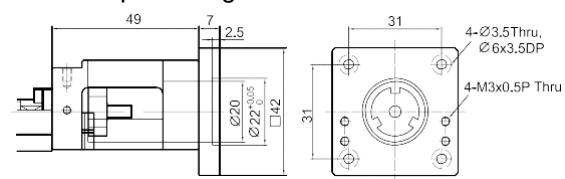
Motor Housing F0



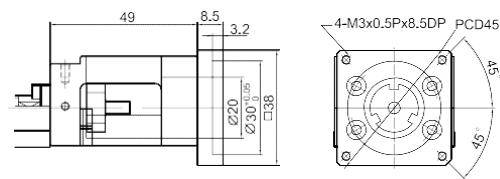
Motor Adaptor Flange F1



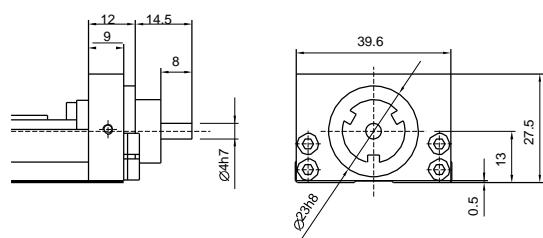
Motor Adaptor Flange F3



Motor Adaptor Flange F2



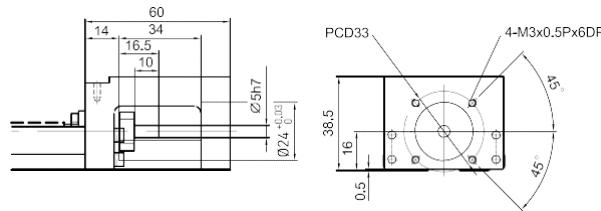
Mount Housing H0



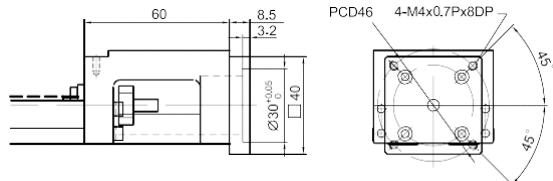
For customized motorflanges and couplings please consult Aratron

KK50

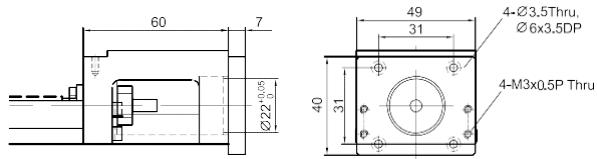
Motor Housing F0



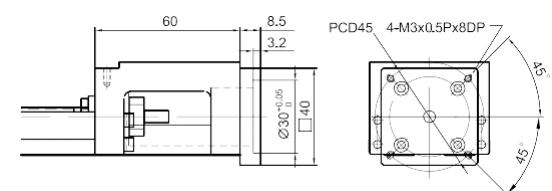
Motor Adaptor Flange F1



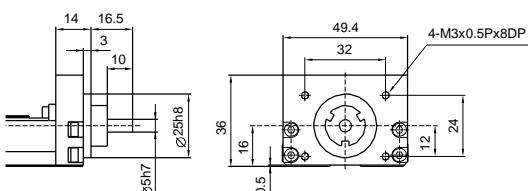
Motor Adaptor Flange F3



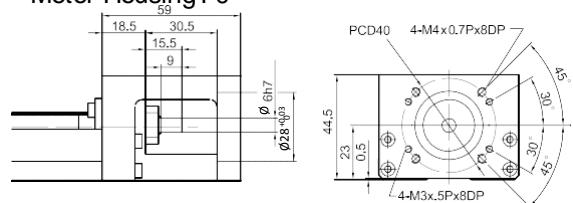
Motor Adaptor Flange F2



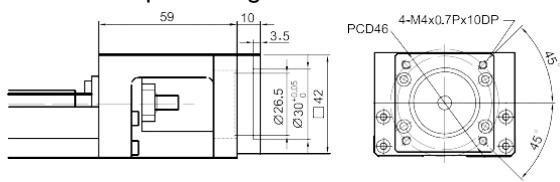
Mount Housing H0

**KK60**

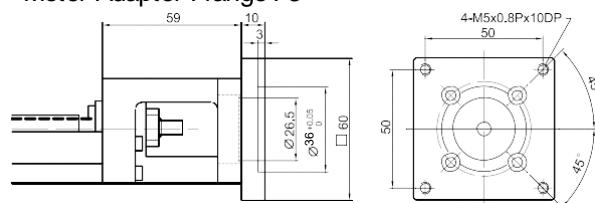
Motor Housing F0



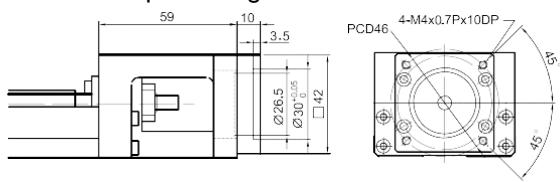
Motor Adaptor Flange F1



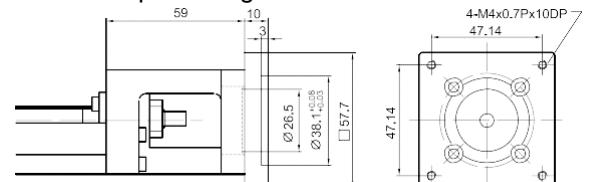
Motor Adaptor Flange F3



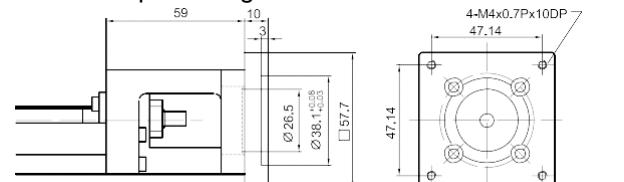
Motor Adaptor Flange F2



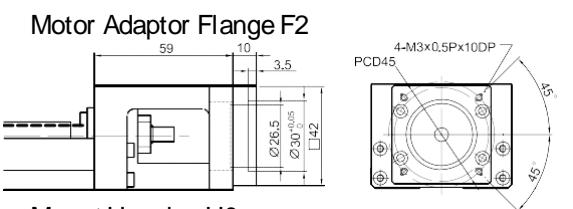
Motor Adaptor Flange F4



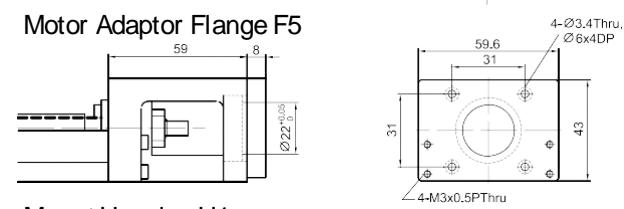
Motor Adaptor Flange F5



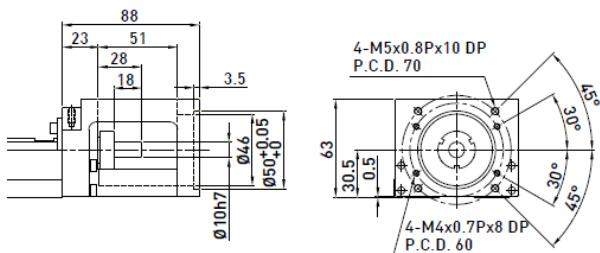
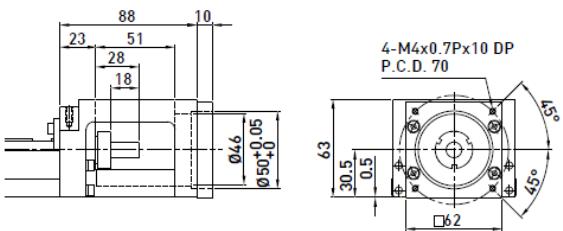
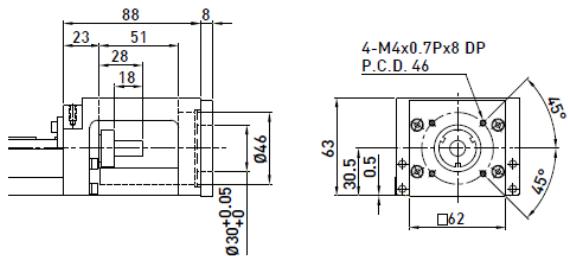
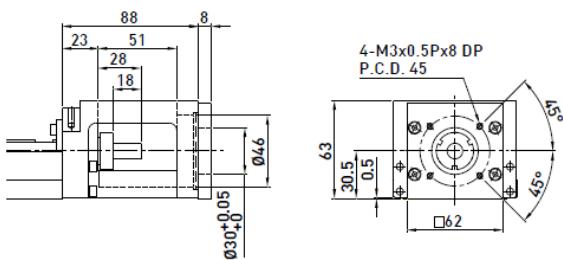
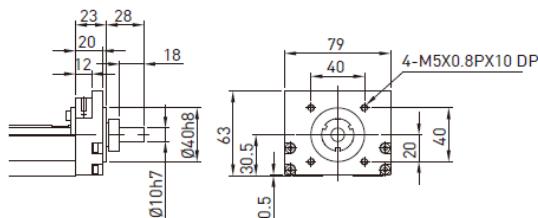
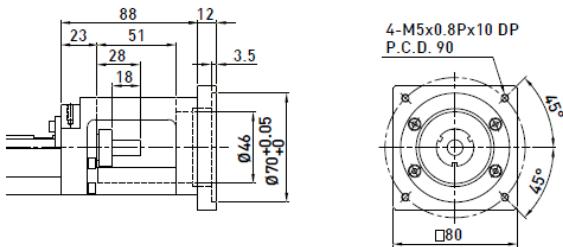
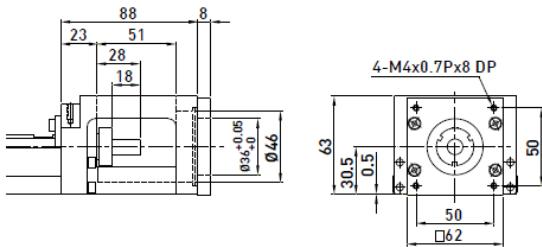
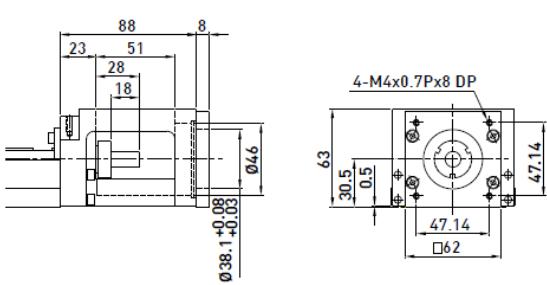
Mount Housing H0



Mount Housing H1



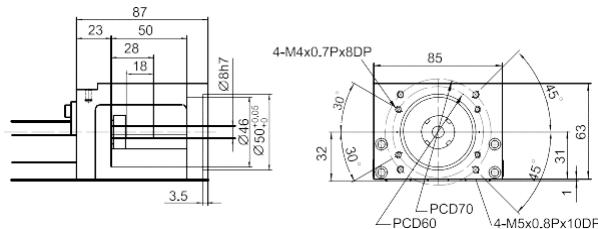
For customized motorflanges and couplings please consult Aratron

KK80**Motor Housing F0****Motor Adaptor Flange F1****Motor Adaptor Flange F2****Motor Adaptor Flange F3****Mount Housing H0****Motor Adaptor Flange F4****Motor Adaptor Flange F5****Motor Adaptor Flange F6**

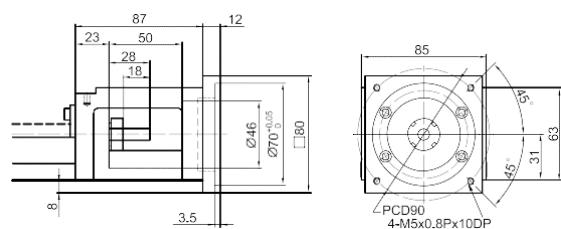
For customized motorflanges and couplings please consult Aratron

KK86

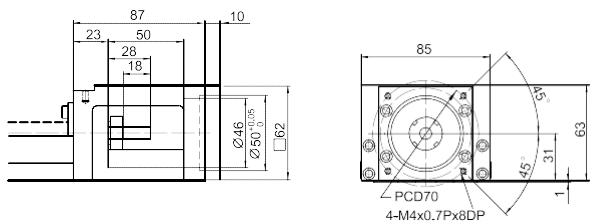
Motor Housing F0



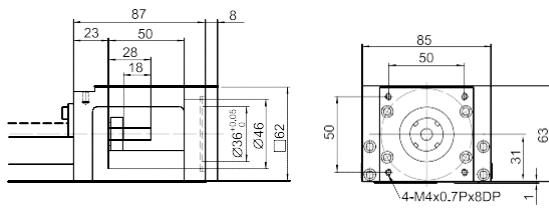
Motor Adaptor Flange F4



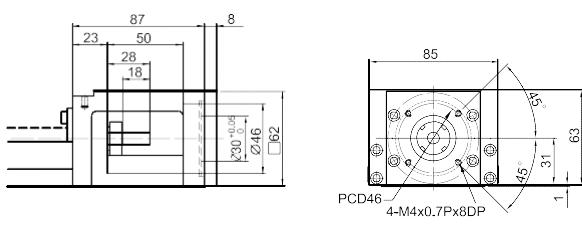
Motor Adaptor Flange F1



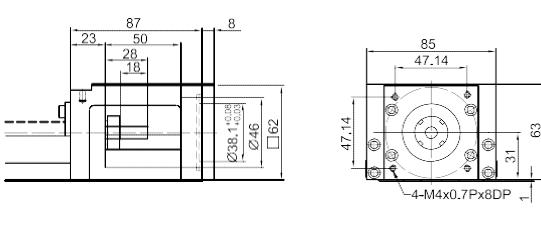
Motor Adaptor Flange F5



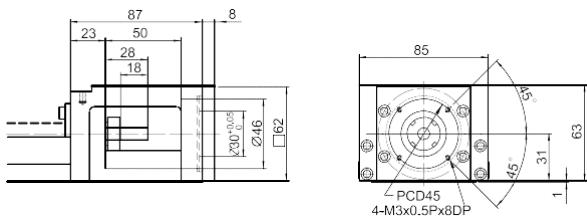
Motor Adaptor Flange F2



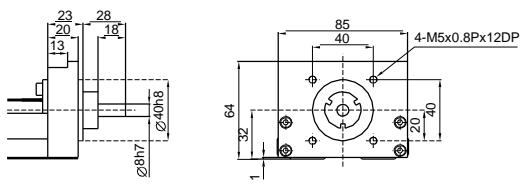
Motor Adaptor Flange F6



Motor Adaptor Flange F3



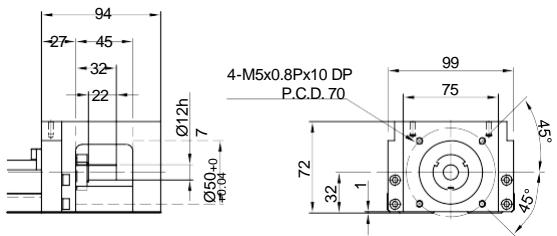
Mount Housing H0



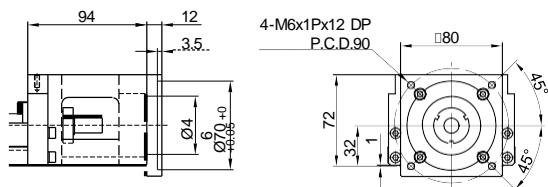
For customized motorflanges and couplings please consult Aratron

KK100

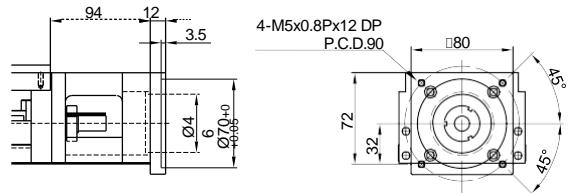
Motor Housing F0



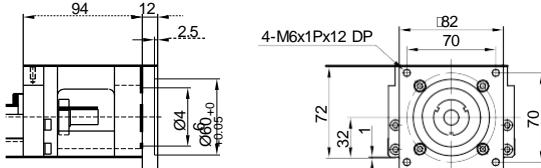
Motor Adaptor Flange F1



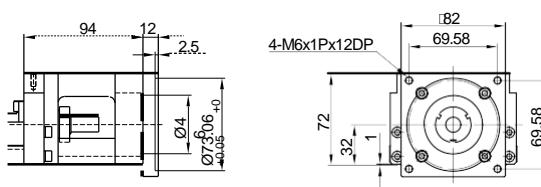
Motor Adaptor Flange F2



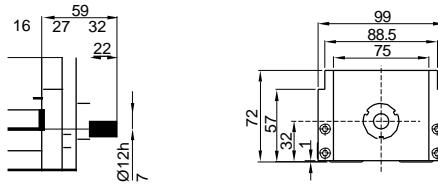
Motor Adaptor Flange F3



Motor Adaptor Flange F4

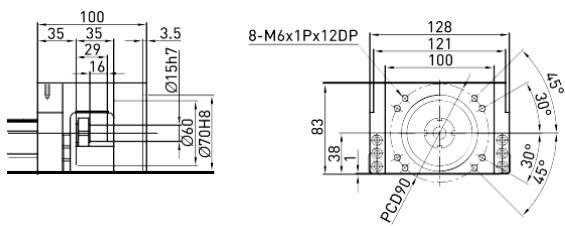


Mount Housing H0

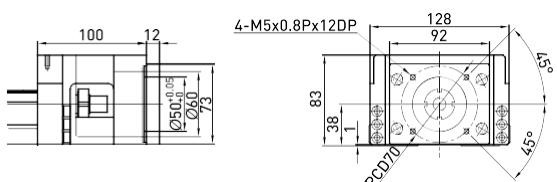


KK130

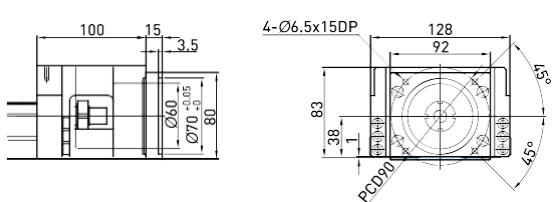
Motor Housing F0



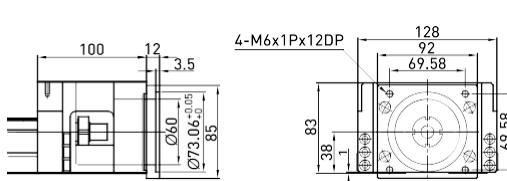
Motor Adaptor Flange F1



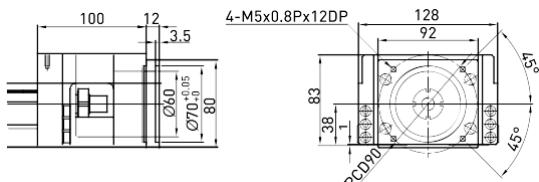
Motor Adaptor Flange F2



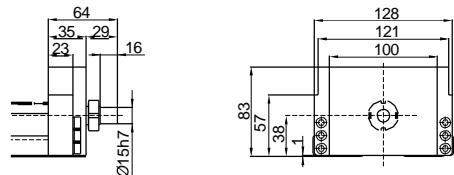
Motor Adaptor Flange F3



Motor Adaptor Flange F4

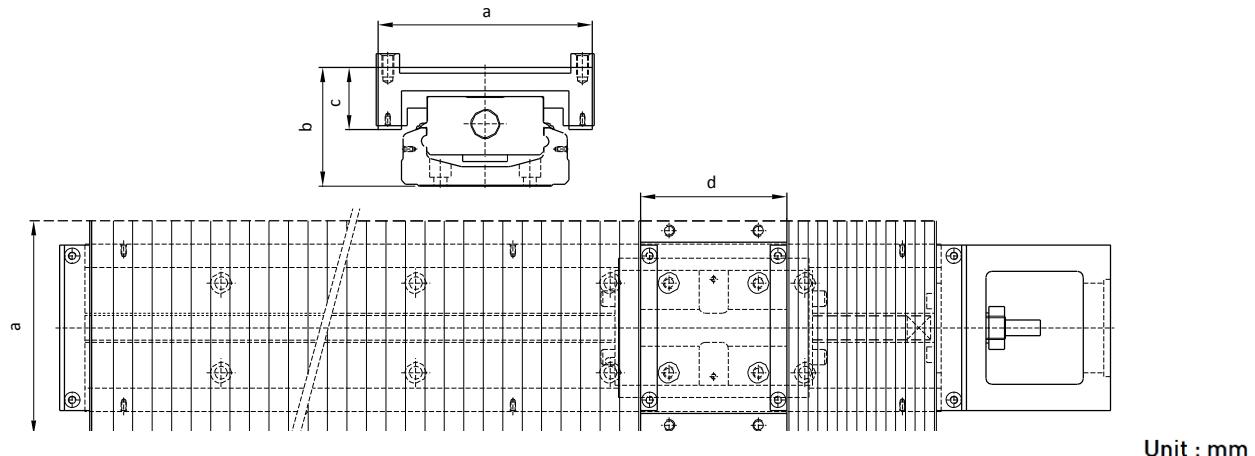


Mount Housing H0



For customized motorflanges and couplings please consult Aratron

1.11 Optional Accessories

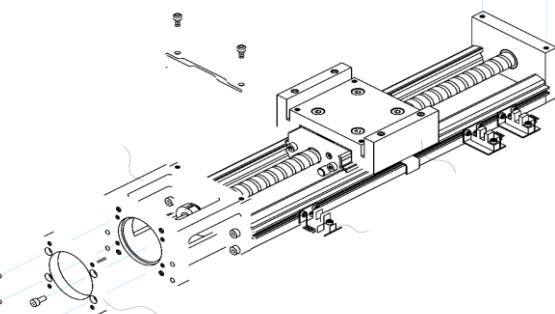
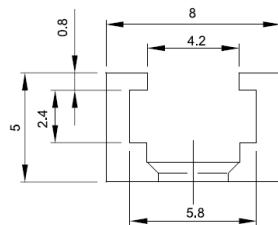


Unit : mm

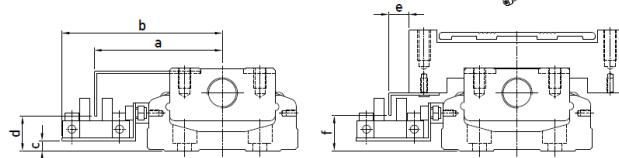
Nominal Width	Rail Length	Stroke	Min.	Max.	a	b	c	d
KK40	100	35	16	51	60	29.5	19	33
	150	63	27	90				
	200	93	37	130				
KK50	150	60	21.5	81.5	62	37	19	47
	200	95	29	124				
	250	130	36.5	166.5				
	300	160	46.5	206.5				
KK60	150	56	16	80	84	45.5	24	54
	200	106	20	126				
	300	166	40	206				
	400	234	56	290				
	500	306	70	376				
	600	366	90	456				
KK80	340	181	42	223	106	62.5	34.5	75
	440	257	54	311				
	540	333	66	399				
	640	409	78	487				
	740	485	90	575				
	940	649	108	757				
KK86	340	188	36	224	110	61	32	75
	440	260	50	310				
	540	336	62	398				
	640	408	76	484				
	740	480	90	570				
	940	640	110	750				
KK100	980	769	58	827	150	73	41	95
	1080	855	65	920				
	1180	945	70	1015				
	1280	1029	78	1107				
	1380	1115	85	1200				
KK130	980	748	62	810	180	89	53	108
	1180	916	78	994				
	1380	1084	94	1178				
	1680	1346	113	1459				

1.12 Switch

Switch rail

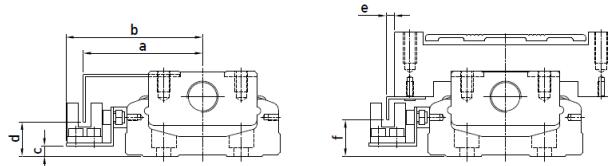


Switch



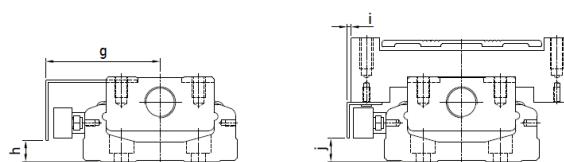
Nominal Width	a	b	c	d	e	f
KK40	41.5	54.1	0.5	10.8	15.3	12
KK50	45.5	59	1	10	15	11
KK60	51	63.8	4	14.5	8	13
KK80	61	74	8	19	9	19
KK86	63.5	76.7	8	18	8	18
KK100	71	84	10	20	9	20
KK130	85.5	98.5	14	24	0.5	23

Switch 1 : OMRON EE-SX-671



Nominal Width	a	b	c	d	e	f
KK40	36.5	44.3	1	9.8	10.5	12
KK50	41.3	48	1	10.5	10.2	11
KK60	46.2	52.8	4	14	3.2	13
KK80	56	63	8	18	4	18
KK86	59	65.7	8	18	3	18
KK100	66	73	10	20	4.2	20
KK130	80.8	87.5	14	23.5	-4.1	23.5

Switch 2 : OMRON EE-SX-674



Nominal Width	g	h	i	j
KK40	40	5.5	13.5	5.5
KK50	39.5	5.7	7	19.5
KK60	44.5	9	2	9
KK80	54	12	2	13
KK86	57	13	1	13
KK100	64.5	15	2.5	15
KK130	79	19	-6	19

Switch 3 : PANASONIC GX-F12A

Switch 4 : PANASONIC GX-F12A-P



Nominal Width	g	h	i	j
KK30	28	1.8	5.8	1.8

Switch 5 : YAMATAKE APM-D3B1-03

9.4 Cross table adapter

- Adapter for connecting two or more KK axes crosswise into one X-Y system
- Adapter for KK axes available with and without aluminium cover
- Cam switch for limit switch can be adapted
- Black anodised surface
- Delivered in a set including mounting material



9.4.1 Cross table adapter for KK linear axes without aluminium cover

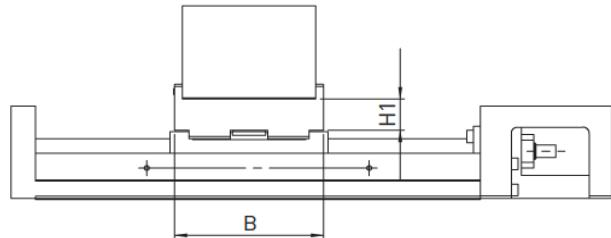
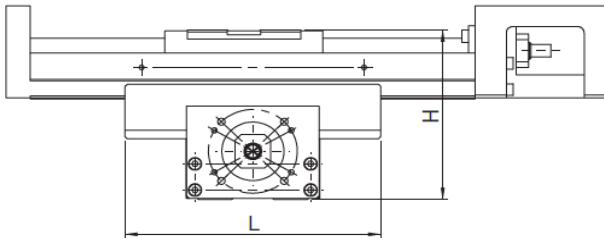


Table 9.5 Dimensions of cross table adapter without cover

Article number	Lower axis	Upper axis	H	H1	L	B
10-000604	KK40	KK40	47	7	70	47
10-000606	KK50	KK40	56	10	70	47
10-000608	KK50	KK50	62	10	90	57
10-000610	KK60	KK50	74	15	90	57
10-000612	KK60	KK60	81	15	115	67
10-000614	KK86	KK60	95	16	110	67
10-000616	KK86	KK86	108	16	120	97

Unit: mm

9.4.2 Cross table adapter for KK linear axes with aluminium cover

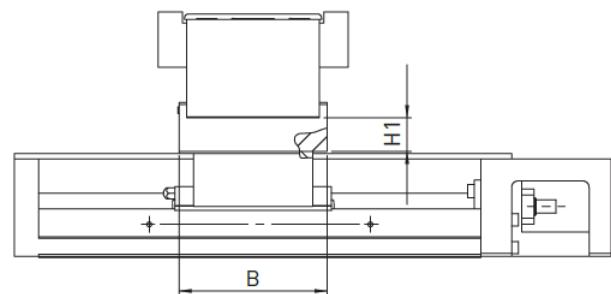
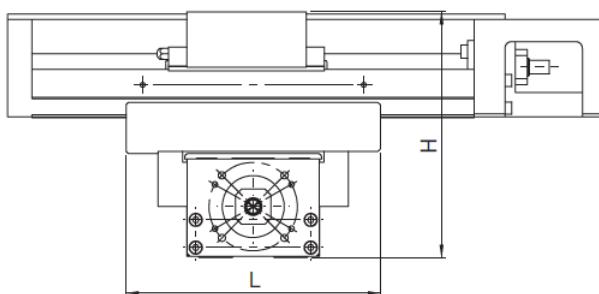


Table 9.6 Dimensions of cross table adapter with cover

Article number	Lower axis	Upper axis	H	H1	L	B
10-000605	KK40	KK40	74	10	70	47
10-000607	KK50	KK40	82	10	70	47
10-000609	KK50	KK50	90	10	90	57
10-000611	KK60	KK50	103	15	57	57
10-000613	KK60	KK60	111	15	115	67
10-000615	KK86	KK60	132	16	144	67
10-000617	KK86	KK86	152	16	144	97

Unit: mm

Servomotors

HIWIN



EtherCAT®
Technology Group



Example of some useful functions

High speed
response

High acceleration
response

Vibration
Suppression
Feature

Built-in accuracy
Improvement
features

Electronic gear
ratio and
Encoder Emulator

High speed
Communication
Interface

Simple set up

HIWIN D2 Servo Drivers

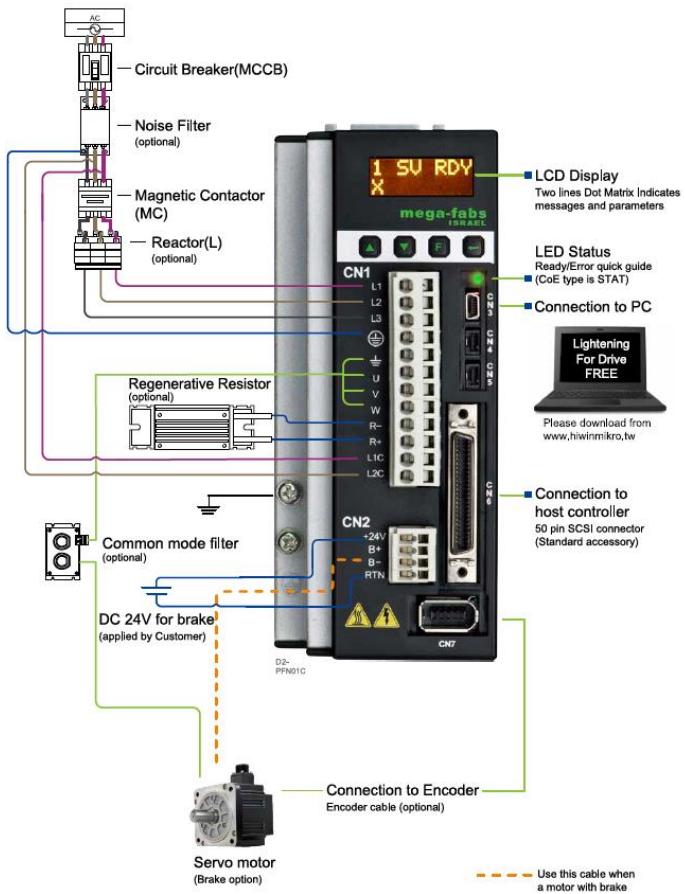
Intelligent, flexible and programmable Driver. Free software "lightening" that simplifies parameter setting for homing, parameter settings and programming processes. D2 is suitable for positioning, speed and torque control but can also work standalone as a simple programmable PLC.

Options: Modbus (RTU and ASCII) for the serial communication. EtherCAT interface (CoE) for advanced CNC control, or (mega-ulink) that provides good interface with the API-compatible with other software and programming languages. Drivers can work Stand Alone" as a simple PLC, or as a slave to an external PLC or PC control system.



D2 Servodriver Codes & Interfaces

HIWIN



Code	1	2	2a	3	4	5	6	7	8	9	10	11	12
Example	D	2	T	-	0	4	2	3	-	S	-	B	0

Product
HIWIN servo drive D2 = D2

Type
17bit encoder only = T
13bit encoder only = Blank

Rated output
100W = 01
400W = 04
1000W = 10
2000W = 20

Voltage range
1/3 phase 110/220VAC = 23
3 phase 220VAC = 32

Interface
Standard = S
EtherCAT(CoE) = E
EtherCAT(mega-ulink) = F
Standard with extension I/O modules = K
Modbus = T

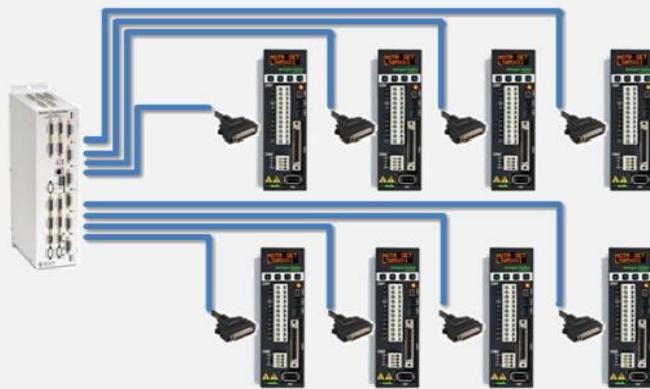
Frame size
A frame(suggestion: 100W rated output) = A
B frame(suggestion: 400W rated output) = B
C frame(suggestion: 1000W rated output) = C
D frame(suggestion: 2000W rated output) = D

Encoder type
13bit less-wire incremental encoder = 0
17bit serial incremental encoder(HIWIN17) = 4
Dual Loop (Full closed loop) and 17bit serial absolute encoder = 5

Interface Model	Standard	EtherCAT(CoE)	EtherCAT(mega-ulink)	Standard with extension I/O modules	Modbus
D2Iframe A-C	0	0	0	X	0
D2Iframe A-CI	0	0	0	0	△
D2Iframe D	△	0	0	△	△

● Traditional command interfaces

- Pulse command
- Voltage command



● EtherCAT interfaces

- Less wire/Cost down
- Reduce disturbance
- Access drive parameters directly

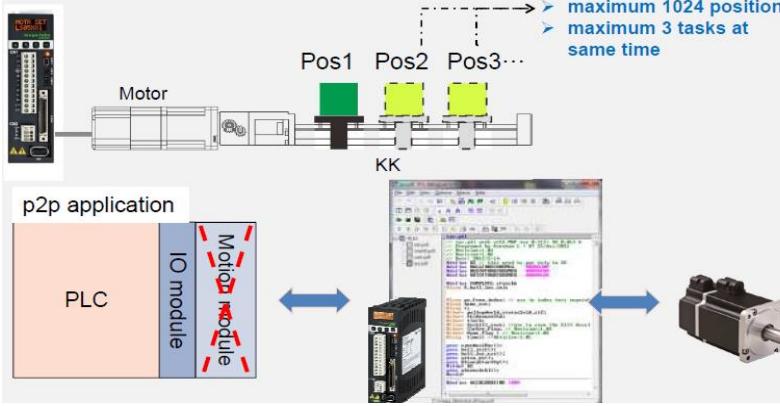


● mega-ulink interfaces

- Cost efficiency solution
- No motion control card
- Point-to-point application



● Process description language (PDL)



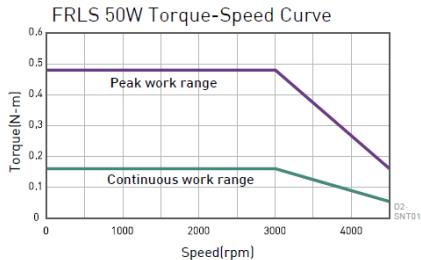
O: Available X:Unavailable △:Please contact with Sales Representative.

Note: Single and three phase AC voltage drive only support rated output which is lower or equal to 1000W.

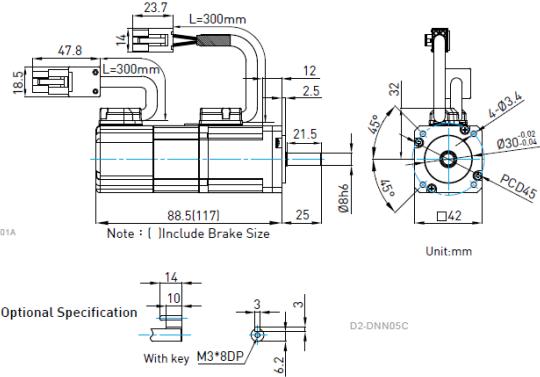
Servomotors

HIWIN

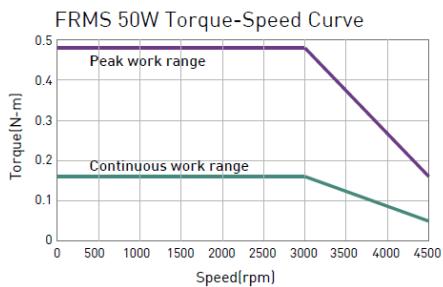
■ Torque-Speed Curve



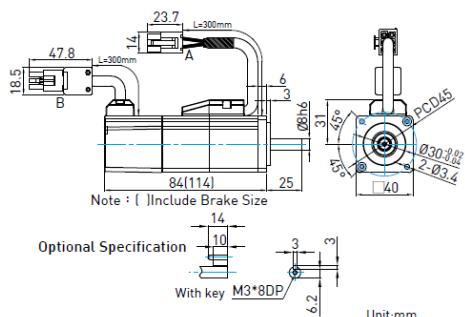
■ Dimensions



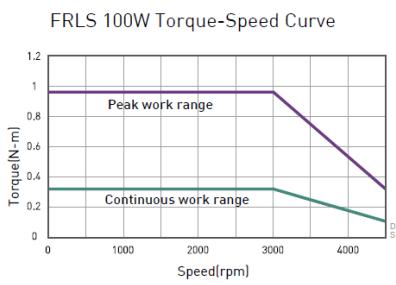
■ Torque-Speed Curve



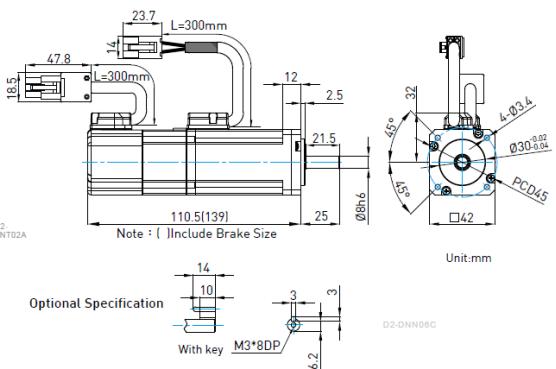
■ Dimensions



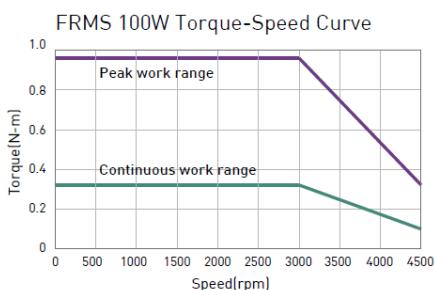
■ Torque-Speed Curve



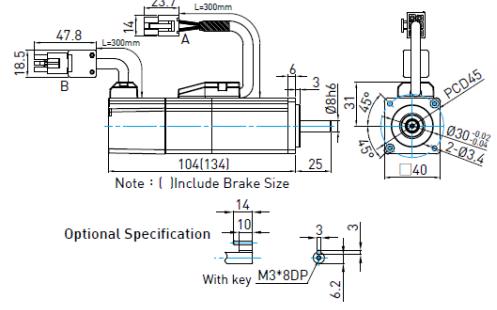
■ Dimensions



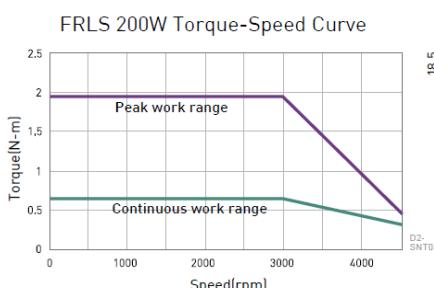
■ Torque-Speed Curve



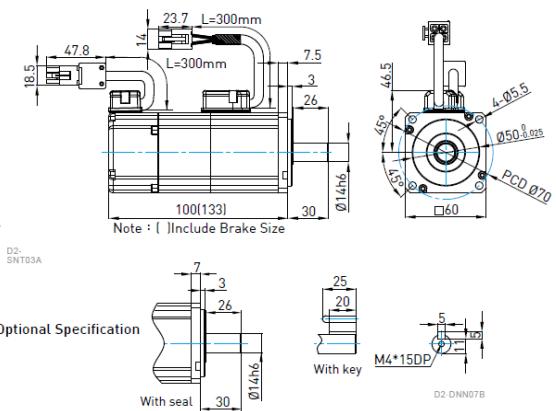
■ Dimensions



■ Torque-Speed Curve



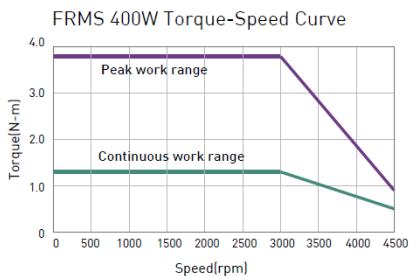
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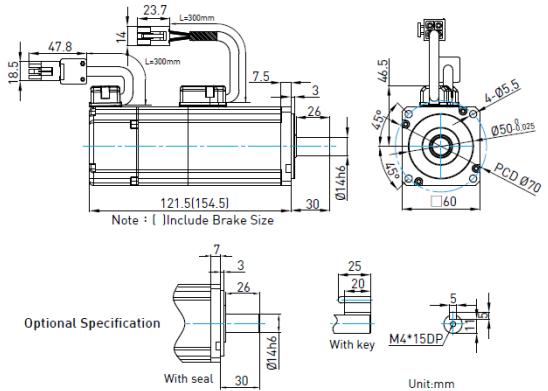
Servomotors

HIWIN

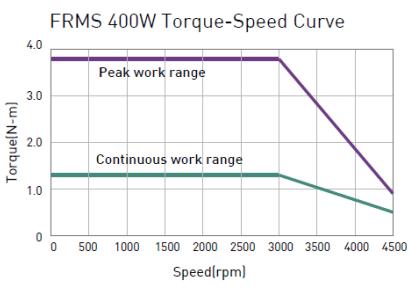
■ Torque-Speed Curve



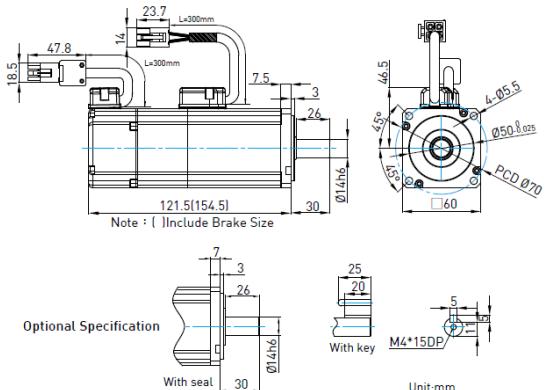
■ Dimensions



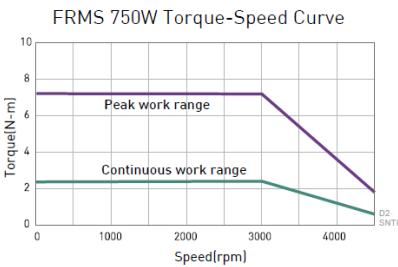
■ Torque-Speed Curve



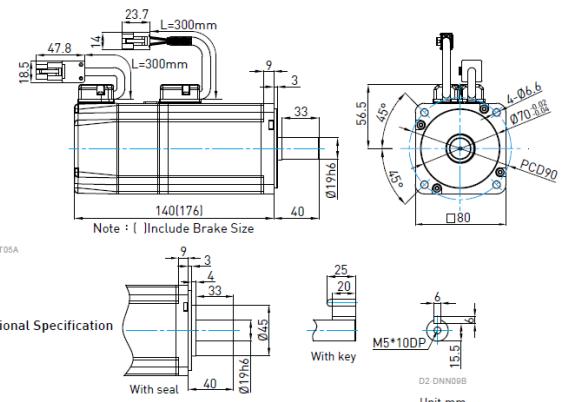
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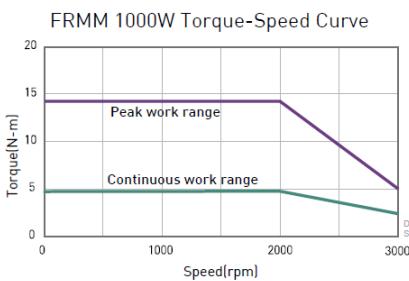
■ Torque-Speed Curve



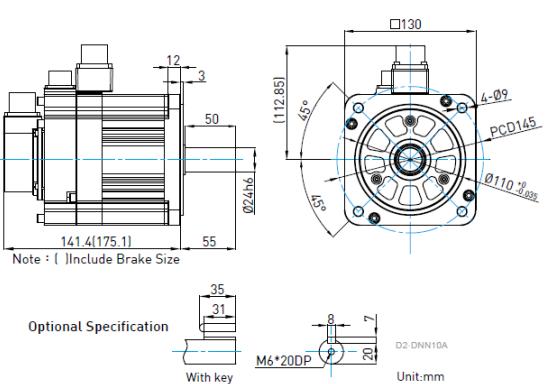
■ Dimensions



■ Torque-Speed Curve

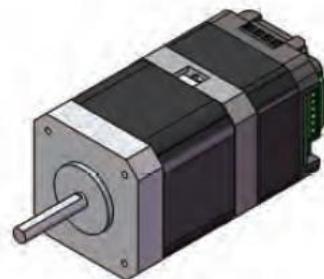
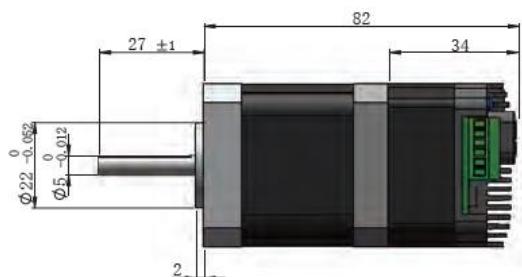
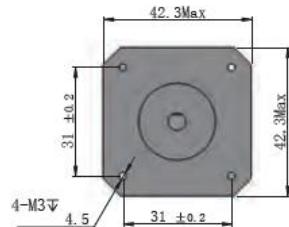


■ Dimensions



Stepermotors

NEMA17 Sized RS232 / CAN Control Integrated Closed-loop Servo Steppers



Features

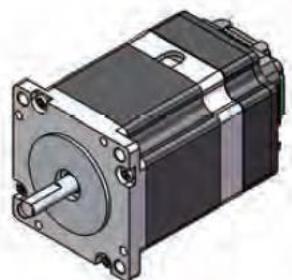
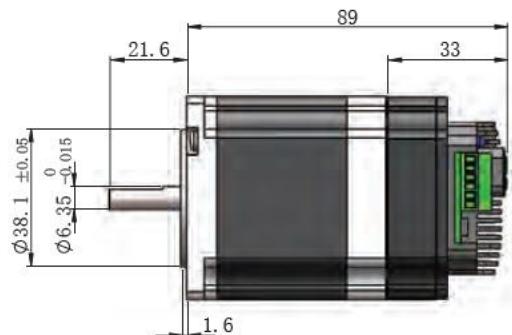
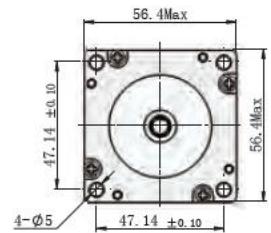
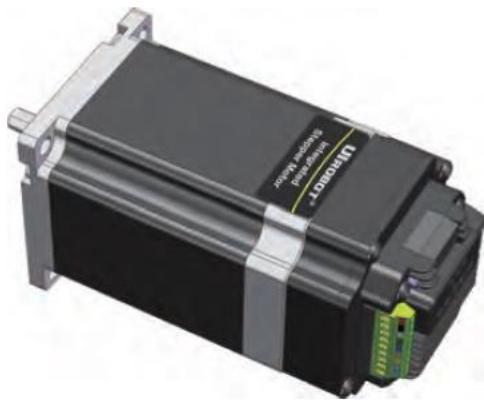
1. Closed-loop control to maintain accurate position without loss of synchronization.
2. Stable holding position without oscillation after completing positioning.
3. User friendly interface. Users are not required to manipulate register or interpret a complicated syntax.
4. Advanced motion control. Linear/non-linear acceleration/deceleration, S-curve displacement and position control can be maintained with advanced motion control module included. Motor can accelerate from 0 to 4,000 RPM in 0.25s and from 0 to 6,600 RPM in 0.5s.
5. Real-time notification and localized processing in motor stall situation.
6. Real-time motor status monitoring.
7. Real-time data acquisition/collection, sensor input change notification and localized processing/controlling.
8. Control event based real-time TTL output control.
9. RTCN (Real-Time Change Notification) sends back any incurring predefined control events in a real time fashion.

MODEL: UIM42STH48E241 / UIM42STH48E242

Motor	Encoder	Controller Options	
		Serial Port(UIM241)	CAN2.0B(UIM242)
NEMA17 Motor Frame: 42mm Length: 48mm 2 phase 1.8 deg./full step Phase current: 1.68A Holding torque: 0.44N·m Inductance/phase: 2.8mH up to 6600RPM	Quadrature Encoder 200- 2,000 Pulses/revolution	12-40VDC (48VDC Optional) RS232 three-wire serial communication Full-16th micro-stepping Max 57600 bps DSP microprocessor 2 sensor input ports, one accepts analog signal (12 bits) 13 programmable actions triggered by 8 sensor events	(48VDC Optional)12-40VDC (48VDC Optional)CAN2.0B active communication2-wire, max 100 nodes Full to 1/16 micro-stepping Max 1M bps, long distance DSP microprocessor 3 sensor input ports, one accepts analog signal (12 bits) 1 TTL output 13 programmable actions triggered by 8 sensor events (Notice: UIM2501 converter may required for each network to provide RS232 interface)

Stepermotors

NEMA23 Sized
RS232 / CAN Control
Integrated Closed-loop Servo Steppers



Features

1. Closed-loop control to maintain accurate position without loss of synchronization.
2. Stable holding position without oscillation after completing positioning.
3. User friendly interface. Users are not required to manipulate register or interpret a complicated syntax.
4. Advanced motion control. Linear/non-linear acceleration/deceleration, S-curve displacement and position control can be maintained. with advanced motion control module included. Motor can accelerate from 0 to 4,000 RPM in 0.25s and from 0 to 6,600 RPM in 0.5s.
5. Real-time notification and localized processing in motor stall situation.
6. Real-time motor status monitoring.
7. Real-time data acquisition/collection, sensor input change notification and localized processing/controlling.
8. Control event based real-time TTL output control.
9. RTCN (Real-Time Change Notification) sends back any incurring predefined control events in a real time fashion.

Example Models: UIM57STH56E241 / UIM57STH76E241 / UIM57STH56E242 / UIM57STH76E242 (Contact a Sales Rep. for Details)

Motor	Encoder	Controller Catagories	
		Serial Port(UIM241)	CAN2.0B(UIM242)
NEMA23 Motor Frame: 57mm Length: 56/76mm 2 phase 1.8 deg./full step Phase current: 2.8A Holding torque: 1.26 N·m Inductance/phase: 2.5 mH	Quadrature Encoder 200- 2,000 Pulses/revolution	12-40VDC (48VDC Optional) RS232 three-wire serial communication Full-16th micro-stepping Max 57600 bps DSP microprocessor 2 sensor input ports, one accepts analog signal (12 bits) 9 programmable actions triggered by 6 sensor events	12-40VDC (48VDC Optional) CAN2.0B active communication 2-wire, max 100 nodes Full to 1/16 micro-stepping Max 1M bps, long distance DSP microprocessor 3 sensor input ports, one accepts analog signal (12 bits) 1 TTL output 9 programmable actions triggered by 8 sensor events (Notice: UIM2501 converter may required for each network to provide RS232 interface)

Stepermotors

RS232 Control Interface

Miniature Integrated Stepper Motor Motion Controller

Features

Miniature Integral Design

- 42.3mm x 42.3mm x 16.5mm
- Fit onto motors seamlessly
- Die-cast aluminum enclosure



Motor Drive Characteristics

- Wide supply voltage 12 - 40VDC (48VDC Optional)
- Max output current 2A/4A/8A, instruction adjustable
- Full step to 16th micro-stepping resolution
- Dual full H-bridge with PWM constant current control
- Accurate micro-stepping and current control

RS232 Interface

- RS232 three-wire serial communication
- Max baud rate 57600 bps

Embedded DSP Microprocessor

- Hardware DSP, 64bit calculation precision
- Linear/non-linear acceleration/deceleration
- S-curve, PT / PVT displacement control
- Support quadrature encoder, closed loop control
- 2 sensor input ports
- 8 programmable real-time event-based change notifications
- 6 programmable actions triggered by 13 sensor events

Description

UIM241XX controllers are miniature stepper motor controllers with RS232 control interface. The user device controls the UIM241XX through RS232 using ASCII coded instructions. UIM241XX controllers support open-loop and quadrature encoder (QE) closed-loop control. The UIM241XX architecture comprises communication, basic motion control, absolute position counter, QE interface and real-time event change notification modules. Embedded 64-bit calculation precision DSP controller guarantees the real-time control process. Furthermore, there are 3 optional advanced modules: Advanced Motion Control Module, QE Based Closed-Loop Control Module and Sensor Control Module. With UIM241 Advanced Motion Control, selected NEMA 17/23 motors can ramp up to 4000 RPM in 0.25 seconds. UIM241 controllers can be mounted onto NEMA17/23/34/42 series stepper motor through adapting flanges. Enclosure is made of die-cast aluminum to provide a rugged durable protection and improves the heat dissipation.

Characteristics

Electrical Characteristics (Ambient Temperature 25°C)

Supply Power Voltage	12V - 40VDC (48VDC Optional)
Motor Output Current	Adjustable 2A/4A/8A
Driving Mode	PWM constant current
Stepping Resolution	1, 1/2, 1/4, 1/8, 1/16 micro-stepping
Insulation Resistance	>100MΩ
Dielectric Strength	0.5KV in one minute

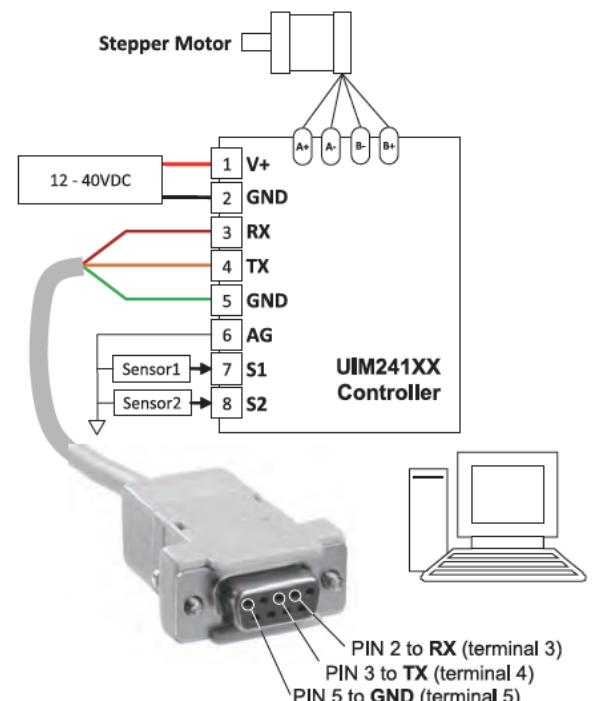
Communication (Ambient Temperature 25°C)

Communication protocol	RS232
Wiring Method	3-wire:TX, RX, GND
Baud Rate	MAX 57600 bps, Instruction adjustable

Environment Requirements

Cooling	Free Air
Environment	Avoid dust, oil mist and corrosive gases
Temperature	-40 °C - +85 °C
Humidity	<80%RH , no condensation, no frosting
Vibration	3G Max

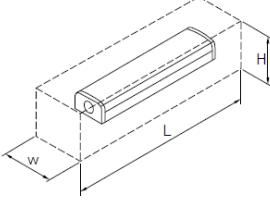
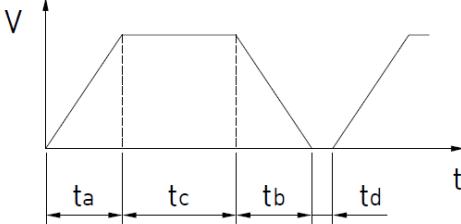
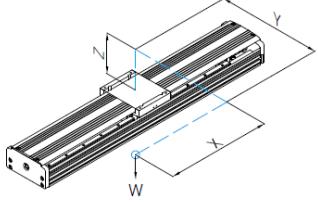
Typical Application



HIWIN Single Axis Robot Inquiry Form

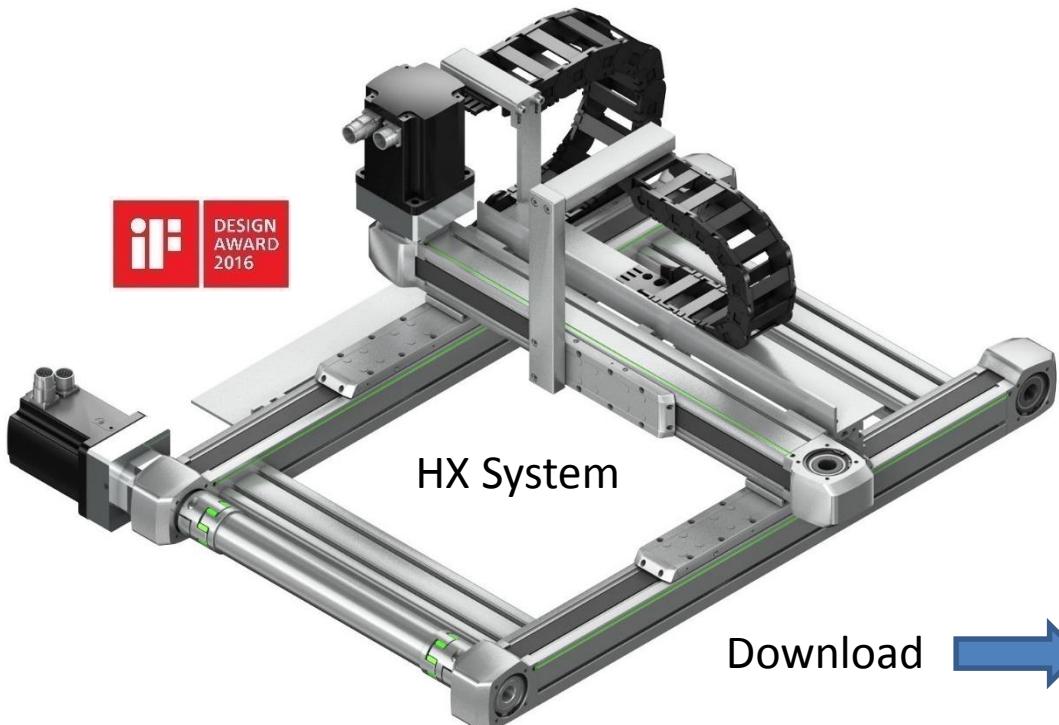
Date: / /

Company		Dept.	
Name		Title	
Tel		E-Mail	
Fax		Address	

1. Tentative "K" model			
2. Effective stroke(mm)			
3. Positioning accuracy (mm)			
4. Repeatability (mm)			
5. Installation Method	<input type="checkbox"/> horizontal <input type="checkbox"/> vertical <input type="checkbox"/> upside down <input type="checkbox"/> incline <input type="checkbox"/> side installation <input type="checkbox"/> XY axis <input type="checkbox"/> XZ axis <input type="checkbox"/> XYZ axis <input type="checkbox"/> Gate <input type="checkbox"/> others (Please provide a drawing)		
6. Special environment	<input type="checkbox"/> high temperature ____ °C <input type="checkbox"/> low temperature ____ °C <input type="checkbox"/> vibration <input type="checkbox"/> oil <input type="checkbox"/> water <input type="checkbox"/> clean room <input type="checkbox"/> corrosive chemical <input type="checkbox"/> humid <input type="checkbox"/> dust <input type="checkbox"/> others		
7. Space limit(mm)	L _____ x W _____ x H _____ . 		
8. Screw lead(mm)	_____ mm		
9. Max speed / acceleration			
10. Motor operation	 Max speed V= _____ mm/s t _a = _____ sec t _b = _____ sec t _c = _____ sec t _d = _____ sec		
11. Load(kg)	kg(_____ N)		
12. Load direction	<input type="checkbox"/> offset X _____ x Y _____ x Z _____ .  X= _____ mm Y= _____ mm Z= _____ mm <input type="checkbox"/> Pitching <input type="checkbox"/> Yawing <input type="checkbox"/> Rolling		
13. Expected service life			
14. Accessories	<input type="checkbox"/> motor <input type="checkbox"/> driver <input type="checkbox"/> coupling <input type="checkbox"/> limit switch <input type="checkbox"/> decelerator <input type="checkbox"/> XY connector <input type="checkbox"/> cable protection chain <input type="checkbox"/> others _____		
15. Other comments			
16. Purpose	<input type="checkbox"/> transport <input type="checkbox"/> automatic dispenser <input type="checkbox"/> loader/unloader <input type="checkbox"/> testing equipment <input type="checkbox"/> transmit <input type="checkbox"/> others _____		

Aratron

Set your thoughts in motions



For high speed handling applications check out the new **HIWIN HX System**



Technical Support

Please ask Aratron about KK systems and special customized combinations
We can support our customers with technical calculations and CAD drawings