

Industrial Robots

Detailed Description

Precautions

The KK series products are electromechanical equipment. To ensure user safety, please thoroughly review the relevant catalog and the following precautions before selecting a model and operating the product. Use the product strictly in accordance with the instructions. The company shall not be held liable for any malfunctions, damage, or accidents resulting from failure to comply with these precautions.

Personal Safety

- The product is intended for industrial use only and shall not be applied to safety-critical components directly related to human life or well-being.
- During product operation, personnel shall remain outside the machine's movement envelope to prevent pinch injuries or other industrial accidents.
- When the product is connected to a motor and energized, individuals with pacemakers shall maintain a minimum distance of 1 meter to prevent electromagnetic interference.
- Do not install the product near fire sources, flammable materials, or combustible gases to prevent fire hazards.

Storage and Installation

- During transportation, avoid dropping or impact to prevent damage.
- When storing the product, it shall be laid flat and properly packaged to avoid exposure to high/low temperatures or humid environments.
- Do not disassemble or modify this product to prevent foreign object ingress or damage, which may cause malfunctions or safety incidents.
- Secure the product during installation to prevent loosening due to vibration.
- When installing couplings and motors, select appropriate components, ensure precise shaft alignment before tightening fasteners, and avoid forced installation.

Operation

- Operation shall strictly adhere to the rated conditions specified in the catalog, such as maximum speed and load capacity, to prevent functional damage or safety incidents.
- Prevent dust, chips, or other foreign matter from entering the ball recirculation system to avoid damage, reduced service life, or functional abnormalities.
- The operating ambient temperature shall remain below 80°C. For high-temperature applications, please contact SAHO's sales team for specialized solutions.
- For special environments, such as strong vibration, vacuum chambers, clean rooms, corrosive chemicals, organic solvents or agents, extreme high/low temperatures, moisture/splash exposure, oil droplets/mist, high salinity, heavy loads, or vertical/cantilevered installations, please consult SAHO's sales team to confirm product suitability.
- During vertical installation, there is a risk of the load falling. It is recommended to install an appropriate brake and verify its functionality before operation.

Maintenance

- Before initial use, ensure the lubrication system is fully filled. Note that different types of lubricants shall not be mixed.
- Under normal operating conditions, it is recommended to inspect the operational status every 100km of travel, remove accumulated debris, and replenish lubricant. Both the slide rails and ball screws shall be lubricated.
- ▶ Specifications are subject to change without prior notice. Final product details shall be based on the order confirmation.



KK SERIES

Integrated Guide Rail and U-Shaped Body Design



High Rigidity



Equal Load Capacity in All Four Directions



Industrial Robots

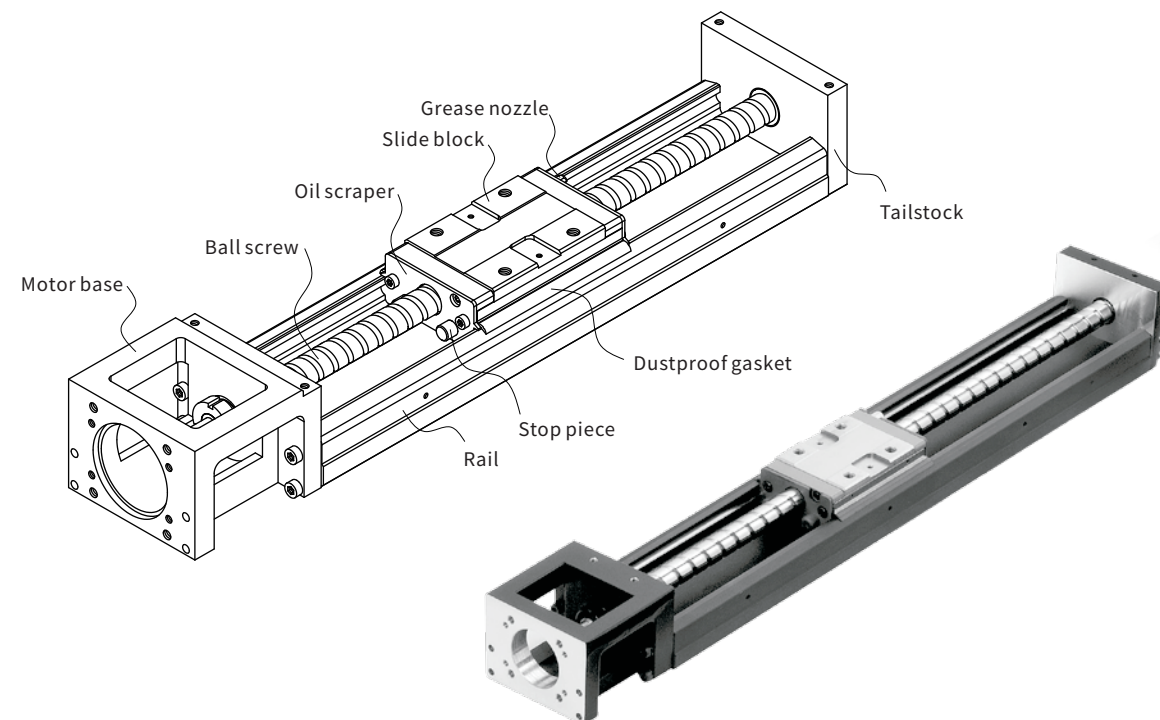
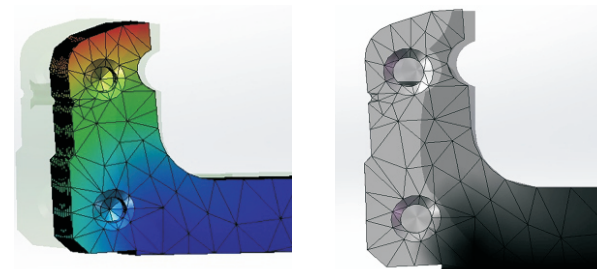
KK Series

The KK industrial robot primarily adopts a modular design that integrates ball screws and linear guide rails, delivering high precision, quick installation, flexible configuration options, high rigidity, compact size, and space-saving features. The system ensures precision and rigidity requirements through the use of high-precision ball screws as the drive mechanism, combined with optimally designed U-shaped rails serving as the guidance system.

1.1 Features

- Easy to design and install
- Compact size and light weight
- High precision
- High rigidity
- Comprehensive configurations
- Optimized design

The rail structure has been optimized through finite element analysis to achieve optimal rigidity and weight, as illustrated in the diagram on the right.

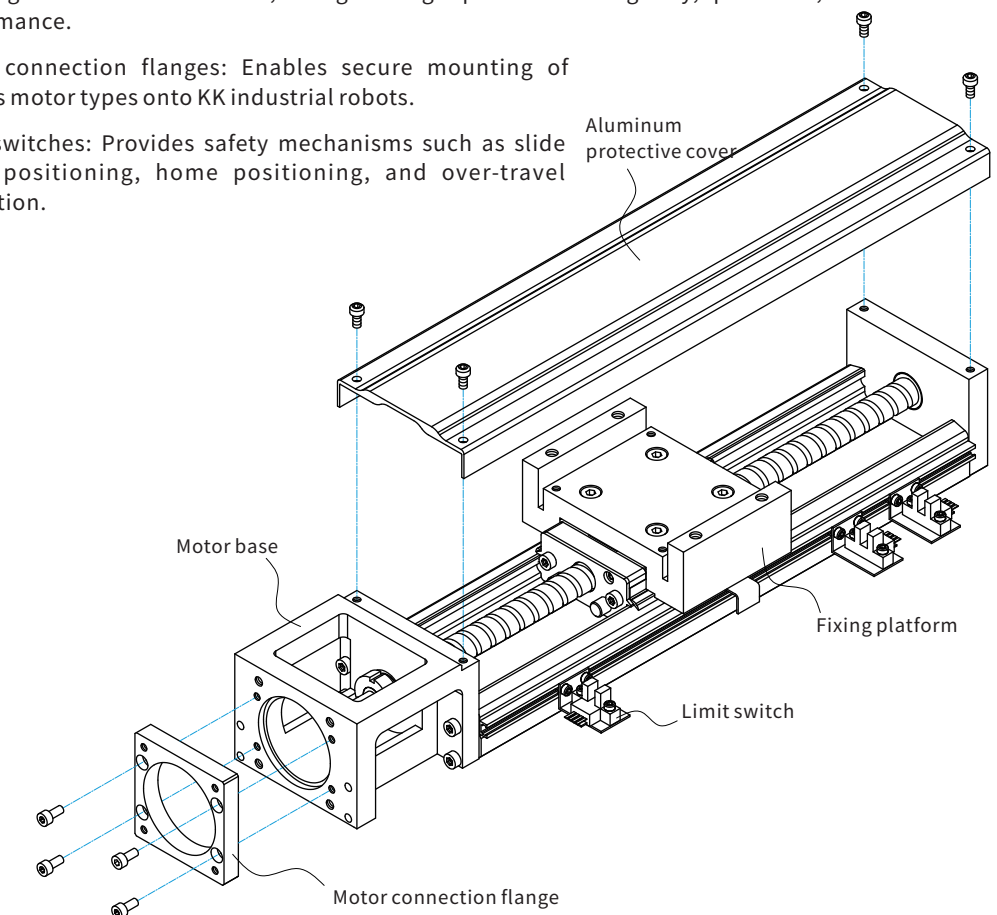


1.2 Optional Accessories

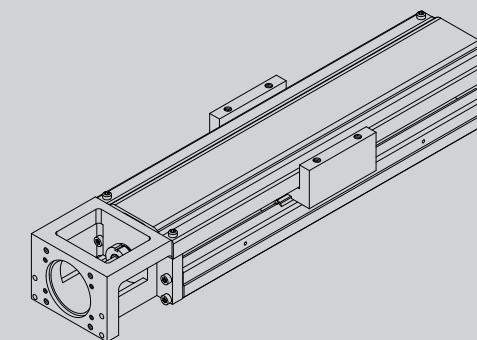
To accommodate diverse application requirements, KK industrial robots offer optional accessories, including aluminum protective covers, telescopic sleeves, motor connection flanges, and limit switches.

Aluminum protective covers & telescopic sleeves: Prevent foreign matter/contaminants from entering KK industrial robots, safeguarding operational longevity, precision, and smooth performance.

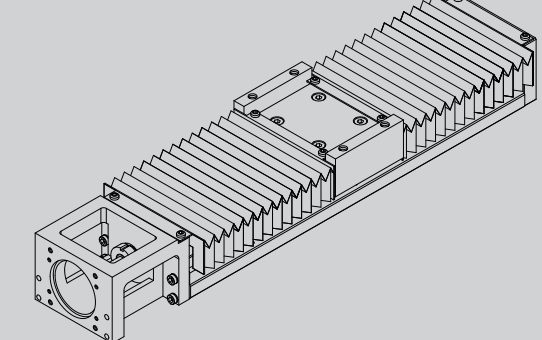
- Motor connection flanges: Enables secure mounting of various motor types onto KK industrial robots.
- Limit switches: Provides safety mechanisms such as slide block positioning, home positioning, and over-travel protection.



• Aluminum protective cover type



• Telescopic sleeve type

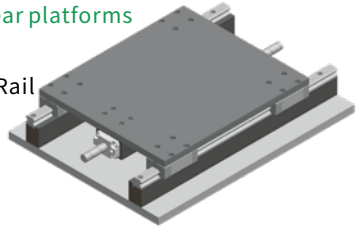


○ Modular Design

The KK single-axis robot adopts a modular design that integrates ball screws and linear guide rails, eliminating the drawbacks of traditional actuator platforms such as the need for separate selection of guidance and drive components, installation alignment, large footprint, and excessive space requirements. Therefore, the KK single-axis robot delivers rapid selection, simplified installation, compact footprint, and high rigidity, significantly reducing client-side space requirements and setup time.

Traditional linear platforms

1 Platform
2 Linear Guide Rail
1 Ball Screw
1 Base



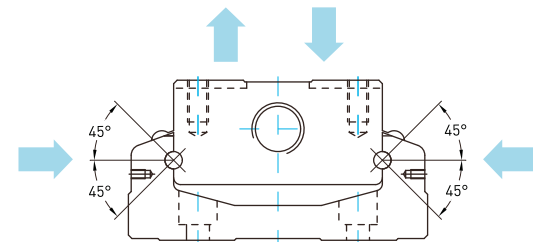
KK Single-Axis Robot

1 Ball Screw
1 Guide Rail



○ Uniform Load in All Four Directions

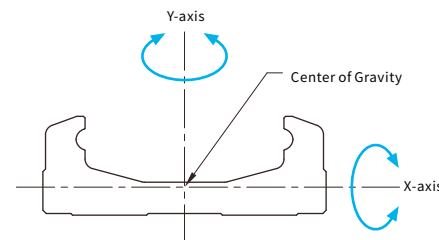
The recirculation system between the rail and slide block features a 2-row Gothic arch design with a 45° contact angle on the ball-groove contact surface. This design enables the KK single-axis robot to achieve uniform load in all four directions.



○ High Rigidity

The rail features a U-shaped cross-section optimized through finite element analysis, achieving an ideal balance between structural rigidity and compact dimensions. This design delivers high rigidity, space efficiency, and reduced

Inertia Moment		Unit: mm	
Model	I _x	I _y	
KK30	7.554x10 ²	12.726x10 ³	
KK40	3.533x10 ³	5.317x10 ⁴	
KK50	9.6x10 ³	1.34x10 ⁵	
KK60	2.056x10 ⁴	2.802x10 ⁵	
KK86	7.445x10 ⁴	1.134x10 ⁶	
KK100	1.296x10 ⁵	2.035x10 ⁶	
KK130	2.546x10 ⁵	5.073x10 ⁶	

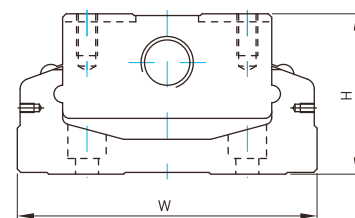


IX: Inertia moment along the X-axis
IY: Inertia moment along the Y-axis

Diversified Specifications

For diverse application requirements, we have developed the following KK single-axis robot series, enabling customers to select optimal models based on operational needs, space constraints, and load capacities.

Model	W	H
KK30	30	15
KK40	40	20
KK50	50	26
KK60	60	33
KK86	86	46
KK100	100	55
KK130	130	65



■ Service Life Calculation

○ Service Life

When linear guides operate under load, the ballway surfaces and balls are subjected to continuous cyclic stresses. Upon reaching the critical rolling fatigue limit, contact surfaces initiate fatigue failure, exhibiting flake-like peeling phenomena, which is called surface peeling. Service life is defined as the total travel distance achieved before the ballway surfaces and balls develop material fatigue to exhibit surface peeling.

○ Rated Service Life

The service life of single-axis robots exhibits significant dispersion. Even within the same production batch operating under identical motion conditions, individual units will demonstrate varying service lives. Therefore, the rated service life serves as the benchmark for defining the operational service life of KK modules.

○ Rated Service Life Calculation for KK Modules

The service life calculation for single-axis robots comprises two components: linear guide rails and ball screws, with the smaller derived value determining the module's rated service life. The respective calculation formulas are as follows:

◎ Linear Guide Rail

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

L: Rated service life (km)
C: Basic dynamic rated load (N)
ft: Contact coefficient (refer to Table 1)
Pn: Working load (N)
fw: Load coefficient (refer to Table 2)

Table 1

Carriage Type	Contact Coefficient ft
A1,S1	1.0
A2,S2	0.81

Table 2

Operating Environment		Load Coefficient fw
Load Condition	Speed (V)	
Smooth operation without impact	Low speed: V<15m/min	1.0~1.5
Normal load	Medium speed: 15<V<60m/min	1.5~2.0
Subject to impact and vibration	High speed: V>60m/min	2.0~3.5

◎ Ball Screws and Bearings

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

L: Rated service life (revolutions)
Ca: Basic dynamic rated load (N)
ft: Load coefficient (refer to Table 2)
Pa,n: Axial working load (N)

Lubrication

Without proper lubrication, friction in the rolling components of KK single-axis robots will increase, ultimately becoming a primary factor in reduced service life over prolonged operation. Lubricants provide the following critical functions:

- ◎ Reduce friction in rolling components, prevent scoring, and minimize wear.
- ◎ Form an oil film between rolling contact surfaces, significantly extending rolling fatigue life.
- ◎ Prevent rust.

Lubricating Grease

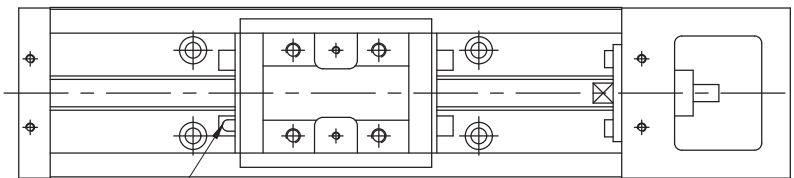
Although lubricating grease is less prone to leakage, to prevent insufficient lubrication due to grease depletion, it is recommended to replenish grease every 100km of travel. This can be done using a grease gun via the lubrication nozzles on the slide block. Lubricating grease is suitable for applications with speeds not exceeding 60m/min and where cooling effects are not required.

$$T = \frac{100 \times 1000}{V_e \times 60}$$

T: Lubrication interval (hour)
Ve: Speed (m/min)

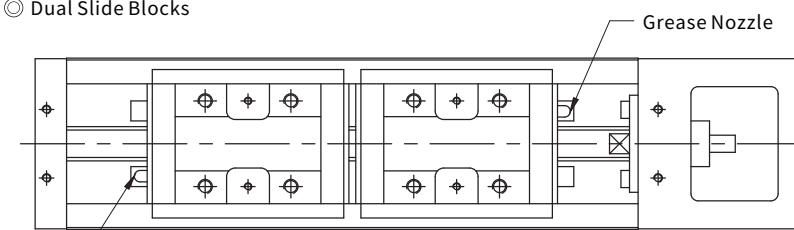
Nozzle Layout

- ◎ Single Slide Block



Grease Nozzle

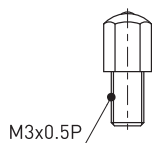
- ◎ Dual Slide Blocks



Grease Nozzle

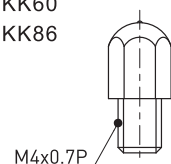
KK Lubrication Nozzles

KK40



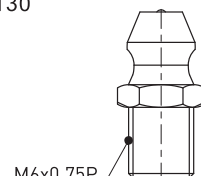
NO. 34310010

KK50
KK60
KK86



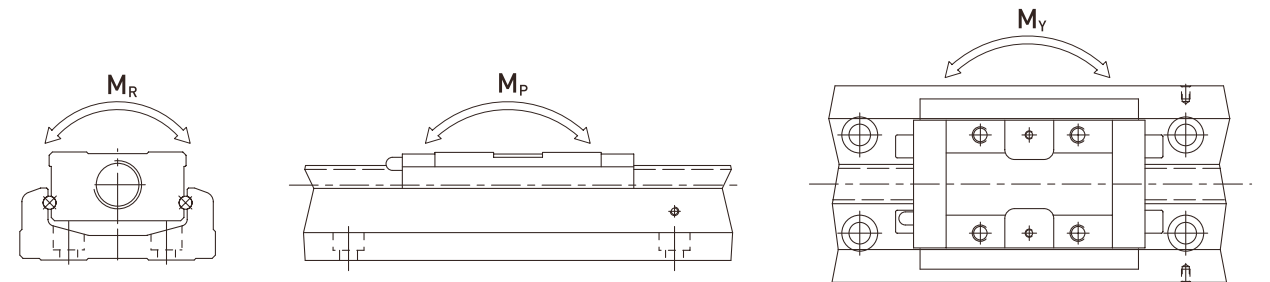
NO. 34310002

KK100
KK130



NO. 34310008

Load Specifications



Model		Ball Screw				Linear Guide Rail															
		O.D.	Lead	Basic Dynamic Rated Load (N)	Basic Static Rated Load (N)	Basic Dynamic Rated Load (N)		Basic Static Rated Load (N)		Allowable Static Moment											
						Carriage A	Carriage S	Carriage A	Carriage S	Pitch MP (N·m)				Deflection MY(N·m)				Rolling MR(N·m)			
										Carriage A1	Carriage A2	Carriage S1	Carriage S2	Carriage A1	Carriage A2	Carriage S1	Carriage S2	Carriage A1	Carriage A2	Carriage S1	Carriage S2
KK3001	Precision	6	1	647	1088	2210	-	3510	-	14	73	-	-	14	73	-	-	41	82	-	-
	Standard			618	1079																
KK4002	Precision	8	2	735	1538	3920	-	6468	-	33	182	-	-	33	182	-	-	81	162	-	-
	Standard			676	1284																
KK5002	Precision	8	2	2136	3489	8007	-	12916	-	116	545	-	-	116	545	-	-	222	444	-	-
	Standard			1813	2910																
KK6005	Precision	12	5	3744	6243	13230	7173	21462	11574	152	760	72	367	152	760	72	367	419	838	241	482
	Standard			3377	5625																
KK6010	Precision	12	10	2410	3743	13230	7173	21462	11574	152	760	72	367	152	760	72	367	419	838	241	482
	Standard			2107	3234																
KK8610	Precision	15	10	7144	12642	31458	21051	50764	29475	622	3050	228	1309	622	3050	228	1309	1507	3014	847	1694
	Standard			6429	11387																
KK8620	Precision	15	20	4645	7655	31458	21051	50764	29475	622	3050	228	1309	622	3050	228	1309	1507	3014	847	1694
	Standard			4175	6889																
KK10020	Precision	20	20	7046	12544	39200	-	63406	-	960	4763	-	-	960	4763	-	-	2205	4410	-	-
	Standard			4782	9163																
KK13025	Precision	25	25	7897	15931	48101	-	84829	-	1536	7350	-	-	1536	7350	-	-	3885	7770	-	-
	Standard			7092	14352																

Precision Grade

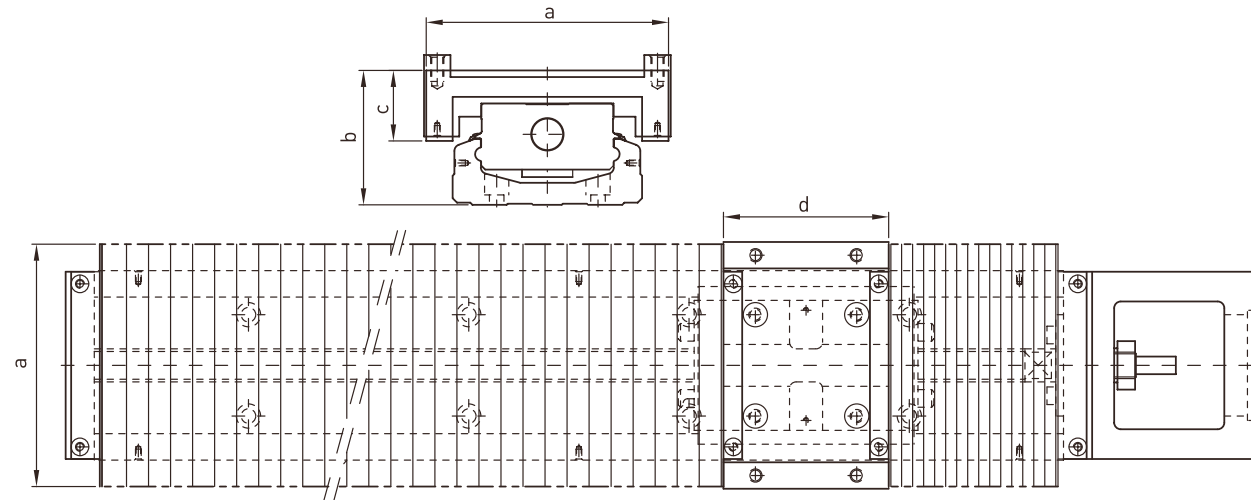
Unit: mm

Model	Rail Length	Positioning Repeatability		Positioning Precision		Running Parallelism		Max. Starting Torque (N-cm)	
		Precision	Standard	Precision	Standard	Precision	Standard	Precision	Standard
KK30	75	±0.003	±0.004	0.020	0.040	0.010	0.020	1.2	0.8
	100								
	125								
	150								
	175								
	200								
KK40	100	±0.003	±0.005	0.020	-	0.010	-	1.2	0.8
	150								
	200								
KK50	150	±0.003	±0.005	0.020	-	0.010	-	4	2
	200								
	250								
	300								
KK60	150	±0.003	±0.005	0.020	-	0.010	-	15	7
	200								
	300								
	400								
	500	±0.003	±0.005	0.025	-	0.015	-	15	7
	600								
KK86	340	±0.003	±0.005	0.025	-	0.015	-	15	10
	440								
	540								
	640								
	740	±0.003	±0.005	0.030	-	0.020	-	17	10
	940	±0.003	±0.005	0.040	-	0.030	-	25	10
KK100	980	±0.005	±0.01	0.035	-	0.025	-	17	12
	1080								
	1180	±0.005	±0.01	0.040	-	0.03	-	20	12
	1280			0.045		0.035		23	
	1380			0.05		0.04		25	
KK130	980	±0.005	±0.01	0.035	-	0.025	-	25	15
	1180			0.04		0.03		25	15
	1380								
		1680	±0.007	±0.012	0.05	-	0.04	-	27

Precision Grade

Model	Ball Screw Lead	Rail Length L2	Speed (mm/sec)	
			Precision	Standard
KK30	01	75	160	160
		100	160	160
		125	160	160
		150	160	160
		175	160	160
		200	160	160
KK40	02	100	270	270
		150	270	270
		200	270	270
KK50	02	150	270	270
		200	270	270
		250	270	270
		300	270	270
KK60	05	150	550	390
		200	550	390
		300	550	390
		400	550	390
		500	550	390
		600	340	340
		150	1100	790
	10	200	1100	790
		300	1100	790
		400	1100	790
		500	1100	790
		600	1100	790
		600	670	670
KK86	10	340	740	520
		440	740	520
		540	740	520
		640	740	520
		740	740	520
		940	610	430
	20	340	1480	1050
		440	1480	1050
		540	1480	1050
		640	1480	1050
		740	1480	1050
		940	1220	870
KK100	20	980	1120	800
		1080	980	800
		1180	750	750
		1280	630	630
		1380	530	530
KK130	25	980	1120	800
		1180	1120	800
		1380	830	800
		1680	550	550

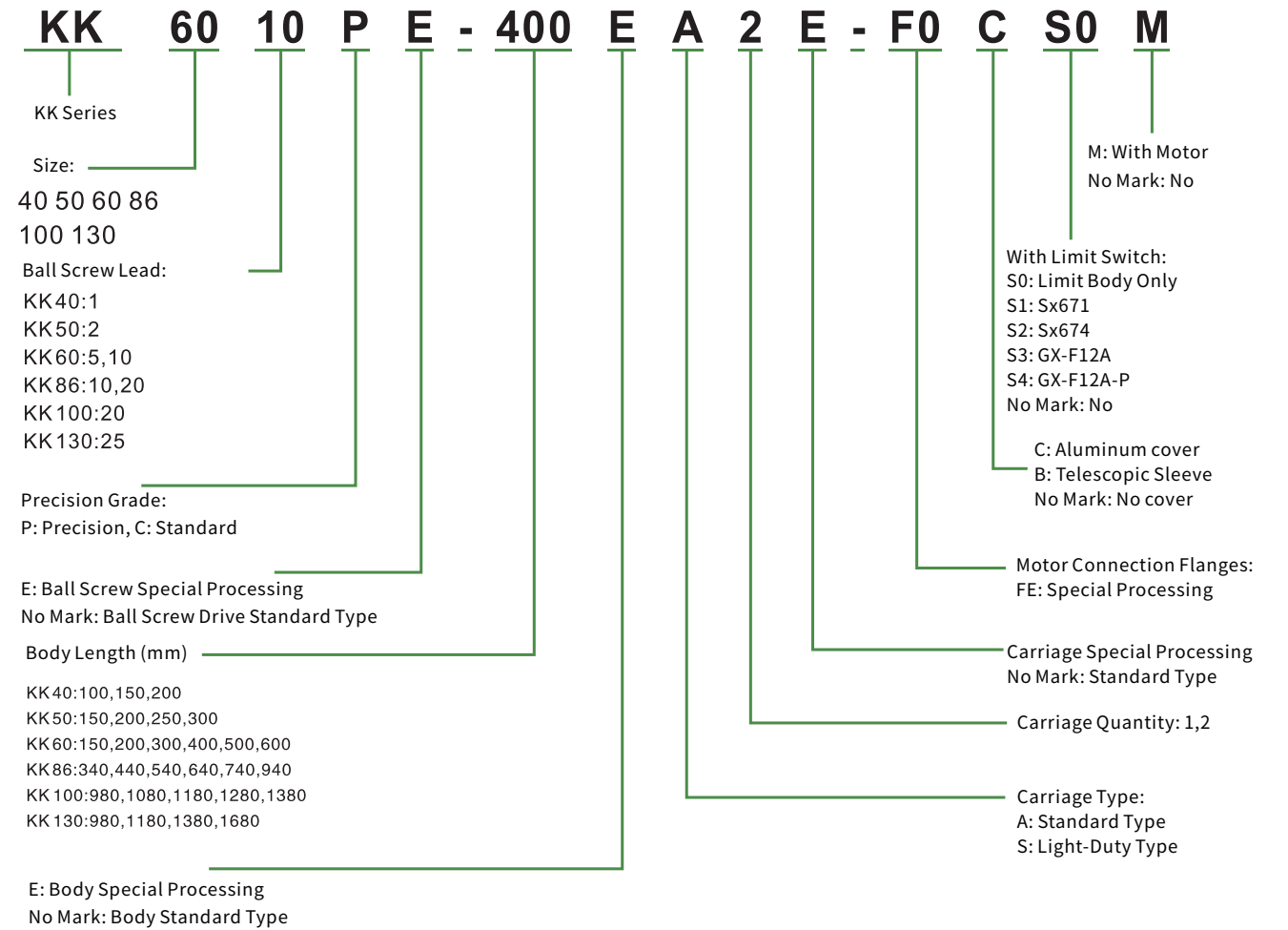
Telescopic Sleeve



Unit: mm

Model	Rail Length	Max. Stroke	Min. Compression	Max. Elongation	a	b	c	d
KK30	75	22	15	37	47	22.5	15.5	23
	100	37	20	57				
	125	52	25	77				
	150	67	30	97				
	175	82	35	117				
KK40	200	97	40	137	60	29.5	19	33
	100	35	16	51				
	150	63	27	90				
	200	93	37	130				
	250	120	47	170				
KK50	300	150	57	210	62	37	19	47
	150	60	21.5	81.5				
	200	95	29	124				
	250	130	36.5	166.5				
	300	160	46.5	206.5				
KK60D	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				
KK86D	600	366	90	456	110	61	32	75
	340	188	36	224				
	440	260	50	310				
	540	336	62	398				
	640	408	76	484				
KK100	740	480	90	570	150	73	41	95
	940	640	110	750				
	980	769	58	827				
	1080	855	65	920				
	1180	945	70	1015				
KK130	1280	1029	78	1107	180	89	53	108
	1380	1115	85	1200				
	980	748	62	810				
	1180	916	78	994				
	1380	1084	94	1178				
	1680	1346	113	1459				

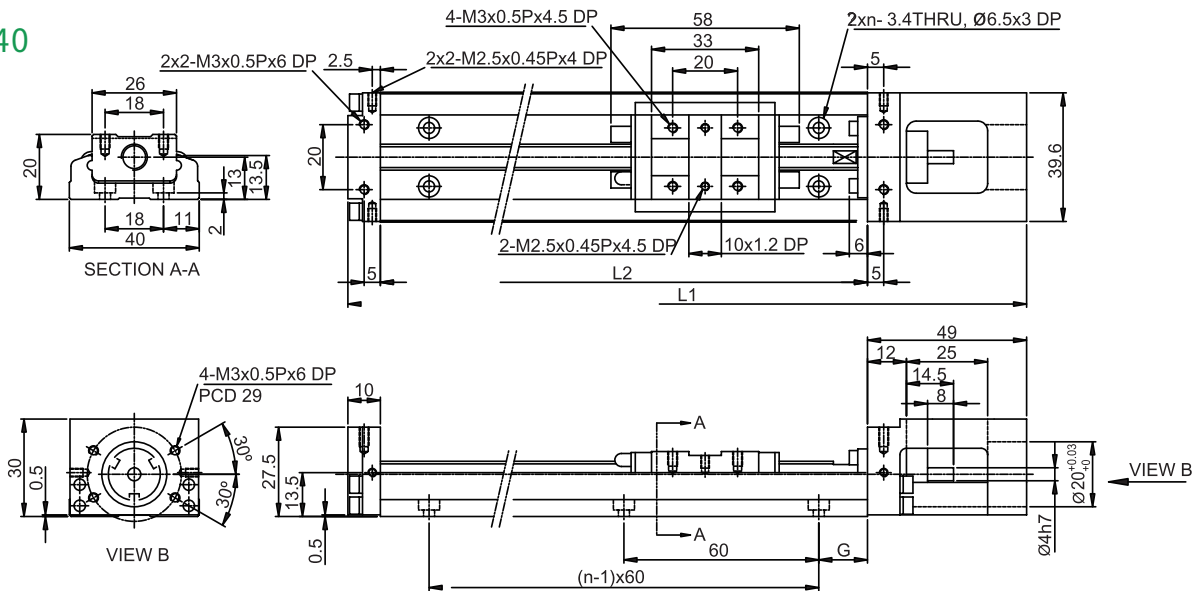
1.3 Product Models



1.9 KK Product Series

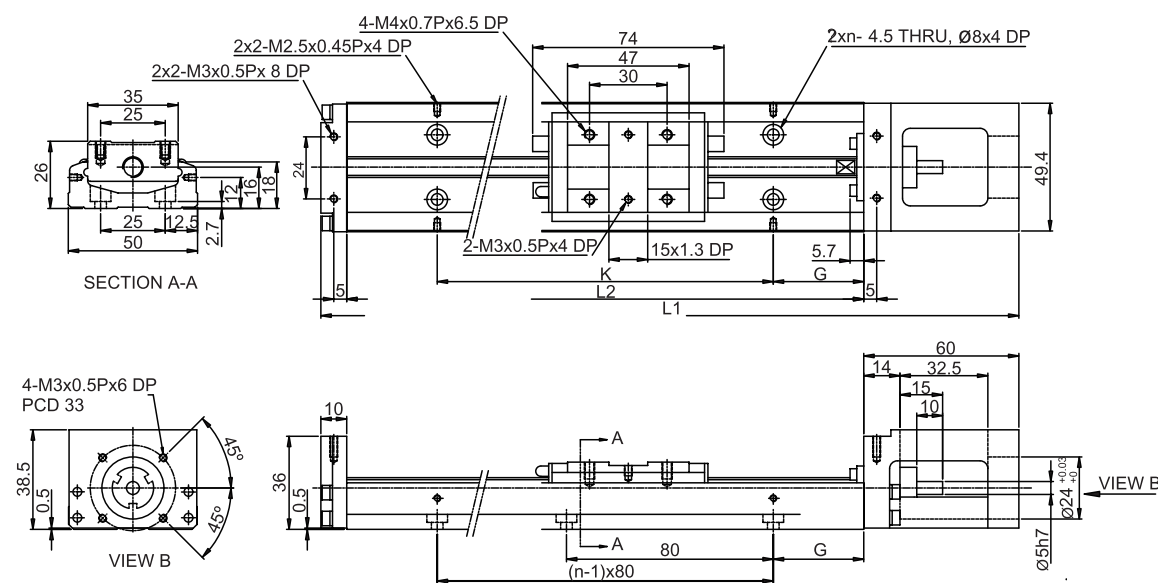
1.9.1 Without Protective Cover

KK40



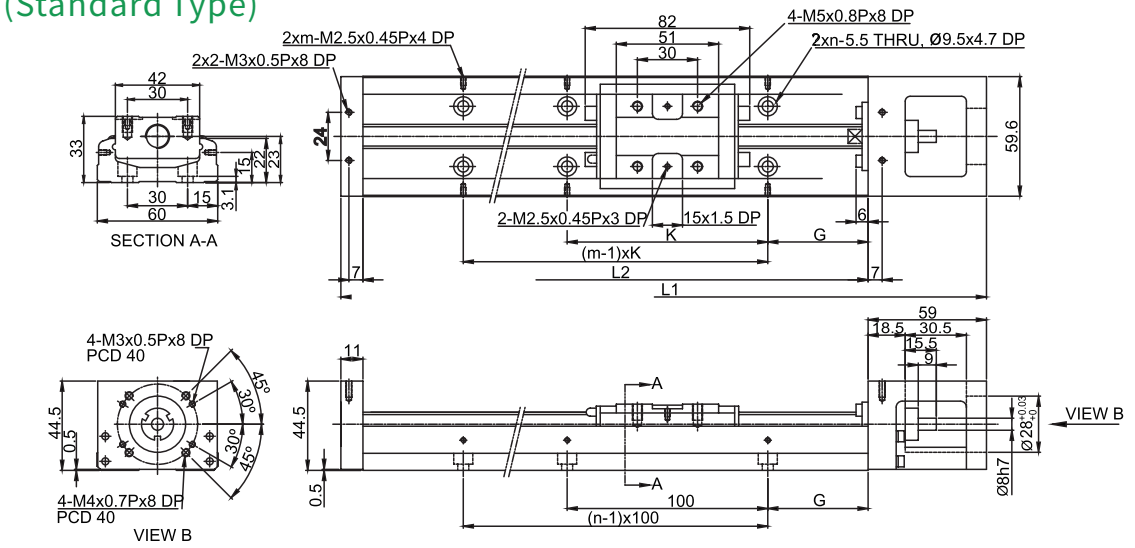
Rail Length L2 (mm)	Total Length L1 (mm)	Max. Stroke (mm)		G (mm)	n	Weight (kg)	
		A1 Carriage	A2 Carriage			A1 Carriage	A2 Carriage
100	159	36	-	20	2	0.48	-
150	209	86	34	15	3	0.6	0.67
200	259	136	84	40	3	0.72	0.79

KK50



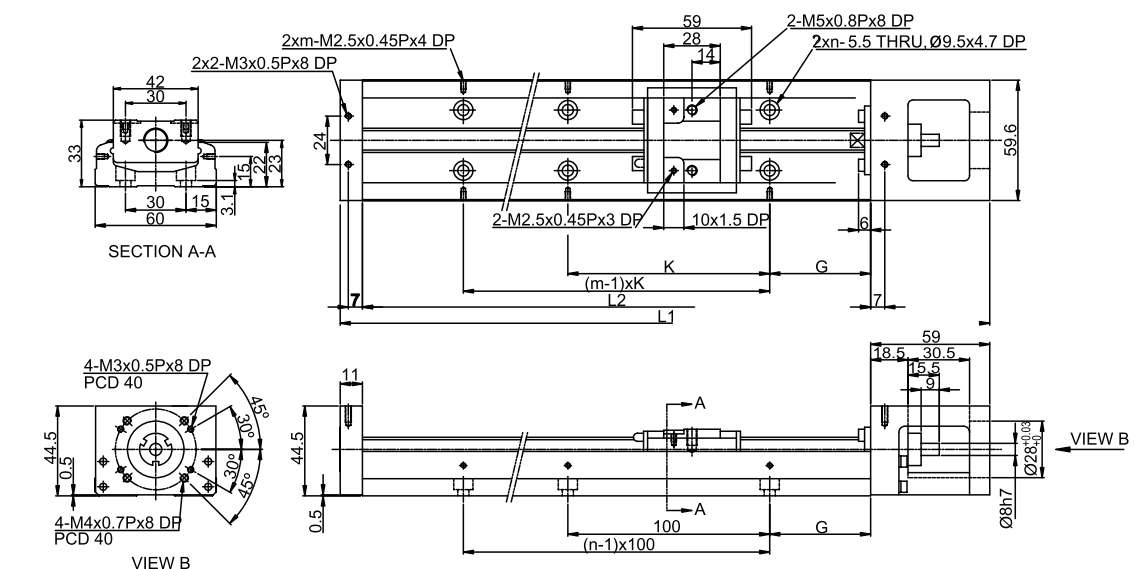
Rail Length L2 (mm)	Total Length (mm)	Max. Stroke (mm)		G (mm)	K (mm)	n	Weight (kg)	
		A1 Carriage	A2 Carriage				A1 Carriage	A2 Carriage
150	220	70	-	35	80	2	1	-
200	270	120	55	20	160	3	1.2	1.4
250	320	170	105	45	160	3	1.4	1.6
300	370	220	155	30	240	4	1.6	1.8

KK60 (Standard Type)



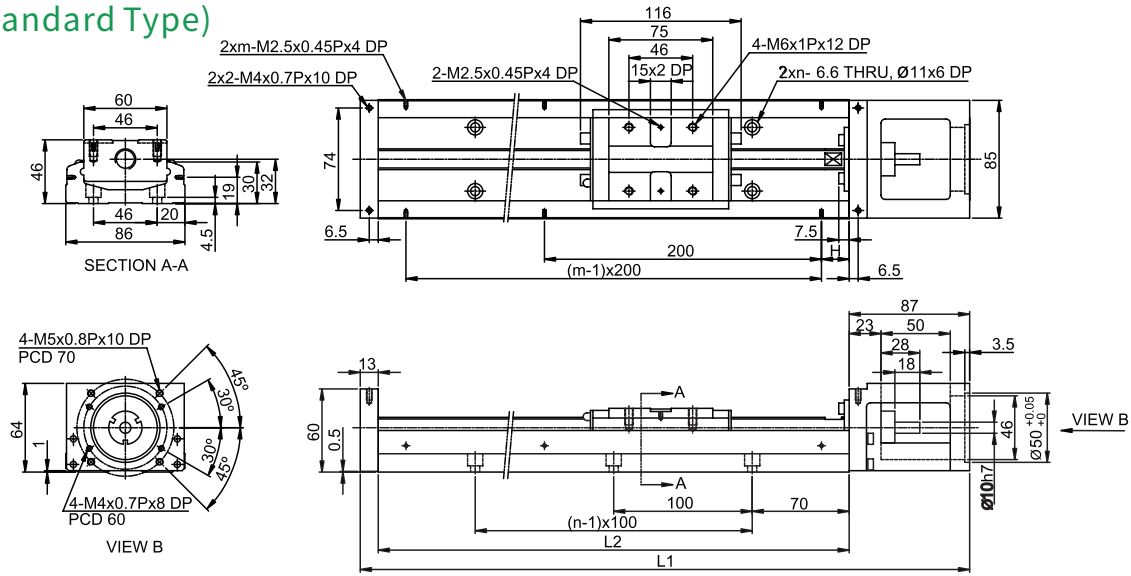
Rail Length L2 (mm)	Total Length L1 (mm)	Max. Stroke (mm)		G (mm)	K (mm)	n	m	Weight (kg)	
		A1 Carriage	A2 Carriage					A1 Carriage	A2 Carriage
150	220	60	-	25	100	2	2	1.5	-
200	270	110	-	50	100	2	2	1.8	-
300	370	210	135	50	200	3	2	2.4	2.7
400	470	310	235	50	100	4	4	3	3.3
500	570	410	335	50	200	5	3	3.6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

KK60 (Light-duty Type)



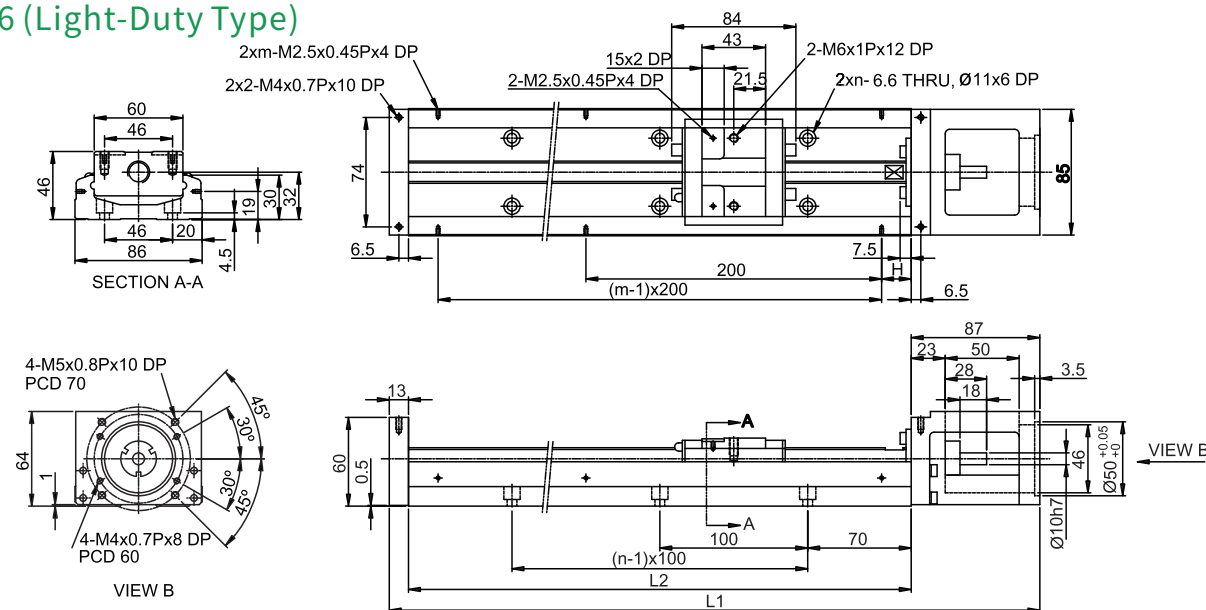
Rail Length L2 (mm)	Total Length L1 (mm)	Max. Stroke (mm)		G (mm)	K (mm)	n	m	Weight (kg)	
		S1 Carriage	S2 Carriage					S1 Carriage	S2 Carriage
150	220	85	34	25	100	2	2	1.4	1.6
200	270	135	84	50	100	2	2	1.7	1.9
300	370	235	184	50	200	3	2	2.3	2.5
400	470	335	284	50	100	4	4	2.9	3.1
500	570	435	384	50	200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

KK86 (Standard Type)



Rail Length L2 (mm)	Total Length L1 (mm)	Max. Stroke (mm)		H (mm)	n	m	Weight (kg)	
		A1 Carriage	A2 Carriage				A1 Carriage	A2 Carriage
340	440	210	100	70	3	2	5.7	6.5
440	540	310	200	20	5	3	6.9	7.7
540	640	410	300	70	5	3	8.0	8.8
640	740	510	400	20	7	4	9.2	10.0
740	840	610	500	70	7	4	10.4	11.2
940	1040	810	700	70	9	5	11.6	12.4

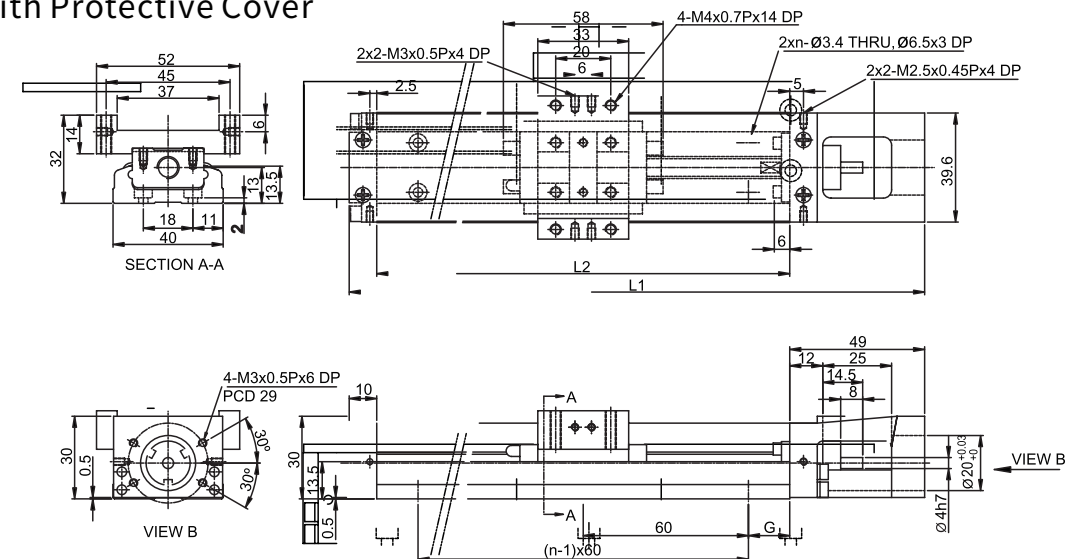
KK86 (Light-Duty Type)



Rail Length L2 (mm)	Total Length L1 (mm)	Max. Stroke (mm)		H (mm)	n	m	Weight (kg)	
		S1 Carriage	S2 Carriage				S1 Carriage	S2 Carriage
340	440	246	170	70	3	2	5.4	5.9
440	540	346	270	20	5	3	6.6	7.1
540	640	446	370	70	5	3	7.7	8.2
640	740	546	470	20	7	4	8.9	9.4
740	840	646	570	70	7	4	10.1	10.6
940	1040	846	770	70	9	5	11.3	11.8

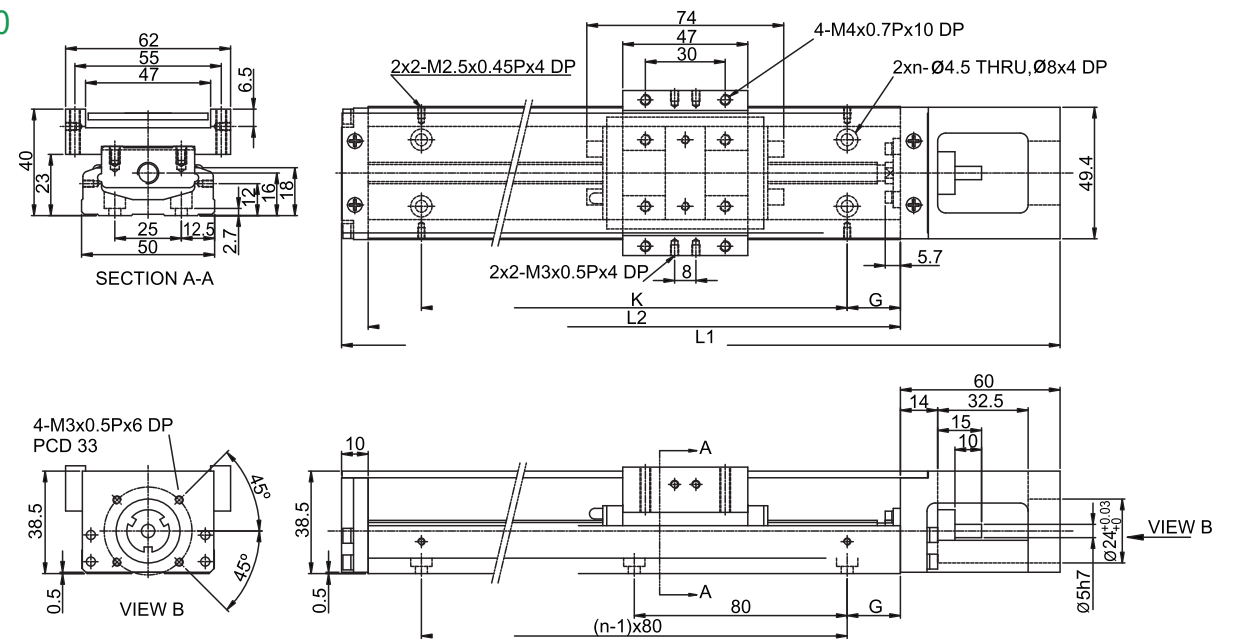
1.9.2 With Protective Cover

KK40



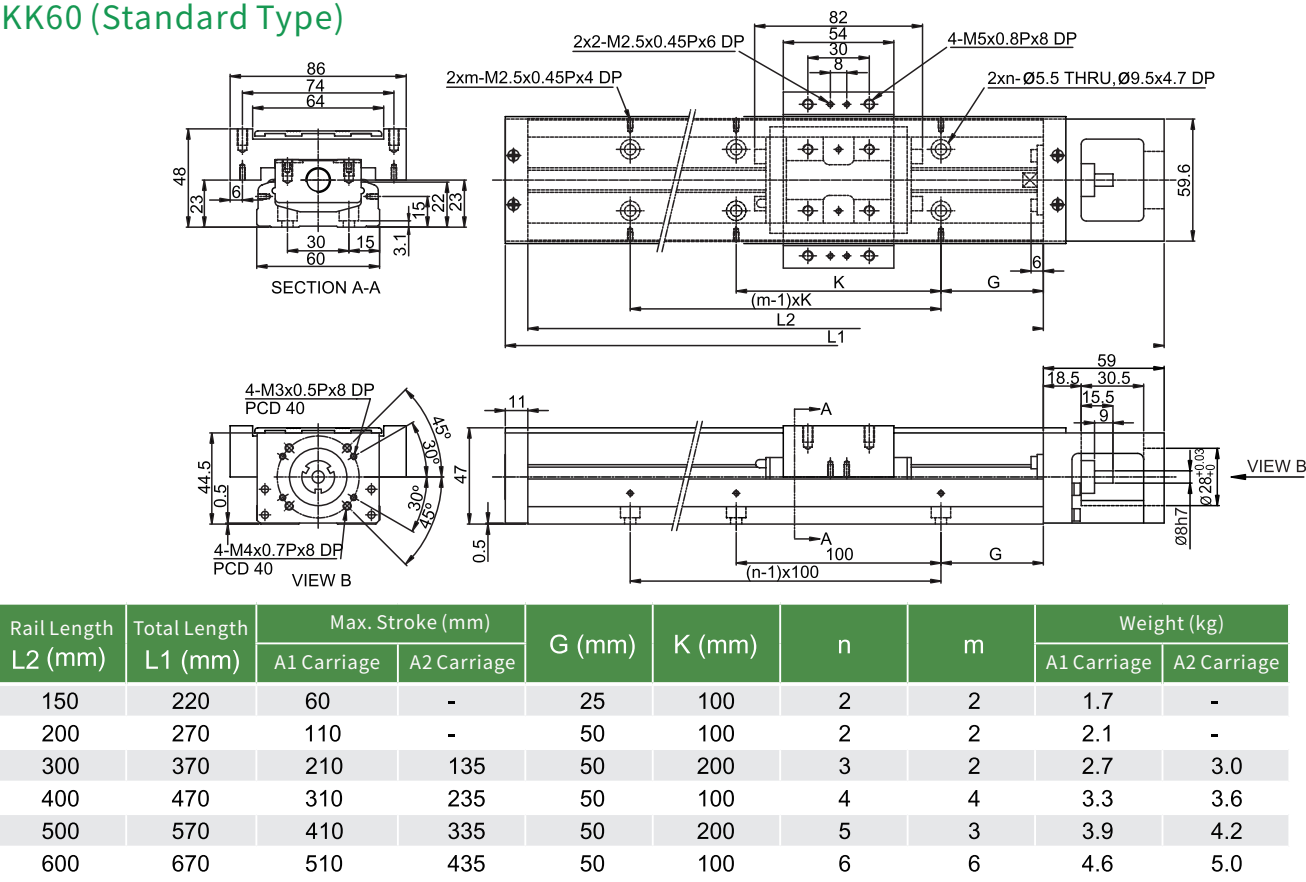
Rail Length L2 (mm)	Total Length L1 (mm)	Max. Stroke (mm)		G (mm)	n	Weight (kg)	
		A1 Carriage	A2 Carriage			A1 Carriage	A2 Carriage
100	159	36	-	20	2	0.55	-
150	209	86	34	15	3	0.68	0.76
200	259	136	84	40	3	0.82	0.89

KK50

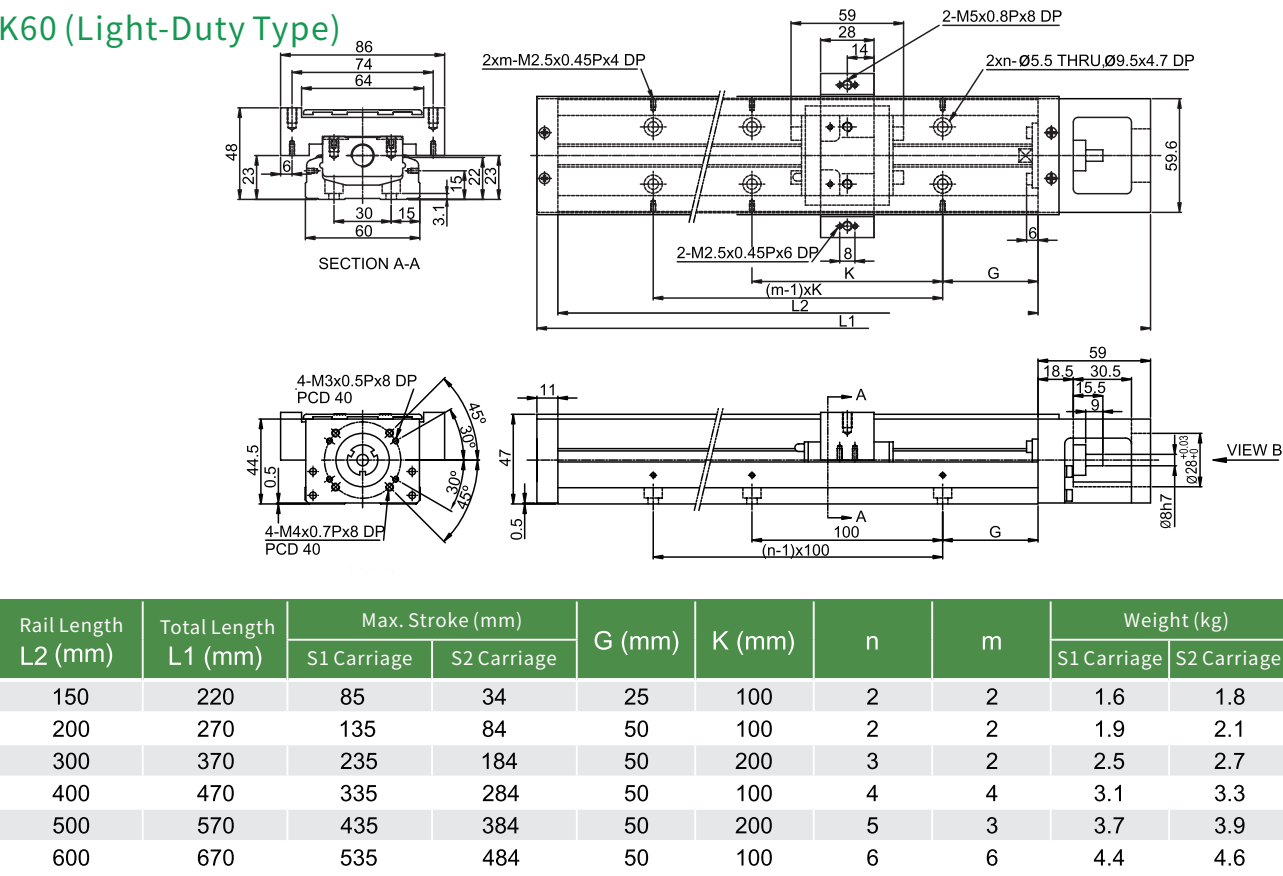


Rail Length L2 (mm)	Total Length L1 (mm)	Max. Stroke (mm)		G (mm)	K (mm)	n	Weight (kg)	
		A1 Carriage	A2 Carriage				A1 Carriage	A2 Carriage
150	220	70	-	35	80	2	1.1	-
200	270	120	55	20	160	3	1.3	1.5
250	320	170	105	45	160	3	1.6	1.8
300	370	220	155	30	240	4	1.8	2.0

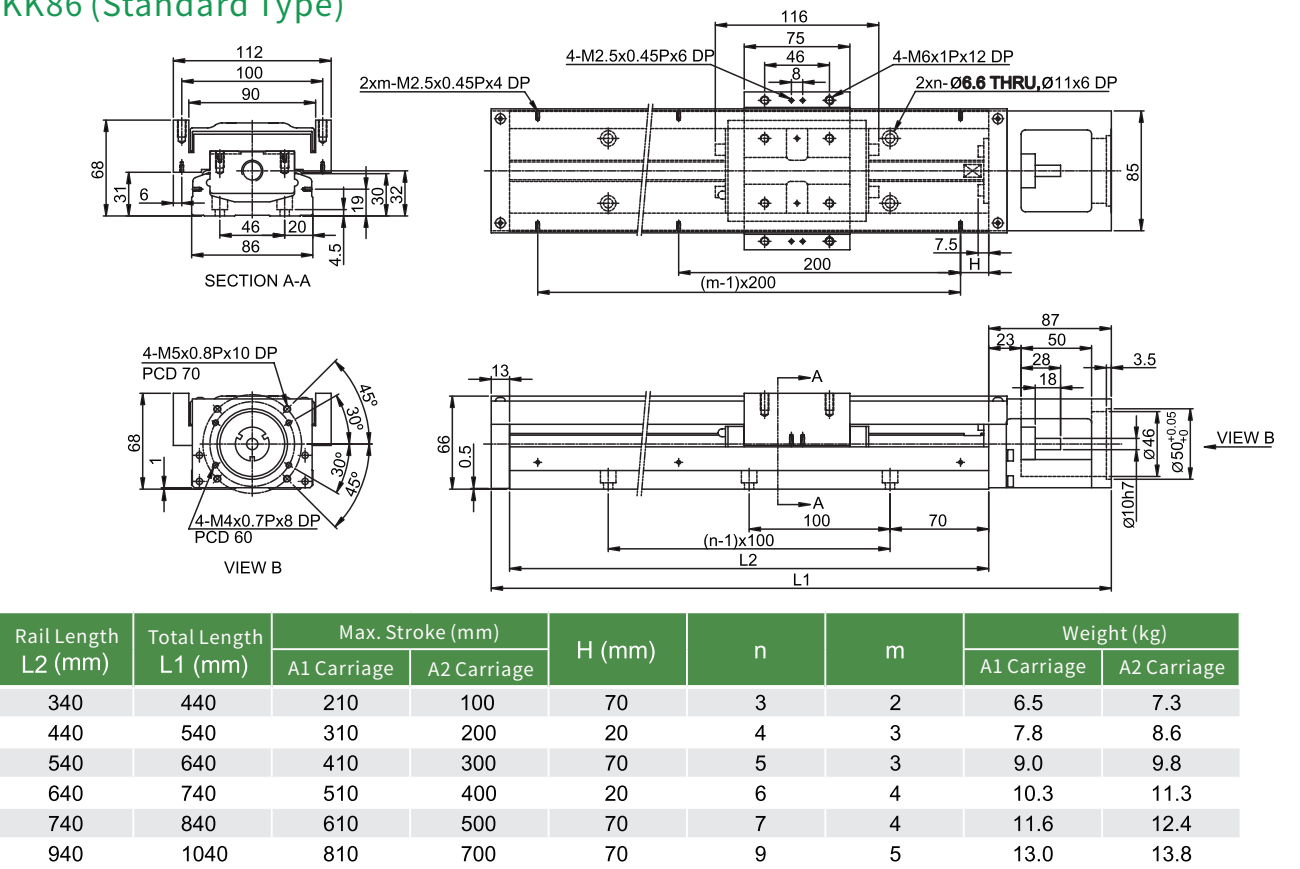
KK60 (Standard Type)



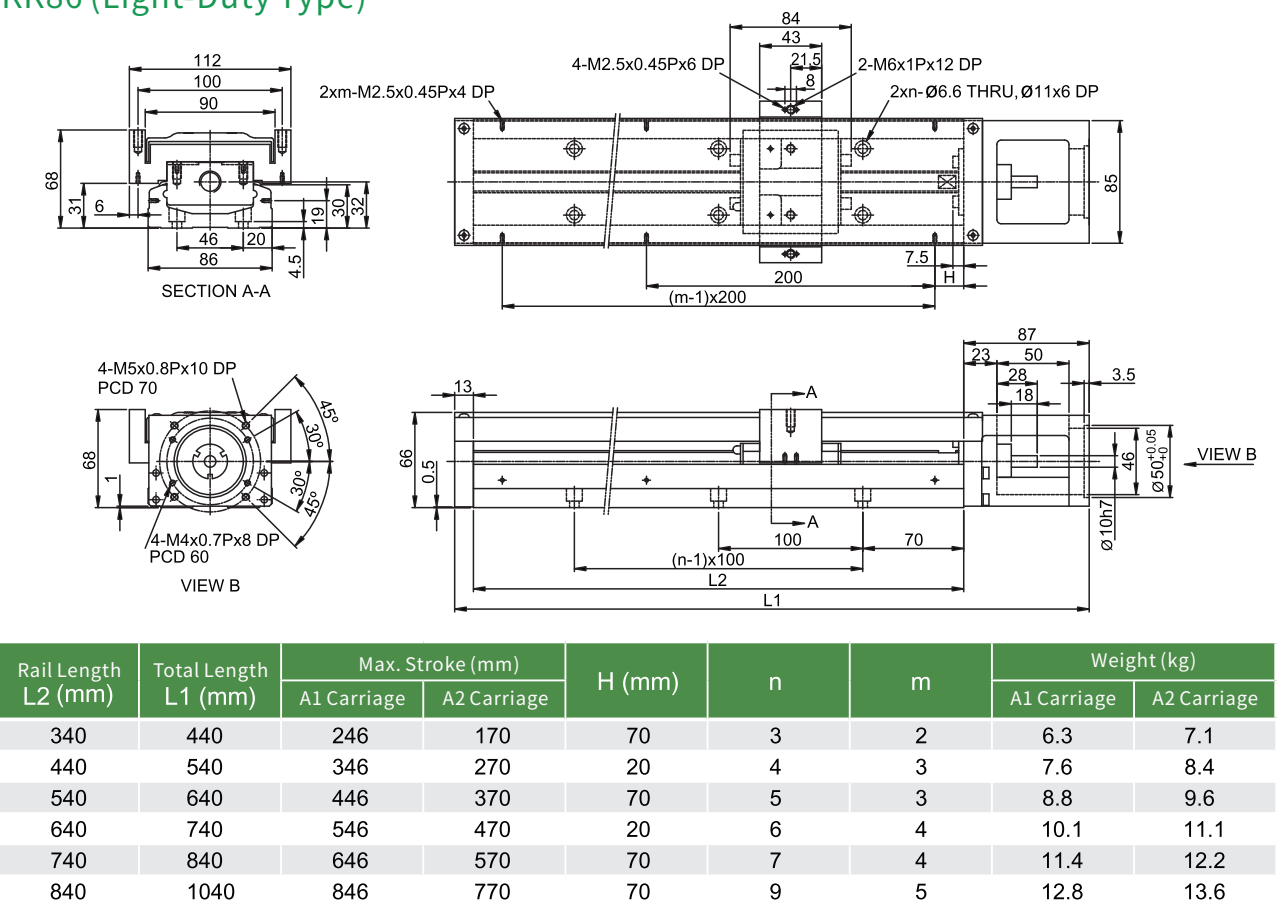
KK60 (Light-Duty Type)



KK86 (Standard Type)



KK86 (Light-Duty Type)



Motor Base and Motor Connection Flange

○ Applicable Motor Reference Table

GHJ Servo Motor

Output Power	Motor	Weight (Kg)	Applicable Flange								With Brake (Kg)	Driver	Weight (Kg)	Note
			HKK30	HKK40	HKK50	HKK60	HKK80	HKK86	HKK100	HKK130				
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

Mitsubishi Servo Motor

Output Power	Motor	Weight (Kg)	Applicable Flange								With Brake (Kg)	Driver	Weight (Kg)	Note
			HKK30	HKK40	HKK50	HKK60	HKK80	HKK86	HKK100	HKK130				
10W	HC-AQ0135D	0.19	F1	-	-	-	-	-	-	-	0.29	M2-JR-03A5	0.2	
20W	HC-AQ0235D	0.22	F1	-	-	-	-	-	-	-	0.32	M2-JR-03A5	0.2	
50W	HF-KP053	0.35	-	F1	F1	F1	F2	F2	-	-	0.75	MR-J3S-10A	0.8	220V
100W	HF-KP13	0.56	-	F1	F1	F1	F2	F2	-	-	0.89	MR-J3S-10A	0.8	220V
200W	HF-KP23	0.94	-	-	-	-	F0	F0	F0	F1	1.6	MR-J3S-20A	0.8	220V
400W	HF-KP43	1.5	-	-	-	-	F0	F0	F0	F1	2.1	MR-J3S-40A	1	220V
750W	HF-KP73	2.9	-	-	-	-	-	-	F1	F2	4	MR-J3S-70A	1.4	220V

Panasonic Servo Motor

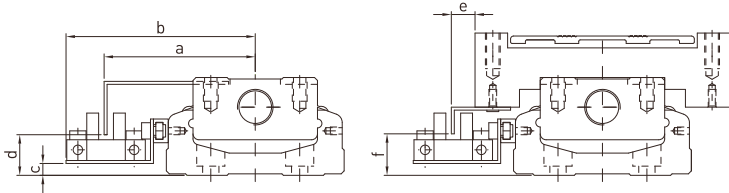
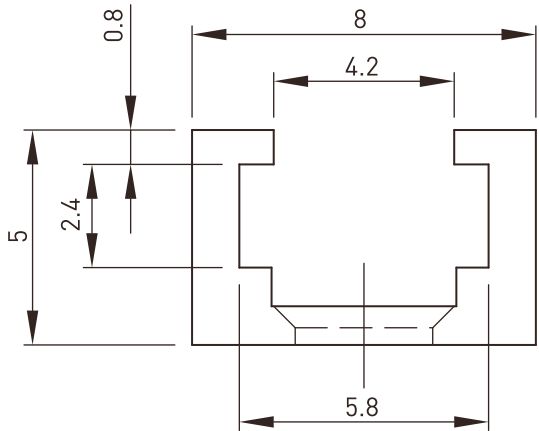
Output Power	Motor	Weight (Kg)	Applicable Flange								With Brake (Kg)	Driver	Weight (Kg)	Note
			HKK30	HKK40	HKK50	HKK60	HKK80	HKK86	HKK100	HKK130				
50W	MSMD5AZP1	0.32	-	F2	F2	F2	F3	F3	-	-	0.53	MADDT1105	0.8	110V
50W	MSMD5AZP1	0.32	-	F2	F2	F2	F3	F3	-	-	0.53	MADDT1205	0.8	220V
100W	MSMD011P1	0.47	-	F2	F2	F2	F3	F3	-	-	0.68	MADDT1107	0.8	110V
100W	MSMD012P1	0.47	-	F2	F2	F2	F3	F3	-	-	0.68	MADDT1205	0.8	220V
200W	MSMD021P1	0.82	-	-	-	-	F1	F1	-	-	1.3	MADDT2110	1.1	110V
200W	MSMD022P1	0.82	-	-	-	-	F1	F1	-	-	1.3	MADDT1207	0.8	220V
400W	MSMD041P1	1.2	-	-	-	-	F1	F1	-	-	1.7	MADDT3120	1.5	110V
400W	MSMD042P1	1.2	-	-	-	-	F1	F1	-	-	1.7	MADDT2210	1.1	220V
750W	MSMD082S1	2.3	-	-	-	-	F4	F4	F2	F4	3.1	MADDT3520	1.5	220V

Yaskawa Servo Motor

Output Power	Motor	Weight (Kg)	Applicable Flange								With Brake (Kg)	Driver	Weight (Kg)	Note
			HKK30	HKK40	HKK50	HKK60	HKK80	HKK86	HKK100	HKK130				
10W	SGMMV-A1A2A21	0.13	F2	-	-	-	-	-	-	-	0.215	SGDV-R90A01A	0.9	220V
20W	SGMMV-A2A2A21	0.17	F2	-	-	-	-	-	-	-	0.27	SGDV-R90A01A	0.9	220V
50W	SGMAV-A5ADA61	0.3	-	F1	F1	F1	F2	F2	-	-	-	SGDV-R70A01A	0.9	有鍵
50W	SGMAV-A5ADA2C	0.3	-	F1	F1	F1	F2	F2	-	-	-	SGDV-R70A01A	0.9	無鍵
50W	SGMAV-A5ADA21	0.3	-	F1	F1	F1	F2	F2	-	-	0.75	SGDV-R70A01A	0.9	中慣量
100W	SGMAV-01ADA64	0.4	-	F1	F1	F1	F2	F2	-	-	0.89	SGDV-R90A01A	0.9	
200W	SGMAV-02ADA65	0.9	-	-	-	-	F0	F0	F0	F1	1.6	SGDV-1R6A01A	0.9	
400W	SGMAV-04ADA66	1.2	-	-	-	-	F0	F0	F0	F1	2.1	SGDV-2R8A01A	1	
750W	SGMAV-08ADA67	2.6	-	-	-	-			F1	F2	4	SGDV-5R5A01A	1.5	

Limit switch

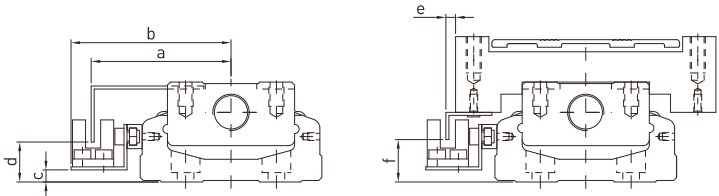
Limit Rail



Sensor

Size	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
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

Optoelectronic Switch S1:671



Size	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
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

Optoelectronic Switch S2:674