If there are any printing errors or mistakes in translation, please telephone consultation.
Our company reserves the right to interpret

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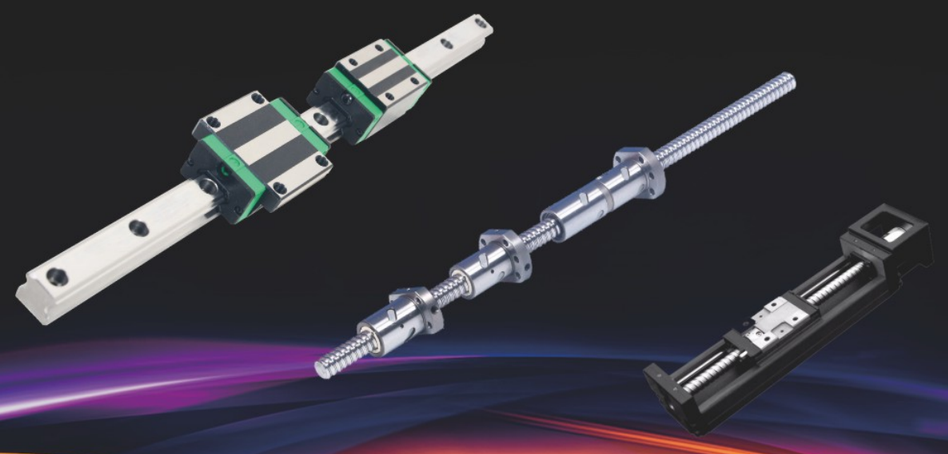


SCIENTIFIC&TECHNOLOGICAL INNOVATION WITH EXCELLENT QUALITY

Linear Guide
Ball Screw
Precision Linear Module

LiShui Hengyuan Bearing Manufacturlng Co., Ltd

COMPANY INTRODUCTION

Hengyuan Bearing Manufacturing Co.,LTD is in production , development and sales for more than 15 years Our company is located in LiShui city , Close to Hangzhou Zhejiang province. Spread over on 10,000-square-meter workshop with advanced production and processing equipment. The company insists on the aim of technical innovation for the process of design manufacturing and maintenance to provide professional technical advice and aftersales service. The company can customize the products according to customer requirement and design. The company passed and achieved Quality Assurance Certification GB/T19001-2016/ISO9001:2015. With our efficient QC team and equipment we make sure to control the quality and standard of the products before shipping it out. Annual output value exceeds US$20 million with products catering USA, Europe and Asian markets.We specialize in Linear guide,Precision linear module,Double axis linear series,Ball screws,Ball joint rod ends bearing series,Ball joint bearing and Spherical plain bearings, Majority of our products are widely used in Automation and Robotics, precise machines, fitness equipment, printing machines, packaging machines,medical equipment etc.Hengyuan Bearing promise to deliver and continue to uphold the “keep improving, industrial patriotic spirit” in a new era of brand philosophy, to achieve industrial 4.0 as a strategic goal ,with new attitude and will be permanent to forge a high quality linear products. With our extensive research and development we assure quality and cost effective products for original equipment manufacturers and also add value for our global partners.

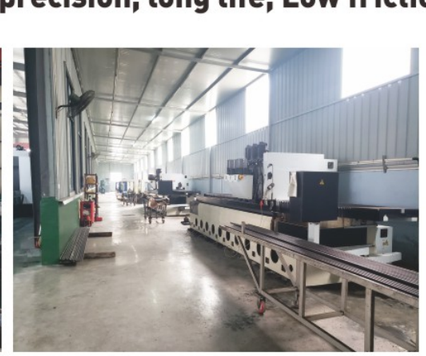
Hengyuan Bearings join hands with Bhavi Impex to cater the niche markets of automation and robotics in India which is the second largest market in Asia.

About Bhavi Impex:

Established in 2005 Bhavi Impex is a consistent supplier and stockist of all kinds of linear products such as linear guide rails,ball screws,linear bushings,linear shafts,oilless bush,DU bushes,cross roller guides,speed rails etc.

Looking at the pace at what the world is moving and seeing the need of time,our company aspire to be in the top suppliers for all of our core activities in every region where it has branches offering a wide range of quality linear-movement product series; providing a high level of know-how and having a balance between its M&O (Maintenance and Overhaul operations) and sales to OEMs (Original Equipment Manufacturer). Bhavi Impex has been and aims to continue being a company that is centered on technology development and contributes to society.

Fast guide column, High precision, long life, Low friction, low noise


Rectangle wheel linear rail series

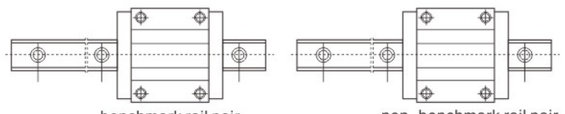
Installation and adjustment of linear rail pair

Installation and using

◆Handle with care, to avoid disaccuracy of rail pair from bumping. Disassembling slide block from rail or pushing back surpassed stroke is not allowed. If there is trouble with installing and need to disassemble slide block, please order guide rail from us. (Guide rail is an installation assist tool whose size is smaller than rail. Butt joint each end of rail and guide rail, push slide from rail to guide rail. When rail is ready, push slide back to rail from guide rail and pay attention to benchmark direction.)

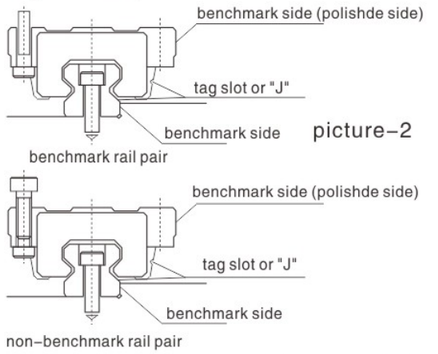
◆Installation notice

First, distinguish benchmark rail pair from non-benchmark rail pair. (J mark on benchmark rail pair, polished benchmark side on slide block) (see picture-1)



picture–1

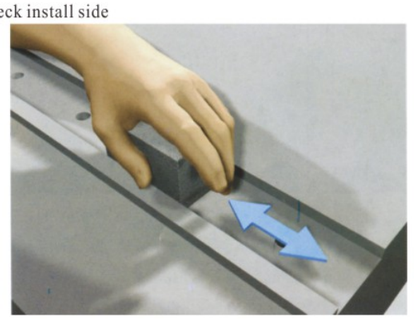
Second,recognize benchmark side when install rail pair.(see picture–2)



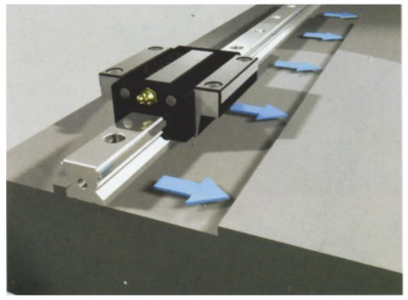
picture–2

Here are some basic steps to install the linear Guide (picture-3)

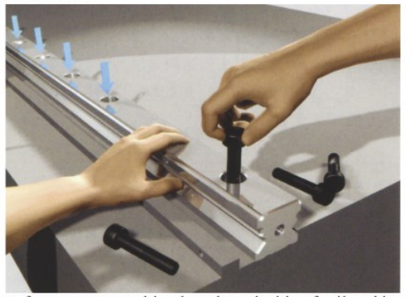
(a)check install side



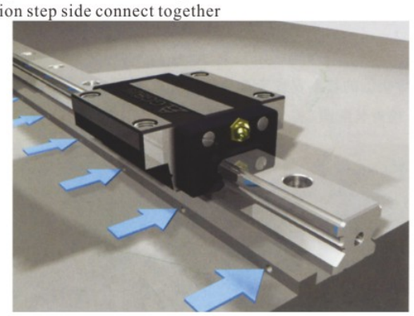
(b)put benchmark side of rail and that of installation step in face to face position



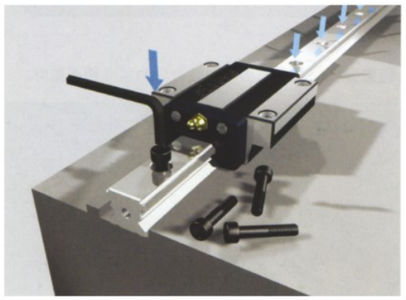
(c)check position of bolt and make sure screw holes are in right position



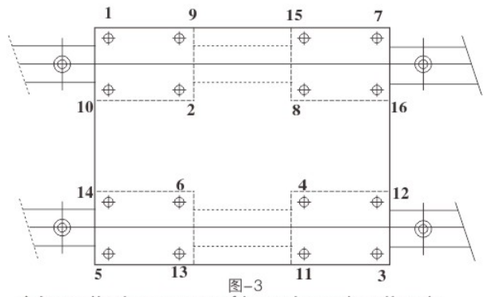
(d)prefasten screw making benchmark side of rail and installation step side connect together



(e)refasten screw



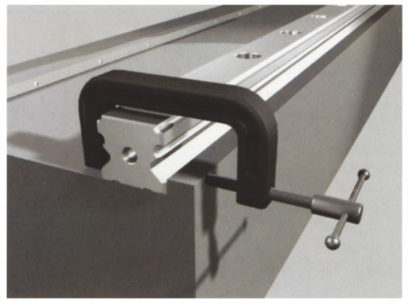
(f) fasten screws on slide block in turn



图–3

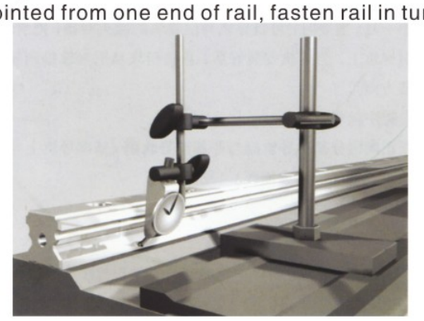
◆Installation ways of benchmark rail pair (2 ways as follows):

1, Use U chuck to clamp benchmark sides of rail and installation step, and then fasten with fixing bolt (use tapping thread hole), fasten rail in turn from one side (see picture–4)



picture–4

2. if there is no installation step, fasten one end of rail and then put hands aside to the benchmark side of rail (see picture–5). Use block gauge as benchmark and read linear level which is pointed from one end of rail, fasten rail in turn.



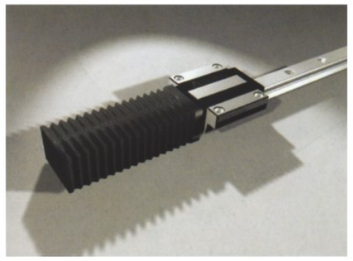
picture–5

◆Protection of linear rail pair

Linear rail pair can be used in different areas. In order to meet different sealing and protection demand of customers, we produce several sealing types for you to choose.

Sealing code	Sealing type	situations
MM	End sealing+	No dust environment such as pr ecise testing equipment
MN	End sealing+ side sealing	Common sealing situation
MX	End sealing+ side sealing+ metal scraper	Iron scrap or impurity situation
MY	End tight sealing+ side sealing+ metal scraper	Dust, wood scrap or dirt
MZ	side sealing+ metal scraper	Mist, iron scrap or impurity situation

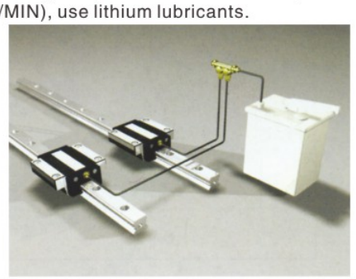
(remarks: MN is the most common type of sealing, no need to mark when make an order.) If working environment is really bad with limited space, use dust proof instrument besides rail sealing. (see picture–6)



picture–6

◆Lubrication of linear rail pair

The main reason of using lubrication on linear rail pair is to reduce friction and abrasion, prevent internal structure of product from damage by overheat and influence motive function of rail pair. Linear rail pair is filled with low noise lubricate grease before leave factory to make sure balls in good lubricated condition. In order to avoid lack of lubricants, refill the lubricants when total motive stroke of slide block reach to 50 km. Use N32 lubricants or compulsory filling with oil pipe when motive speed of linear rail pair is in high speed (V>=35M/MIN), see picture–7. when the speed is low (V<=35M/MIN), use lithium lubricants.



picture–7

(in low speed, do not wach off lubricant inside slide block with gasoline before install linear rail pair, so as to prevent original lubricants disfunctional.)

PRECISION LINEAR GUIDEWAYS

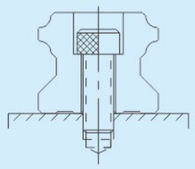
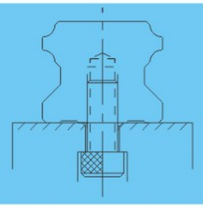
Preload classes

offers three classes of standard preload for various applications and conditions.

Class	Code	Preload	Condition	Examples of Application
Light Preload	Z0	0~ 0.02C	Certain load direction, low impact,low precision required	Transportation devices, auto-packing machines, X-Y axis for general industrial machines, welding machines,welders
Medium Preload	ZA	0.05C-0.07C	High precision required	Machining centers, Z axis for general industrial, machines, EDM, NC lathes, Precision X-Y tables, measuring equipment
Heavy Preload	ZB	0.10C~ 0.12C	High rigidity required, with vibration and impact	Machining centers, grinding machines, NC lathes, horizontal and vertical milling machines, Z axis of machine tools, Heavy cutting machines

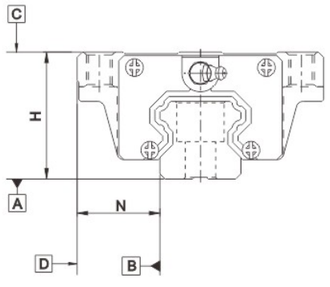
Class	Interchangeable Guideway	Non-Interchangeable Guideway
Preload classes	Z0, ZA	Z0, ZA, ZB

Besides the standard top mounting type, CNHY also offers the bottom mounting type of rails to customers.

Mounting from Top	Mounting from bottom
	

Accuracy Classes

The accuracy of HR series can be classified into normal (C), high (H), precision (P), super precision (SP), ultra precision (UP), five classes. Please choose the class by referring the accuracy of applied equipment.



Accuracy of interchangeable guideways

Accuracy Standards

unit : mm

Item	HR - 15, 20		
Accuracy Classes	Normal (C)	High (H)	Precision (P)
Dimensional tolerance of height H	± 0.1	± 0.03	± 0.015
Dimensional tolerance of width N	± 0.1	± 0.03	± 0.015
Variation of height H	0.02	0.01	0.006
Variation of width N	0.02	0.01	0.006
Running parallelism of block surface C to surface A	See Table		
Running parallelism of block surface D to surface B	See Table		

Item	HR – 25, 30, 35		
Accuracy Classes	Normal (C)	High (H)	Precision (P)
Dimensional tolerance of height H	± 0.1	± 0.04	± 0.02
Dimensional tolerance of width N	± 0.1	± 0.04	± 0.02
Variation of height H	0.02	0.015	0.007
Variation of width N	0.03	0.015	0.007
Running parallelism of block surface C to surface A	See Table		
Running parallelism of block surface D to surface B	See Table		

Item	HR – 45, 55		
Accuracy Classes	Normal (C)	High (H)	Precision (P)
Dimensional tolerance of height H	± 0.1	± 0.05	± 0.025
Dimensional tolerance of width N	± 0.1	± 0.05	± 0.025
Variation of height H	0.03	0.015	0.007
Variation of width N	0.03	0.02	0.01
Running parallelism of block surface C to surface A	See Table		
Running parallelism of block surface D to surface B	See Table		

Accuracy of Running Parallelism

Rail Length (mm)	Accuracy (μm)				
	C	H	P	SP	UP
0 ~ 100	12	7	3	2	2
100 ~ 200	14	9	4	2	2
200 ~ 300	15	10	5	3	2
300 ~ 500	17	12	6	3	2
500 ~ 700	20	13	7	4	2
700 ~ 900	22	15	8	5	3
900 ~ 1,100	24	16	9	6	3
1,100 ~ 1,500	26	18	11	7	4
1,500 ~ 1,900	28	20	13	8	4
1,900 ~ 2,500	31	22	15	10	5
2,500 ~ 3,100	33	25	18	11	6
3,100 ~ 3,600	36	27	20	14	7
3,600 ~ 4,000	37	28	21	15	7

(1) Non-interchangeable type

HR W 25 C A E 2 R 1600 E ZA P II + DD/E2/RC

- HR series
- Block Type
  - W : flange Type
  - H : square Type
  - L : square Type (Low)[3]
- Model size
  - 15, 20, 25, 30, 35, 45, 55, 65
- Load Type
  - C : Heavy Load
  - H : super Heavy Load
- Block Mounting
  - A : Mounting from Top
  - B : Bottom
  - C : Top or Bottom
- E: special Block
  - None: standard Block
- No. of Blocks per Rail
- Rail Mounting Type
  - R : Mounting from Top
  - T : Bottom
- Rail Length (mm)
- preload Code: Z0, ZA, ZB
- precision Code:
  - C, H, p, sp, Up
- No.of rails per axis set[1]
- Dust protection[2]
  - E2: self-Lubricant
  - sE: Metallic End Cap
- RC:Reinforced Cap

Note: 1. The roman numerals express a matched set of rails.
2. No symbol indicates standard protection (end seal and bottom seal).
ZZ : End seal, bottom seal and scraper
KK: Double seals, bottom seal and scraper.
DD: Double seals and bottom seal
3. Block type HGL is the low profile design of HGH (square type), the assembled height is same as HGW (flange type) in same size.

(2) Interchangeable type

○ Model Number of HG Block

HR W 25 C A E ZA P + ZZ/E2

- HR series
- Block Type
  - W : flange Type
  - H : square Type
  - L : square Type[3]
- Model size
  - 15, 20, 25, 30, 35, 45, 55, 65
- Load Type
  - C : Heavy Load
  - H : super Heavy Load
- Block Mounting Type
  - A : Mounting from Top
  - B : Bottom, C : Top or Bottom
- E: special Block
  - None: standard Block
- precision Code : C, H, p
- preload Code : Z0, ZA
- Dust protection[2]
  - E2: self-Lubricant
  - sE: Metallic End Cap
- ZZ/E2

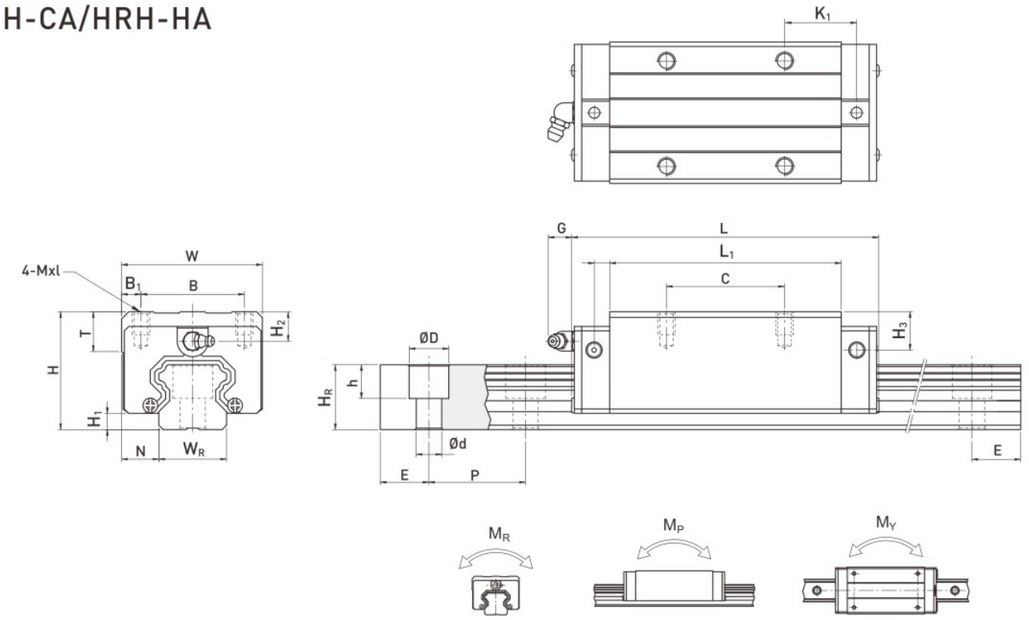
○ Model Number of HG Rail

HR R 25 R 1200 E P + RC

- HR series
- Interchangeable Rail
- Model size
  - 15, 20, 25, 30, 35, 45, 55, 65
- Rail Mounting Type
  - R : Mounting from Top
  - T : Bottom
- Rail Length (mm)
- E: special Rail,
  - None: standard Rail
- precision Code : C, H, p
- RC:Reinforced Cap

Dimensions for HRH Series Linear Guideways

HRH-CA/HRH-HA

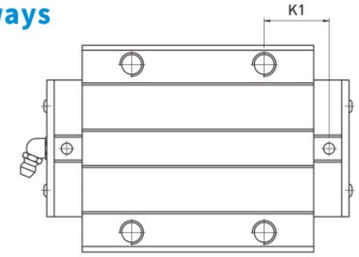


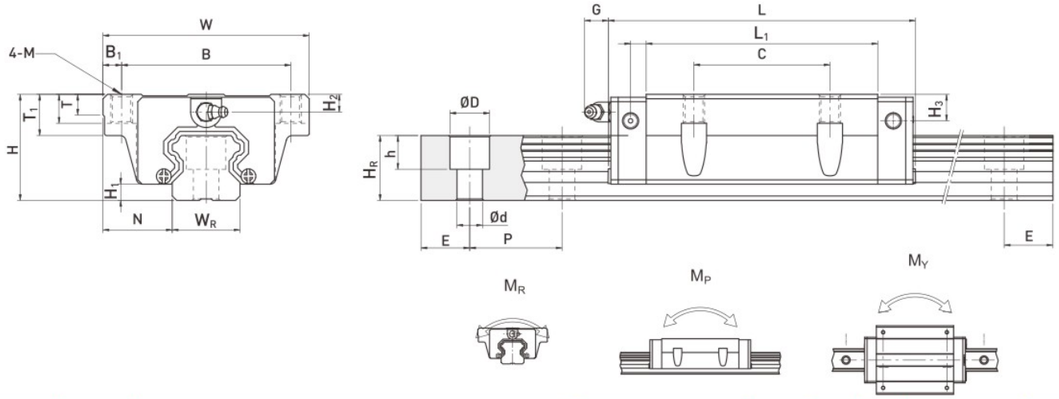
Model No.	Dimensions of Assembly (mm)			Dimensions of Block (mm)												Dimensions of Rail (mm)							Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment (kgf.m)			Weight	
	H	H1	N	W	B	B1	C	L1	L	K1	G	MxI	T	H2	H3	WR	HR	D	h	d	P	E	(mm)	C(kN)	C0 (kN)	MR kN-m	MP kN-m	MY kN-m	Block kg	Rail kg/m
HRH 15CA	28	4.3	9.5	34	26	4	26	39.4	61.4	10	5.3	M4x5	6	7.95	7.7	15	15	7.5	5.3	4.5	60	20	M4x16	11.38	16.97	0.12	0.10	0.10	0.18	1.45
HRH 20CA	30	4.6	12	44	32	6	36	50.5	77.5	12.25	12	M5x6	8	6	6	20	17.5	9.5	8.5	6	60	20	M5x16	17.75	27.76	0.27	0.20	0.20	0.30	2.21
HRH 20HA							50	65.2	92.2	12.6														21.18	35.9	0.35	0.35	0.35	0.39	
HRH 25CA	40	5.5	12.5	48	35	6.5	35	58	84	15.7	12	M6x8	8	10	9	23	22	11	9	7	60	20	M6x20	26.48	36.49	0.42	0.33	0.33	0.51	3.21
HRH 25HA							50	78.6	104.6	18.5														32.75	49.44	0.56	0.57	0.57	0.69	
HRH 30CA	45	6	16	60	40	10	40	70	97.4	20.25	12	M8x10	8.5	9.5	13.8	28	26	14	12	9	80	20	M8x25	38.74	52.19	0.66	0.53	0.53	0.88	4.47
HRH 30HA							60	93	120.4	21.75														47.27	69.16	0.88	0.92	0.92	1.16	
HRH 35CA	55	7.5	18	70	50	10	50	80	112.4	20.6	12	M8x12	10.2	16	19.6	34	29	14	12	9	80	20	M8x25	49.52	69.16	1.16	0.81	0.81	1.45	6.30
HRH 35HA							72	105.8	138.2	22.5														60.21	91.63	1.54	1.40	1.40	1.92	
HRH 45CA	70	9.5	20.5	86	60	13	60	97	139.4	23	12.9	M10x17	16	18.5	30.5	45	38	20	17	14	105	22.5	M12x35	77.57	102.71	1.98	1.55	1.55	2.73	10.41
HRH 45HA							80	128.8	171.2	28.9														94.54	136.46	2.63	2.68	2.68	3.61	
HRH 55CA	80	13	23.5	100	75	12.5	75	117.7	166.7	27.35	12.9	M12x18	17.5	22	29	53	44	23	20	16	120	30	M14x45	114.44	148.33	3.69	2.64	2.64	4.17	15.08
HRH 55HA							95	155.8	204.8	36.4														139.35	196.2	4.88	4.57	4.57	5.49	
HRH 65CA	90	15	31.5	126	76	25	70	144.2	200.2	43.1	12.9	M16x20	25	15	15	63	53	26	22	18	150	35	M16x50	163.63	215.33	6.65	4.27	4.27	7.00	21.18
HRH 65HA							120	203.6	259.6	47.8														208.36	303.13	9.38	7.38	7.38	9.82	

Note : 1kgf=9.81N

Dimensions for HRW Series Linear Guideways

HRW-CC/HRW-HC



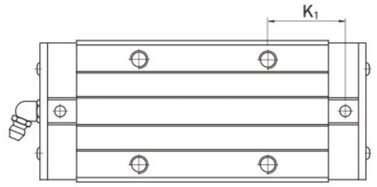


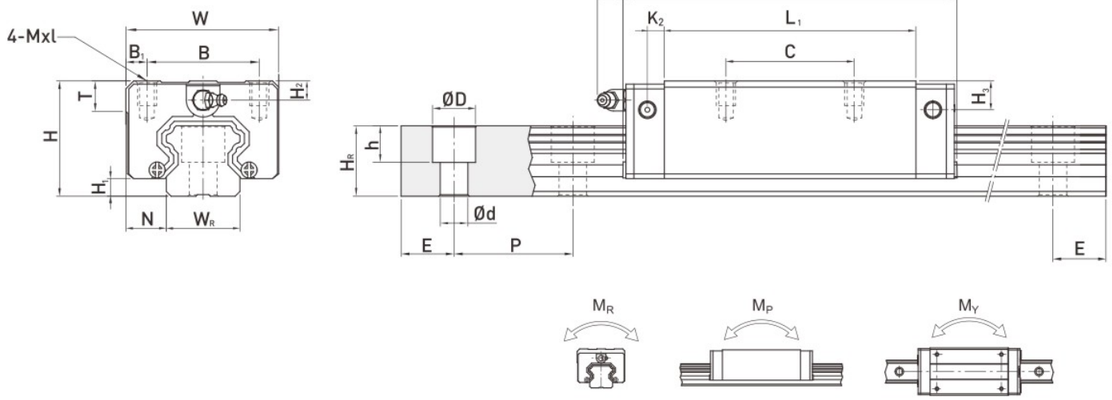
Model No.	Dimensions of Assembly (mm)			Dimensions of Block (mm)												Dimensions of Rail (mm)							Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment (kgf.m)			Weight	
	H	H_1	N	W	B	B_1	C	L_1	L	K_1	G	M	T	T_1	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0 (kN)	M_R kN-m	M_P kN-m	M_Y kN-m	Block kg	Rail kg/m
HRW 15CC	24	4.3	16	47	38	4.5	30	39.4	61.4	8	5.3	M5	6	8.9	3.95	3.7	15	15	7.5	5.3	4.5	60	20	M4x16	11.38	16.97	0.12	0.10	0.10	0.17	1.45
HRW 20CC	30	4.6	21.5	63	53	5	40	50.5	77.5	10.25	12	M6	8	10	6	6	20	17.5	9.5	8.5	6	60	20	M5x16	17.75	27.76	0.27	0.20	0.20	0.40	2.21
HRW 20HC								65.2	92.2	17.6															21.18	35.9	0.35	0.35	0.35	0.52	
HRW 25CC	36	5.5	23.5	70	57	6.5	45	58	84	10.7	12	M8	8	14	6	5	23	22	11	9	7	60	20	M6x20	26.48	36.49	0.42	0.33	0.33	0.59	3.21
HRW 25HC								78.6	104.6	21															32.75	49.44	0.56	0.57	0.57	0.80	
HRW 30CC	42	6	31	90	72	9	52	70	97.4	14.25	12	M10	8.5	16	6.5	10.8	28	26	14	12	9	80	20	M8x25	38.74	52.19	0.66	0.53	0.53	1.09	4.47
HRW 30HC								93	120.4	25.75															47.27	69.16	0.88	0.92	0.92	1.44	
HRW 35CC	48	7.5	33	100	82	9	62	80	112.4	14.6	12	M10	10.1	18	9	12.6	34	29	14	12	9	80	20	M8x25	49.52	69.16	1.16	0.81	0.81	1.56	6.30
HRW 35HC								105.8	138.2	27.5															60.21	91.63	1.54	1.40	1.40	2.06	
HRW 45CC	60	9.5	37.5	120	100	10	80	97	139.4	13	12.9	M12	15.1	22	8.5	20.5	45	38	20	17	14	105	22.5	M12x35	77.57	102.71	1.98	1.55	1.55	2.79	10.41
HRW 45HC								128.8	171.2	28.9															94.54	136.46	2.63	2.68	2.68	3.69	
HRW 55CC	70	13	43.5	140	116	12	95	117.7	166.7	17.35	12.9	M14	17.5	26.5	12	19	53	44	23	20	16	120	30	M14x45	114.44	148.33	3.69	2.64	2.64	4.52	15.08
HRW 55HC								155.8	204.8	36.4															139.35	196.2	4.88	4.57	4.57	5.96	
HRW 65CC	90	15	53.5	170	142	14	110	144.2	200.2	23.1	12.9	M16	25	37.5	15	15	63	53	26	22	18	150	35	M16x50	163.63	215.33	6.65	4.27	4.27	9.17	21.18
HRW 65HC								203.6	259.6	52.8															208.36	303.13	9.38	7.38	7.38	12.89	

Note : 1kgf=9.81N

Dimensions for HRL Series Linear Guideways

HRL-CA/HRL-HA





Model No.	Dimensions of Assembly (mm)			Dimensions of Block (mm)													Dimensions of Rail (mm)							Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment (kgf.m)			Weight	
	H	H_1	N	W	B	B_1	C	L_1	L	K_1	K_2	G	Mxl	T	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0 (kN)	M_R kN-m	M_P kN-m	M_Y kN-m	Block kg	Rail kg/m
HRL15CA	24	4.3	9.5	34	26	4	26	39.4	61.4	10	4.85	5.3	M4x4	6	3.95	3.7	15	15	7.5	5.3	4.5	60	20	M4x16	11.38	16.97	0.12	0.10	0.10	0.14	1.45
HRL25CA	36	5.5	12.5	48	35	6.5	35	58	84	15.7	6	12	M6x6	8	6	5	23	22	11	9	7	60	20	M6x20	26.48	36.49	0.42	0.33	0.33	0.42	3.21
HRL25HA							50	78.6	104.6	18.5															32.75	49.44	0.56	0.57	0.57	0.57	
HRL30CA	42	6	16	60	40	10	40	70	97.4	20.25	6	12	M8x10	8.5	6.5	10.8	28	26	14	12	9	80	20	M8x25	38.74	52.19	0.66	0.53	0.53	0.78	4.47
HRL30HA							60	93	120.4	21.75															47.27	69.16	0.88	0.92	0.92	1.03	
HRL35CA	48	7.5	18	70	50	10	50	80	112.4	20.6	7	12	M8x12	10.2	9	12.6	34	29	14	12	9	80	20	M8x25	49.52	69.16	1.16	0.81	0.81	1.14	6.30
HRL35HA							72	105.8	138.2	22.5															60.21	91.63	1.54	1.40	1.40	1.52	
HRL45CA	60	9.5	20.5	86	60	13	60	97	139.4	23	10	12.9	M10x17	16	8.5	20.5	45	38	20	17	14	105	22.5	M12x35	77.57	102.71	1.98	1.55	1.55	2.08	10.41
HRL45HA							80	128.8	171.2	28.9															94.54	136.46	2.63	2.68	2.68	2.75	
HRL55CA	70	13	23.5	100	75	12.5	75	117.7	166.7	27.35	11	12.9	M12x18	17.5	12	19	53	44	23	20	16	120	30	M14x45	114.44	148.33	3.69	2.64	2.64	3.25	15.08
HRL55HA							95	155.8	204.8	36.4															139.35	196.2	4.88	4.57	4.57	4.27	

Note : 1kgf=9.81N

(1) Non-interchangeable type

ER W 25 C A E 2 R 1600 E ZA P II +KK/E2/RC

- ER series
- Block Type
  W : flange Type
  H : square Type
- Model size
  15, 20, 25, 30, 35
- Load Type
  C : Heavy Load
  s: Medium Load
- Block Mounting Type
  A : Mounting from Top
  B : Bottom
- E: special Block
  None: standard Block
- No. of Blocks per Rail
- Rail Mounting Type
  R/U: Mounting from Top
  T : Bottom
- Rail Length (mm)
- E: special Rail
  None: standard rail
- preload Code: Z0, ZA, ZB
- precision Code:
  C, H, p, sp, Up
- No.of Rails per Axis set[1]
- Dust protection[2]
- E2: self-Lubrication
  sE: Metallic End Cap
- RC:Reinforced Cap

Note: 1. The roman numerals are used to express the number of matched rails used in one axis. When a single rail is used in an axis, no symbol is indicated.
2. No symbol indicates standard protection (end seal and bottom seal).
ZZ : End seal, bottom seal and scraper
KK: Double seals, bottom seal and scraper.
DD: Double seals and bottom seal

(2) Interchangeable type

○ Model Number of EG Block

ER W 25 C A E ZA P + ZZ/E2

- ER series
- Block Type
  W : flange Type
  H : square Type
- Model size
  15, 20, 25, 30, 35
- Load Type
  C : Heavy Load
  s: Medium Load
- Block Mounting Type
  A : Mounting from Top
  B : Bottom
- E: special Block
  None: standard block
- preload Code : Z0, ZA
- precision Code : C, H, p
- Dust protection[2]
- E2: self-Lubricant
  sE: Metallic End Cap

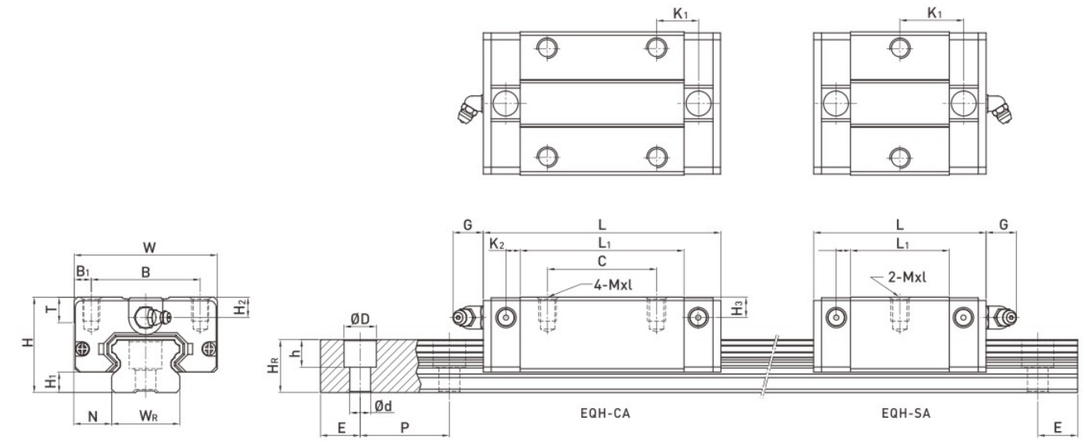
○ Model Number of EG Rail

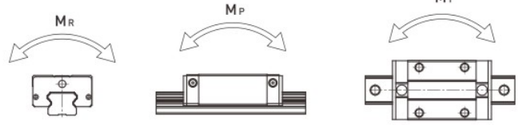
ER R 25 R 1240 E P + RC

- ER series
- Interchangeable Rail
- Model size
  15, 20, 25, 30, 35
- Rail Mounting Type
  R/U : Mounting from Top
  T : Bottom
- Rail Length (mm)
- E: special Rail,
  None: standard Rail
- precision Code : C, H, p
- RC:Reinforced Cap

Dimensions for ERH Series Linear Guideways

ERH-SA/ERH-CA



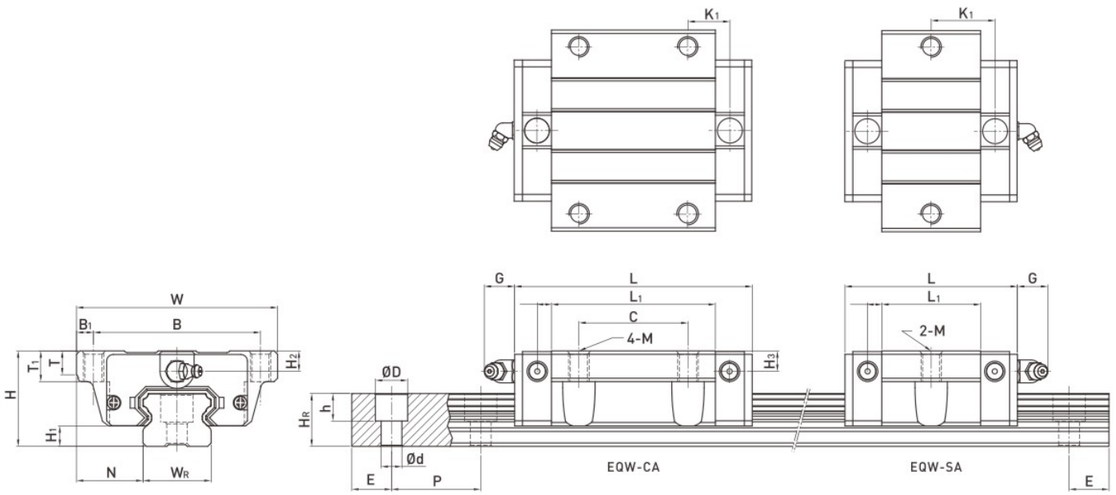


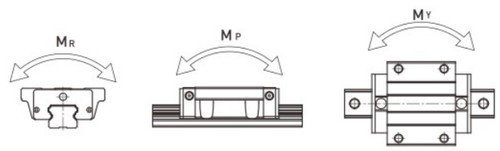
Model No.	Dimensions of Assembly (mm)			Dimensions of Block (mm)												Dimensions of Rail (mm)							Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment (kgf.m)			Weight	
	H	H_1	N	W	B	B_1	C	L_1	L	K_1	G	Mxl	T	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0 (kN)	M_R kN-m	M_P kN-m	M_Y kN-m	Block kg	Rail kg/m
ERH15SA	24	4.5	9.5	34	26	4	-	23.1	40.1	14.8	5.7	M4x6	6	5.5	6	15	12.5	6	4.5	3.5	60	20	M4x16	5.35	9.40	0.08	0.04	0.04	0.09	1.25
ERH15CA							26	39.8	56.8	10.15														7.83	16.19	0.13	0.10	0.10	0.15	
ERH20SA	28	6	11	42	32	5	-	29	50	18.75	12	M5x7	7.5	6	6	20	15.5	9.5	8.5	6	60	20	M5x16	7.23	12.74	0.13	0.06	0.06	0.15	2.08
ERH20CA							32	48.1	69.1	12.3														10.31	21.13	0.22	0.16	0.16	0.24	
ERH25SA	33	7	12.5	48	35	6.5	-	35.5	59.1	21.9	12	M6x9	8	8	8	23	18	11	9	7	60	20	M6x20	11.40	19.50	0.23	0.12	0.12	0.25	2.67
ERH25CA							35	59	82.6	16.15														16.27	32.40	0.38	0.32	0.32	0.41	
ERH30SA	42	10	16	60	40	10	-	41.5	69.5	26.75	12	M8x12	9	8	9	28	23	11	9	7	80	20	M8x25	16.42	28.10	0.40	0.21	0.21	0.45	4.35
ERH30CA							40	70.1	98.1	21.05														23.70	47.46	0.68	0.55	0.55	0.76	

Note : 1kgf=9.81N

Dimensions for ERL Series Linear Guideways

ERW-SA/ERW-CA





型號 Model No.	組件尺寸 (mm) Dimensions of Assembly			滑塊尺寸 (mm) Dimensions of Block												滑軌尺寸 (mm) Dimensions of Rail						滑軌固定螺栓尺寸 Mounting Bolt for Rail	額定動載荷 Basic Dynamic Load Rating	額定靜載荷 Basic Static Load Rating	容許靜力矩 Static Rated Moment (kgf.m)			重量 Weight	
	H	H_1	N	W	B	B_1	C	L_1	L	K_1	G	M	T	T_1	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0(kN)	M_R kN-m	M_P kN-m	M_Y kN-m	滑塊 Block kg	滑軌 Rail kg/m
ERW 15SA	24	4.5	18.5	52	41	5.5	-	23.1	40.1	14.8	5.7	M5	5	7	5.5	6	15	12.5	6	4.5	3.5	60	20	M4x16	5.35	9.40	0.08	0.04	0.04	0.12	1.25
ERW 15CA							26	39.8	56.8	10.15															7.83	16.19	0.13	0.10	0.10	0.21	
ERW 20SA	28	6	19.5	59	49	5	-	29	50	18.75	12	M6	7	9	6	6	20	15.5	9.5	8.5	6	60	20	M5x16	7.23	12.74	0.13	0.06	0.06	0.19	2.08
ERW 20CA							32	48.1	69.1	12.3															10.31	21.13	0.22	0.16	0.16	0.32	
ERW 25SA	33	7	25	73	60	6.5	-	35.5	59.1	21.9	12	M8	7.5	10	8	8	23	18	11	9	7	60	20	M6x20	11.40	19.50	0.23	0.12	0.12	0.35	2.67
ERW 25CA							35	59	82.6	16.15															16.27	32.40	0.38	0.32	0.32	0.59	
ERW 30SA	42	10	31	90	72	9	-	41.5	69.5	26.75	12	M10	7	10	8	9	28	23	11	9	7	80	20	M8x25	16.42	28.10	0.40	0.21	0.21	0.62	4.35
ERW 30CA							40	70.1	98.1	21.05															23.70	47.46	0.68	0.55	0.55	1.04	

Note : 1kgf=9.81N

(1) Non-interchangeable type

MRN 12 C E 2 R1600 E Z1 P M II + U/RC/-O

- MRN / MRW Series
- Model Size : 5, 7, 9, 12, 15
- Block Type C : Standard H : Long
- E : Special Block None : Standard Block
- No. of Blocks per Rail
- Rail Length (mm)
- E : Special Rail None : Standard Rail
- Precision Code : C, H, P
- Preload Code : ZF, Z0, Z1
- Material[3]: No symbol, M, HC, NC
- No. of Rails per Axis[1]
- Bottom Seal Option[2]
- RC:Reinforced Cap (Optional For MGN12,15)
- O:Outer Recirculation Module

Note: 1. Symbol for No. of rails used on the same plane.
No symbol indicates single rail in a axis.
2. The bottom seal is available for MGN & MGW 9, 12, 15.
3. No symbol: Carbon Steel
M: Stainless Steel
HC: Carbon Steel+Hard Chrome Treatment
NC: Carbon Steel+Chemical Black Chrome Treatment
4. MG5 is only supplied with outer recirculation module.

(2) Interchangeable type

○ Interchangeable Block

MRN 12 C E Z1 P M + U/-O

- MRN / MRW Series
- Model Size : 5, 7, 9, 12, ~~15~~
- Block Type C : Standard H : Long
- E: Special Block None: Standard Block
- Preload Code : ZF, Z0, Z1
- Precision Code : C, H, P
- No symbol: Carbon Steel M: Stainless Steel
- Bottom Seal Option[1]
- O:Outer Recirculation Module

Note: 1.The bottom seal is available for MGN & MGW 9, 12, 15.
2.MG5 is only supplied with outer recirculation module.

○ Interchangeable Rail

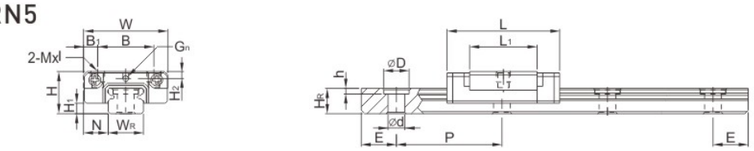
MRN R 12 R1000 E P M + RC

- MRN / MRW Series
- Interchangeable Rail
- Model Size : 5, 7, 9, 12, 15
- Rail Length (mm)
- Rail Special Option
- Precision Code : C, H, P
- Material: No symbol (Carbon Steel) M (Stainless Steel) HC (Carbon Steel+Hard Chrome Treatment) NC (Carbon Steel+Chemical Black Chrome Treatment)
- RC:Reinforced Cap (Optional For MGN12,15)

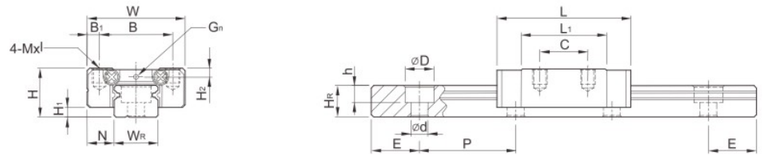
Dimensions for MRN Series Miniature Linear Guideways

MRN-C/MRN-H

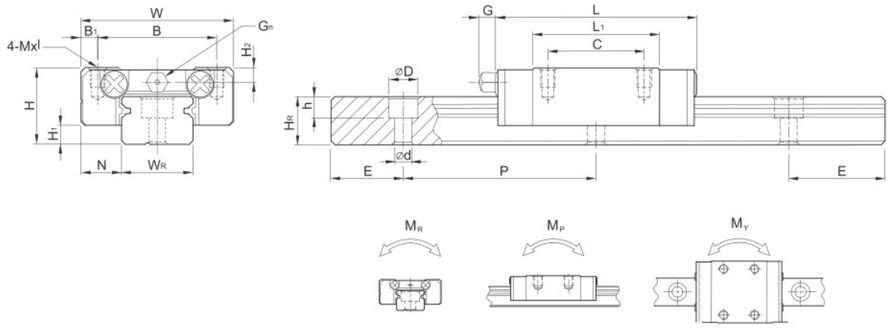
MRN5



MRN7,MRN9,MRN12



MRN15



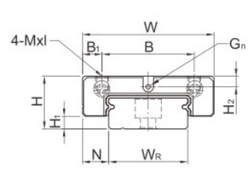
Model No.	Dimensions of Assembly (mm)			Dimensions of Block (mm)										Dimensions of Rail (mm)							Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment (kgf.m)			Weight	
	H	H_1	N	W	B	B_1	C	L_1	L	G	G_n	Mxl	H_2	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0 (kN)	M_R N-m	M_P N-m	M_Y N-m	Block kg	Rail kg/m
MRN 5C	6	1.5	3.5	12	8	2	-	9.6	16	-	Ø0.8	M2x1.5	1	5	3.6	3.6	0.8	2.4	15	5	M2×6	0.54	0.84	2	1.3	1.3	0.008	0.15
MRN 7C	8	1.5	5	17	12	2.5	8	13.5	22.5	-	Ø1.2	M2x2.5	1.5	7	4.8	4.2	2.3	2.4	15	5	M2x6	0.98	1.24	4.70	2.84	2.84	0.010	0.22
MRN 7H							13	21.8	30.8													1.37	1.96	7.64	4.80	4.80	0.015	
MRN 9C	10	2	5.5	20	15	2.5	10	18.9	28.9	-	Ø1.4	M3x3	1.8	9	6.5	6	3.5	3.5	20	7.5	M3x8	1.86	2.55	11.76	7.35	7.35	0.016	0.38
MRN 9H							16	29.9	39.9													2.55	4.02	19.60	18.62	18.62	0.026	
MRN 12C	13	3	7.5	27	20	3.5	15	21.7	34.7	-	Ø2	M3x3.5	2.5	12	8	6	4.5	3.5	25	10	M3x8	2.84	3.92	25.48	13.72	13.72	0.034	0.65
MRN 12H							20	32.4	45.4													3.72	5.88	38.22	36.26	36.26	0.054	
MRN 15C	16	4	8.5	32	25	3.5	20	26.7	42.1	4.5	M3	M3x4	3	15	10	6	4.5	3.5	40	15	M3x10	4.61	5.59	45.08	21.56	21.56	0.059	1.06
MRN 15H							25	43.4	58.8													6.37	9.11	73.50	57.82	57.82	0.092	

Note : 1kgf=9.81N

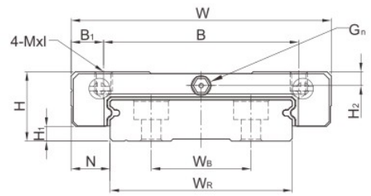
Dimensions for MRW Series Miniature Linear Guideways

MRW-C/MRW-H

MRW7,MRW9,MRW12



MRW15

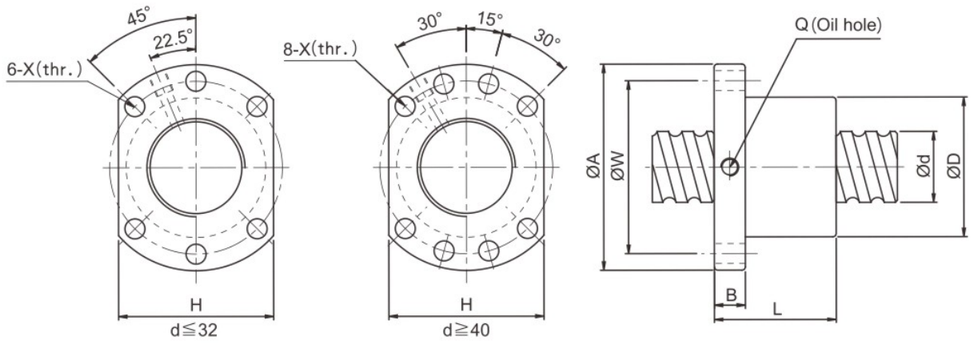


Model No	Dimensions of Assembly (mm)			Dimensions of Block (mm)										Dimensions of Rail (mm)								Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment (kgf.m)			Weight	
	H	H_1	N	W	B	B_1	C	L_1	L	G	G_n	Mxl	H_2	W_R	W_B	H_R	D	h	d	P	E	(mm)	C(kN)	C_0 (kN)	M_R N-m	M_P N-m	M_Y N-m	Block kg	Rail kg/m
MRW 7C	9	1.9	5.5	25	19	3	10	21	31.2	-	Ø1.2	M3x3	1.85	14	-	5.2	6	3.2	3.5	30	10	M3x6	1.37	2.06	15.70	7.14	7.14	0.020	0.51
MRW 7H							19	30.8	41														1.77	3.14	23.45	15.53	15.53	0.029	
MRW 9C	12	2.9	6	30	21	4.5	12	27.5	39.3	-	Ø1.2	M3x3	2.4	18	-	7	6	4.5	3.5	30	10	M3x8	2.75	4.12	40.12	18.96	18.96	0.040	0.91
MRW 9H					23	3.5	24	38.5	50.7														3.43	5.89	54.54	34.00	34.00	0.057	
MRW 12C	14	3.4	8	40	28	6	15	31.3	46.1	-	Ø1.2	M3x3.6	2.8	24	-	8.5	8	4.5	4.5	40	15	M4x8	3.92	5.59	70.34	27.80	27.80	0.071	1.49
MRW 12H							28	45.6	60.4														5.10	8.24	102.70	57.37	57.37	0.103	
MRW 15C	16	3.4	9	60	45	7.5	20	38	54.8	5.2	M3	M4x4.2	3.2	42	23	9.5	8	4.5	4.5	40	15	M4x10	6.77	9.22	199.34	56.66	56.66	0.143	2.86
MRW 15H							35	57	73.8														8.93	13.38	299.01	122.60	122.60	0.215	

Note : 1kgf=9.81N

Size Table of SFU Ball Screws

Produce Code/Accuracy Grade Code : 1,Rolled Thread/C7 2, Grinding /C3-C5



I:Lead Da:Ball Diameter n:Number of Circuits

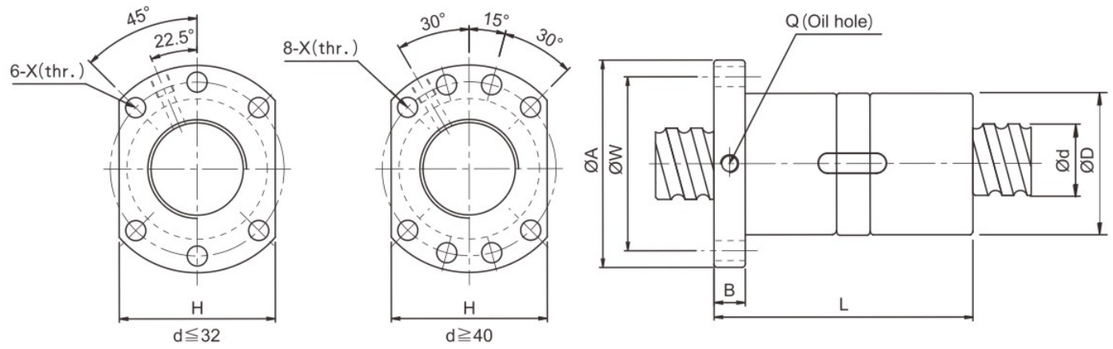
Ca:Basic Dynamic Rating Load(Kgf) Coa:Basic Static Rating Load(Kgf) unit:mm

	Model no.	d	I	Da	Nut Dimensions									Ca	Coa
					D	A	B	L	W	H	X	Q	n		
☆	SFU 1204-3	12	4	2.5	24	40	10	40	32	30	4.5	M6×1	1×3	451	709
	SFU 1604-3	16	4	2.381	28	48	10	36	38	40	5.5	M6×1	1×3	488	940
☆	SFU 1605-3		5	3.175	28	48	10	42	38	40	5.5	M6×1	1×3	666	1143
☆	SFU 1605-4		5	3.175	28	48	10	50	38	40	5.5	M6×1	1×4	888	1525
☆	SFU 1610-3		10	3.175	28	48	10	57	38	40	5.5	M6×1	1×3	716	1232
	SFU 2004-3	20	4	2.381	36	58	10	42	47	44	6.6	M6×1	1×3	541	1187
☆	SFU 2005-3		5	3.175	36	58	10	42	47	44	6.6	M6×1	1×3	749	1495
☆	SFU 2005-4		5	3.175	36	58	10	51	47	44	6.6	M6×1	1×4	999	1994
	SFU 2504-3	25	4	2.381	40	62	10	42	51	48	6.6	M6×1	1×3	605	1534
☆	SFU 2505-3		5	3.175	40	62	10	42	51	48	6.6	M6×1	1×3	839	1935
☆	SFU 2505-4		5	3.175	40	62	10	51	51	48	6.6	M6×1	1×4	1119	2581
☆	SFU 2510-3		10	4.762	40	62	10	70	51	48	6.6	M6×1	1×3	1427	2771
☆	SFU 2510-4		10	4.762	40	62	12	85	51	48	6.6	M6×1	1×4	1903	3695
☆	SFU 3205-4	32	5	3.175	50	80	12	52	65	62	9	M6×1	1×4	1264	3402
	SFU 3210-3		10	6.35	50	80	12	74	65	62	9	M6×1	1×3	2319	4575
	SFU 3210-4		10	6.35	50	80	12	90	65	62	9	M6×1	1×4	3092	6101
	SFU 4005-4	40	5	3.175	63	93	14	55	78	70	9	M8×1	1×4	1407	4341
	SFU 4010-3		10	6.35	63	93	14	71	78	70	9	M8×1	1×3	2610	5834
	SFU 4010-4		10	6.35	63	93	14	93	78	70	9	M8×1	1×4	3480	7779
	SFU 5010-4	50	10	6.35	75	110	16	93	93	85	11	M8×1	1×4	3898	10325
	SFU 6310-4	63	10	6.35	90	125	18	98	108	95	11	M8×1	1×4	4401	13611
	SFU 6320-4		20	9.525	95	135	20	149	115	100	13.5	M8×1	1×4	7404	19008
	SFU 8010-4	80	10	6.35	105	145	20	98	125	110	13.5	M8×1	1×4	4900	17366
	SFU 8020-4		20	9.525	125	165	25	154	145	130	13.5	M8×1	1×4	8403	25345

Note:with sign ☆ can poduce left helix

Size Table of DFU Ball Screws

Produce Code/Accuracy Grade Code : 1,Rolled Thread/C7 2, Grinding /C3-C5



I:Lead Da:Ball Diameter n:Number of Circuits

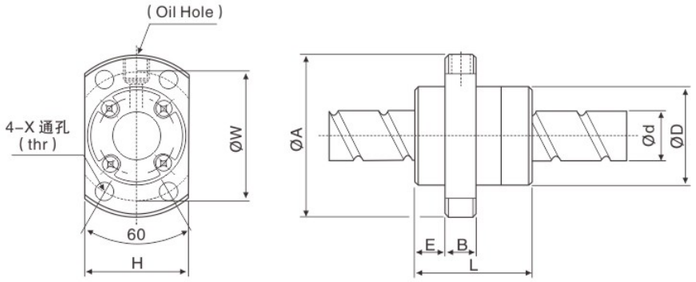
Ca:Basic Dynamic Rating Load(Kgf) Coa:Basic Static Rating Load(Kgf) unit:mm

	Model no.	d	I	Da	Nut Dimensions									Ca	Coa
					D	A	B	L	W	H	X	Q	n		
	DFU1604-3	16	4	2.381	28	48	10	80	38	40	5	M6×1	1×3	488	940
☆	DFU1605-4		5	3.175	28	48	10	100	38	40	5	M6×1	1×4	885	1525
☆	DFU1610-3		10	3.175	28	48	10	118	38	40	5	M6×1	1×3	716	1232
	DFU2004-3	20	4	2.381	36	58	10	80	47	44	6.6	M6×1	1×3	541	1187
☆	DFU2005-4		5	3.175	36	58	10	101	47	44	6.6	M6×1	1×4	999	1994
	DFU2504-3	25	4	2.381	40	62	10	80	51	48	6.6	M6×1	1×3	605	1534
☆	DFU2505-4		5	3.175	40	62	10	101	51	48	6.6	M6×1	1×4	1119	2581
☆	DFU2510-4		10	4.762	40	62	12	145	51	48	6.6	M6×1	1×4	1927	2771
☆	DFU3205-4	32	5	3.175	50	80	12	102	65	62	9	M6×1	1×4	1264	3402
	DFU3210-4		10	6.35	50	80	12	162	65	62	9	M6×1	1×4	3092	6101
	DFU4005-4	40	5	3.175	63	93	14	105	78	70	9	M8×1	1×4	1407	4341
	DFU4010-4		10	6.35	63	93	14	165	78	70	9	M8×1	1×4	3480	7979
	DFU5010-4	50	10	6.35	75	110	16	171	93	85	11	M8×1	1×4	3898	10325
	DFU6310-4	63	10	6.35	90	125	18	182	108	95	11	M8×1	1×4	4401	13611
	DFU6320-4		20	9.525	95	135	20	290	115	100	13.5	M8×1	1×4	7404	19008
	DFU8010-4	80	10	6.35	105	145	20	182	125	110	13.5	M8×1	1×4	4900	17366
	DFU8020-4		20	9.525	125	165	25	295	145	130	13.5	M8×1	1×4	8403	25345

Note:with sign ☆ can poduce left helix

Size Table of SFE Ball Screws

Produce Code/Accuracy Grade Code : 1,Rolled Thread/C7 2, Grinding /C3-C5



I:Lead Da:Ball Diameter n:Number of Circuits

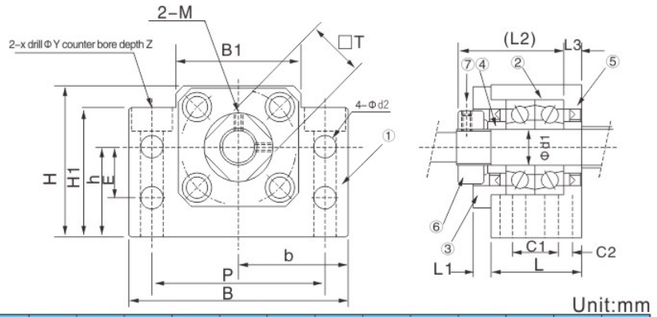
Ca:Basic Dynamic Rating Load(Kgf) Coa:Basic Static Rating Load(Kgf)

unit:mm

型号 Type	Nut Dimensions															
	d	I	Da	D	A	E	B	L	X	W	H	Q	N	Ca	Coa	K
SFE1616-3	16	16	2.778	32	53	10.1	10	38	4.5	42	34	M6	1.7×2	650	1280	19
SFE1616-6		16	2.778	32	53	10.1	10	38	4.5	42	34	M6	1.7×4	1180	2550	36
SFE1632-3		32	3.175	34	55	10.5	10	34	5.5	45	36	M6	0.7×2	410	680	21
SFE1632-6		32	3.175	34	55	10.5	10	34	5.5	45	36	M6	0.7×4	820	1360	41
SFE2020-3	20	20	3.175	39	62	11.5	10	47	5.5	50	41	M6	1.7×2	980	2140	25
SFE2020-6		20	3.175	39	62	11.5	10	47	5.5	50	41	M6	1.7×4	1780	4280	49
SFE2040-3		40	3.175	38	58	11	10	41	5.5	48	40	M6	0.7×2	455	880	25
SFE2040-6		40	3.175	38	58	11	10	41	5.5	48	40	M6	0.7×4	910	1760	49
SFE2525-3	25	25	3.696	47	74	13	10	57	6.6	60	49	M6	1.7×2	1470	3350	31
SFE2525-6		25	3.696	47	74	13	12	57	6.6	60	49	M6	1.7×4	2660	6690	60
SFE2550-3		50	3.696	46	70	13	12	50	6.6	58	48	M6	0.7×2	685	1380	31
SFE2550-6		50	3.696	46	70	13	12	50	6.6	58	48	M6	0.7×4	1370	2760	60
SFE3232-3	32	32	4.762	58	92	16	12	71	9	74	60	M6	1.7×2	2140	5260	40
SFE3232-6		32	4.762	58	92	16	12	71	9	74	60	M6	1.7×4	3890	10500	76
SFE3264-3		64	4.762	58	92	15.5	12	62	9	74	60	M6	0.7×2	1000	2130	40
SFE3264-6		64	4.762	58	92	15.5	12	62	9	74	60	M6	0.7×4	2000	4260	77
SFE4040-3	40	40	6.350	73	114	19	15	89	11	93	75	M6	1.7×2	3410	8820	49
SFE4040-6		40	6.350	73	114	19	15	89	11	93	75	M6	1.7×4	6200	17600	95
SFE5050-3	50	50	7.938	90	135	21.5	20	107	14	112	92	M6	1.7×2	5100	13800	60
SFE5050-6		50	7.938	90	135	21.5	20	107	14	112	92	M6	1.7×4	7260	27600	117

SUPPORT UNIT BK

（fixed-side support unit）



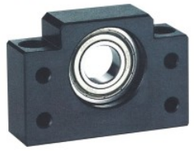
Unit:mm

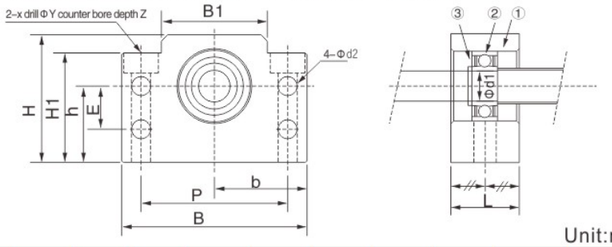
Part Number	Shaft diameter d1	L	L1	L2	L3	B	H	b ±0.02	h ±0.02	B1	H1	E	P	C1	C2	C3	X	Y	Z	M	T
BK-10	10	25	5	29	5	60	39	30	22	34	32.5	15	46	13	6	5.5	6.6	10.8	5	M3	16
BK-12	12	25	5	29	5	60	43	30	25	35	32.5	18	46	13	6	5.5	6.6	10.8	6.5	M4	19
BK-15	15	27	6	32	6	70	48	35	28	40	38	18	54	15	6	5.5	6.6	11	6.5	M4	22
BK-17	17	35	9	44	7	86	64	43	39	50	55	28	68	19	8	6.6	9	14	8.5	M4	24
BK-20	20	35	8	43	8	88	60	44	34	52	50	22	70	19	8	6.6	9	14	8.5	M4	30
BK-25	25	42	12	54	9	106	80	53	48	64	70	33	85	22	10	9	11	17.5	11	M5	35
BK-30	30	45	14	61	9	128	89	64	51	76	78	33	102	23	11	11	14	20	13	M6	40
BK-35	35	50	14	67	12	140	96	70	52	88	79	35	114	26	12	11	14	20	13	M8	50
BK-40	40	61	18	76	15	160	110	80	60	100	90	37	130	33	14	14	18	26	17.5	M8	50

① Housing ② Bearing ③ Holdinglid ④ Collar ⑤ Seal ⑥ Locknut ⑦ Hexagonsocket-headsetscrew(withset piece)

SUPPORT UNIT BF

(supported-side support unit)





Unit:mm

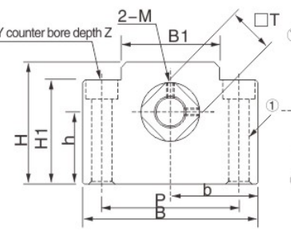
Part Number	Shaft diameter d1	L	B	H	b ±0.02	h ±0.02	B1	H1	E	P	d2	X	Y	Z	Bearing	Snapring
BF-10	8	20	60	39	30	22	34	32.5	15	46	5.5	6.6	10.8	5	606ZZ	S 08
BF-12	10	20	60	43	30	25	35	32.5	18	46	5.5	6.6	10.8	6.5	6000ZZ	S 10
BF-15	15	20	70	48	35	28	40	38	18	54	5.5	6.6	11	6.5	6002ZZ	S 15
BF-17	17	23	86	64	43	39	50	55	28	68	6.6	9	14	8.5	6203ZZ	S 17
BF-20	20	26	88	60	44	34	52	50	22	70	6.6	9	14	8.5	6004ZZ	S 20
BF-25	25	30	106	80	53	48	64	70	33	85	9	11	17.5	11	6205ZZ	S 25
BF-30	30	32	128	89	64	51	76	78	33	102	11	14	20	13	6206ZZ	S 30
BF-35	35	32	140	96	70	52	88	79	35	114	11	14	20	13	6207ZZ	S 35
BF-40	40	37	160	110	80	60	100	90	37	130	14	18	26	17.5	6208ZZ	S 40

① Housing ② Bearing ③ Snapring

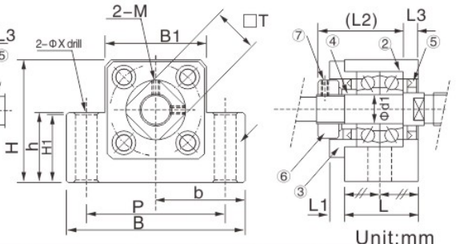
SUPPORT UNIT EK

（fixed-side support unit）

EK-6,EK-8



EK-10,EK-20



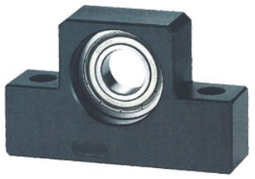
Unit:mm

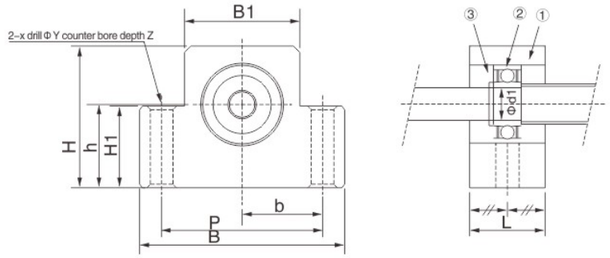
Part Number	Shaft diameter d1	L	L1	L2	L3	B	H	b ±0.02	h ±0.02	B1	H1	P	X	Y	Z	M	T
EK-6	6	20	5.5	22	3.5	42	25	21	13	18	20	30	5.5	–	–	M3	12
EK-8	8	23	7	26	4	52	32	26	17	25	26	38	6.6	9.5	11	M3	14
EK-10	10	24	6	29.5	6	70	43	35	25	36	24	52	9	11	12	M3	16
EK-12	12	24	6	29.5	6	70	43	35	25	36	24	52	9	–	–	M4	19
EK-15	15	25	6	36	5	80	49	40	30	41	25	60	11	–	–	M4	22
EK-20	20	42	10	50	10	95	58	47.5	30	56	25	75	11	–	–	M4	30

①Housing ②Bearing ③Holdinglid ④Collar ⑤Seal ⑥Locknut ⑦Hexagonsocket-headsetscrew(withset piece)

SUPPORT UNIT EF

(supported-side support unit)





Unit:mm

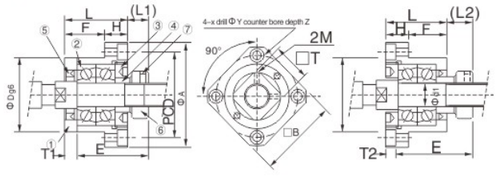
Part Number	Shaft diameter d1	L	B	H	b ±0.02	h ±0.02	B1	H1	P	X	Y	Z	Bearing	Snapring
EF-6	6	12	42	25	21	13	18	20	30	5.5	9.5	11	606ZZ	S 06
EF-8	6	14	52	32	26	17	25	26	38	6.6	11	12	606ZZ	S 06
EF-10	8	20	70	43	35	25	36	24	52	9	–	–	608ZZ	S 08
EF-12	10	20	70	43	35	25	36	24	52	9	–	–	6000ZZ	S 10
EF-15	15	20	80	49	40	30	41	25	60	9	–	–	6002ZZ	S 15
EF-20	20	26	95	58	47.5	30	56	45	75	11	–	–	6204ZZ	S 20

①Housing ②Bearing ③ Snapring

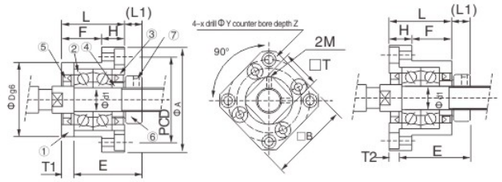
SUPPORT UNIT FK

(fixed-side round type)

FK-6~FK-8



FK-10~FK-30



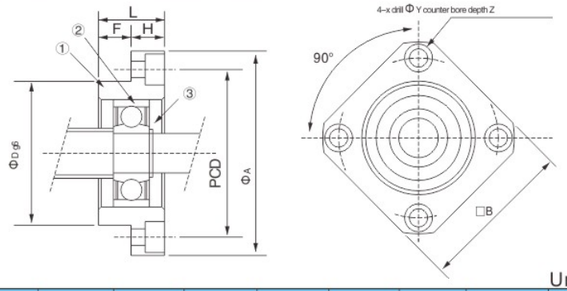
Unit:mm

Part Number	Shaft diameter d1	L	H	F	E	Dg6	A	PCD	B	MOUNTING METHOD A L1	MOUNTING METHOD A T1	MOUNTING METHOD B L2	MOUNTING METHOD B T2	X	Y	Z	M	T
FK-6	6	20	7	13	22	22 −0.007 −0.02	36	28	28	5.5	3.5	8.5	6.5	3.4	6.5	4	M3	12
FK-8	8	23	9	14	26	28 −0.007 −0.02	43	35	35	7	4	10	7	3.4	6.5	4	M3	14
FK-10	10	27	10	17	29.5	34 −0.009 −0.025	52	42	42	7.5	5	8.5	6	4.5	8	4	M3	16
FK-12	12	27	10	17	29.5	36 −0.009 −0.025	54	44	44	7.5	5	8.5	6	4.5	8	4	M4	19
FK-15	15	32	15	17	36	40 −0.009 −0.025	63	50	52	10	6	12	8	5.5	9.5	6	M4	22
FK-17	17	45	22	23	47	50 −0.009 −0.025	77	62	61	11	9	14	12	6.6	11	10	M4	24
FK-20	20	52	22	30	50	57 −0.010 −0.029	85	70	68	8	10	12	14	6.6	11	10	M4	30
FK-25	25	57	27	30	60	63 −0.010 −0.029	98	80	79	13	10	20	17	9	15	13	M5	35
FK-30	30	62	30	32	61	75 −0.010 −0.029	117	95	93	11	12	17	18	11	17.5	15	M6	40

①Housing ②Bearing ③Holdinglid ④Collar ⑤Seal ⑥Locknut ⑦Hexagonsocket-headsetscrew(withset piece)

SUPPORT UNIT FF

(supported-side round type)



Unit:mm

Part Number	Shaft diameter d1	L	B	H	Dg6	B1	H1	P	X	Y	Z	Bearing	Snapring
FF-6	6	10	6	4	22 −0.007 −0.02	36	28	28	3.4	6.5	4	606ZZ	S 06
FF-10	8	12	7	5	28 −0.007 −0.02	43	35	35	3.4	6.5	4	608ZZ	S 08
FF-12	10	15	7	8	34 −0.009 −0.025	52	42	42	4.5	8	4	6000ZZ	S 10
FF-15	12	17	9	8	40 −0.009 −0.025	63	50	52	5.5	9.5	5.5	6002ZZ	S 15
FF-17	15	20	11	9	50 −0.009 −0.025	77	62	61	6.6	11	6.5	6203ZZ	S 17
FF-20	20	20	11	9	57 −0.010 −0.029	85	70	68	6.6	11	6.5	6204ZZ	S 20
FF-25	25	24	14	10	63 −0.010 −0.029	98	80	79	9	14	8.5	6205ZZ	S 25
FF-30	30	27	18	9	75 −0.010 −0.029	117	95	93	11	17.5	11	6206ZZ	S 30

①Housing ②Bearing ③ Snapring

Precision Linear Module

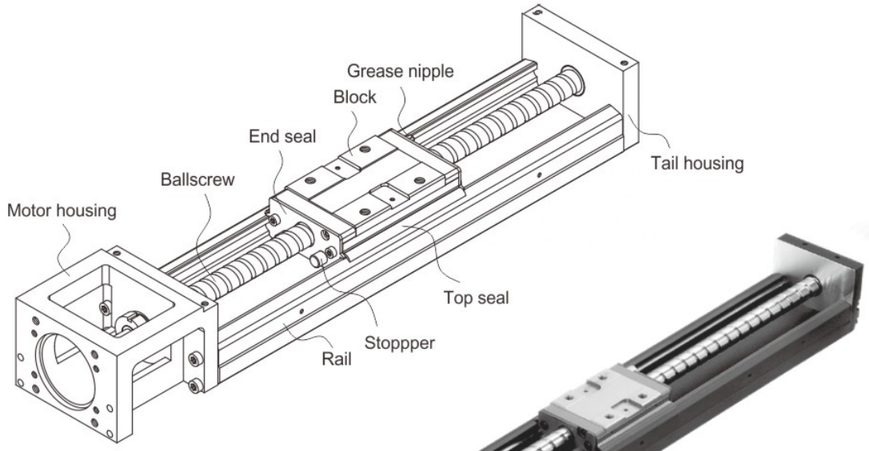
1. KK Series

The KK precision linear module is driven by a ballscrew while a guideway slides on anoptimized U-rail to achieve higher accuracy and greater stiffness.

1.1 Features

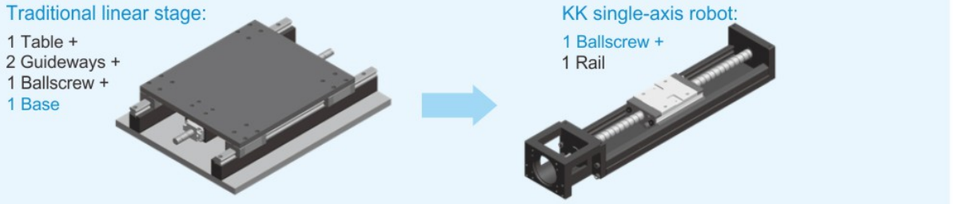
- An integrated system
- Easy installation and maintenance
- Compact and lightweight
- High accuracy
- High stiffness
- Complete line of accessories

The structure of rail is analyzed by FEA to get the best rigidity and weight. The analysis results are shown as the right figures.



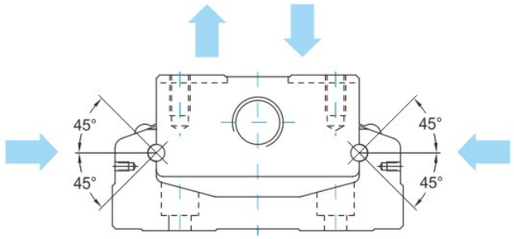
1.1.1 Modulization

The KK precision linear module 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.

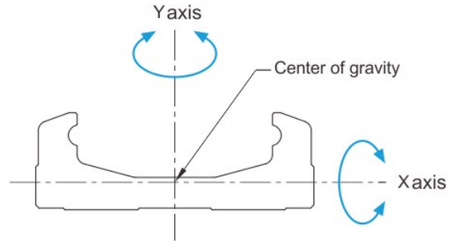


1.1.3 High Stiffness

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 10^3
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

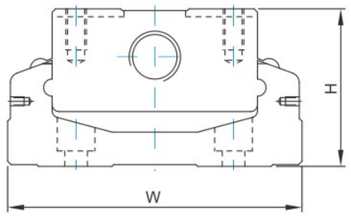


I_X : Moment of inertia computed about X axis
I_Y : Moment of inertia computed about Y axis

1.1.4 Various Specification

The KK precision linear module of various specifications are developed, providing customers with different choices relating

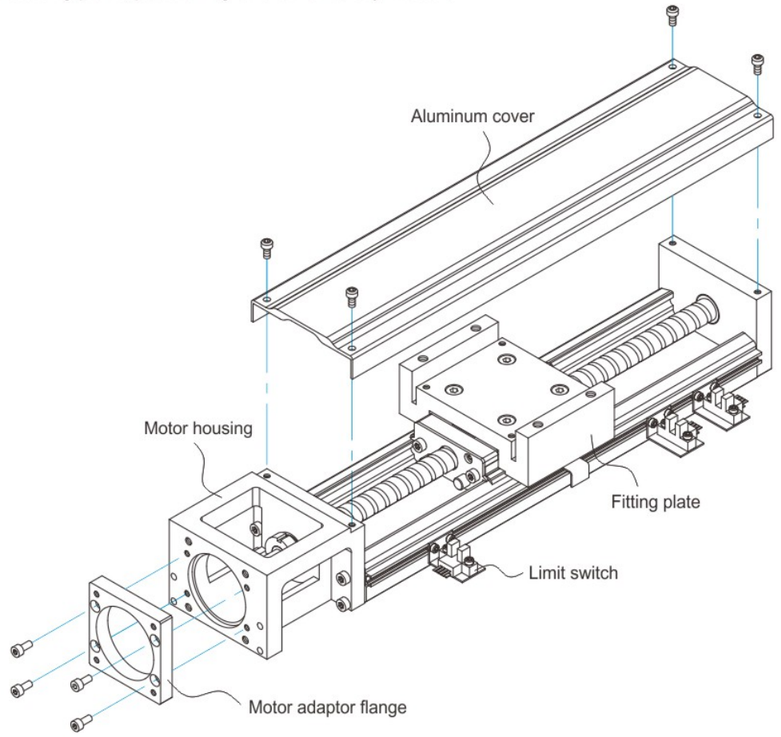
Model no.	W	H
KK30	30	15
KK40	40	20
KK50	50	26
KK60	60	33
KK80	80	45
KK86	86	46
KK100	100	55
KK130	130	65



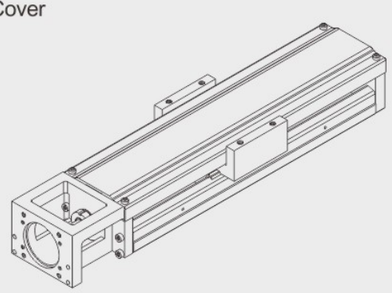
1.2 Accessories

Accessories of KK precision linear module are also supported for specific demands, such as an aluminum cover, bellows, motor adaptor flange and limit switchs.

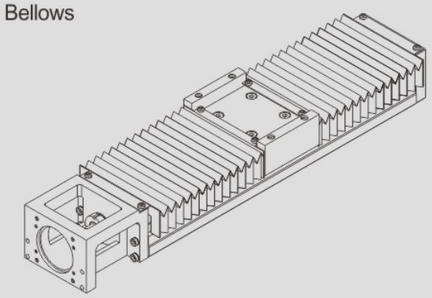
- Aluminum cover and bellow: contamination protection
- Motor adaptor flange: connection for different types of motors
- Limit switchs: starting point, positioning and other safety matters



• Cover



• Bellows



1.3 Model Number of KK Series

KK | 60D | 10 | P | E | - | 400 | E | A | 2 | E | - | FO | C | S0 | M051

KK Series

Nominal Width:
30, 40, 50, 60,
60D, 80, 86, 86D,
100, 130

Ballscrew Lead:
KK30: 1
KK40: 1
KK50: 2
KK60/KK60D: 5, 10
KK80: 10, 20
KK86/KK86D: 10, 20
KK100: 20
KK130: 25

Accuracy Grade:
P: Precision, C: Normal

E: Ballscrew Special Order
None: Normal Type

Rail Length (mm)
KK30: 75, 100, 125, 150, 175, 200
KK40: 100, 150, 200
KK50: 150, 200, 250, 300
KK60/KK60D: 150, 200, 300, 400, 500, 600
KK80: 340, 440, 540, 640, 740, 940
KK86/KK86D: 340, 440, 540, 640, 740, 940
KK100: 980, 1080, 1180, 1280, 1380
KK130: 980, 1180, 1380, 1680

E: Rail Special Order
None: Normal Type

Block Type:
A: Normal
S: Short

Number of Blocks: 1, 2

E: Block Special Order
None: Normal Type

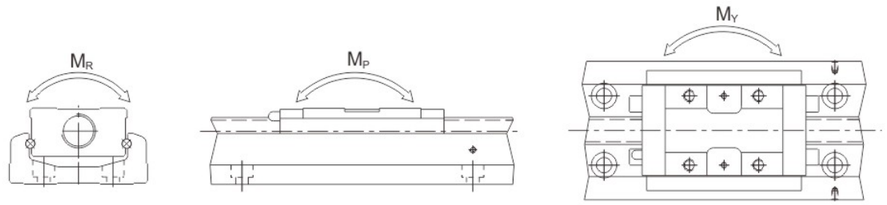
Motor Adaptor Flange:
ref. catalog P.41-45
FE : Flange Special Order

C: Aluminum Cover
B: Bellows (ref. catalog P.46)
None: Normal Type

Limit Switch: ref. catalog P.47-48
S0: Switch Rail Only
S1: Omron EE-SX671
S2: Omron EE-SX674
S3: Panasonic GX-F12A
S4: Panasonic GX-F12A-P
S5: YAMATAKE APM-D3B1-03
(suitable for KK30)
SE: Sensor Special Order
None: No Limit Switch and
Switch Rail

Motor specification:
ref. catalog P.39-40
M: customer specified
None: Without Motor

1.4 Speciications



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																

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	0.020	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								
KK80	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
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	± 0.005	± 0.01	0.045	-	0.035	-	23	15
	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	18

1.6 Maximum Speed Limit

Model	Ballscrew Lead (mm)	Rail Length L2 (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	100	190	190
		150	190	190
		200	190	190
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
	10	150	1100	790
		200	1100	790
		300	1100	790
		400	1100	790
		500	1100	790
		600	670	670
KK80	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
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

1.7 Life Calculations

1.7.1 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 precision linear module is defined as the distanced traveled before any failure of the raceway or rolling elements appear.

1.7.2 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.

1.7.3 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< 15m/min	1.0 ~ 1.5
Low Vibration	15m/min< V< 60m/min	1.5 ~ 2.0
High Vibration	V> 60m/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 precision linear module every 100km is recommened. 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.

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

T : Lubricating frequency (hrs)

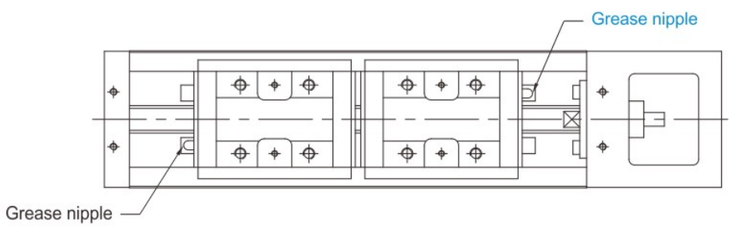
Ve : Speed (m/min)

1.8.2 Grease Nipple

- 1 Block

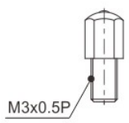
- 2 Block

Grease nipple

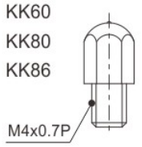


Types of grease nipple

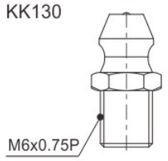
KK40



KK50
KK60
KK80
KK86



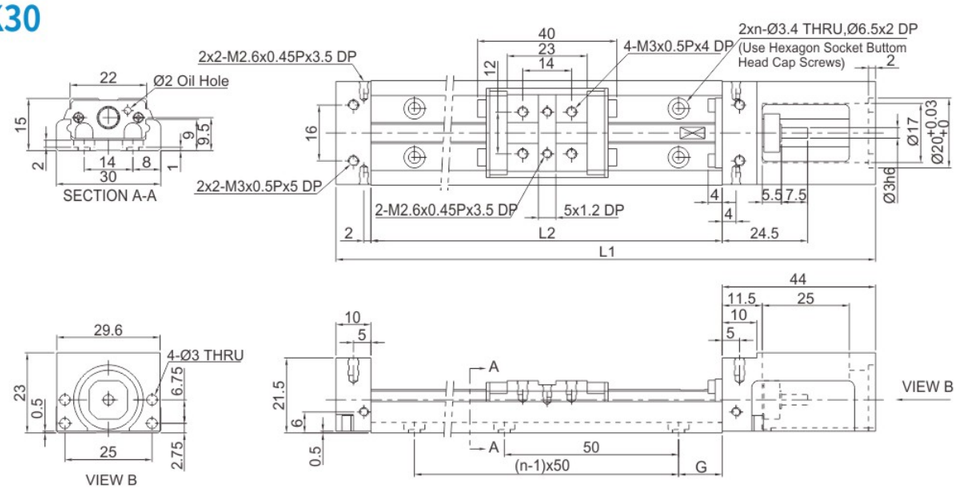
KK100
KK130



1.9 KK Series

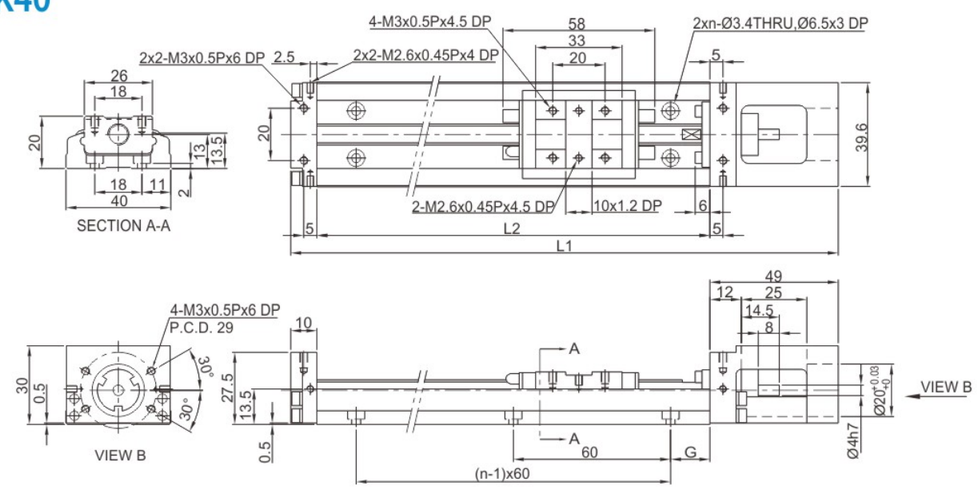
1.9.1 Without cover

KK30



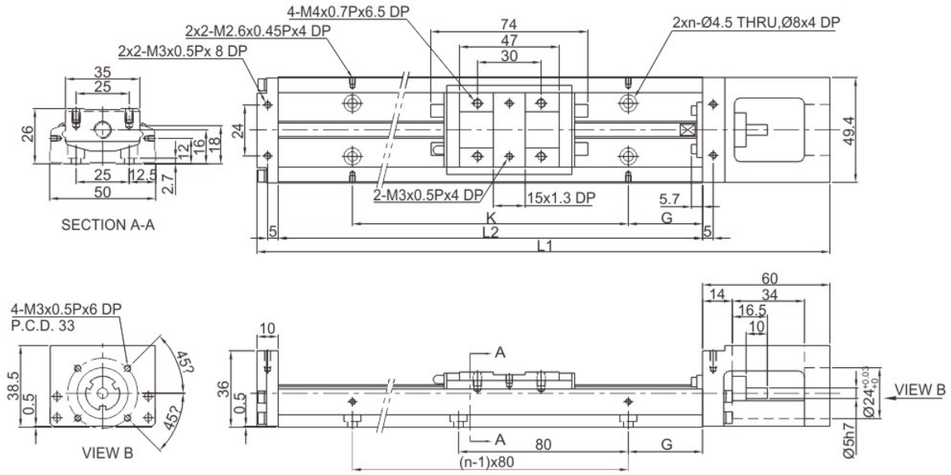
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	n	Mass (kg)	
		A1 Block	A2 Block			A1 Block	A2 Block
75	129	31	-	12.5	2	0.2	-
100	154	56	-	25	2	0.23	-
125	179	81	45	12.5	3	0.26	0.3
150	204	106	70	25	3	0.29	0.33
175	229	131	95	12.5	4	0.32	0.36
200	254	156	120	25	4	0.35	0.39

KK40



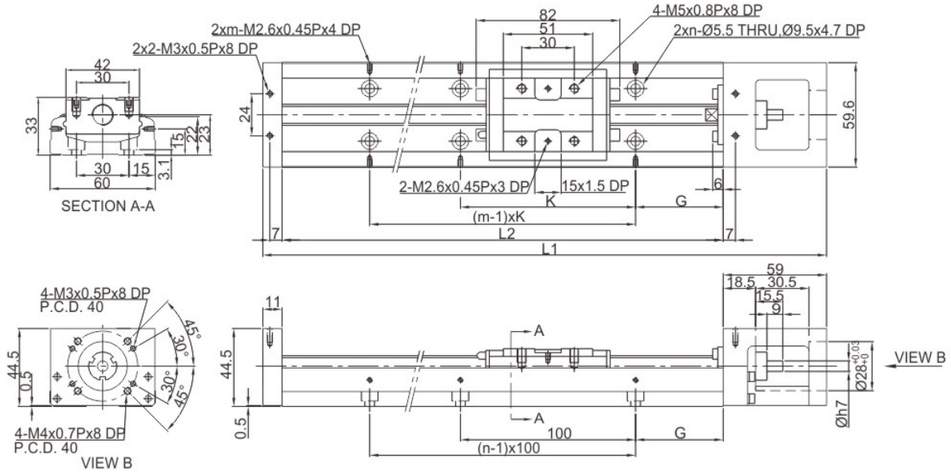
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	n	Mass (kg)	
		A1 Block	A2 Block			A1 Block	A2 Block
100	159	36	-	20	2	0.48	-
150	209	86	34	15	3	0.6	0.67
200	259	136	84	40	3	0.72	0.79

KK50



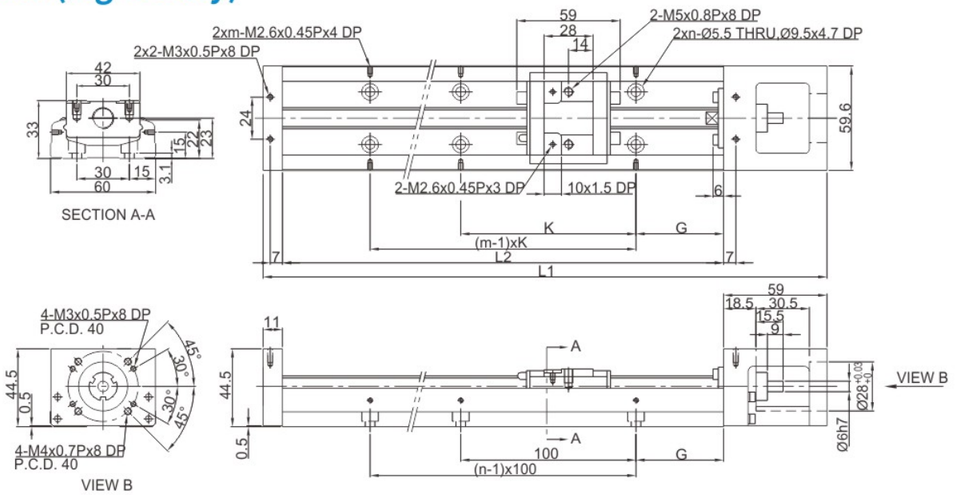
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	K (mm)	n	Mass (kg)	
		A1 Block	A2 Block				A1 Block	A2 Block
150	220	70	-	35	80	2	1	-
200	270	120	55	20	160	3	1.2	1.4
250	320	170	105	45	160	3	1.4	1.6
300	370	220	155	30	240	4	1.6	1.8

KK60 (Standard)



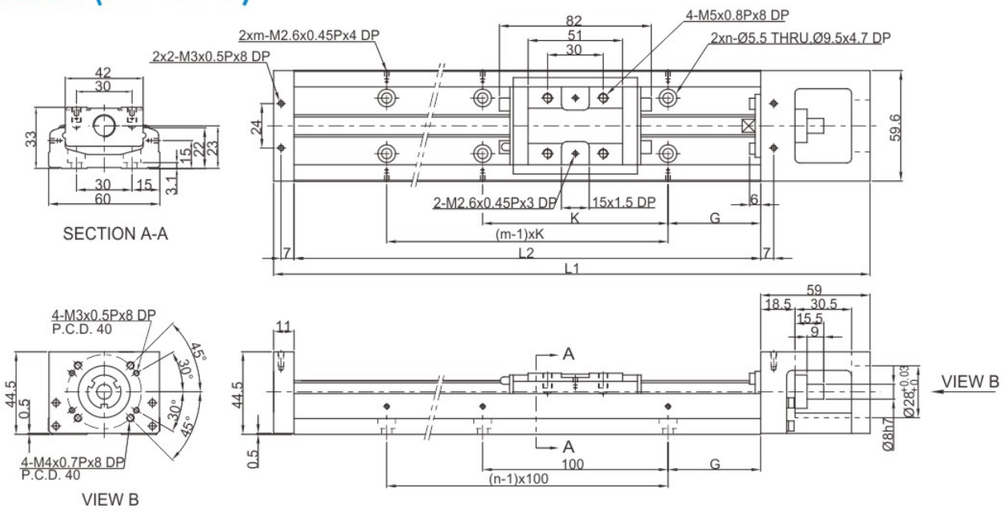
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	K (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block					A1 Block	A2 Block
150	220	60	-	25	100	2	2	1.5	-
200	270	110	-	50	100	2	2	1.8	-
300	370	210	135	50	200	3	2	2.4	2.7
400	470	310	235	50	100	4	4	3	3.3
500	570	410	335	50	200	5	3	3.6	3.9
600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

KK60 (Light Duty)



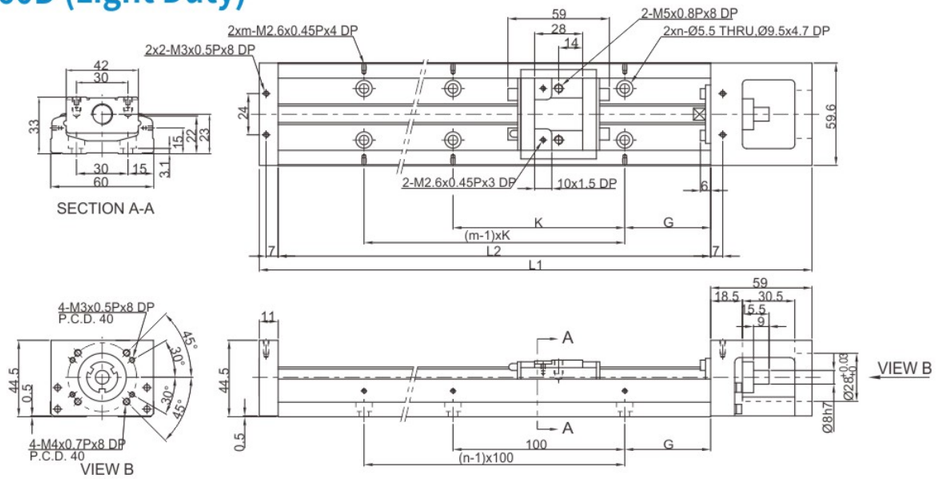
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	K (mm)	n	m	Mass (kg)	
		S1 Block	S2 Block					S1 Block	S2 Block
150	220	85	34	25	100	2	2	1.4	1.6
200	270	135	84	50	100	2	2	1.7	1.9
300	370	235	184	50	200	3	2	2.3	2.5
400	470	335	284	50	100	4	4	2.9	3.1
500	570	435	384	50	200	5	3	3.5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

KK60D (Standard)



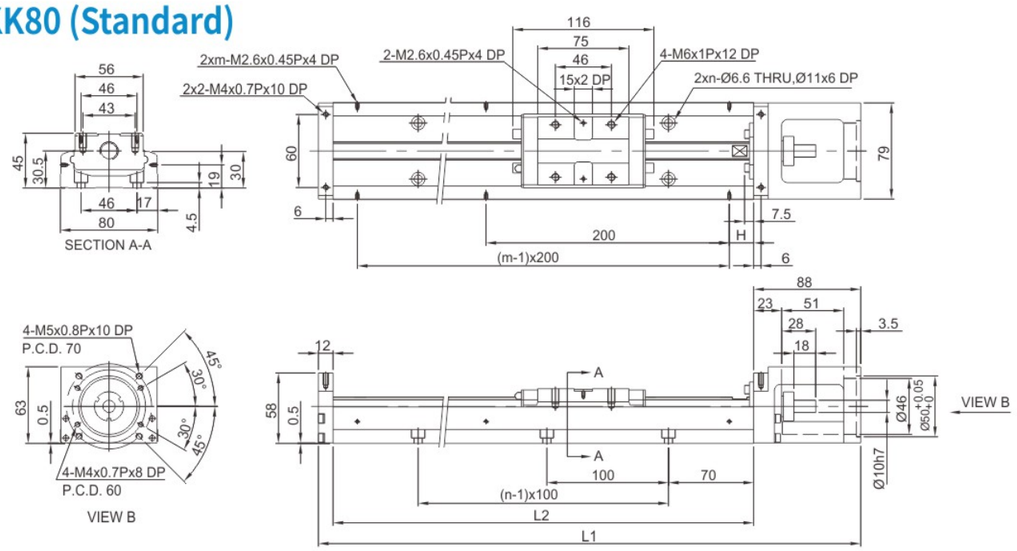
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	K (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block					A1 Block	A2 Block
150	220	60	-	25	100	2	2	1.5	-
200	270	110	-	50	100	2	2	1.8	-
300	370	210	135	50	200	3	2	2.4	2.7
400	470	310	235	50	100	4	4	3	3.3
500	570	410	335	50	200	5	3	3.6	3.9
600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

KK60D (Light Duty)



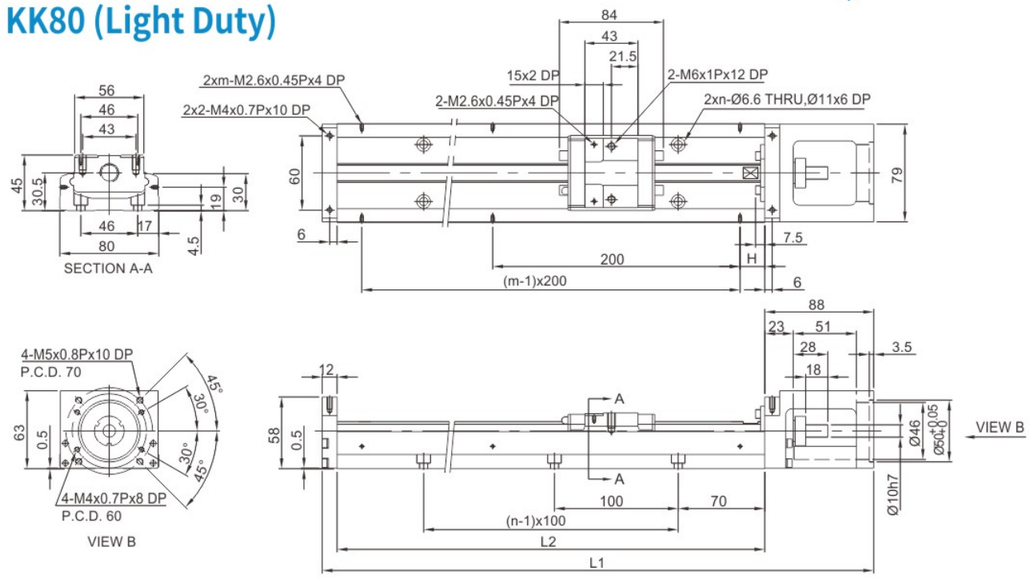
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		G (mm)	K (mm)	n	m	Mass (kg)	
		S1 Block	S2 Block					S1 Block	S2 Block
150	220	85	34	25	100	2	2	1.4	1.6
200	270	135	84	50	100	2	2	1.7	1.9
300	370	235	184	50	200	3	2	2.3	2.5
400	470	335	284	50	100	4	4	2.9	3.1
500	570	435	384	50	200	5	3	3.5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

KK80 (Standard)



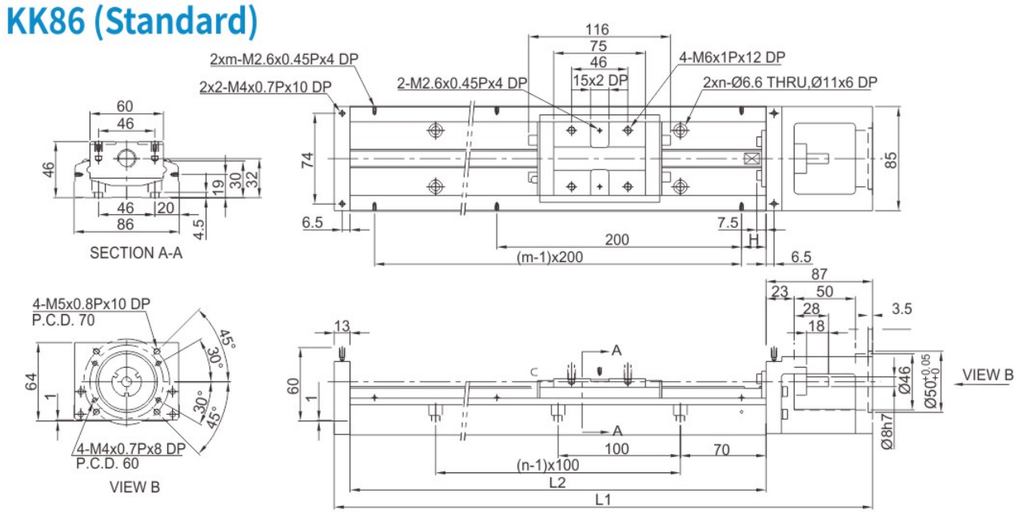
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block				A1 Block	A2 Block
340	440	216.5	108.5	70	3	2	5.3	6
440	540	316.5	208.5	20	4	3	6.5	7.2
540	640	416.5	308.5	70	5	3	7.6	8.3
640	740	516.5	408.5	20	6	4	8.8	9.5
740	840	616.5	508.5	70	7	4	10	10.7
940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

KK80 (Light Duty)



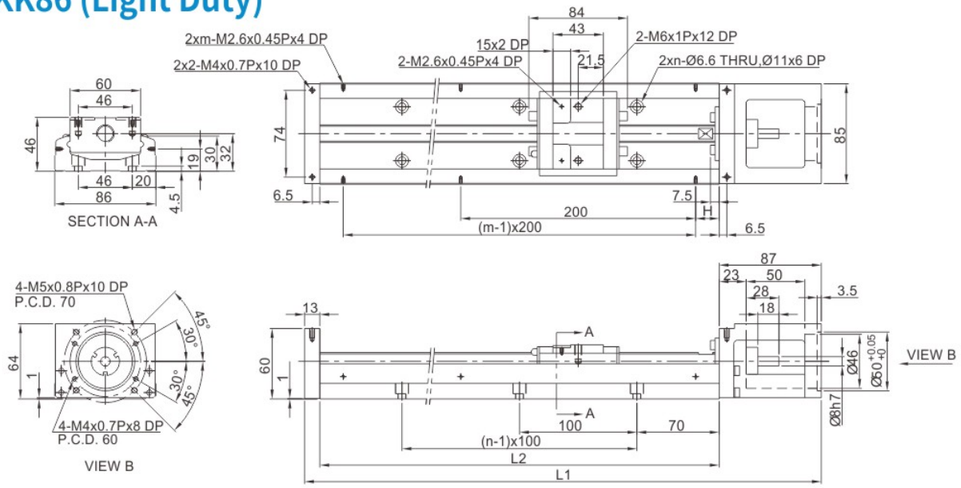
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		S1 Block	S2 Block				S1 Block	S2 Block
340	440	248.5	172.5	70	3	2	5	5.4
440	540	348.5	272.5	20	4	3	6.2	6.6
540	640	448.5	372.5	70	5	3	7.3	7.7
640	740	548.5	472.5	20	6	4	8.5	8.9
740	840	648.5	572.5	70	7	4	9.7	10.1
940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

KK86 (Standard)



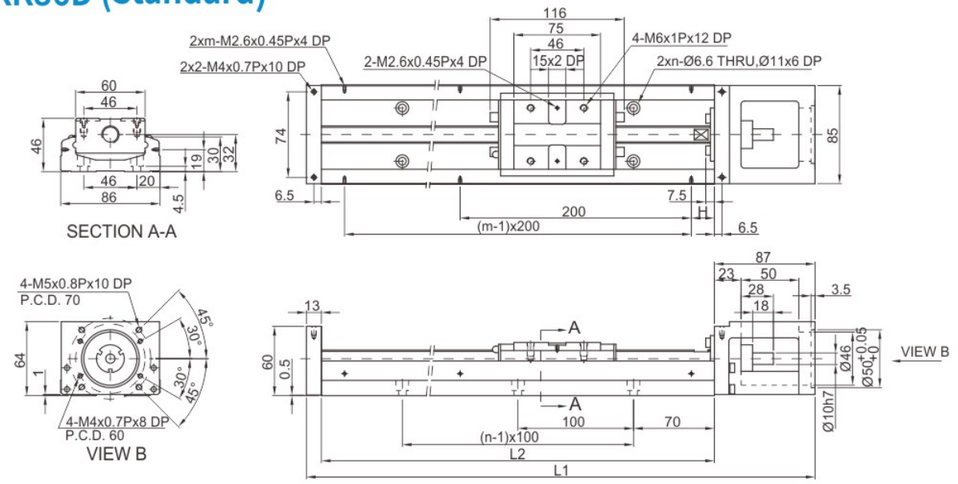
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block				A1 Block	A2 Block
340	440	216.5	108.5	70	3	2	5.7	6.5
440	540	316.5	208.5	20	4	3	6.9	7.7
540	640	416.5	308.5	70	5	3	8.0	8.8
640	740	516.5	408.5	20	6	4	9.2	10.0
740	840	616.5	508.5	70	7	4	10.4	11.2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

KK86 (Light Duty)



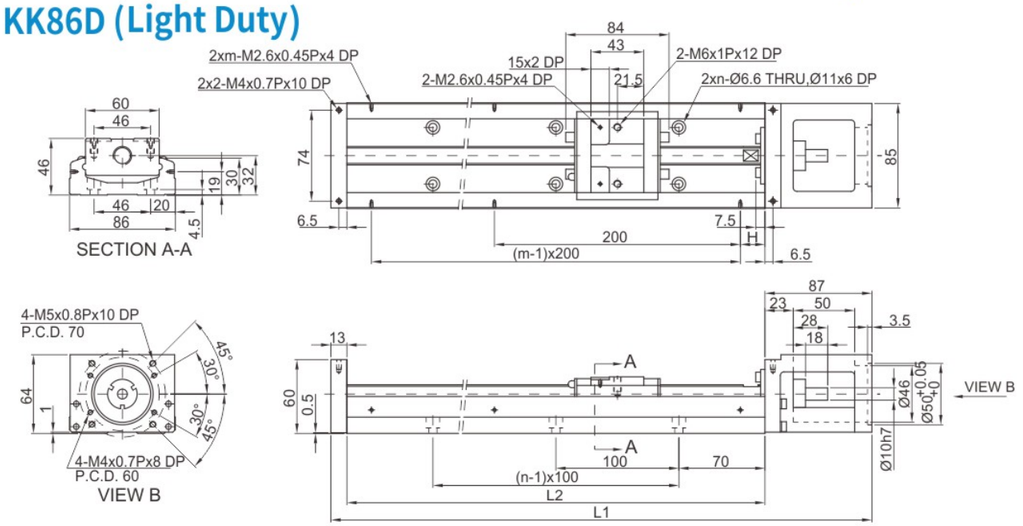
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		S1 Block	S2 Block				S1 Block	S2 Block
340	440	248.5	172.5	70	3	2	5.4	5.9
440	540	348.5	272.5	20	4	3	6.6	7.1
540	640	448.5	372.5	70	5	3	7.7	8.2
640	740	548.5	472.5	20	6	4	8.9	9.4
740	840	648.5	572.5	70	7	4	10.1	10.6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

KK86D (Standard)



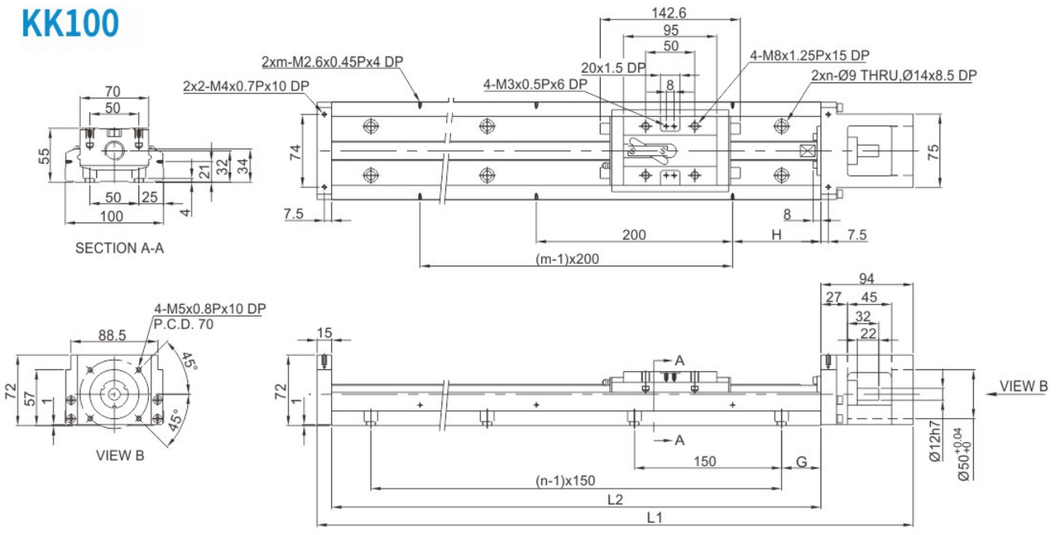
Rail Length L2 (mm)	Total Length L1 (mm)	Maximum Stroke (mm)		H (mm)	n	m	Mass (kg)	
		A1 Block	A2 Block				A1 Block	A2 Block
340	440	216.5	108.5	70	3	2	5.7	6.5
440	540	316.5	208.5	20	4	3	6.9	7.7
540	640	416.5	308.5	70	5	3	8.0	8.8
640	740	516.5	408.5	20	6	4	9.2	10.0
740	840	616.5	508.5	70	7	4	10.4	11.2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

KK86D (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

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