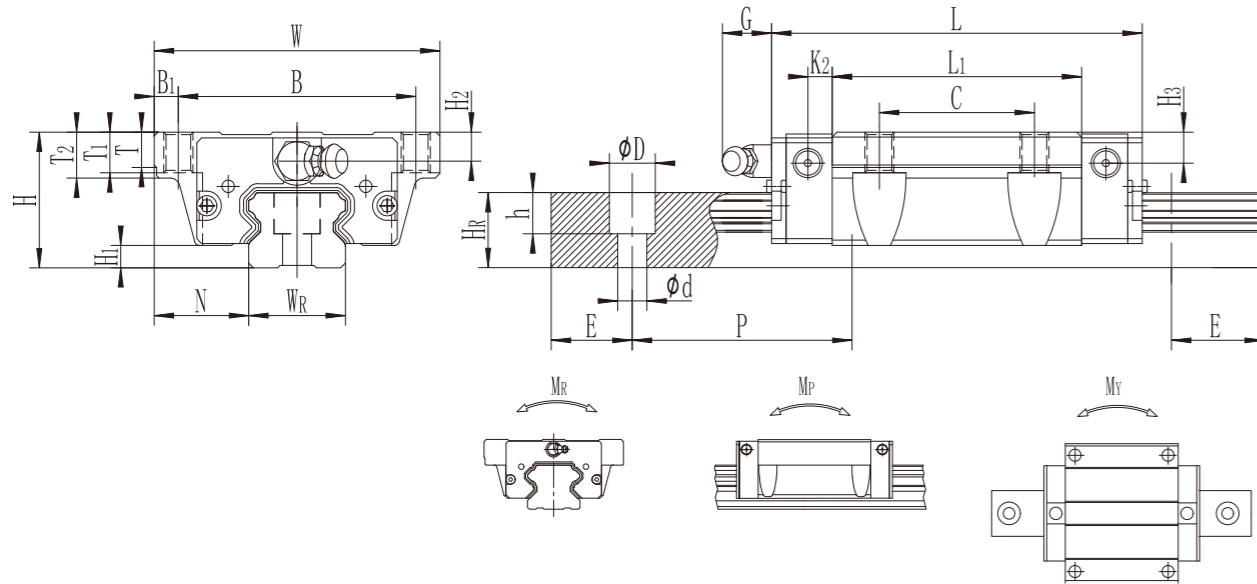
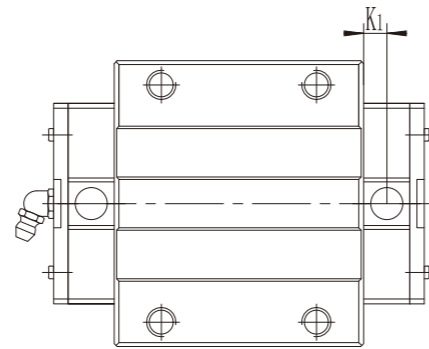




## (4) QHW-CC / QHW-HC



Model No.	Dimensions of Assembly (mm)			Dimensions of Block(mm)														Dimensions of Rail (mm)				Mounting Bolt for Rail (mm)	Basic Dynamic Load Rating C(KN)	Basic Static Load Rating C0(KN)	Static Rated Moment			Weight					
	H	H <sub>1</sub>	N	W	B	B <sub>1</sub>	C	L <sub>1</sub>	L	K <sub>1</sub>	K <sub>2</sub>	G	M	T	T <sub>1</sub>	T <sub>2</sub>	H <sub>2</sub>	H <sub>3</sub>	W <sub>R</sub>	H <sub>R</sub>	D				h	d	P	E	M <sub>R</sub> KN-m	M <sub>P</sub> KN-m	M <sub>Y</sub> KN-m	Block kg	Rail kg/m
★ QHW15CC	24	4	16	47	38	4.5	30	39.8	62.2	3.35	4.75	5.5	M5	6	6.95	8.9	5.5	5	15	12.5	6	4.5	3.5	60	20	M3×16	11.96	14.46	0.08	0.06	0.06	0.21	1.26
QHW15CC	24	4	16	47	38	4.5	30	39.8	62.2	3.35	4.75	5.5	M5	6	6.95	8.9	5.5	5	15	12.5	7.5	5.3	4.5	60	20	M4×16	11.96	14.46	0.08	0.06	0.06	0.21	1.26
QHW20CC	30	4.6	21.5	63	53	5	40	51.5	76.5	4.75	5	12	M6	8	9	10	8	8.5	20	15.5	9.5	8.5	6	60	20	M5×16	17.46	21.59	0.22	0.15	0.15	0.32	2.09
QHW20HC	30	4.6	21.5	63	53	5	40	69.5	94.5	4.75	5	12	M6	8	9	10	8	8.5	20	15.5	9.5	8.5	6	60	20	M5×16	21.14	28.33	0.28	0.25	0.25	0.4	2.09
QHW25CC	36	4.5	23.5	70	57	6.5	45	59.5	82.5	4.75	5	12	M8	8	10	14	9	9	23	18	11	9	7	60	20	M6×20	25.65	29.52	0.35	0.25	0.25	0.55	2.69
QHW25HC	36	4.5	23.5	70	57	6.5	45	81.5	104.5	4.75	5	12	M8	8	10	14	9	9	23	18	11	9	7	60	20	M6×20	32.88	42.17	0.48	0.42	0.42	0.72	2.69
★ QHW30CC	42	7	31	90	72	9	52	70	98	6	5	12	M10	8.5	10	16	8	8	28	23	11	9	7	80	20	M6×25	42.17	45.22	0.52	0.45	0.45	0.9	4.26
QHW30HC	42	7	31	90	72	9	52	93.5	121.5	6	5	12	M10	8.5	10	16	8	8	28	23	11	9	7	80	20	M6×25	52.09	62.13	0.8	0.85	0.85	1.18	4.26
★ QHW30CC	42	7	31	90	72	9	52	70	98	6	5	12	M10	8.5	10	16	8	8	28	23	14	12	9	80	20	M8×25	42.17	45.22	0.52	0.45	0.45	0.9	4.26
QHW30HC	42	7	31	90	72	9	52	93.5	121.5	6	5	12	M10	8.5	10	16	8	8	28	23	14	12	9	80	20	M8×25	52.09	62.13	0.8	0.85	0.85	1.18	4.26

Note : 1 kgf = 9.81 N

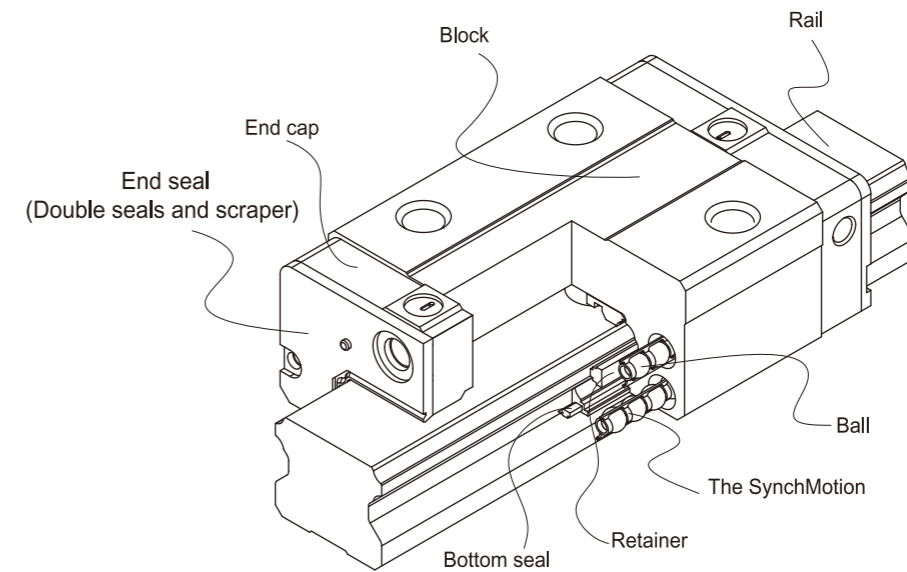
Model with "\*" means guide rail with new installation hole, pls not the requirement when placing the order.



## 2-4 QE Series – Low Profile Linear Guideway, with SynchMotion™ Technology

The development of LIMON-QE linear guideway is based on a four-row circular-arc contact. The LIMON-QE series linear guideway with SynchMotion™ Technology offers smooth movement, superior lubrication, quieter operation and longer running life. Therefore the LIMON-QE linear guideway has broad industrial applicability. In the high-tech industry where high speed, low noise, and reduced dust generation is required, the LIMON-QE series is interchangeable with the LIMON-E series.

### 2-4-1 Construction of QE Series

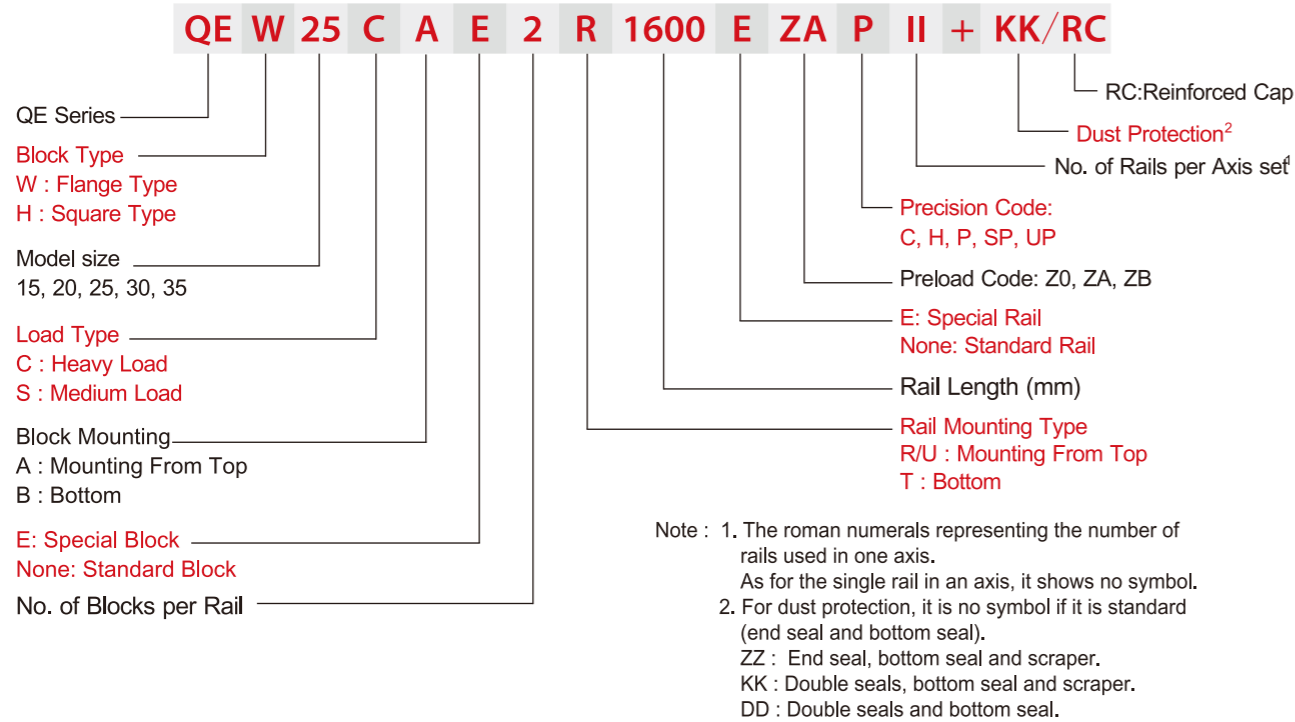


### 2-4-2 Model Number of QE Series

LIMON-QE series guideway can be classified into non-interchangeable and interchangeable types. The sizes are identical. The main difference is that the interchangeable blocks and rails can be freely exchanged. Because of dimensional control, the interchangeable type linear guideway is a perfect choice for the client when rails do not need to be paired for an axis. And since the QE and E share the identical rails, the customer does not need to redesign when choosing the QE series. Therefore the LIMON-QE linear guideway has increased applicability.

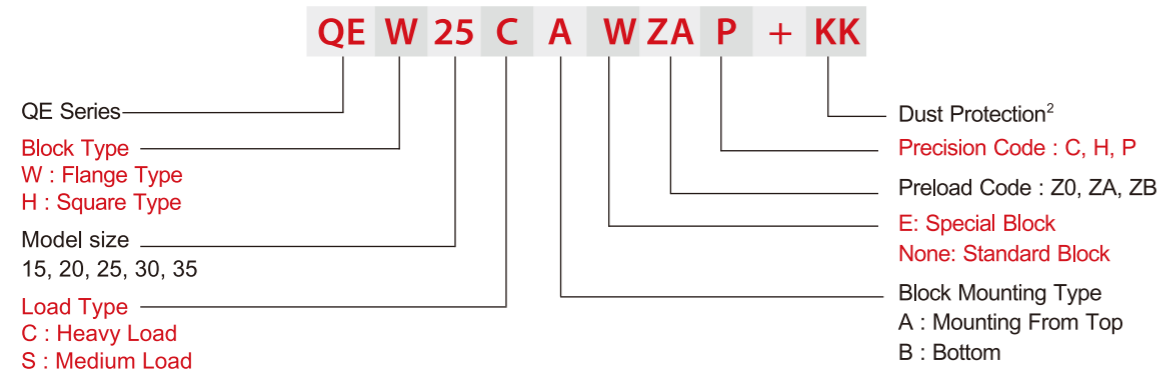


## (1) Non-interchangeable type

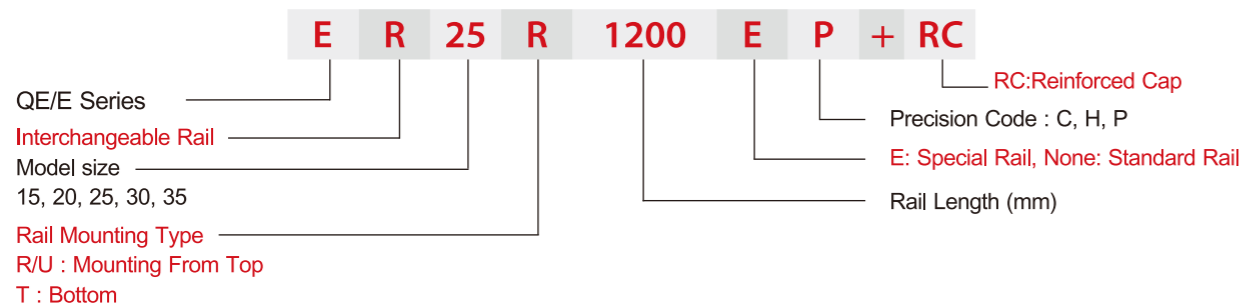


## (2) Interchangeable type

□ Model Number of QE Block



## □ Model Number of QE Rail (QE and E share the identical rails)



## 2-4-3 Types

### (1) Block types

LIMON offers two types of linear guideways, flange and square types.

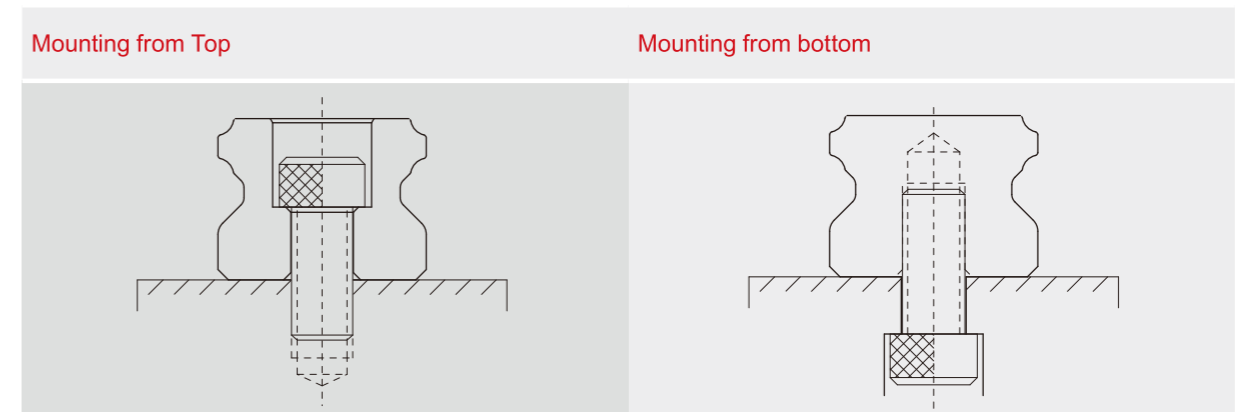
Table 2-4-1 Block Type

Type	Model	Shape	Height (mm)	Rail Length (mm)	Main Applications
Square	QEH-SA QEH-CA		24	100	<input type="checkbox"/> Automation devices <input type="checkbox"/> High-speed transportation equipment <input type="checkbox"/> Precision measuring equipment <input type="checkbox"/> Semiconductor manufacturing equipment
			↓	↓	
Flange	QEW-SA QEW-CA		24	100	
			↓	↓	
	QEW-SB QEW-CB		24	100	
			↓	↓	
48	4000				
48	4000				

### (2) Rail types

Besides the standard top mounting type, the bottom mounting type is also available.

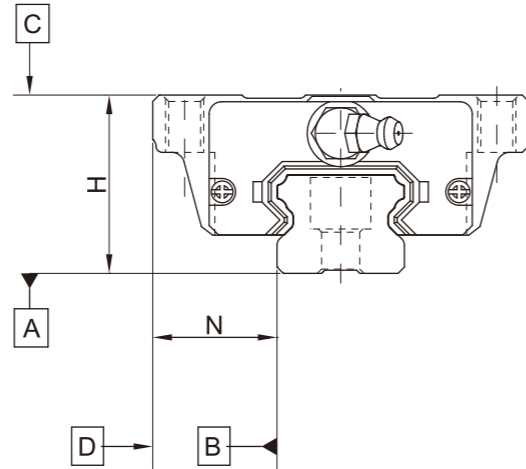
Table 2-4-2 Rail Types





## 2-4-4 Accuracy

The accuracy of the QE series can be classified into 5 classes: normal(C), high(H), precision(P), super precision(SP), and ultra precision(UP). Choose the class by referencing the accuracy of selected equipment.



### (1) Accuracy of non-interchangeable guideways

Table 2-4-3 Accuracy Standards

Item	QE - 15, 20				
	Normal (C)	High (H)	Precision (P)	Super Precision (SP)	Ultra Precision (UP)
Dimensional tolerance of height H	± 0.1	± 0.03	0 -0.03	0 -0.015	0 -0.008
Dimensional tolerance of width N	± 0.1	± 0.03	0 -0.03	0 -0.015	0 -0.008
Variation of height H	0.02	0.01	0.006	0.004	0.003
Variation of width N	0.02	0.01	0.006	0.004	0.003
Running parallelism of block surface C to surface A	See Table 2-4-7				
Running parallelism of block surface D to surface B	See Table 2-4-7				

Table 2-4-4 Accuracy Standards

Item	QE - 25, 30, 35				
	Normal (C)	High (H)	Precision (P)	Super Precision (SP)	Ultra Precision (UP)
Dimensional tolerance of height H	± 0.1	± 0.04	0 -0.04	0 -0.02	0 -0.01
Dimensional tolerance of width N	± 0.1	± 0.04	0 -0.04	0 -0.02	0 -0.01
Variation of height H	0.02	0.015	0.007	0.005	0.003
Variation of width N	0.03	0.015	0.007	0.005	0.003
Running parallelism of block surface C to surface A	See Table 2-4-7				
Running parallelism of block surface D to surface B	See Table 2-4-7				



### (2) Accuracy of interchangeable guideways

Table 2-4-5 Accuracy Standards

Item	QE - 15, 20		
	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 2-4-7		
Running parallelism of block surface D to surface B	See Table 2-4-7		

Table 2-4-6 Accuracy Standards

Item	QE - 25, 30, 35		
	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 2-4-7		
Running parallelism of block surface D to surface B	See Table 2-4-7		

### (3) Accuracy of running parallelism

Table 2-4-7 Accuracy of Running Parallelism

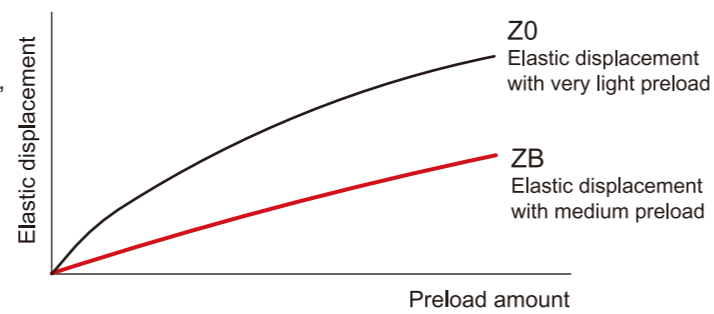
Rail Length (mm)	Accuracy (μm)				
	C	H	P	SP	UP
~ 100	12	7	3	2	2
100 ~ 200	14	9	4	2	2
200 ~ 300	15	10	5	3	2
300 ~ 500	17	12	6	3	2
500 ~ 700	20	13	7	4	2
700 ~ 900	22	15	8	5	3
900 ~ 1,100	24	16	9	6	3
1,100 ~ 1,500	26	18	11	7	4
1,500 ~ 1,900	28	20	13	8	4
1,900 ~ 2,500	31	22	15	10	5
2,500 ~ 3,100	33	25	18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



## 2-4-5 Preload

### (1) Definition

A preload can be applied to each guideway. Generally, a linear motion guideway has a negative clearance between the groove and balls in order to improve stiffness and maintain high precision. The figure shows that adding a preload can improve stiffness of the linear guideway. A preload no greater than ZA would be recommended for model sizes smaller than QE20. This will avoid an over-loaded condition that would affect guideway life.



### (2) Preload classes

LIMON offers three standard preloads for various applications and conditions.

Table 2-4-8 Preload Classes

Class	Code	Preload	Condition
Very Light Preload	Z0	0~ 0.02C	Certain load direction, low impact, low precision required
Light Preload	ZA	0.03C~0.05C	low load and high precision required
Medium Preload	ZB	0.06C~ 0.08C	High rigidity required, with vibration and impact

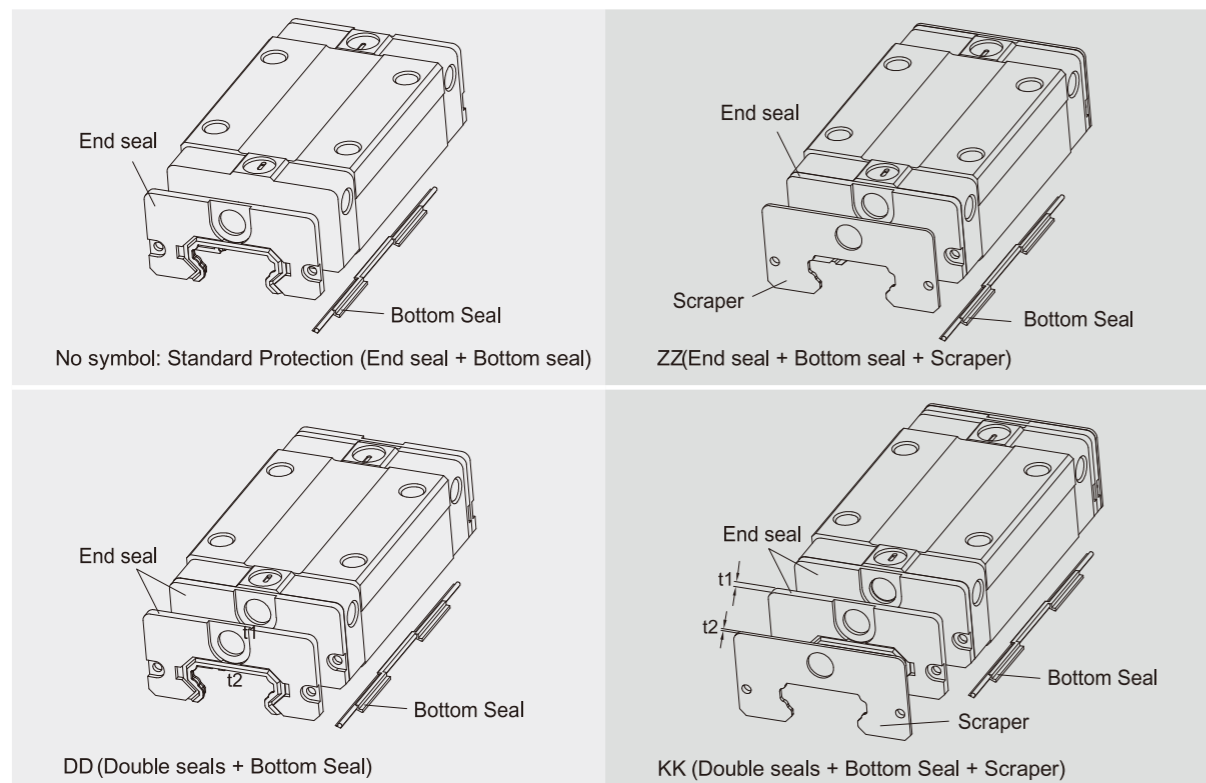
Class	Interchangeable Guideway	Non-Interchangeable Guideway
Preload classes	Z0, ZA	Z0, ZA, ZB

Note: The "C" in the preload column denotes basic dynamic load rating.

## 2-4-6 Dust Proof Accessories

### (1) Codes of accessories

If the following accessories is needed, please indicate the code followed by the model number.



### (2) End seal and bottom seal

To prevent life reduction caused by iron chips or dust entering the block

### (3) Double seals

Removes foreign matter from the rail preventing contaminants from entering the block.

Table 2-4-9 Dimensions of end seal

Size	Thickness (t1) (mm)	Size	Thickness (t1) (mm)
QE15 ES	2	QE30 ES	2.5
QE20 ES	2	QE35 ES	2
QE25 ES	2.5		

### (4) Scraper

Clears larger contaminants, such as weld spatter and metal cuttings, from the rail. Metal scraper protects end seals from excessive damage.

Table 2-4-10 Dimensions of Scraper

Size	Thickness (t2) (mm)
QE15 SC	1
QE20 SC	1
QE25 SC	1
QE30 SC	1
QE35 SC	1.5

### (5) Dimensions of block equipped with the dustproof parts

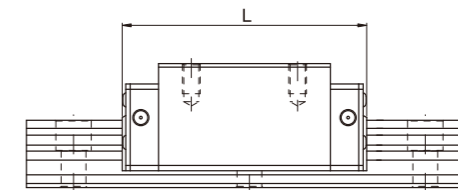


Table 2-4-11 Overall block length

unit: mm

Size	Overall block length (L)			
	SS	ZZ	DD	KK
QE15S	41.1	42.1	44.1	46.1
QE15C	56.8	57.8	60.8	62.8
QE20S	50	51.2	54	56
QE20C	69.1	71.1	73.1	75.1
QE25S	60.1	62.1	65.1	67.1
QE25C	83.6	85.6	88.6	90.6
QE30S	67.5	69.5	72.5	74.5
QE30C	96.1	98.1	101.1	103.1
QE35S	76	79	80	83
QE35C	108	111	112	115

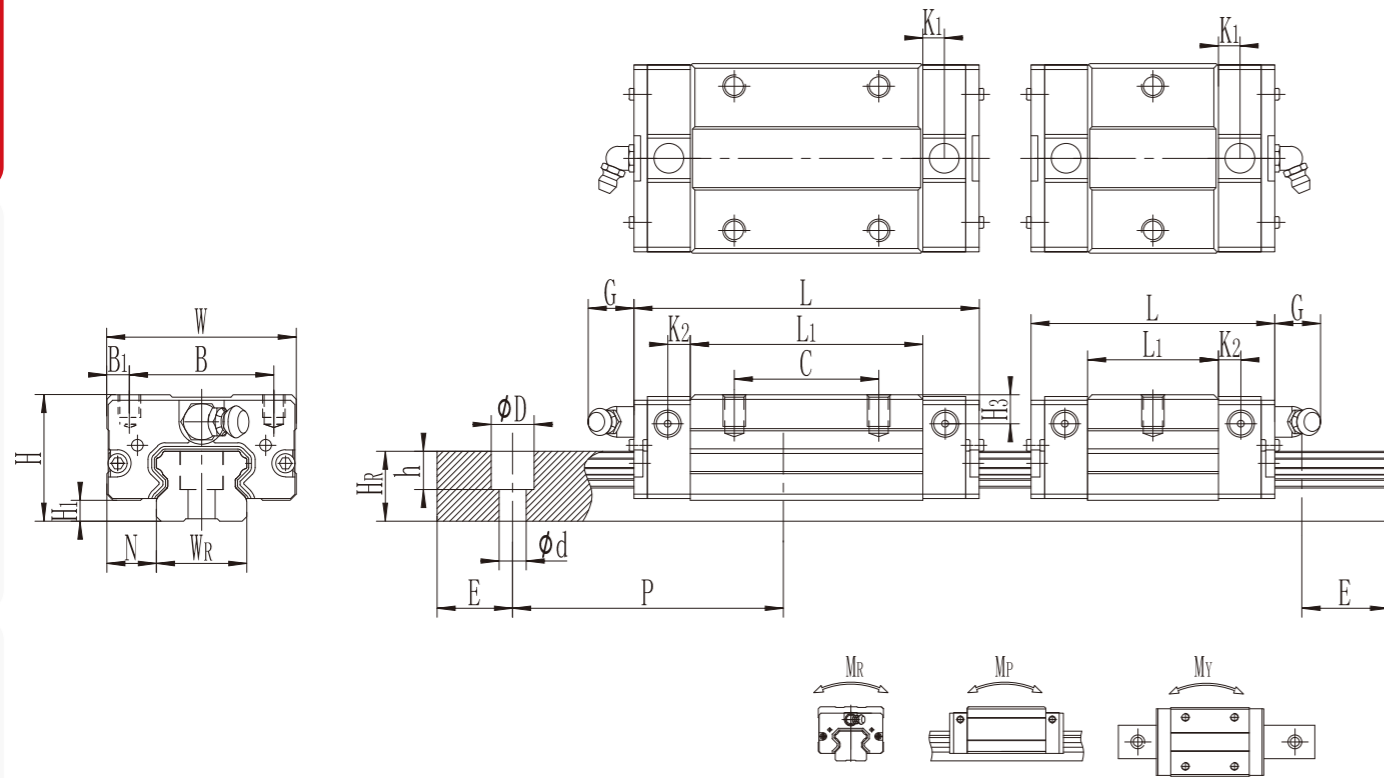
Note : The marking of "( )" denotes the maximum block length with screws, lips of end seals, etc.



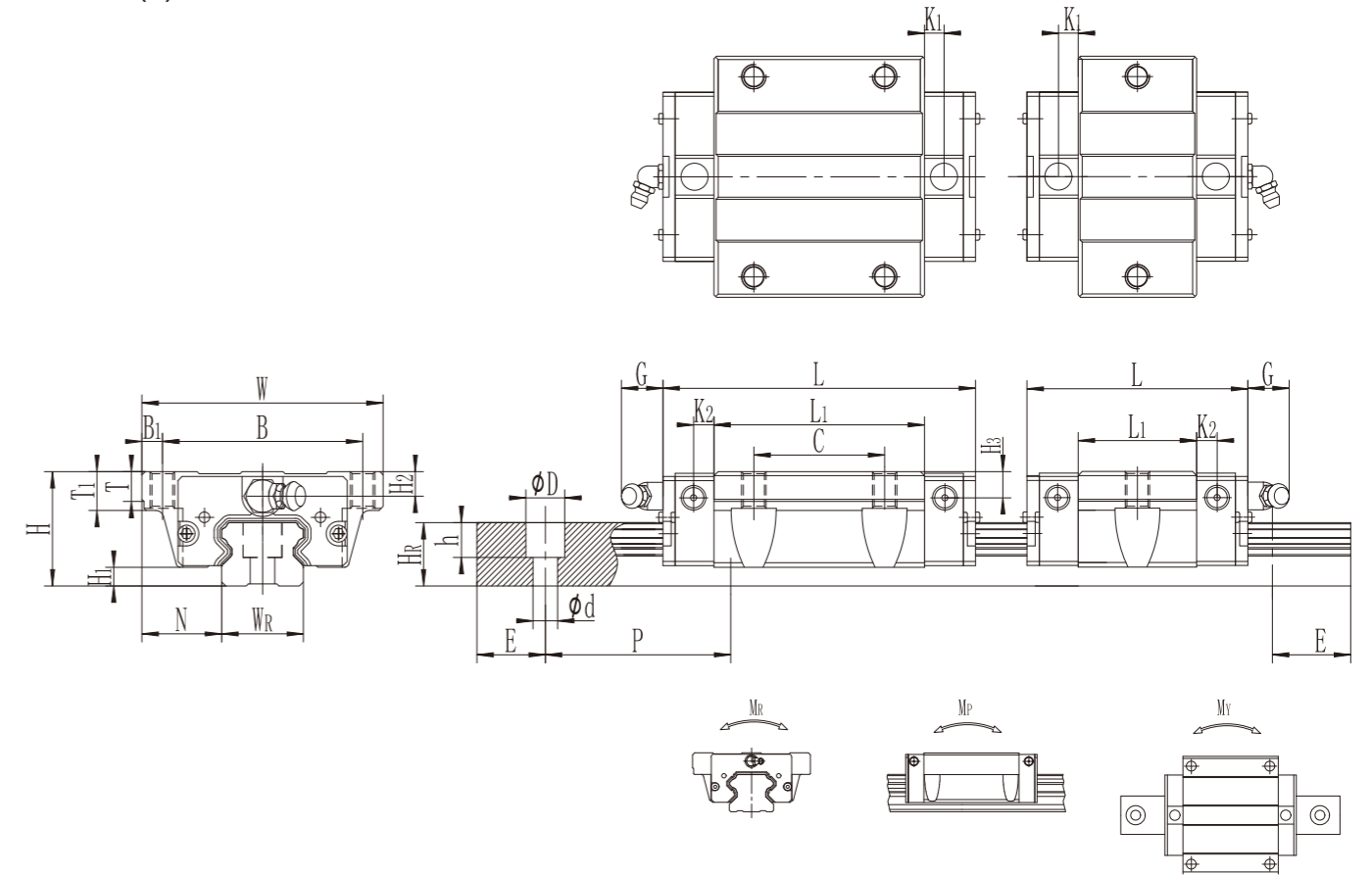


## 2-4-7 Dimensions for QE Series

### (1) QEH-CA / QEH-SA



### (2) QEW-CA / QEW-SA



Linear Guideways

Ball Screw

Support

Linear Bushing

Model No.	Dimensions of Assembly (mm)		Dimensions of Block(mm)													Dimensions of Rail (mm)					Mounting Bolt for Rail (mm)	Basic Dynamic Load Rating C(KN)	Basic Static Load Rating C0(KN)	Static Rated Moment			Weight				
	H	H1	N	W	B	B1	C	L1	L	K1	K2	G	M*L	T	H2	H3	WR	HR	D	h				d	P	E	MR	MP	MY	Block kg	Rail kg/m
★ QEH15SA	24	3.2	9.5	34	26	4	-	23.1	45.5	3.5	3.5	5.5	M4X5	5	5.5	5	15	12.5	6	4.5	3.5	60	20	M3×16	8.09	8.26	0.06	0.02	0.02	0.14	1.26
QEH15CA																															
★ QEH15SA	24	3.2	9.5	34	26	4	-	23.1	45.5	3.5	3.5	5.5	M4X5	5	5.5	5	15	12.5	7.5	5.3	4.5	60	20	M4×16	8.09	8.26	0.06	0.02	0.02	0.14	1.26
QEH15CA																															
★ QEH20SA	28	4.6	11	42	32	5	-	29	54	4.75	5	12	M5+6	7	6	6.5	20	15.5	9.5	8.5	6	60	20	M5×16	11.46	12.14	0.11	0.04	0.04	0.21	2.09
QEH20CA																															
★ QEH25SA	33	4.5	12.5	48	35	6.5	-	37.5	60.5	4.75	5	12	M6+8	7.5	6	6	23	18	11	9	7	60	20	M6×20	18.81	18.98	0.2	0.09	0.09	0.37	2.69
QEH25CA																															
★ QEH30SA	42	7	16	60	40	10	-	41.5	69.5	6	5	12	M8+9	7	8	8	28	23	11	9	7	80	20	M6×25	24.88	25.96	0.36	0.15	0.15	0.64	4.26
QEH30CA																															
★ QEH30SA	42	7	16	60	40	10	-	41.5	69.5	6	5	12	M8+9	7	8	8	28	23	14	12	9	80	20	M8×25	24.88	25.96	0.36	0.15	0.15	0.64	4.26
QEH30CA																															

Note : 1 kgf = 9.81 N

Model with "\*" means guide rail with new installation hole, pls not the requirement when placing the order.

Model No.	Dimensions of Assembly (mm)		Dimensions of Block(mm)													Dimensions of Rail (mm)					Mounting Bolt for Rail (mm)	Basic Dynamic Load Rating C(KN)	Basic Static Load Rating C0(KN)	Static Rated Moment			Weight					
	H	H1	N	W	B	B1	C	L1	L	K1	K2	G	M*L	T	T1	H2	H3	WR	HR	D				h	d	P	E	MR	MP	MY	Block kg	Rail kg/m
★ QEW15SA	24	3.2	18.5	52	41	5.5	-	23.1	45.5	3.5	3.5	5.5	M5	5	7	5.5	5	15	12.5	6	4.5	3.5	60	20	M3×16	8.09	8.26	0.06	0.02	0.02	0.14	1.26
QEW15CA																																
★ QEW15SA	24	3.2	18.5	52	41	5.5	-	23.1	45.5	3.5	3.5	5.5	M5	5	7	5.5	5	15	12.5	7.5	5.3	4.5	60	20	M4×16	8.09	8.26	0.06	0.02	0.02	0.14	1.26
QEW15CA																																
★ QEW20SA	28	4.6	19.5	59	49	5	-	29	54	4.75	5	12	M6	7	9	6	6.5	20	15.5	9.5	8.5	6	60	20	M5×16	11.46	12.14	0.11	0.04	0.04	0.21	2.09
QEW20CA																																
★ QEW25SA	33	4.5	25	73	60	6.5	-	37.5	60.5	4.75	5	12	M8	7.5	10	6	6	23	18	11	9	7	60	20	M6×20	18.81	18.98	0.2	0.09	0.09	0.37	2.69
QEW25CA																																
★ QEW30SA	42	7	31	90	72	9	-	41.5	69.5	6	5	12	M10	7	10	8	8	28	23	11	9	7	80	20	M6×25	24.88	25.96	0.36	0.15	0.15	0.64	4.26
QEW30CA																																
★ QEW30SA	42	7	31	90	72	9	-	41.5	69.5	6	5	12	M10	7	10	8	8	28	23	14	12	9	80	20	M8×25	24.88	25.96	0.36	0.15	0.15	0.64	4.26
QEW30CA																																

Note : 1 kgf = 9.81 N

Model with "\*" means guide rail with new installation hole, pls not the requirement when placing the order.

Linear Guideways

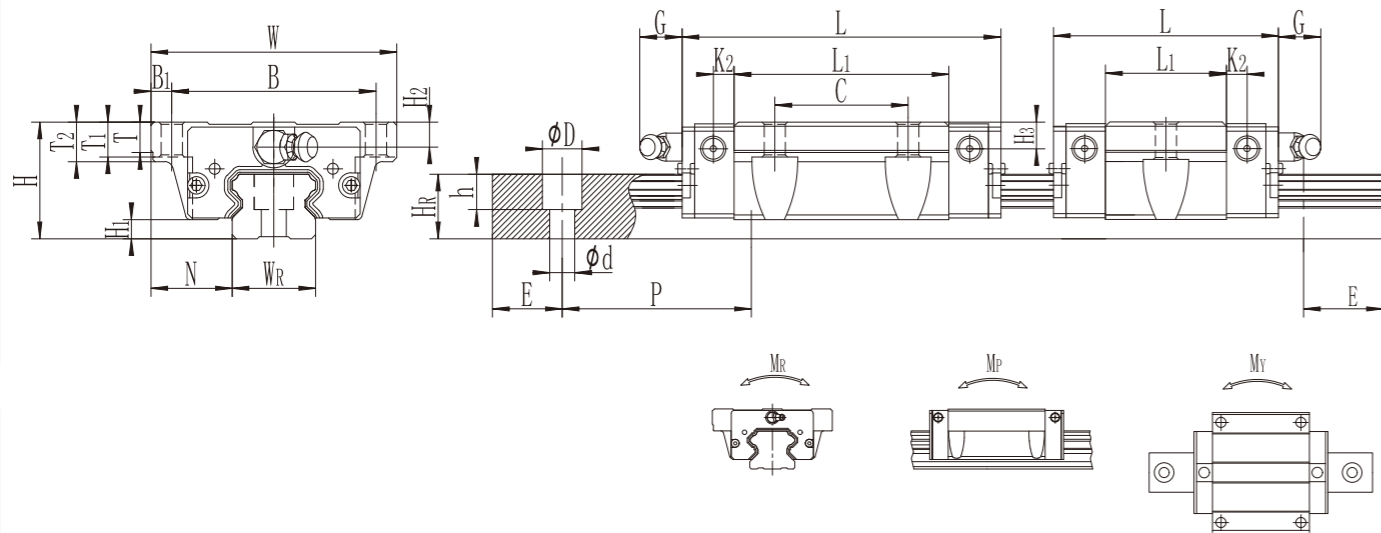
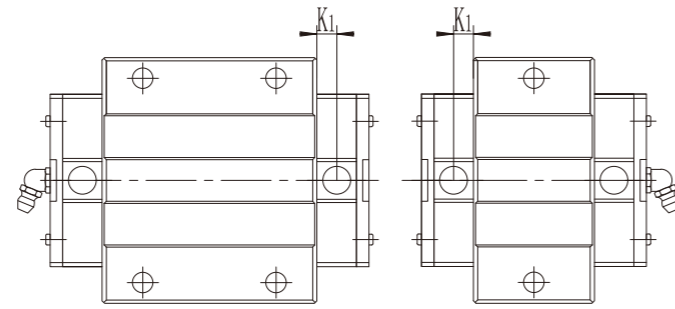
Ball Screw

Support

Linear Bushing



### (3) QEW-CB / QEW-SB



Model No.	Dimensions of Assembly (mm)		Dimensions of Block(mm)														Dimensions of Rail (mm)										Mounting Bolt for Rail (mm)	Basic Dynamic Load Rating C(KN)	Basic Static Load Rating C0(KN)	Static Rated Moment			Block kg	Rail kg/m
	H	H <sub>1</sub>	N	W	B	B <sub>1</sub>	C	L <sub>1</sub>	L	K <sub>1</sub>	K <sub>2</sub>	G	M*L	T	T <sub>1</sub>	T <sub>2</sub>	H <sub>2</sub>	H <sub>3</sub>	W <sub>R</sub>	H <sub>R</sub>	D	h	d	P	E	M <sub>R</sub> KN-m				M <sub>P</sub> KN-m	M <sub>Y</sub> KN-m			
★ QEW15SB	24	3.2	18.5	52	41	5.5	-	23.1	45.5	3.5	3.5	5.5	φ4.5	5	7	7.8	5.5	5	15	12.5	6	4.5	3.5	60	20	M3×16	8.09	8.26	0.06	0.02	0.02	0.14	1.26	
QEW15CB							26	39.8	62.2																									
QEW15SB	24	3.2	18.5	52	41	5.5	-	23.1	45.5	3.5	3.5	5.5	φ4.5	5	7	7.8	5.5	5	15	12.5	7.5	5.3	4.5	60	20	M4×16	8.09	8.26	0.06	0.02	0.02	0.14	1.26	
QEW15CB							26	39.8	62.2																									
QEW20SB	28	4.6	19.5	59	49	5	-	29	54	4.75	5	12	φ5.5	7	7	9	6	6.5	20	15.5	9.5	8.5	6	60	20	M5×16	11.46	12.14	0.11	0.04	0.04	0.21	2.09	
QEW20CB							32	51.5	76.5																									
QEW25SB	33	4.5	25	73	60	6.5	-	37.5	60.5	4.75	5	12	φ7	7.5	10	10	6	6	23	18	11	9	7	60	20	M6×20	18.81	18.98	0.2	0.09	0.09	0.37	2.69	
QEW25CB							35	59.5	82.5																									
★ QEW30SB	42	7	31	90	72	9	-	41.5	69.5	6	5	12	φ9	7	10	10	8	8	28	23	11	9	7	80	20	M6×25	24.88	25.96	0.36	0.15	0.15	0.64	4.26	
QEW30CB							40	70	98																									
QEW30SB	42	7	31	90	72	9	-	41.5	69.5	6	5	12	φ9	7	10	10	8	8	28	23	14	12	9	80	20	M8×25	24.88	25.96	0.36	0.15	0.15	0.64	4.26	
QEW30CB							40	70	98																									

Note : 1 kgf = 9.81 N  
Model with "\*" means guide rail with new installation hole, pls not the requirement when placing the order.



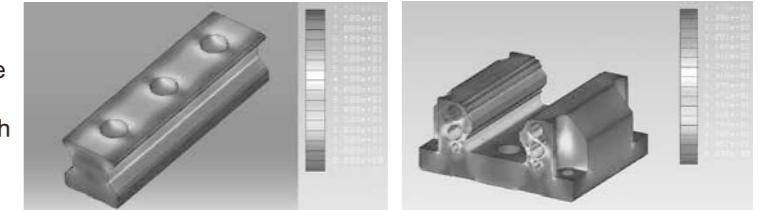
## 2-5 R Series – High Rigidity Roller Type Linear Guideway

### 2-5-1 Advantages and Features of R Series

The new R series from LIMON features a roller as the rolling element instead of steel balls. The roller series offers super high rigidity and very high load capacities. The R series is designed with a 45-degree angle of contact. Elastic deformation of the linear contact surface, during load, is greatly reduced thereby offering greater rigidity and higher load capacities in all 4 load directions. The R series linear guideway offers high performance for high-precision manufacturing and achieving longer service life.

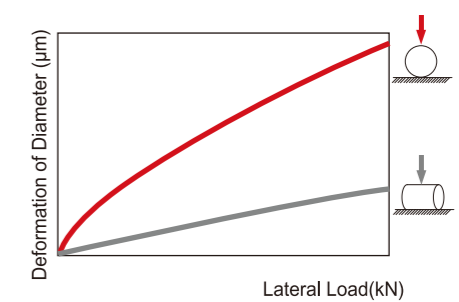
#### (1) Optimal design

FEM analysis was performed to determine the optimal structure of the block and the rail. The unique design of the circulation path allows the R series linear guideway to offer smoother linear motion.



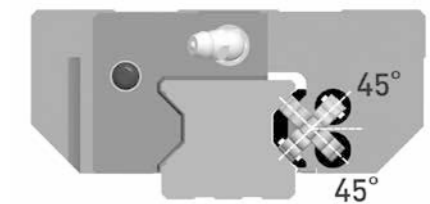
#### (2) Super high rigidity

The R series is a type of linear guideway that uses rollers as the rolling elements. Rollers have a greater contact area than balls so that the roller guideway features higher load capacity and greater rigidity. The figure shows the rigidity of a roller and a ball with equal volume.



#### (3) Super high load capacity

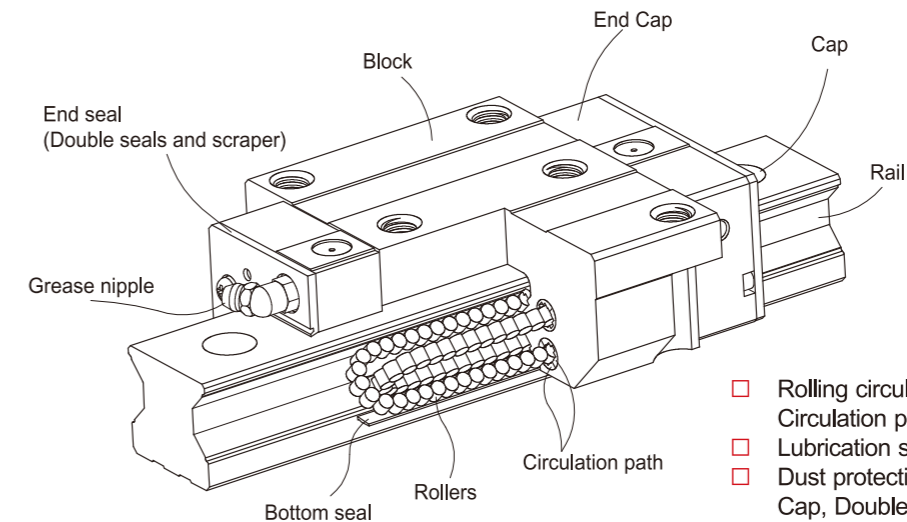
With the four rows of rollers arranged at a contact angle of 45-degrees, the R series linear guideway has equal load ratings in the radial, reverse radial and lateral directions. The R series has a higher load capacity in a smaller size than conventional, ball-type linear guideways.



#### (4) Operating life increased

Compare with the ball element, the contact pressure of rolling element is distributed on the line region. Therefore, stress concentration was reduced significantly and the R series offers longer running life. The nominal life of R series can be calculated by using Eq.

### 2-5-2 Construction of R Series



- Rolling circulation system: Block, Rail, End cap, Circulation path, rollers
- Lubrication system: Grease nipple and piping joint
- Dust protection system: End seal, Bottom seal, Cap, Double seals and Scraper