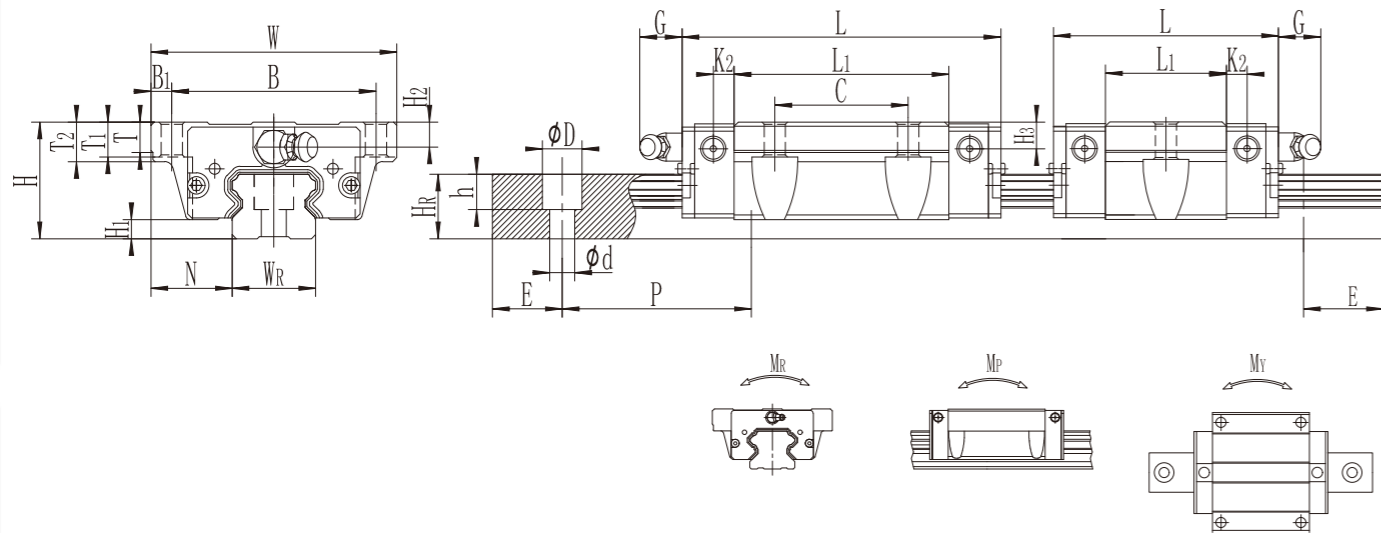
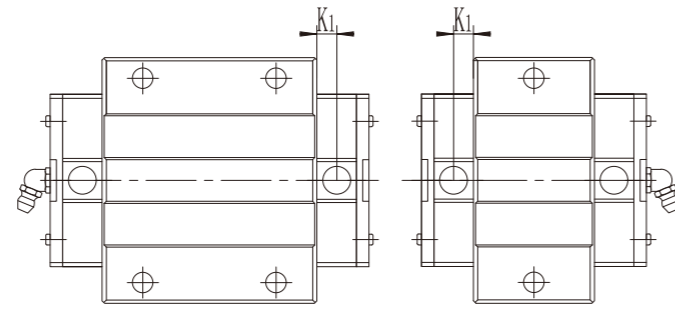




### (3) QEW-CB / QEW-SB



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.



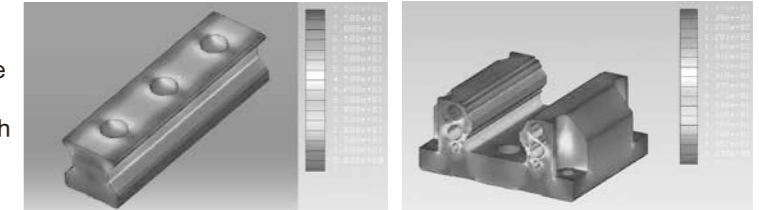
## 2-5 R Series – High Rigidity Roller Type Linear Guideway

### 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.

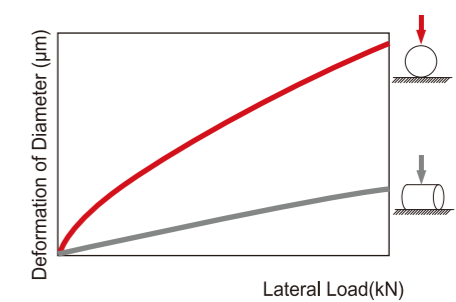
#### (1) Optimal design

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.



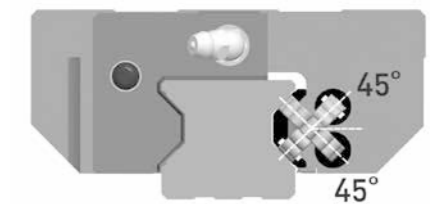
#### (2) Super high rigidity

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

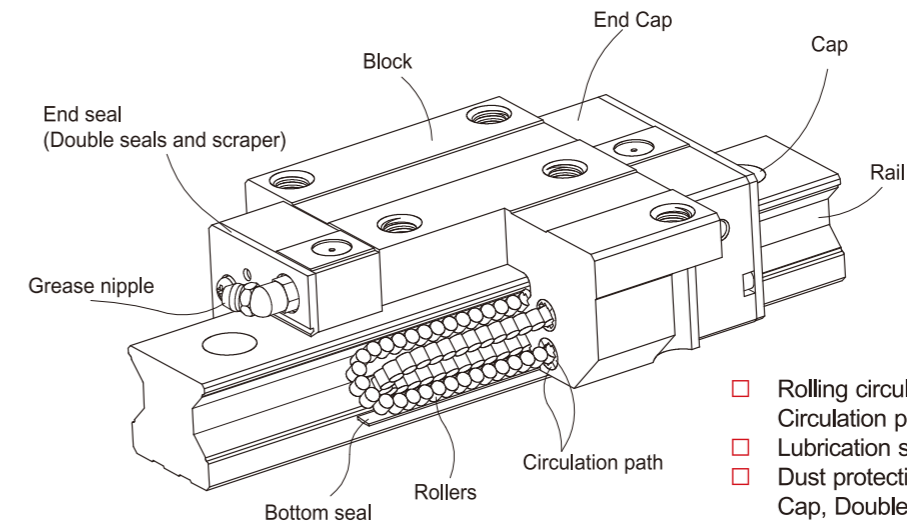
With the four rows of rollers arranged at a contact angle of 45-degrees, the R series linear guideway has equal load ratings in the radial, reverse radial and lateral directions. The R series has a higher load capacity in a smaller size than conventional, ball-type linear guideways.



#### (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



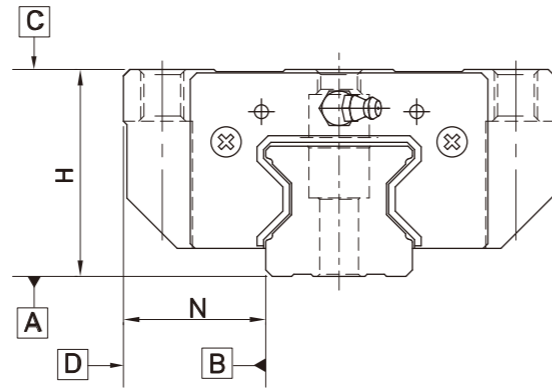
- Rolling circulation system: Block, Rail, End cap, Circulation path, rollers
- Lubrication system: Grease nipple and piping joint
- Dust protection system: End seal, Bottom seal, Cap, Double seals and Scraper





## 2-5-5 Accuracy

The accuracy of the R series can be classified into four classes: high (H), precision (P), super precision (SP) and ultra precision (UP). Customers may choose the class by referencing the accuracy requirements of the applied equipment.



### (1) Accuracy of non-interchangeable

Table 2-5-3 Accuracy Standards

Unit: mm

Item	R - 15, 20			
	High (H)	Precision (P)	Super Precision (SP)	Ultra Precision (UP)
Dimensional tolerance of height H	± 0.03	0 - 0.03	0 - 0.015	0 - 0.008
Dimensional tolerance of width N	± 0.03	0 - 0.03	0 - 0.015	0 - 0.008
Variation of height H	0.01	0.006	0.004	0.003
Variation of width N	0.01	0.006	0.004	0.003
Running parallelism of block surface C to surface A	See Table 2-5-11			
Running parallelism of block surface D to surface B	See Table 2-5-11			

Table 2-5-4 Accuracy Standards

Unit: mm

Item	R - 25, 30, 35			
	High (H)	Precision (P)	Super Precision (SP)	Ultra Precision (UP)
Dimensional tolerance of height H	± 0.04	0 - 0.04	0 - 0.02	0 - 0.01
Dimensional tolerance of width N	± 0.04	0 - 0.04	0 - 0.02	0 - 0.01
Variation of height H	0.015	0.007	0.005	0.003
Variation of width N	0.015	0.007	0.005	0.003
Running parallelism of block surface C to surface A	See Table 2-5-11			
Running parallelism of block surface D to surface B	See Table 2-5-11			

Table 2-5-5 Accuracy Standards

Unit: mm

Item	R - 45, 55			
	High (H)	Precision (P)	Super Precision (SP)	Ultra Precision (UP)
Dimensional tolerance of height H	± 0.05	0 - 0.05	0 - 0.03	0 - 0.02
Dimensional tolerance of width N	± 0.05	0 - 0.05	0 - 0.03	0 - 0.02
Variation of height H	0.015	0.007	0.005	0.003
Variation of width N	0.02	0.01	0.007	0.005
Running parallelism of block surface C to surface A	See Table 2-5-11			
Running parallelism of block surface D to surface B	See Table 2-5-11			



Table 2-5-6 Accuracy Standards

Unit: mm

Item	R - 65			
	High (H)	Precision (P)	Super Precision (SP)	Ultra Precision (UP)
Dimensional tolerance of height H	± 0.07	0 - 0.07	0 - 0.05	0 - 0.03
Dimensional tolerance of width N	± 0.07	0 - 0.07	0 - 0.05	0 - 0.03
Variation of height H	0.02	0.01	0.007	0.005
Variation of width N	0.025	0.015	0.01	0.007
Running parallelism of block surface C to surface A	See Table 2-5-11			
Running parallelism of block surface D to surface B	See Table 2-5-11			

### (2) Accuracy of interchangeable

Table 2-5-7 Accuracy Standards

Unit: mm

Item	R - 15, 20	
	High (H)	Precision (P)
Dimensional tolerance of height H	± 0.03	± 0.015
Dimensional tolerance of width N	± 0.03	± 0.015
Variation of height H	0.01	0.006
Variation of width N	0.01	0.006
Running parallelism of block surface C to surface A	See Table 2-5-11	
Running parallelism of block surface D to surface B	See Table 2-5-11	

Table 2-5-8 Accuracy Standards

Unit: mm

Item	R - 25, 30, 35	
	High (H)	Precision (P)
Dimensional tolerance of height H	± 0.04	± 0.02
Dimensional tolerance of width N	± 0.04	± 0.02
Variation of height H	0.015	0.007
Variation of width N	0.015	0.007
Running parallelism of block surface C to surface A	See Table 2-5-11	
Running parallelism of block surface D to surface B	See Table 2-5-11	

Table 2-5-9 Accuracy Standards

Unit: mm

Item	R - 45, 55	
	High (H)	Precision (P)
Dimensional tolerance of height H	± 0.05	± 0.025
Dimensional tolerance of width N	± 0.05	± 0.025
Variation of height H	0.015	0.007
Variation of width N	0.02	0.01
Running parallelism of block surface C to surface A	See Table 2-5-11	
Running parallelism of block surface D to surface B	See Table 2-5-11	



Table 2-5-10 Accuracy Standards

Unit: mm

Item	R - 65	
	High (H)	Precision (P)
Dimensional tolerance of height H	± 0.07	± 0.035
Dimensional tolerance of width N	± 0.07	± 0.035
Variation of height H	0.02	0.01
Variation of width N	0.025	0.015
Running parallelism of block surface C to surface A	See Table 2-5-11	
Running parallelism of block surface D to surface B	See Table 2-5-11	

### (3) Accuracy of running parallelism

Table 2-5-11 Accuracy of Running Parallelism

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

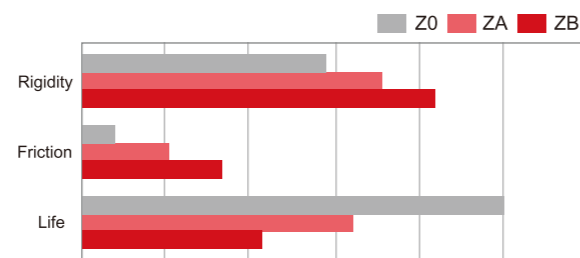
### 2-5-6 Preload

A preload can be applied to each guideway using oversized rollers. Generally, a linear motion guideway has negative clearance between the raceway and rollers to improve stiffness and maintain high precision. The R series linear guideway offers three standard preloads for various applications and conditions.

Table 2-5-12

Class	Code	Preload	Condition
Light Preload	Z0	0.02C~ 0.04C	Certain load direction, low impact, low precision required
Medium Preload	ZA	0.07C~0.09C	High rigidity required, high precision required
Heavy Preload	ZB	0.12C~ 0.14C	Super high rigidity required, with vibration and impact

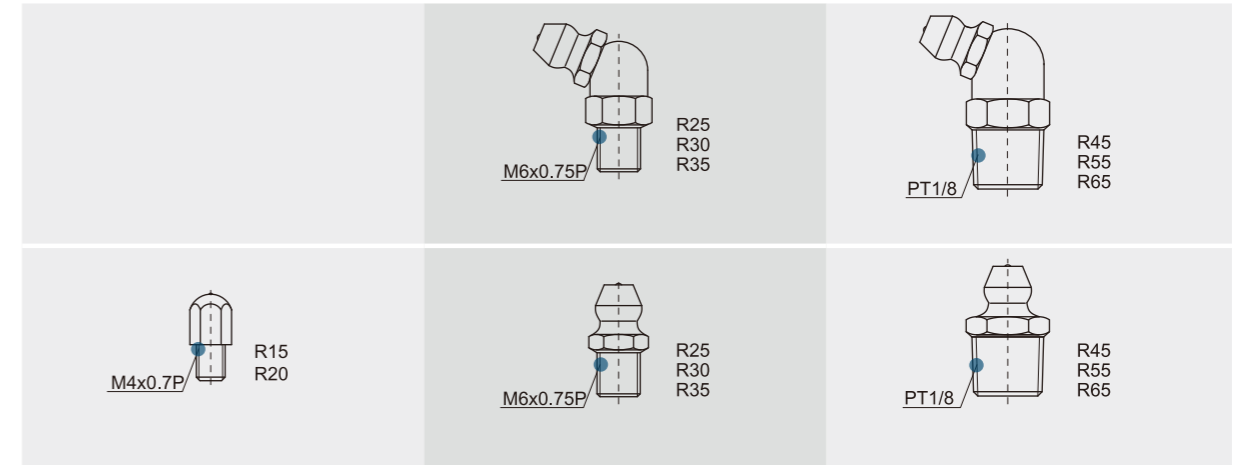
The figure shows the relationship between the rigidity, friction and nominal life. A preload no larger than ZA would be recommended for smaller model sizes to avoid over-preload affecting the life of the guideway.



### 2-5-7 Lubrication

#### (1) Grease

- Grease nipple



- Mounting location

The standard location of the grease fitting is at both ends of the block, but the nipple can be mounted in the side or the top of block. For lateral installation, we recommend that the nipple be mounted at the non-reference side, otherwise please contact us. It is possible to carry out the lubrication by using an oil-piping joint. The figure shows the locations of the grease fitting.

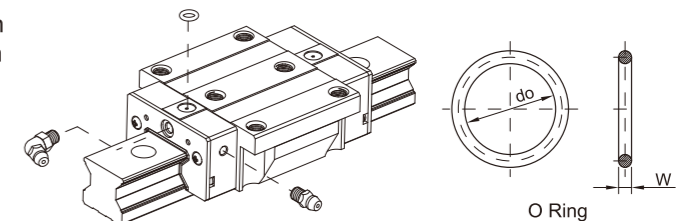


Table 2-5-13 O-Ring size and max. permissible depth for piercing

Size	O-Ring		Lube hole at top: max. permissible depth for piercing
	do (mm)	W (mm)	T <sub>max</sub> (mm)
R15	2.5±0.15	1.5±0.15	3.45
R20	2.5±0.15	1.5±0.15	4
R25	7.5±0.15	1.5±0.15	5.8
R30	7.5±0.15	1.5±0.15	6.2
R35	7.5±0.15	1.5±0.15	8.65
R45	7.5±0.15	1.5±0.15	9.5
R55	7.5±0.15	1.5±0.15	11.6
R65	7.5±0.15	1.5±0.15	14.5

- The oil amount for a block filled with grease

Table 2-5-14 The oil amount for a block filled with grease

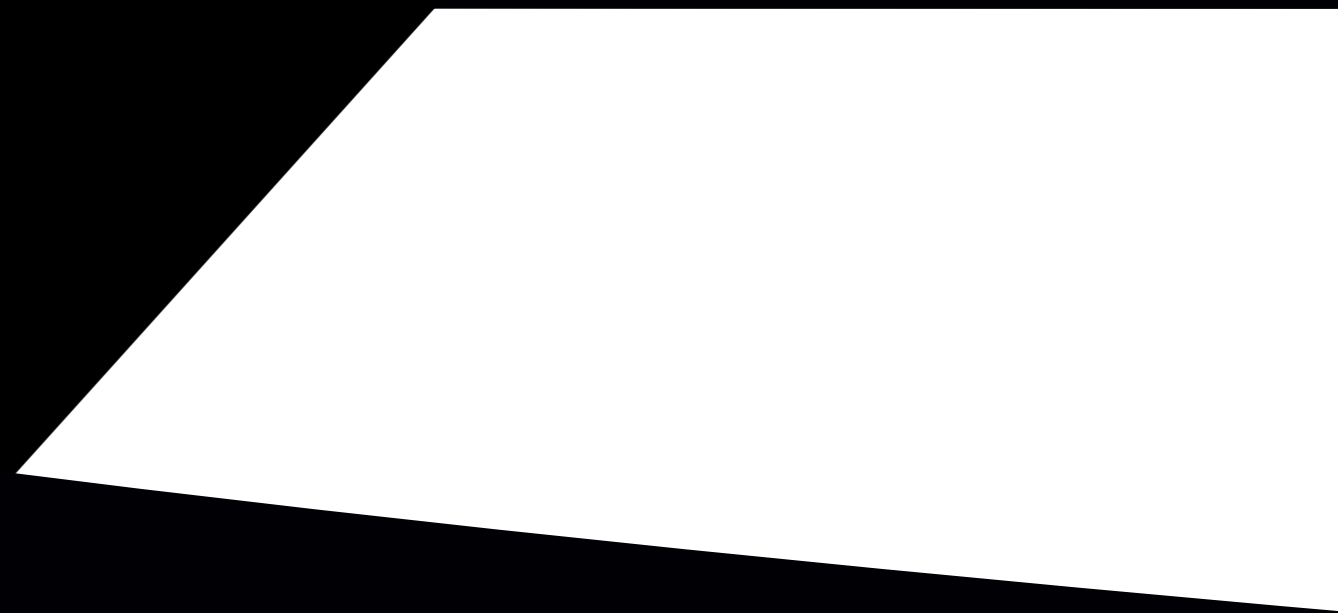
Size	Heavy Load(cm <sup>3</sup> )	Super Heavy Load(cm <sup>3</sup> )	Size	Heavy Load(cm <sup>3</sup> )	Super Heavy Load(cm <sup>3</sup> )
R15	3	-	R35	12	14
R20	5	6	R45	19	23
R25	7	8	R55	28	35
R30	9	10	R65	52	63

#### Frequency of replenishment

Check the grease every 100 km, or every 3-6 months.

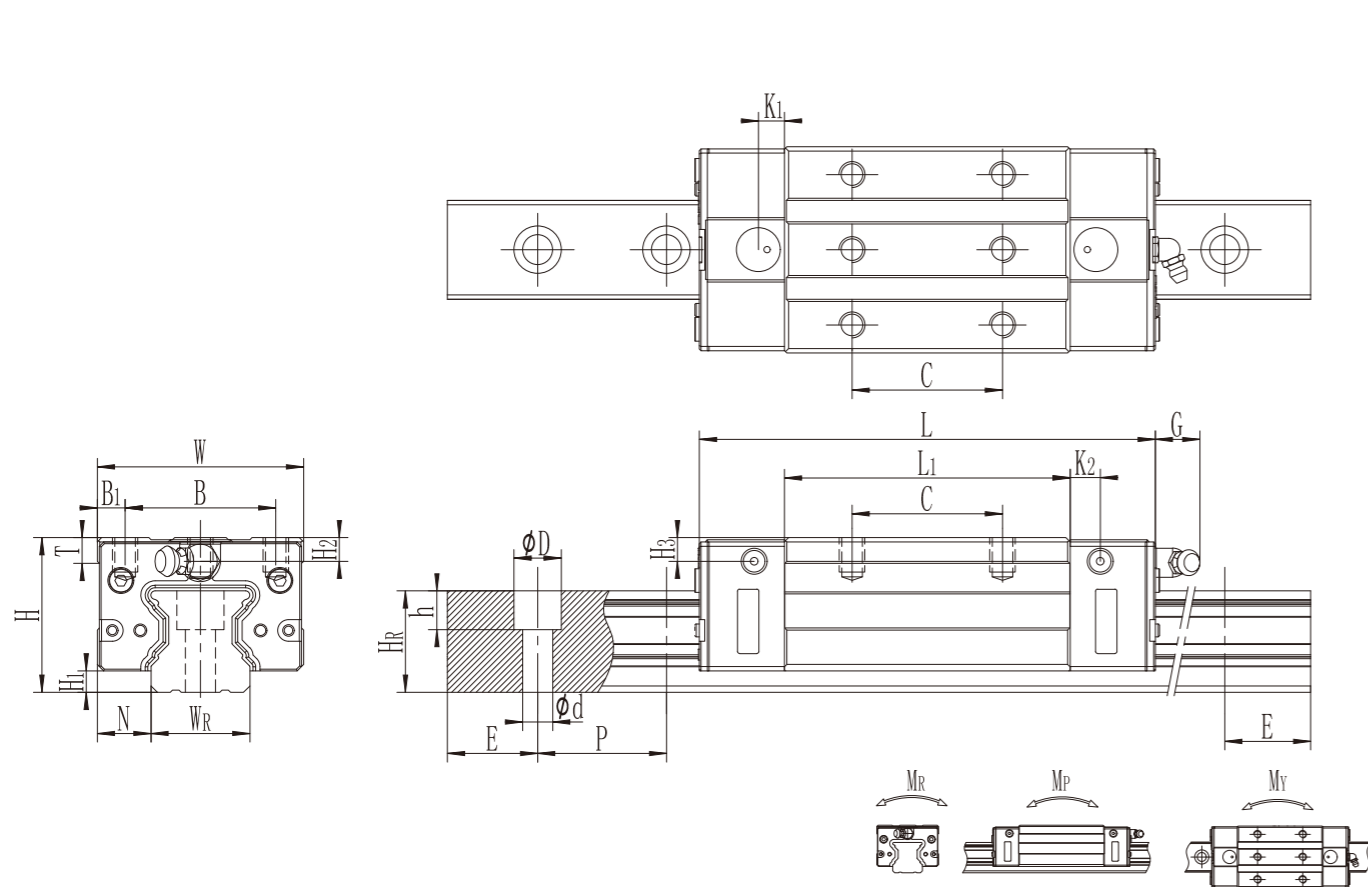
(2) Oil

The recommended viscosit

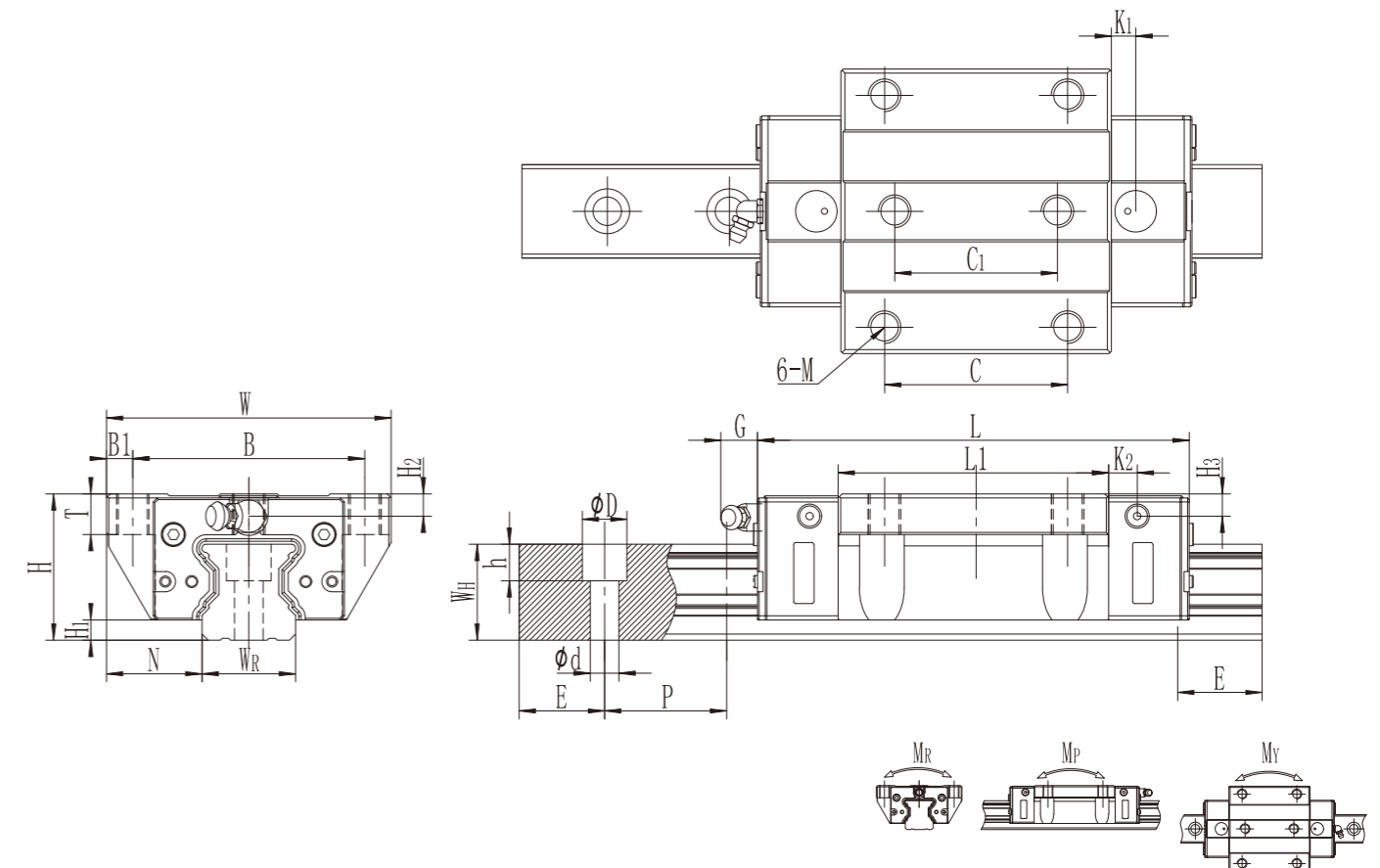




(2) RL-SA/RL-CA/RL-HA



(3) RW-SC/RW-CC/RW-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 CO(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	L	T	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)		
RL25SA							35	55.1	96.3																		28.54	50.21	0.78	0.65	0.65	0.53		
RL25CA	36	5	12.5	48	35	6.5	35	66.5	107.7	6	7	12	M6X10	10	5.5	5.5	23	23.6	11	9	7	30	20	M6X25	33.35	61.37	0.89	0.80	0.80	0.64	3.12			
RL25HA							50	83	124.2																		39.13	75.31	1.12	1.15	1.15	0.78		
RL30CA	42	6	16	60	40	10	40	71	114				M8X10	9.5	6.5	7.3	28	28	14	12	9	40	20	M8X30	48.62	81.29	1.8	1.55	1.55	0.92	4.47			
RL30HA							60	93	136																		61.45	109.98	2.05	1.92	1.92	1.21		
RL35CA	48	6.5	18	70	50	10	50	82	131				M8X14	12	9	9	34	30.2	14	12	9	40	20	M8X30	55.14	95.64	2.01	1.22	1.22	1.6	6.13			
RL35HA							72	110	159																		69.62	129.11	2.66	2.3	2.3	2.1		
RL45CA	60	8	20.5	86	60	13	60	106	158				M10X17	16	10	10	45	38	20	17	14	52.5	22.5	M12X35	95.63	178.72	4.75	3.55	3.55	3.2	9.99			
RL45HA							80	142	194																		120.6	240.89	6.55	5.8	5.8	4.19		
RL55CA	70	10	23.5	100	75	12.5	75	125.5	182.5				M12X20	19	12	12	53	44	23	20	16	60	30	M14X45	147.64	255.03	8.2	5.6	5.6	4.92	14.14			
RL55HA							95	176.5	233.5																		196.95	369.8	11.25	10.4	10.4	6.72		

Note : 1. 1 kgf = 9.81 N  
 2. The theoretical dynamic rated load is C<sub>100R</sub>, if necessary C<sub>50R</sub> conversion formula is as follows : C<sub>50R</sub> = 1.23 x C<sub>100R</sub>

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 CO(KN)	Static Rated Moment			Weight		
	H	H <sub>1</sub>	N	W	B	B <sub>1</sub>	C	C <sub>1</sub>	L <sub>1</sub>	L	K <sub>1</sub>	K <sub>2</sub>	G	M	T	T <sub>1</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)		
RW25SC																												28.54	50.21	0.78	0.65	0.65	0.53		
RW25CC	36	5	23.5	70	57	6.5	45	40	66.5	107.7	6	7	12	M8	10	12.5	5.5	5.5	23	23.6	11	9	7	30	20	M6X25	33.35	61.37	0.89	0.80	0.80	0.64	3.12		
RW25HC																												39.13	75.31	1.12	1.15	1.15	0.78		
RW30CC	42	6	31	90	72	9	52	44	71	114				M10	9.5	14	6.5	7.3	28	28	14	12	9	40	20	M8X30	48.62	81.29	1.8	1.55	1.55	0.92	4.47		
RW30HC																												61.45	109.98	2.05	1.92	1.92	1.21		
RW35CC	48	6.5	33	100	82	9	62	52	82	131				M10	12	13	9	9	34	30.2	14	12	9	40	20	M8X30	55.14	95.64	2.01	1.22	1.22	1.6	6.13		
RW35HC																												69.62	129.11	2.66	2.3	2.3	2.1		
RW45CC	60	8	37.5	120	100	10	80	60	106	158				M12	16	18	10	10	45	38	20	17	14	52.5	22.5	M12X35	95.63	178.72	4.75	3.55	3.55	3.2	9.99		
RW45HC																												120.6	240.89	6.55	5.8	5.8	4.19		
RW55CC	70	10	43.5	140	116	12	95	70	125.5	182.5				M14	18	18	12	12	53	44	23	20	16	60	30	M14X45	147.64	255.03	8.2	5.6	5.6	4.92	14.14		
RW55HC																												196.95	369.8	11.25	10.4	10.4	6.72		
RW65CC	90	12	53.5	170	142	14	110	82	160	232				M16	22	23	15	15	63	53	26	22	18	75	35	M16X50	213	411.6	16.2	11.59	11.59	8.89	20.3		
RW65HC																												275.3	572.7	22.55	22.17	22.17	12.13		

Note : 1. 1 kgf = 9.81 N  
 2. The theoretical dynamic rated load is C<sub>100R</sub>, if necessary C<sub>50R</sub> conversion formula is as follows : C<sub>50R</sub> = 1.23 x C<sub>100R</sub>