

QH Series

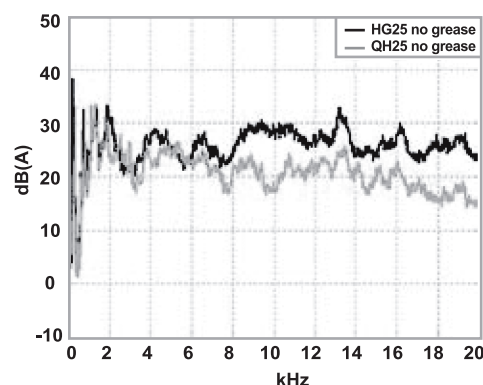
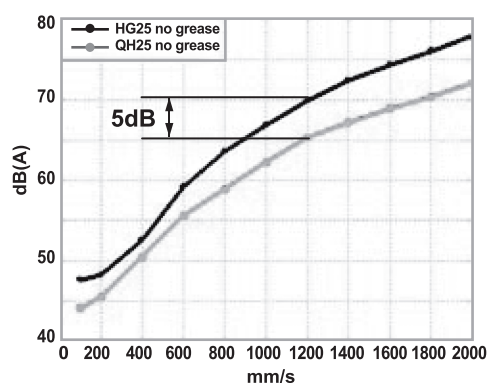
2-3 QH Series – Quiet Linear Guideway, with SynchMotion™ Technology

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

2-3-1 Features

(1) Low Noise Design

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



(2) Self-Lubricant Design

The partition is a grouping of hollow ring-like structures formed with a through hole to facilitate circulation of the lubricant. Because of the special lubrication path design, the lubricant of the partition storage space can be refilled. Therefore, the frequency of lubricant refilling can be decreased.

The QH-series linear guideway is pre-lubricated. Performance testing at a 0.2C (basic dynamic load) shows that after running 4,000km no damage was apparent to either the rolling elements or the raceway.

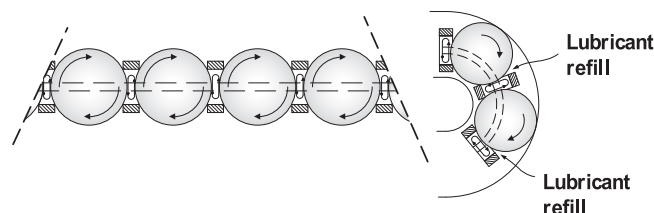
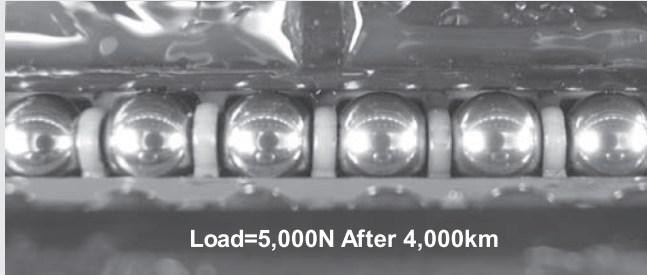
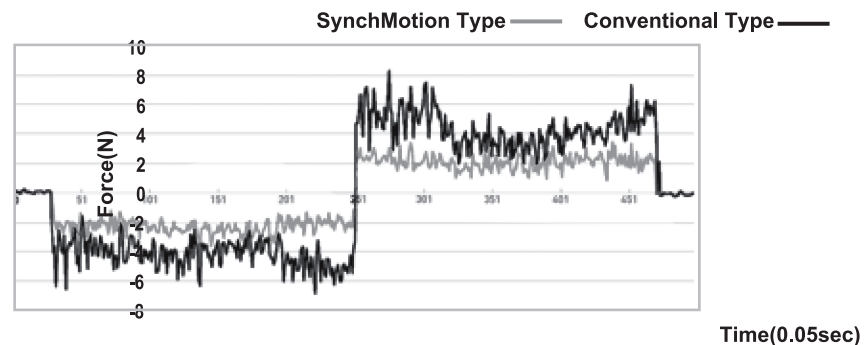


Table 2-3-1 Load Test

Test Sample QHH25CAZAH		Load Test
Speed	24m/min	
Lubricant	lithium soap base grease (initial lubrication only)	
Load	5kN	
Distance travel	4,000km	

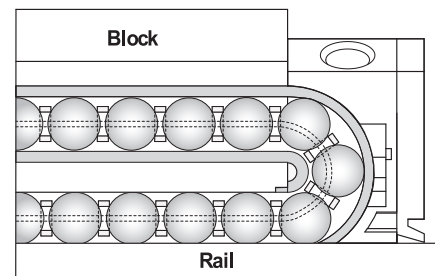
(3) Smooth Movement

In standard linear guideways, rolling elements on the load side of the guide block begin rolling and push their way through the raceway. When they contact other rolling elements they create counter-rotational friction. This results in a great variation of rolling resistance. The QH linear guideway, with SynchMotion™ technology prevents this condition. As the block starts to move, the rolling elements begin rolling consecutively and remain separated to prevent contact with one another thus keeping the element's kinetic energy extremely stable in order to effectively reduce fluctuations in rolling resistance.



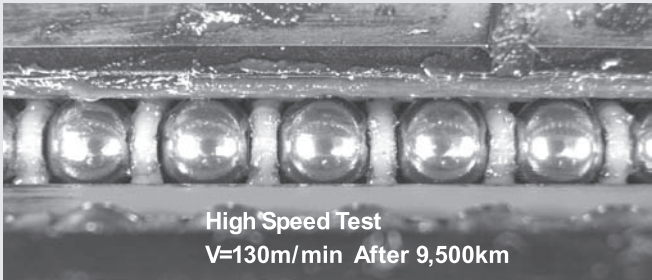
(4) High Speed Performance

The Hiwin-QH series offers excellent high-speed performance due to the partitions of the SynchMotion™ structure. They are employed to separate the adjacent balls thereby resulting in low rolling traction and the metallic friction between adjacent balls is eliminated.

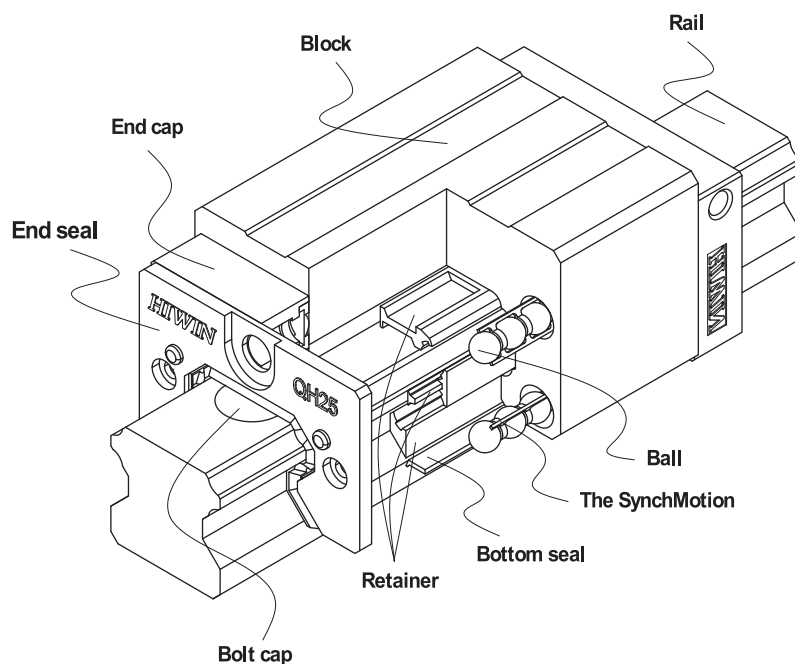


QH Series

Table 2-3-2

Test Sample QHW25CAZAH		High Speed Test
Speed	130m/min	 <p>High Speed Test V=130m/min After 9,500km</p>
Lubricant	lithium soap base grease (initial lubrication only)	
Distance travel	9,500km	

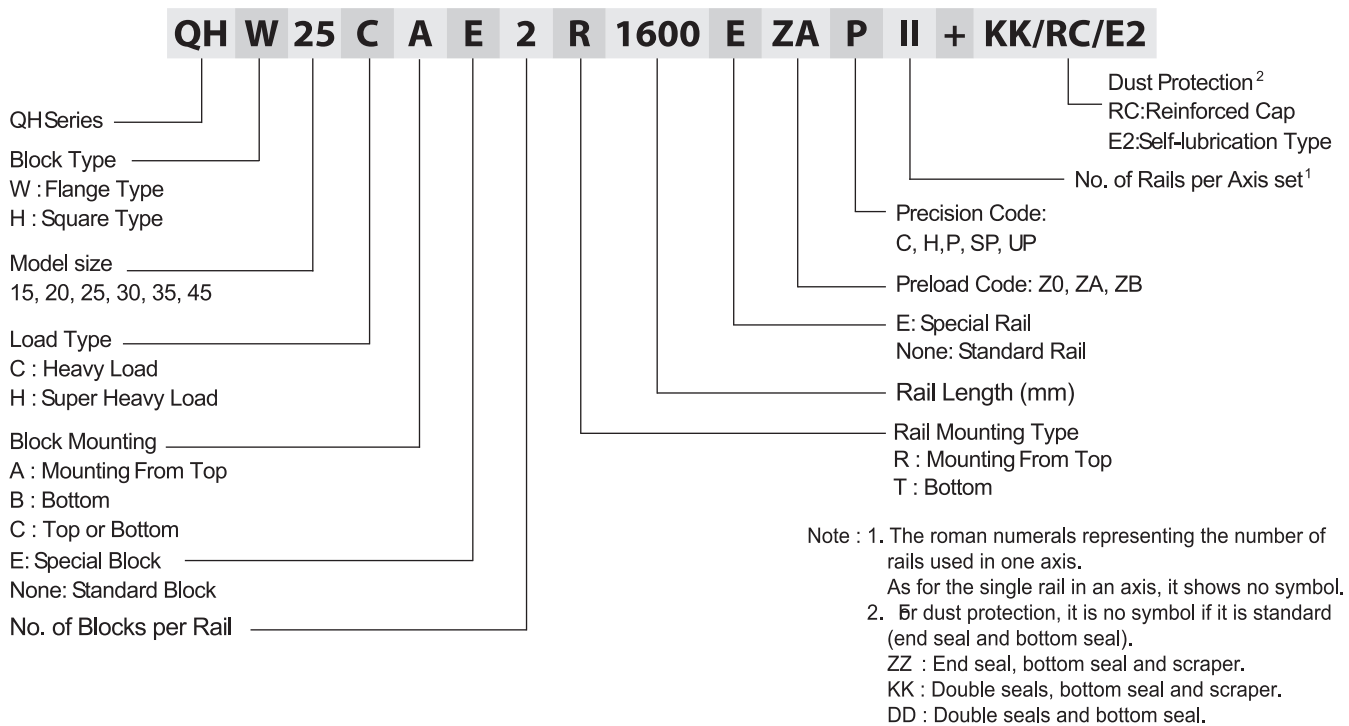
2-3-2 Construction



2-3-3 Model Number of QH Series

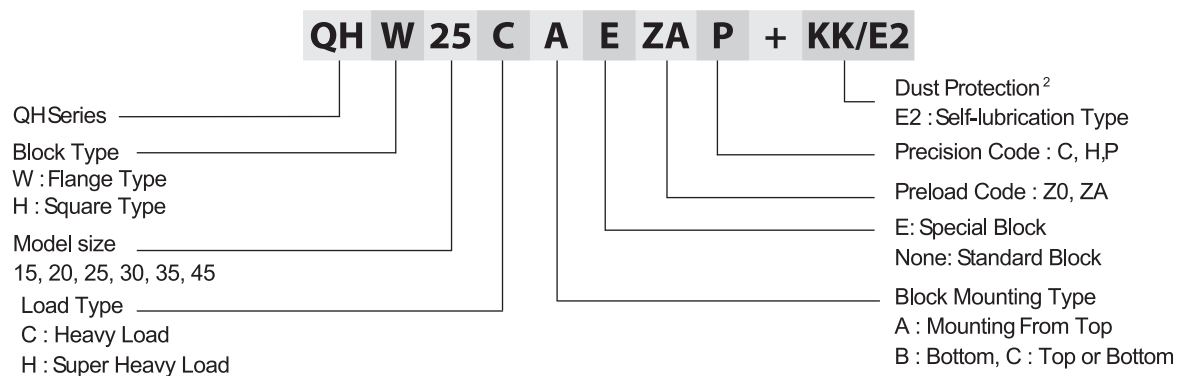
HIWIN-QH series guideway can be classified into non-interchangeable and interchangeable types. The sizes are identical. The main difference is that the interchangeable blocks and rails can be freely exchanged. Because of dimensional control, the interchangeable type linear guideway is a perfect choice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

(1) Non-interchangeable type

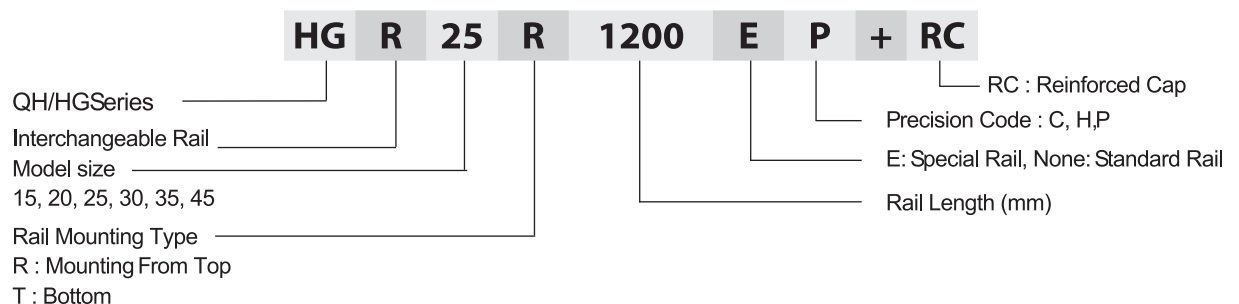


(2) Interchangeable type

○ Model Number of QH Block



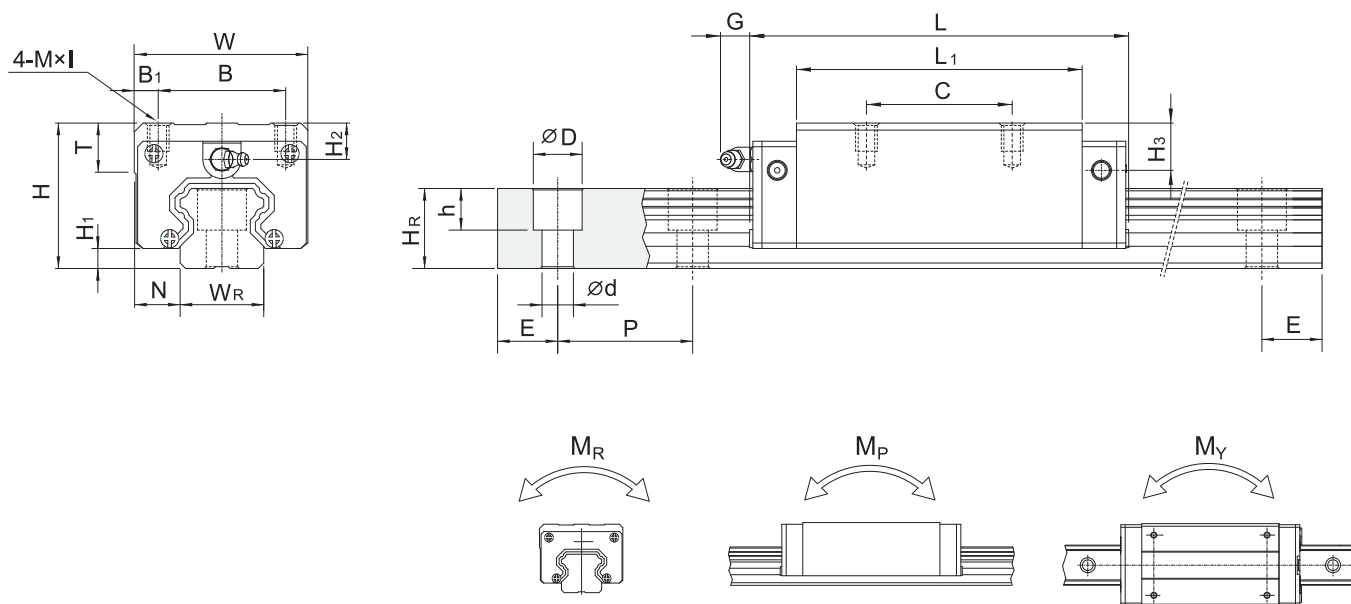
○ Model Number of QH Rail (QH and HG share the identical rails)



QH Series

2-3-9 Dimensions for HIWIN QH Series

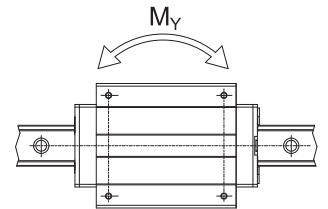
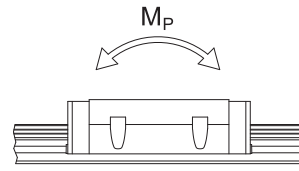
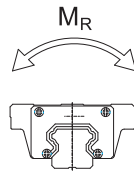
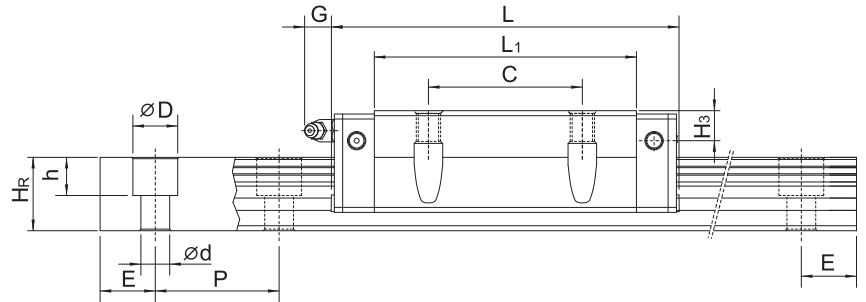
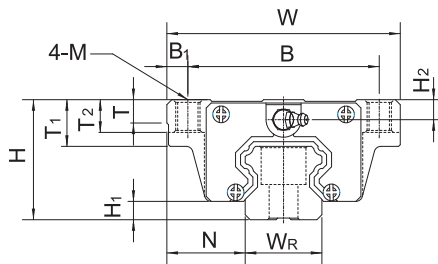
(1) QHH-CA / QHH-HA



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			Weight	
	H	H ₁	N	W	B	B ₁	C	L ₁	L	G	MxI	T	H ₂	H ₃	W _R	H _R	D	h	d	P	E	(mm)	C(kN)	C ₀ (kN)	M _R	M _P	M _V	Block	Rail		
QHH15CA	28	4	9.5	34	26	4	26	39.4	61.4	5.3	M4 x 5	6	7.95	8.2	15	15	7.5	5.3	4.5	60	20	M4x16	13.88	14.36	0.1	0.08	0.08	0.18	1.45		
QHH20CA	30	4.6	12	44	32	6	36	50.5	76.7	12	M5 x 6	8	6	6	20	17.5	9.5	8.5	6	60	20	M5x16	23.08	25.63	0.26	0.19	0.19	0.29	2.21		
QHH20HA							50	65.2	91.4														27.53	31.67	0.31	0.27	0.27	0.38			
QHH25CA	40	5.5	12.5	48	35	6.5	35	58	83.4	12	M6 x 8	8	10	8.5	23	22	11	9	7	60	20	M6x20	31.78	33.68	0.39	0.31	0.31	0.50	3.21		
QHH25HA							50	78.6	104														39.30	43.62	0.5	0.45	0.45	0.68			
QHH30CA	45	6	16	60	40	10	40	70	97.4	12	M8x10	8.5	9.5	9	28	26	14	12	9	80	20	M8x25	46.49	48.17	0.6	0.5	0.5	0.87	4.47		
QHH30HA							60	93	120.4														56.72	65.09	0.83	0.89	0.89	1.15			
QHH35CA	55	7.5	18	70	50	10	50	80	113.6	12	M8x12	10.2	15.5	13.5	34	29	14	12	9	80	20	M8x25	60.52	63.84	1.07	0.76	0.76	1.44	6.30		
QHH35HA							72	105.8	139.4														73.59	86.24	1.45	1.33	1.33	1.90			
QHH45CA	70	9.2	20.5	86	60	13	60	97	139.4	12.9	M10x17	16	18.5	20	45	38	20	17	14	105	22.5	M12x35	89.21	94.81	1.83	1.38	1.38	2.72	10.41		
QHH45HA							80	128.8	171.2														108.72	128.43	2.47	2.41	2.41	3.59			

Note : 1 kgf = 9.81 N

(4) QHW-CC / QHW-HC



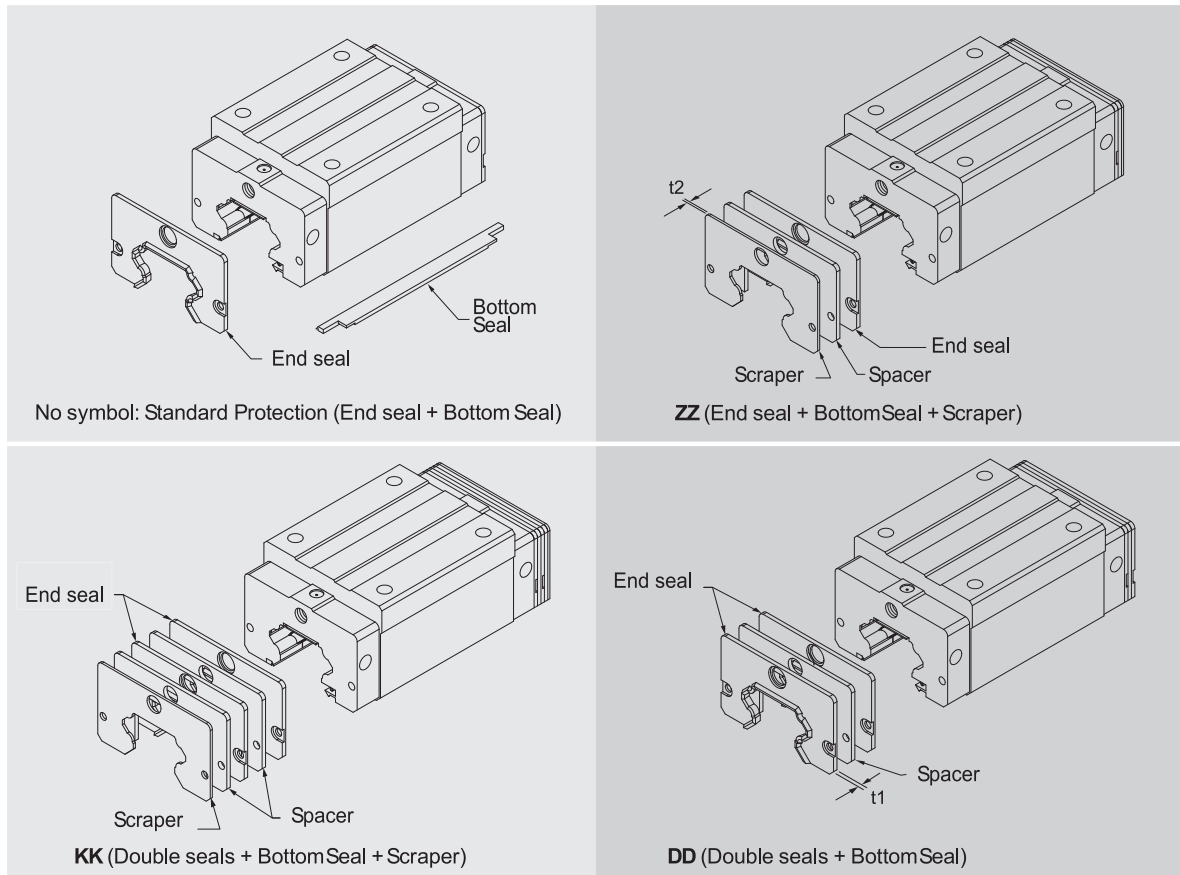
Model No.	Dimensions of Assembly (mm)			Dimensions of Block (mm)													Dimensions of Rail (mm)								Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment			Weight	
	H	H ₁	N	W	B	B ₁	C	L ₁	L	G	M	T	T ₁	T ₂	H ₂	H ₃	W _R	H _R	D	h	d	P	E	(mm)	C(kN)	C ₀ (kN)	M _R	M _P	M _Y	Block	Rail	
	H	H ₁	N	W	B	B ₁	C	L ₁	L	G	M	T	T ₁	T ₂	H ₂	H ₃	W _R	H _R	D	h	d	P	E	(mm)	C(kN)	C ₀ (kN)	kN-m	kN-m	kN-m	kg	kg/m	
QHW15CC	24	4	16	47	38	4.5	30	39.4	61.4	5.3	M5	6	8.9	6.95	3.95	4.2	15	15	7.5	5.3	4.5	60	20	M4x16	13.88	14.36	0.1	0.08	0.08	0.17	1.45	
QHW20CC	30	4.6	21.5	63	53	5	40	50.5	76.7	12	M6	8	10	9.5	6	6	20	17.5	9.5	8.5	6	60	20	M5x16	23.08	25.63	0.26	0.19	0.19	0.40	2.21	
QHW20HC								65.2	91.4																27.53	31.67	0.31	0.27	0.27	0.52		
QHW25CC	36	5.5	23.5	70	57	6.5	45	58	83.4	12	M8	8	14	10	6	4.5	23	22	11	9	7	60	20	M6x20	31.78	33.68	0.39	0.31	0.31	0.59	3.21	
QHW25HC								78.6	104																39.30	43.62	0.5	0.45	0.45	0.80		
QHW30CC	42	6	31	90	72	9	52	70	97.4	12	M10	8.5	16	10	6.5	6	28	26	14	12	9	80	20	M8x25	46.49	48.17	0.6	0.5	0.5	1.09	4.47	
QHW30HC								93	120.4																56.72	65.09	0.83	0.89	0.89	1.44		
QHW35CC	48	7.5	33	100	82	9	62	80	113.6	12	M10	10.1	18	13	8.5	6.5	34	29	14	12	9	80	30	M8x25	60.52	63.84	1.07	0.76	0.76	1.56	6.30	
QHW35HC								105.8	139.4																73.59	86.24	1.45	1.33	1.33	2.06		
QHW45CC	60	9.2	37.5	120	100	10	80	97	139.4	12.9	M12	15.1	22	15	8.5	10	45	38	20	17	14	105	22.5	M12x35	89.21	94.81	1.83	1.38	1.38	2.79	10.41	
QHW45HC								128.8	171.2																108.72	128.43	2.47	2.41	2.41	3.69		

Note : 1 kgf = 9.81 N

2-3-5 Dust Proof Accessories

(1) Codes of accessories

If the following accessories are needed, please add 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

Enhances the wiping effect, foreign matter can be completely wiped off.

Table 2-3-11 Dimensions of end seal

Size	Thickness (t1) (mm)	Size	Thickness (t1) (mm)
QH 15 ES	3	QH 30 ES	3.2
QH 20 ES	2.5	QH 35 ES	2.5
QH 25 ES	2.5	QH 45 ES	3.6

(4) Scraper

The scraper removes high-temperature iron chips and larger foreign objects.

Table 2-3-12 Dimensions of scraper

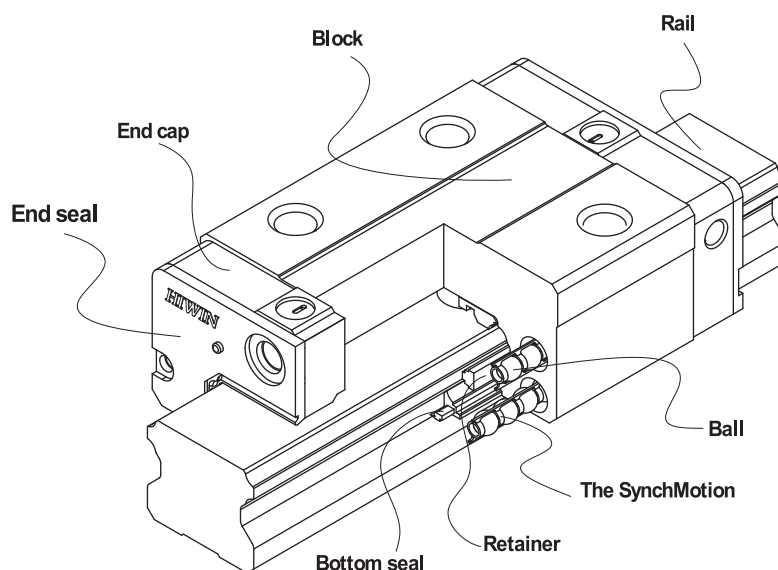
Size	Thickness (t2) (mm)	Size	Thickness (t2) (mm)
QH 15 SC	1.5	QH 35 SC	1.5
QH 20 SC	1.5	QH 45 SC	1.5
QH 25 SC	1.5		

QH Series

2-4 QE Series – Quiet Linear Guideway, with SynchMotion™ Technology

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

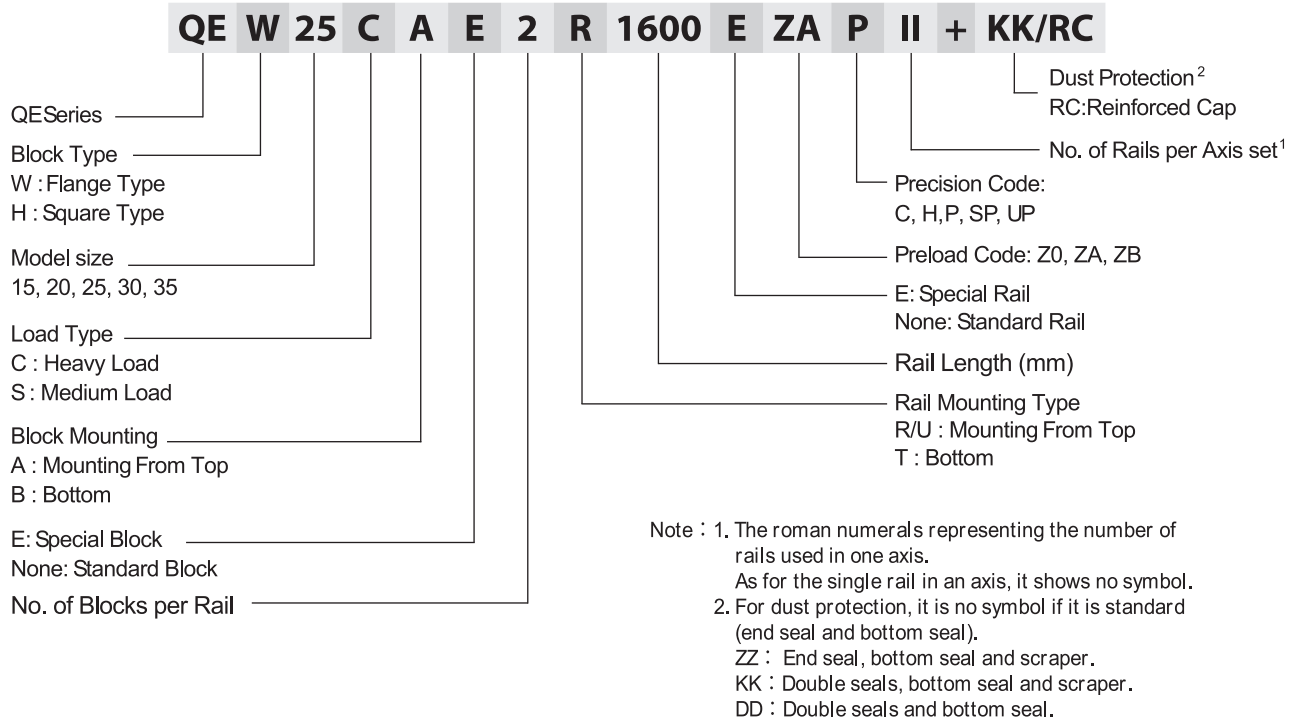
2-4-1 Construction



2-4-2 Model Number of QE Series

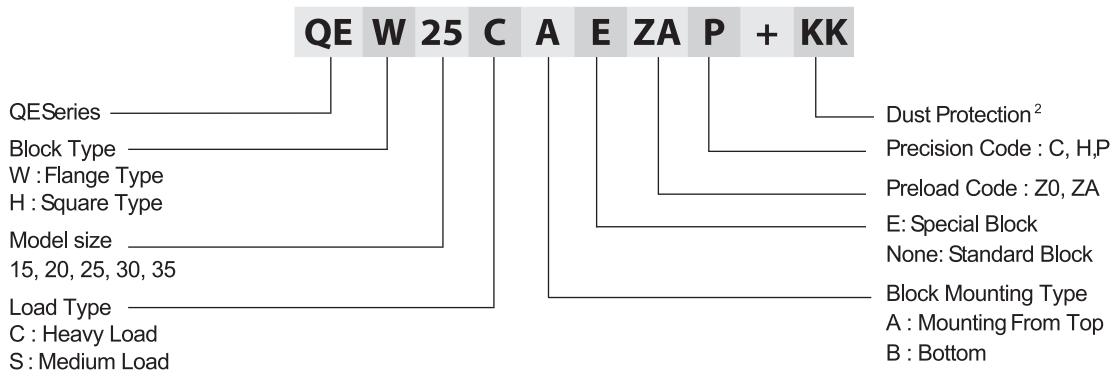
HIWIN-QE series guideway can be classified into non-interchangeable and interchangeable types. The sizes are identical. The main difference is that the interchangeable blocks and rails can be freely exchanged. Because of dimensional control, the interchangeable type linear guideway is a perfect choice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

(1) Non-interchangeable type

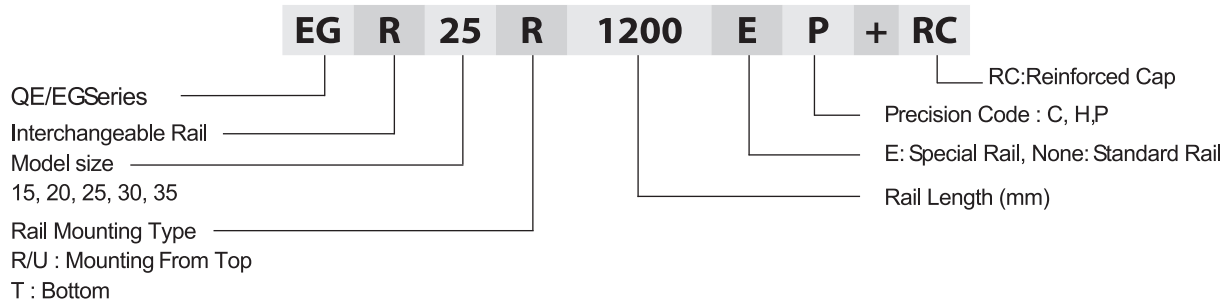


(2) Interchangeable type

○ Model Number of QE Block



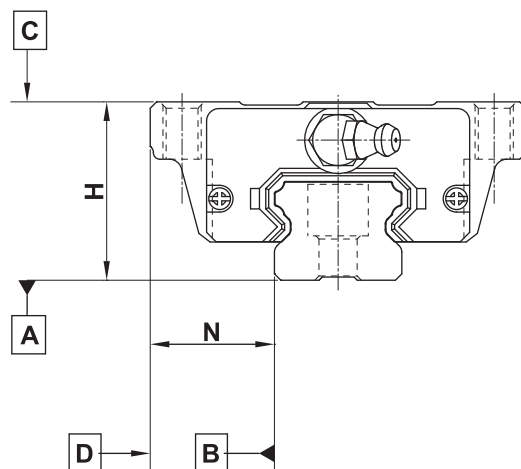
○ Model Number of QE Rail (QE and EG share the identical rails)



QE Series

2-4-3 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 2-4-1 Accuracy Standards

Unit: mm

Item	QE - 15, 20				
Accuracy Classes	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 2-4-5				
Running parallelism of block surface D to surface B	See Table 2-4-5				

Table 2-4-2 Accuracy Standards

Unit: mm

Item	QE - 25, 30, 35				
Accuracy Classes	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 2-4-5				
Running parallelism of block surface D to surface B	See Table 2-4-5				

(2) Accuracy of interchangeable

Table 2-4-3 Accuracy Standards

Unit: mm

Item	QE - 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 2-4-5		
Running parallelism of block surface D to surface B	See Table 2-4-5		

Table 2-4-4 Accuracy Standards

Unit: mm

Item	QE - 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 2-4-5		
Running parallelism of block surface D to surface B	See Table 2-4-5		

(3) Accuracy of running parallelism

Table 2-4-5 Accuracy of Running Parallelism

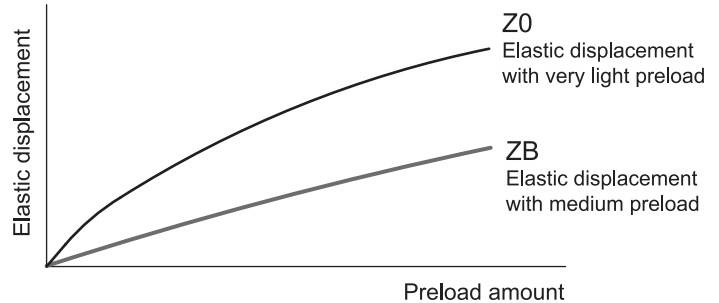
Rail Length (mm)	Accuracy (μm)				
	C	H	P	SP	UP
~ 100	12	7	3	2	2
100 ~ 200	14	9	4	2	2
200 ~ 300	15	10	5	3	2
300 ~ 500	17	12	6	3	2
500 ~ 700	20	13	7	4	2
700 ~ 900	22	15	8	5	3
900 ~ 1,100	24	16	9	6	3
1,100 ~ 1,500	26	18	11	7	4
1,500 ~ 1,900	28	20	13	8	4
1,900 ~ 2,500	31	22	15	10	5
2,500 ~ 3,100	33	25	18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

QE Series

2-4-4 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 not greater than ZA would be recommended for model sizes smaller than EG20. This will avoid an overloaded condition that would affect guideway life.



(2) Preload classes

HIWIN offers three standard preloads for various applications and conditions.

Table 2-4-6 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

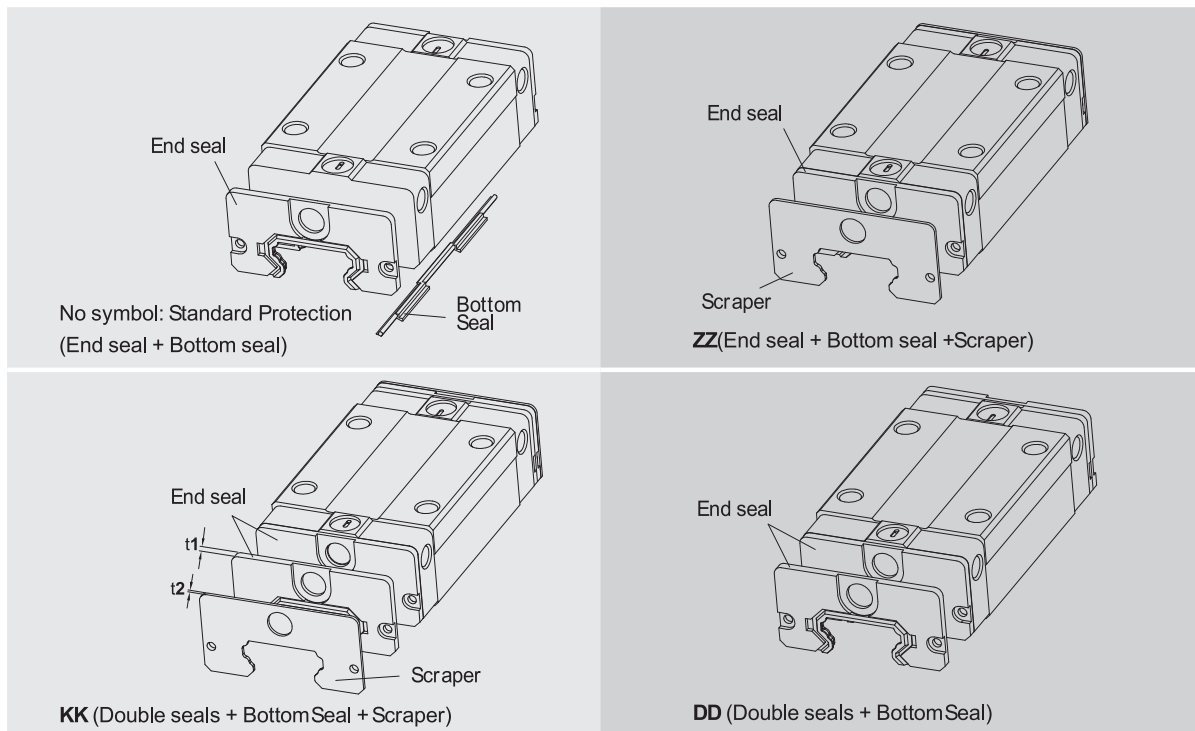
Class	Interchangeable Guideway	Non-Interchangeable Guideway
Preload classes	Z0, ZA	Z0, ZA, ZB

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

2-4-5 Dust Protection Equipment

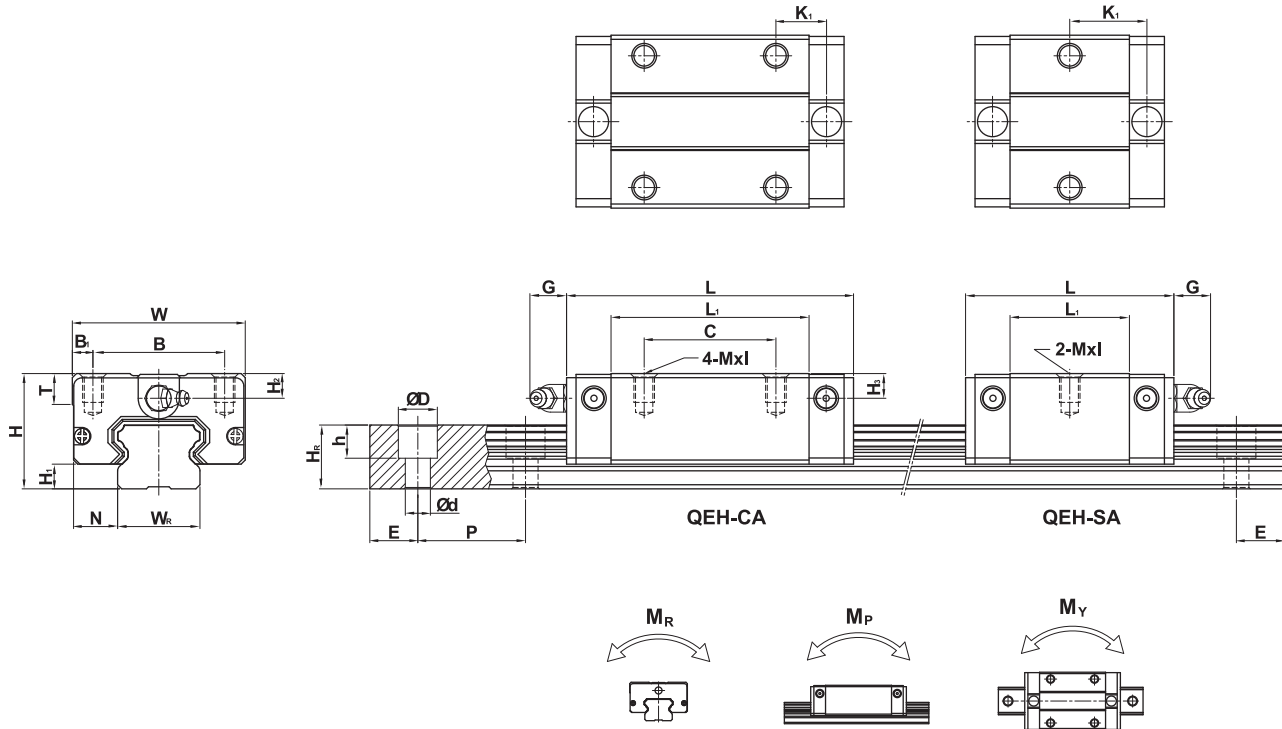
(1) Codes of equipment

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



2-4-9 Dimensions for HIWIN QE Series

(1) QEH-CA / QEH-SA

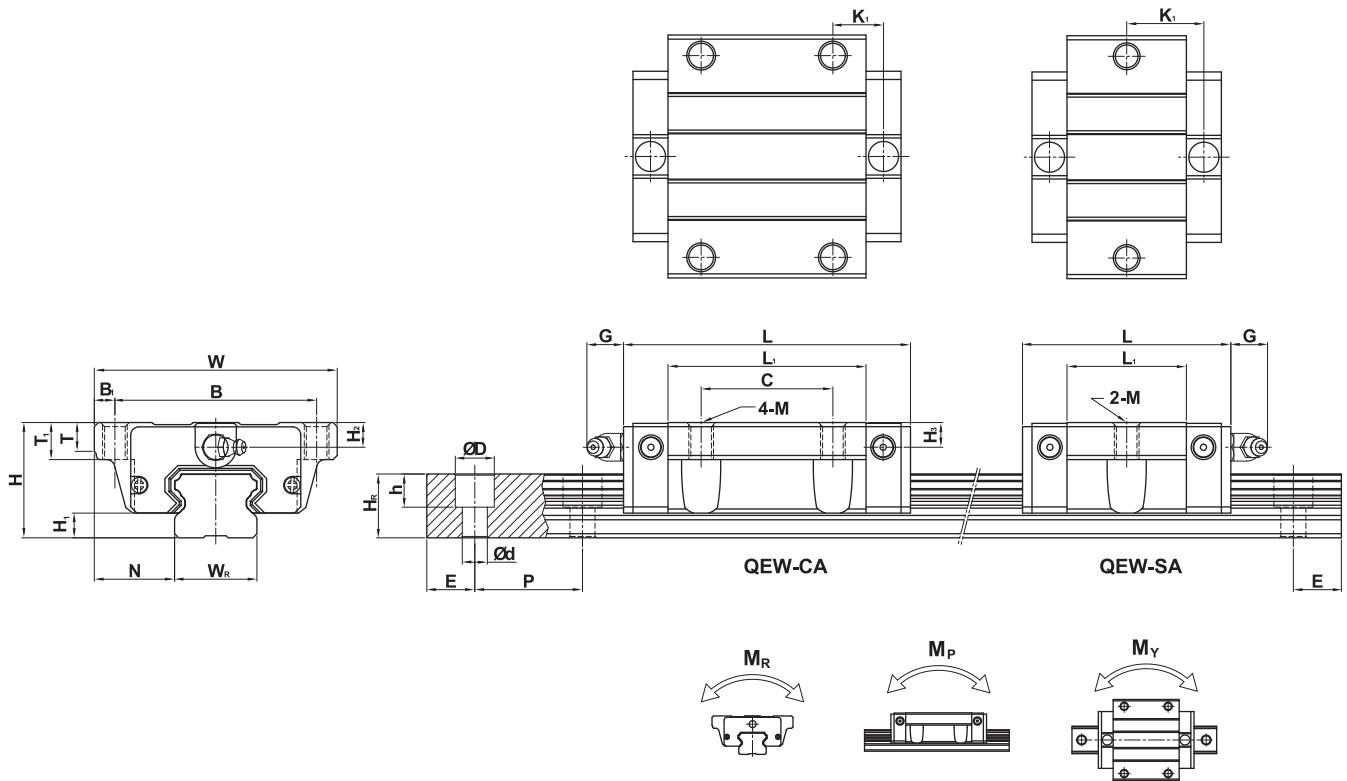


Model No.	Dimensions of Assembly (mm)			Dimensions of Block (mm)													Dimensions of Rail (mm)								Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment			Weight	
	H	H ₁	N	W	B	B ₁	C	L ₁	L	K ₁	G	MxI	T	H ₂	H ₃	W _R	H _R	D	h	d	P	E	(mm)	C(kN)	C ₀ (kN)	M _R kN-m	M _P kN-m	M _Y kN-m	Block kg	Rail kg/m		
QEH15SA	24	4	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	M3x16	8.56	8.79	0.07	0.03	0.03	0.09	1.25		
QEH15CA							26	39.8	56.8	10.15														26.03	15.28	0.12	0.09	0.09	0.15			
QEH20SA	28	6	11	42	32	5	-	29	50	18.75	12	M5x7	7.5	6	6.5	20	15.5	9.5	8.5	6	60	20	M5x16	11.57	12.18	0.13	0.05	0.05	0.15	2.08		
QEH20CA							32	48.1	69.1	12.3														16.50	20.21	0.21	0.15	0.15	0.23			
QEH25SA	33	6.2	12.5	48	35	6.5	-	35.5	60.1	21.9	12	M6x9	8	8	8	23	18	11	9	7	60	20	M6x20	18.24	18.90	0.22	0.10	0.10	0.24	2.67		
QEH25CA							35	59	83.6	16.15														26.03	31.49	0.37	0.29	0.29	0.40			
QEH30SA	42	10	16	60	40	10	-	41.5	67.5	25.75	12	M8x12	9	8	9	28	23	11	9	7	80	20	M6x25	26.27	27.82	0.40	0.18	0.18	0.44	4.35		
QEH30CA							40	70.1	96.1	20.05														37.92	46.63	0.67	0.51	0.51	0.75			
QEH35SA	48	11	18	70	50	10	-	51	76	30.3	12	M8x12	10	8.5	8.5	34	27.5	14	12	9	80	20	M8x25	36.39	36.43	0.61	0.33	0.33	0.77	6.14		
QEH35CA							50	83	108	21.3														51.18	59.28	1.00	0.75	0.75	1.19			

Note : 1 kgf = 9.81 N

QE Series

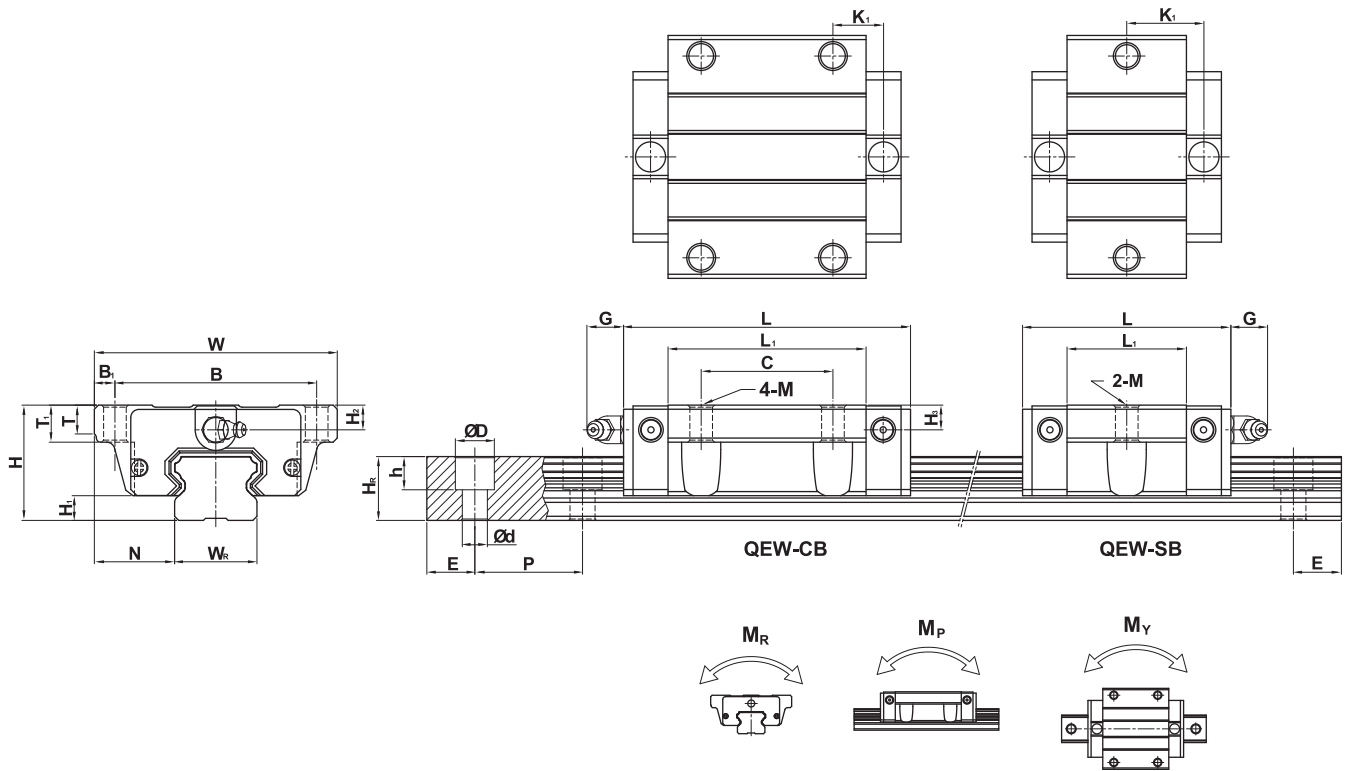
(2) QEW-CA / QEW-SA



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			Weight	
																															M _R	M _p	M _Y	Block	Rail
	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)	kN-m	kN-m	kN-m	kg	kg/m				
QEW 15SA	24	4	18.5	52	41	5.5	-	23.1	40.1	14.8	-	M5	5	7	5.5	6	15	12.5	6	4.5	3.5	60	20	M3×16	8.56	8.79	0.07	0.03	0.03	0.12	1.25				
QEW 15CA	-	-	-	-	-	-	26	39.8	56.8	10.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M3×16	12.53	15.28	0.12	0.09	0.09		0.21			
QEW 20SA	28	6	19.5	59	49	5	-	29	50	18.75	-	M6	7	9	6	6.5	20	15.5	9.5	8.5	6	60	20	M5×16	11.57	12.18	0.13	0.05	0.05	0.19	2.08				
QEW 20CA	-	-	-	-	-	-	32	48.1	69.1	12.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M5×16	16.50	20.21	0.21	0.15	0.15		0.31			
QEW 25SA	33	6.2	25	73	60	6.5	-	35.5	60.1	21.9	-	M8	7.5	10	8	8	23	18	11	9	7	60	20	M6×20	18.24	18.90	0.22	0.10	0.10	0.34	2.67				
QEW 25CA	-	-	-	-	-	-	35	59	83.6	16.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M6×20	26.03	31.49	0.37	0.29	0.29		0.58			
QEW 30SA	42	10	31	90	72	9	-	41.5	67.5	25.75	-	M10	7	10	8	9	28	23	11	9	7	80	20	M6×25	26.27	27.82	0.40	0.18	0.18	0.61	4.35				
QEW 30CA	-	-	-	-	-	-	40	70.1	96.1	20.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M6×25	37.92	46.63	0.67	0.51	0.51		1.03			
QEW 35SA	48	11	33	100	82	9	-	51	76	30.3	-	M10	10	13	8.5	8.5	34	27.5	14	12	9	80	20	M8×25	36.39	36.43	0.61	0.33	0.33	0.77	6.14				
QEW 35CA	-	-	-	-	-	-	50	83	108	21.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M8×25	51.18	59.28	1.00	0.75	0.75		1.19			

Note : 1 kgf = 9.81 N

(3) QEW-CB / QEW-SB



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			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)	kN-m	kN-m	kN-m	Block kg
QEW 15SB	24	4	18.5	52	41	5.5	-	23.1	40.1	14.8		5.7	Ø4.5	5	7	5.5	6	15	12.5	6	4.5	3.5	60	20	M3x16	8.56	8.79	0.07	0.03	0.03	0.12	1.25	
QEW 15CB							26	39.8	56.8	10.15															12.53	15.28	0.12	0.09	0.09	0.21			
QEW 20SB	28	6	19.5	59	49	5	-	29	50	18.75		12	Ø5.5	7	9	6	6.5	20	15.5	9.5	8.5	6	60	20	M5x16	11.57	12.18	0.13	0.05	0.05	0.19	2.08	
QEW 20CB							32	48.1	69.1	12.3															16.50	20.21	0.21	0.15	0.15	0.31			
QEW 25SB	33	6.2	25	73	60	6.5	-	35.5	60.1	21.9		12	Ø7	7.5	10	8	8	23	18	11	9	7	60	20	M6x20	18.24	18.90	0.22	0.10	0.10	0.34	2.67	
QEW 25CB							35	59	83.6	16.15															26.03	31.49	0.37	0.29	0.29	0.58			
QEW 30SB	42	10	31	90	72	9	-	41.5	67.5	25.75		12	Ø9	7	10	8	9	28	23	11	9	7	80	20	M6x25	26.27	27.82	0.40	0.18	0.18	0.61	4.35	
QEW 30CB							40	70.1	96.1	20.05															37.92	46.63	0.67	0.51	0.51	1.03			
QEW 35SB	48	11	33	100	82	9	-	51	76	30.3		12	Ø9	10	13	8.5	8.5	34	27.5	14	12	9	80	20	M8x25	36.39	36.43	0.61	0.33	0.33	0.77	6.14	
QEW 35CB							50	83	108	21.3															51.18	59.28	1.00	0.75	0.75	1.19			

Note : 1 kgf = 9.81 N