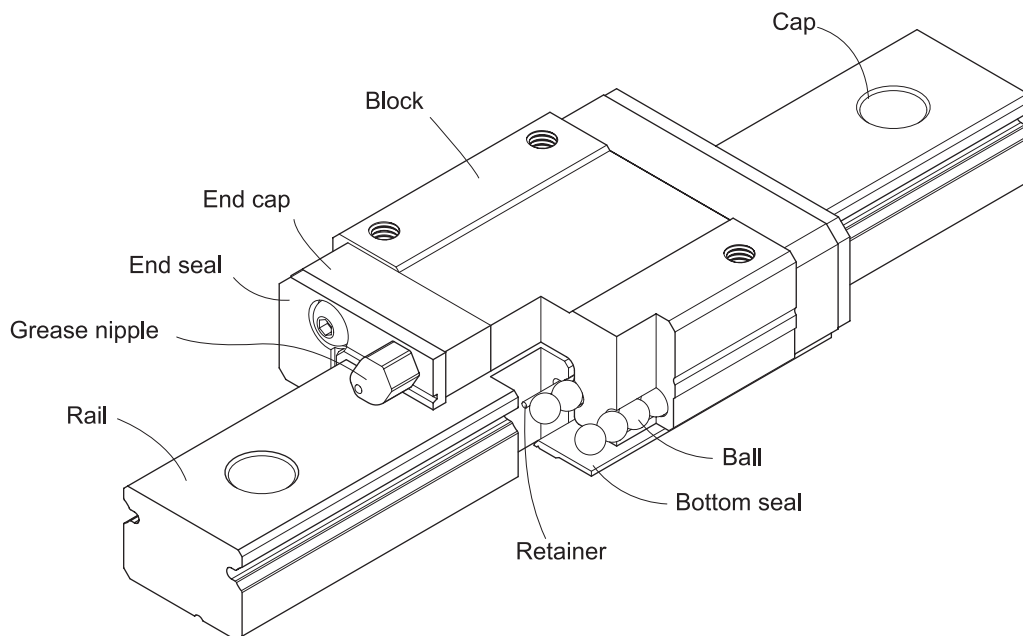


2-6 MG Series - Miniature Linear Guideway

2-6-1 Features of MGN Series

1. Tiny and light weight, suitable for miniature equipment.
2. All materials for block and rail are in special grade of stainless steel which including steel ball, ball retainer for anti-corrosion purpose.
3. Gothic arch contact design can sustain the load from all directions and offer high rigidity and high accuracy.
4. Steel balls will be held by miniature retainer to avoid the balls from falling out even when the blocks are removed from the rail installation.
5. Interchangeable types are available in certain precision grades.

2-6-2 Construction of MGN Series



- Rolling circulation system: Block, rail, end cap and retainer
- Lubrication system: The grease nipple is available for MGN15, grease gun can be used for lubricating.
- Dust protection system: End seal, bottom seal (optional size 9,12,15), cap (size12,15)

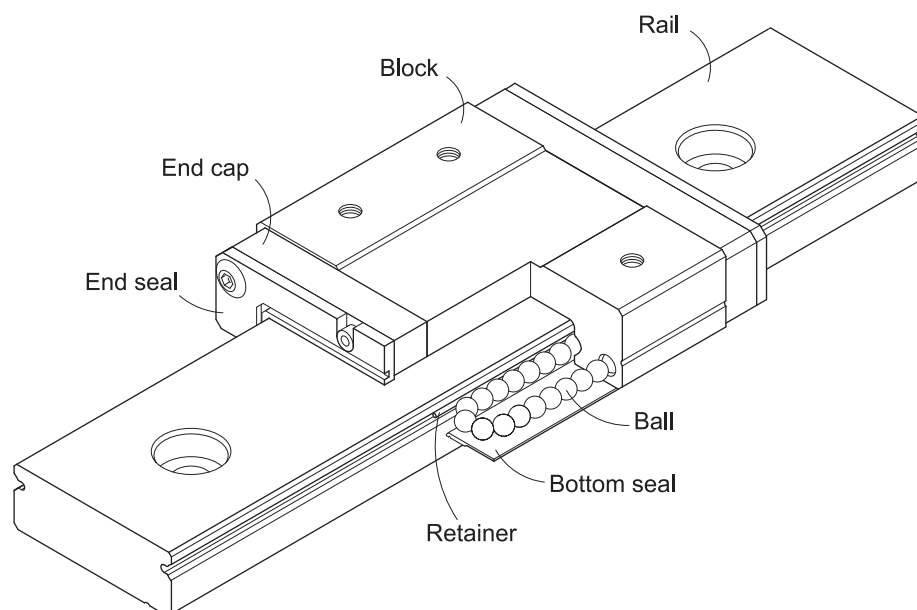
MG Series

2-6-3 Feature of MGW Series

The design feature of wide type miniature guideway-MGW:

1. The design of enlarged width has increased the capacity of moment load.
2. Gothic arch contact design has high rigidity characteristic in all directions.
3. Steel balls will be held by miniature retainer to avoid the balls from falling out even when the block are removed from the rail installation.
4. All metallic components are made of stainless steel for anti-corrosion purpose.

2-6-4 Configuration of MGW Series



- Rolling circulation system: Block, rail, end cap and retainer
- Lubrication system: The grease nipple is available for MGW15, grease gun can be used for lubricating.
- Dust protection system: End seal, bottom seal (optional size 9,12,15), cap (size12,15)

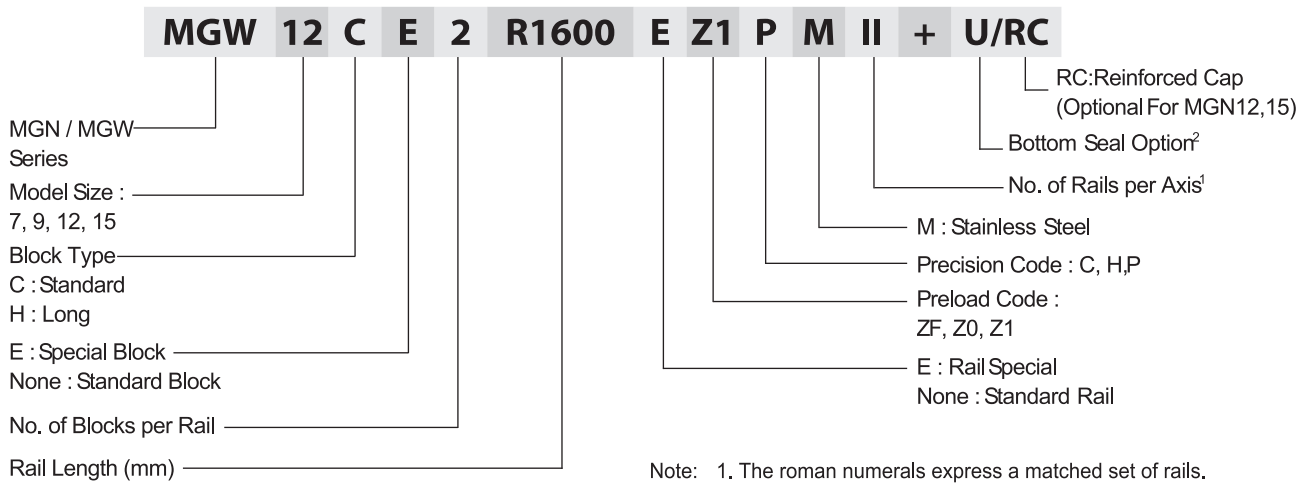
2-6-5 Application

MGN/MGW series can be used in many fields, such as semiconductor equipment, PCB assembly equipment, medical equipment, robotics, measuring equipment, office automation equipment, and other miniature sliding machinery.

2-6-6 Model Number of MGN/MGW Series

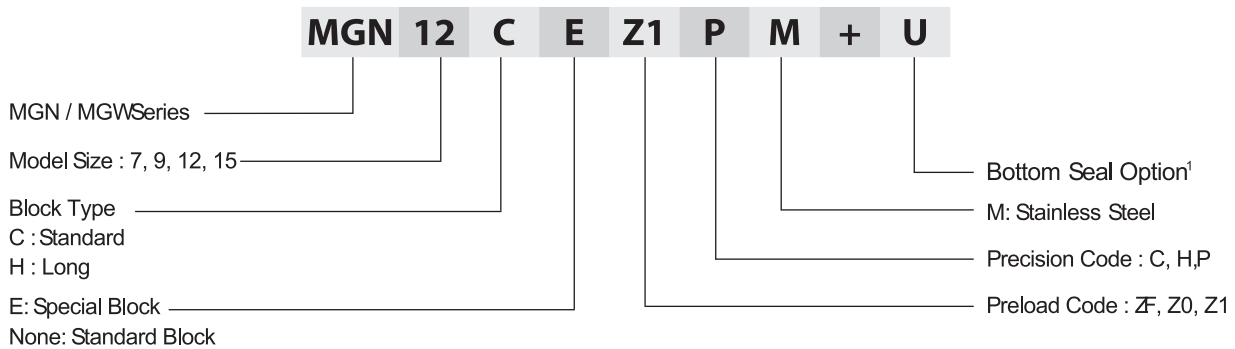
MGN and MGW series linear guideway can be classified into non-interchangeable and interchangeable types. The sizes of two types are the same. The interchangeable type is more convenient due to rails can be replaced. However, its precision is less than non-interchangeable type. Because of strict dimensional control, the interchangeable type linear guideway is a smart choice for customers when rails don't need to be paired for another axis. The model number contains the information of the size, type, accuracy class, preload class, and so on.

(1) Non-interchangeable type

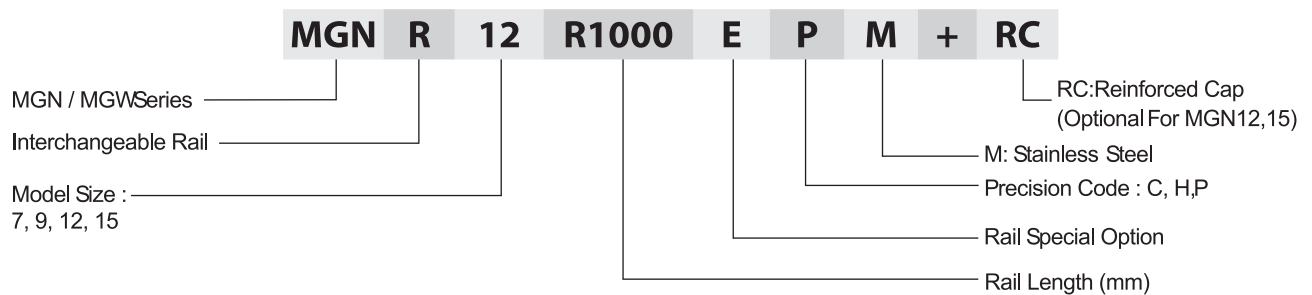


(2) Interchangeable type

○ Interchangeable Block



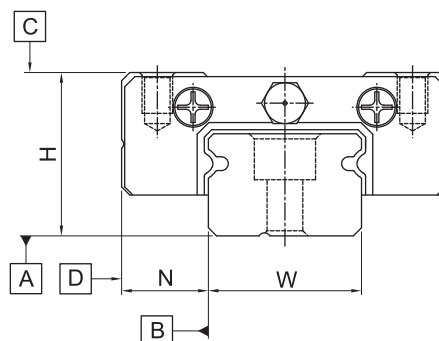
○ Interchangeable Rail



MG Series

2-6-7 Accuracy Classes

The accuracy of MGN/MGW series can be classified into three classes: normal (C), high (H), precision (P). Customers can select the proper linear guideway by the required accuracy of the application.



(1) Non-interchangeable

The accuracy values are taken at the central part of each block.

Table 2-6-1 Accuracy Standard of Non-interchangeable Type

Unit: mm

Accuracy Classes	Normal (C)	High (H)	Precision (P)
Dimensional tolerance of height H	± 0.04	± 0.02	± 0.01
Dimensional tolerance of width N	± 0.04	± 0.025	± 0.015
Pair Variation of height H	0.03	0.015	0.007
Pair Variation of width N (Master Rail)	0.03	0.02	0.01
Running parallelism of block surface C to surface A	According to Table 2-6-3		
Running parallelism of block surface D to surface B	According to Table 2-6-3		

(2) Interchangeable

Height variation between the interchangeable and non-interchangeable types is minimal.

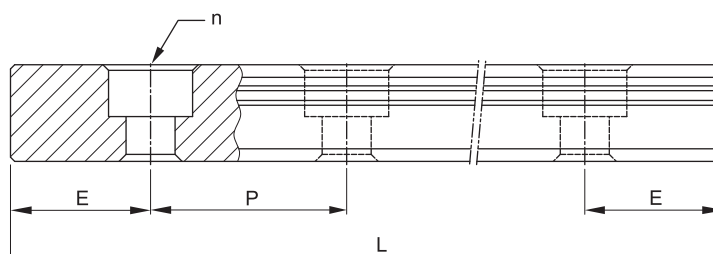
Table 2-6-2 Accuracy Standard of Interchangeable Type

Unit: mm

Accuracy Classes	Normal (C)	High (H)	Precision (P)
Dimensional tolerance of height H	± 0.04	± 0.02	± 0.01
Dimensional tolerance of width N	± 0.04	± 0.025	± 0.015
One Set	Pair Variation of height H	0.015	0.007
	Pair Variation of width N	0.02	0.01
Pair Variation of width N (Master Rail)	0.07	0.04	0.02
Running parallelism of block surface C to surface A	According to Table 2-6-3		
Running parallelism of block surface D to surface B	According to Table 2-6-3		

2-6-11 Standard and Maximum Lengths of Rail

HIWIN stocks standard lengths of rail. If a non-standard length is required, it is recommended to specify the E value to be not greater than 1/2 of the pitch (P) to avoid instability at the end of the rail, and the E value should not be less than E_{min} in order to prevent breaking the end mounting hole.



$$L = (n-1) \times P + 2 \times E \quad \text{Eq.2.4}$$

L : Total length of rail (mm)

n : Number of mounting holes

P : Distance between any two holes (mm)

E : Distance from the center of the last hole to the edge (mm)

Table 2-6-8

unit: mm

Item	MGNR 7M	MGNR 9M	MGNR 12M	MGNR 15M	MGWR 7M	MGWR 9M	MGWR 12M	MGWR 15M
Standard Length L(n)	40 (3)	55 (3)	70 (3)	70 (2)	80 (3)	80 (3)	110 (3)	110 (3)
	55 (4)	75 (4)	95 (4)	110 (3)	110 (4)	110 (4)	150 (4)	150 (4)
	70 (5)	95 (5)	120 (5)	150 (4)	140 (5)	140 (5)	190 (5)	190 (5)
	85 (6)	115 (6)	145 (6)	190 (5)	170 (6)	170 (6)	230 (6)	230 (6)
	100 (7)	135 (7)	170 (7)	230 (6)	200 (7)	200 (7)	270 (7)	270 (7)
	130 (9)	155 (8)	195 (8)	270 (7)	260 (9)	230 (8)	310 (8)	310 (8)
		175 (9)	220 (9)	310 (8)		260 (9)	350 (9)	350 (9)
		195 (10)	245 (10)	350 (9)		290 (10)	390 (10)	390 (10)
		275 (14)	270 (11)	390 (10)		350 (14)	430 (11)	430 (11)
		375 (19)	320 (13)	430 (11)		500 (19)	510 (13)	510 (13)
			370 (15)	470 (12)		710 (24)	590 (15)	590 (15)
			470 (19)	550 (14)		860 (29)	750 (19)	750 (19)
			570 (23)	670 (17)			910 (23)	910 (23)
			695 (28)	870 (22)			1070 (27)	1070 (27)
Pitch (P)	15	20	25	40	30	30	40	40
Distance to End (E_s)	5	7.5	10	15	10	10	15	15
Max. Standard Length	595 (40)	995 (40)	1995 (80)	1990 (50)	590 (20)	1190 (40)	1990 (50)	1990 (50)
Max. Length	600	1000	2000	2000	600	1200	2000	2000

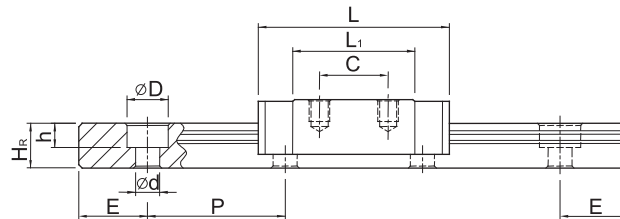
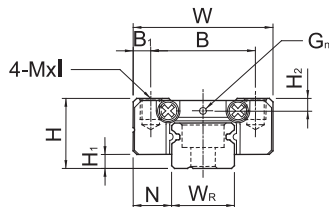
- Note:
1. Tolerance of E value for standard rail is 0.5~0.5 mm. Tolerance of E value for jointed rail is 0~0.3 mm.
 2. Maximum standard length indicates the max. rail length with standard E value on both sides.
 3. The specification with " M " mark are stainless steel.
 4. If smaller E value is needed, please contact HIWIN.

MG Series

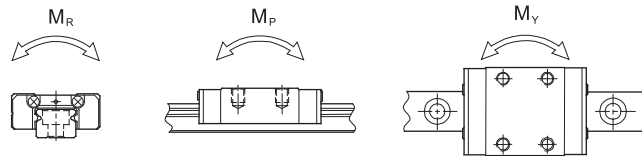
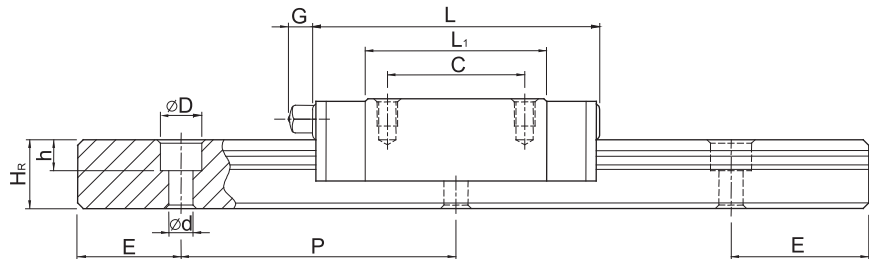
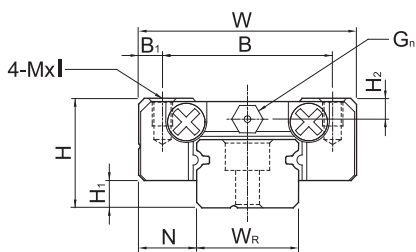
2-6-12 Dimensions for MGN/MGW Series

(1) MGN-C / MGN-H

MGN7, MGN9, MGN12



MGN15

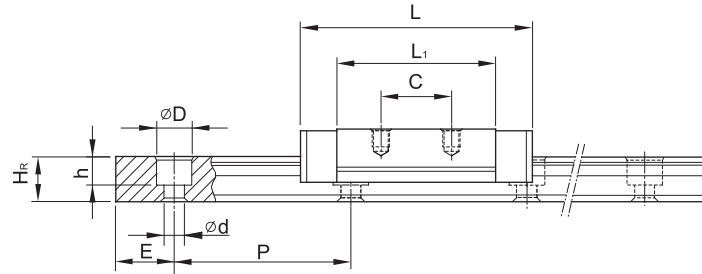
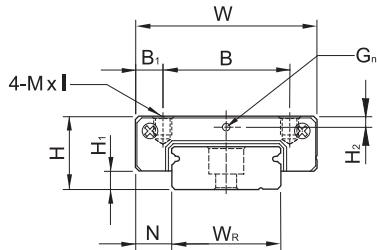


Model No.	Dimensions of Assembly (mm)			Dimensions of Block (mm)										Dimensions of Rail (mm)								Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment			Weight	
	H	H ₁	N	W	B	B ₁	C	L ₁	L	G	G _n	MxI	H ₂	W _R	H _R	D	h	d	P	E	(mm)	C(kN)	C ₀ (kN)	M _R	M _P	M _Y	Block	Rail	
MGN 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	
MGN 7H							13	21.8	30.8													1.37	1.96	7.64	4.80	4.80	0.015		
MGN 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	
MGN 9H							16	29.9	39.9													2.55	4.02	19.60	18.62	18.62	0.026		
MGN 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	
MGN 12H							20	32.4	45.4													3.72	5.88	38.22	36.26	36.26	0.054		
MGN 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
MGN 15H							25	43.4	58.8													6.37	9.11	73.50	57.82	57.82	0.092		

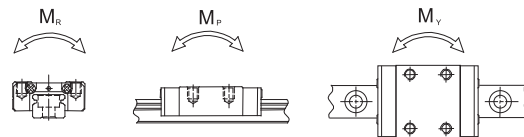
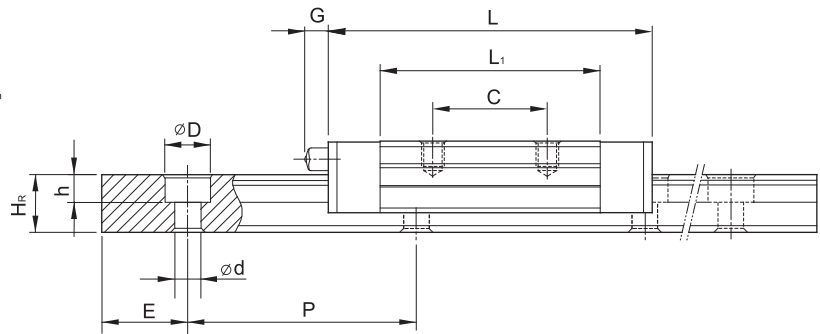
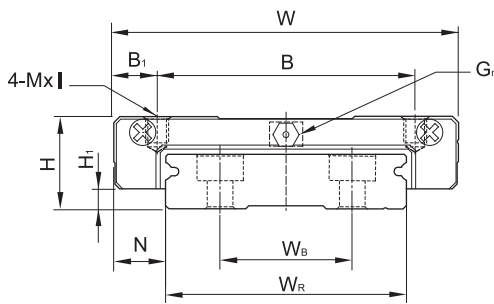
Note : 1 kgf = 9.81 N

(2) MGW-C / MGW-H

MGW7, MGW9, MGW12



MGW15



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	G _n	MxI	H ₂	W _R	W _B	H _R	D	h	d	P	E	(mm)	C(kN)	C ₀ (kN)	M _R	M _P	M _V	Block	Rail		
MGW7C	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		
MGW7H							19	30.8	41													M3x6	1.77	3.14	23.45	15.53	15.53	0.029			
MGW9C	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		
MGW9H					23	3.5	24	38.5	50.7													M3x8	3.43	5.89	54.54	34.00	34.00	0.057			
MGW12C	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		
MGW12H							28	45.6	60.4													M4x8	5.10	8.24	102.70	57.37	57.37	0.103			
MGW15C	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		
MGW15H							35	57	73.8													M4x10	8.93	13.38	299.01	122.60	122.60	0.215			

Note : 1 kgf = 9.81 N