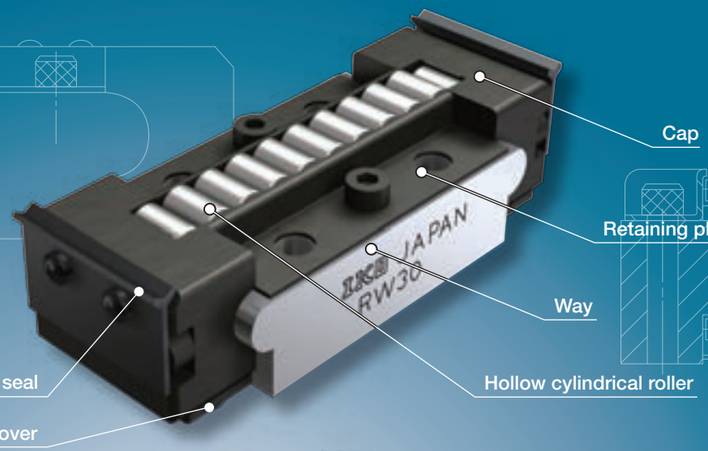
Roller Way & Flat Roller Cage

Roller Way
Flat Roller Cage

Roller Way

RW



SR

GSN

Points

● High rigidity and accuracy

1 Since the high accuracy roller is built into the highly flat surface way finished by accurate ground, the product has a high rigidity and high accuracy. Also because the variation of operation height can be selected in the unit of 2 μm, the load can be evenly distributed even in the multiple-use environment.

● Smooth motion

2 The structure of all models lets the roller to be guided accurately without creating skew, yielding an extremely stable and smooth linear motion.

Identification Number and Specification

Example of an identification number

The specifications of RW, SR and GSN are indicated by the identification number. Indicate the identification number, consisting of a model code, dimensions, a part code, a classification symbol, and a selection code for each specification to apply.

1	2	3	4	5
RW	40	UU	SP	B4
SR	2050		SP	B4
GSN	20		SP	B4

1 **Model** — Model code Page Ⅱ－196

2 **Size** — Dimensions Page Ⅱ－196

3 **Wiper seal** — Part code Page Ⅱ－197

4 **Accuracy class** — Classification symbol Page Ⅱ－197

5 **Selection class** — Selection code Page Ⅱ－197

Identification Number and Specification —Model · Size—

1 Model

Roller Way RW	: RW
Roller Way RW inch series	: RWB
Roller Way SR	: SR
Roller Way GSN	: GSN

For applicable models and sizes, see Table 1.1 and Table 1.2.

2 Size

Indicate the representative width in mm. For the inch series, indicate the width in the unit of 1/16 inch.
For applicable models and sizes, see Table 1.1 and Table 1.2.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Table 1.1 Models and sizes of RW, SR and GSN (Metric series)

Shape	Model	Size									
		15	20	25	26	30	32	40	50	70	95
	RW	–	–	–	○	○	–	○	○	○	○
	SR	○	○	○	–	–	○	○	○	–	–
	GSN	○	○	○	–	–	○	○	○	–	–

Table 1.2 Models and sizes of RWB (Inch series)

Shape	Model	Size					
		14	16	24	32	48	64
	RWB	○	○	○	○	○	○

3 Wiper seal

Without wiper seal	: No symbol	Applicable to Roller Way RW.
With wiper seal	: UU	Attach the wiper seal in the linear motion direction. This wiper seal is made of special synthetic rubber in double-lipped shape and has high removal performance against foreign substances.

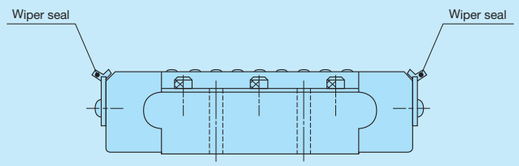


Fig. 1 Wiper seal

4 Accuracy class

Ordinary	: No symbol	For applicable accuracy class, see Table 2.1 and Table 2.2.
High	: H	
Precision	: P	For details of accuracy class, see Table 3.1, Table 3.2, and Table 4.
Super precision	: SP	

5 Selection class

When many are used on the same surface, it is required to use those with the same selection code from tolerances of dimensions in H of Table 4 to evenly distribute the load. When tolerances of dimensions of H is not specified, please specify a classification symbol only.

Table 2.1 Application of accuracy class of RW, SR and GSN (Metric series)

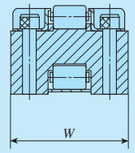
Size	Class (classification symbol)			
	Ordinary (1) (No symbol)	High (H)	Precision (P)	Super precision (SP)
15	○	○	○	○
20	○	○	○	○
25	○	○	○	○
26	–	○	○	○
30	–	○	○	○
32	○	○	○	○
40	○	○	○	○
50	○	○	○	○(2)
70	–	○	○	–
95	–	○	○	–

Notes (1) Applicable to SR and GSN.
(2) Applicable to RW.

Table 2.2 Application of accuracy class of RWB (Inch series)

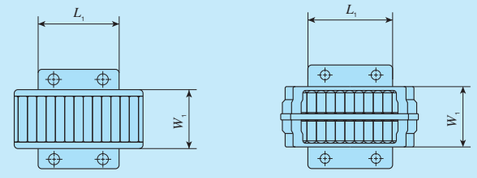
Size	Class (classification symbol)			
	Ordinary (No symbol)	High (H)	Precision (P)	Super precision (SP)
14	–	○	○	○
16	–	○	○	○
24	–	○	○	○
32	–	○	○	○
48	–	○	○	–
64	–	○	○	–

Table 3.1 Tolerances of RW and RWB width W



RW		RWB	
Size	Dim. W tolerance mm	Size	Dim. W tolerance inch
26 30 40	0 −0.05	14 16 24	0 −0.002
50 70	0 −0.07	32 48	0 −0.003
95	0 −0.10	64	0 −0.004

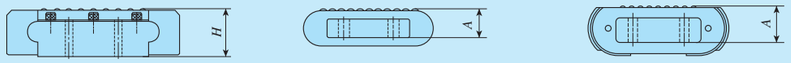
Table 3.2 Tolerances of SR and GSN width W_1, and length L_1



unit: mm

SR and GSN		
Size	Dim. W_1 tolerance	Dim. L_1 tolerance
15 20 25 32 40	0 −0.2	0 −0.2
50	0 −0.3	0 −0.3

Table 4 Selection code, and tolerance of height H and operation height A



RW SR GSN

Item / Accuracy class	Selection code	Dim. tolerance of height H and operation height A	
		Metric series mm	Inch series inch
Ordinary (no symbol)	–	0 ～ −0.010	–
High (H)	E 5	0 ～ −0.005	0 ～ −0.0002
	E10	−0.005 ～ −0.010	−0.0002 ～ −0.0004
Precision (P)	C 3	0 ～ −0.003	0 ～ −0.00012
	C 6	−0.003 ～ −0.006	−0.00012 ～ −0.00024
	C 9	−0.006 ～ −0.009	−0.00024 ～ −0.00036
Super precision (SP)	B 2	0 ～ −0.002	0 ～ −0.00008
	B 4	−0.002 ～ −0.004	−0.00008 ～ −0.00016
	B 6	−0.004 ～ −0.006	−0.00016 ～ −0.00024
	B 8	−0.006 ～ −0.008	−0.00024 ～ −0.00032
	B10	−0.008 ～ −0.010	−0.00032 ～ −0.00040

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Precaution for Use

❶ Raceway

Recommended values for surface hardness and roughness of mating raceway are shown in Table 5 and the recommended value for the minimum effective hardening depth is shown in Table 6.1 and Table 6.2.

Table 5 Surface hardness and roughness of raceway

Item	Recommended value	Remark
Surface hardness	58～64HRC	When the surface hardness is low, multiply the load rating by hardness factor (1) .
Surface roughness	0.2 μmRa or lower (0.8 μmRy or lower)	Where accuracy standard is low, around 0.8 μmRa (3.2 μmRy) is also allowed.

Note (1) For hardness factor, refer to Fig. 3 in page Ⅲ-5.

Table 6.1 Minimum effective hardening depth of raceway (RW and RWB) unit: mm

Identification number		Recommended value for minimum effective hardening depth
RW 26	RWB 14	0.8
RW 30	RWB 16	1.0
RW 40	RWB 24	1.5
RW 50	RWB 32	2.0
RW 70	RWB 48	2.5
RW 95	RWB 64	3.0

Table 6.2 Minimum effective hardening depth of raceway (SR and GSN) unit: mm

Identification number		Recommended value for minimum effective hardening depth
SR 15	GSN 15	0.8
SR 20	GSN 20	
SR 25	GSN 25	1.0
SR 32	GSN 32	
SR 40	GSN 40	1.5
SR 50	GSN 50	2.0

❷ Accuracy of mounting surface

For accuracy of mounting surface, values in Table 7.1 and Table 7.2 are recommended.

Table 7.1 Accuracy of mounting surface (RW and RWB)

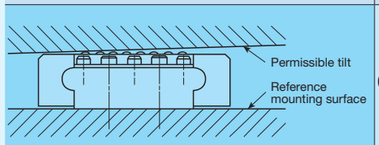
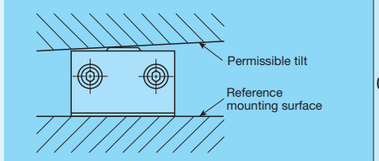
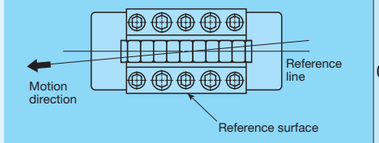
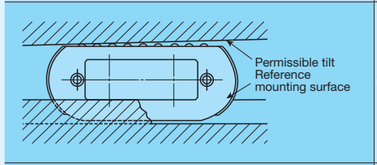
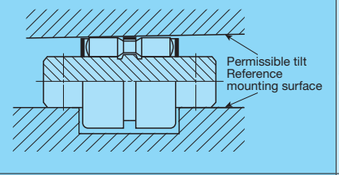
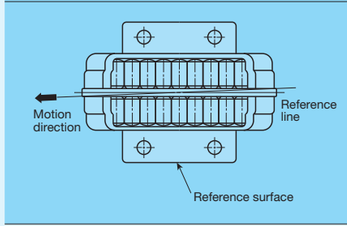
Item	Recommended value
	0.02/100 or lower
	0.015/100 or lower
	0.05/100 or lower

Table 7.2 Accuracy of mounting surface (SR and GSN)

Item	Recommended value
	0.02/100 or lower
	0.015/100 or lower
	0.05/100 or lower

❸ Groove machining on SR and GSN mounting surface

When mounting SR and GSN to the groove-machined mounting surface, the groove depth E should be deeper than the height from the bottom surface of the way to the bottom of the SR and GSN to provide clearance for oil pool. (See Fig. 2.)

Other than the above, groove width W corresponding to the width W_1 for SR should be as wide as clearance fit and the relation between the clearance and the groove position on the reference surface side must be considered.

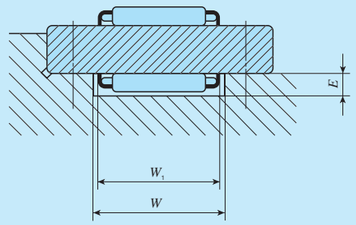


Fig. 2 Shape of groove on the mounting surface

❹ Operating temperature

The maximum operating temperature is 120˚C and temperature up to 100˚C is allowed for continuous operation. When the temperature exceeds 100˚C, contact IKO.

Precaution for Mounting

❶ Reference mounting surface

To mount RW, RWB, SR, and GSN in the linear motion direction, mount them by referring the opposite side of the IKO mark on the way end as reference surface. (See Fig. 3.) In addition, the surface under load is the upside of the IKO mark on the way end seen as the normal position.

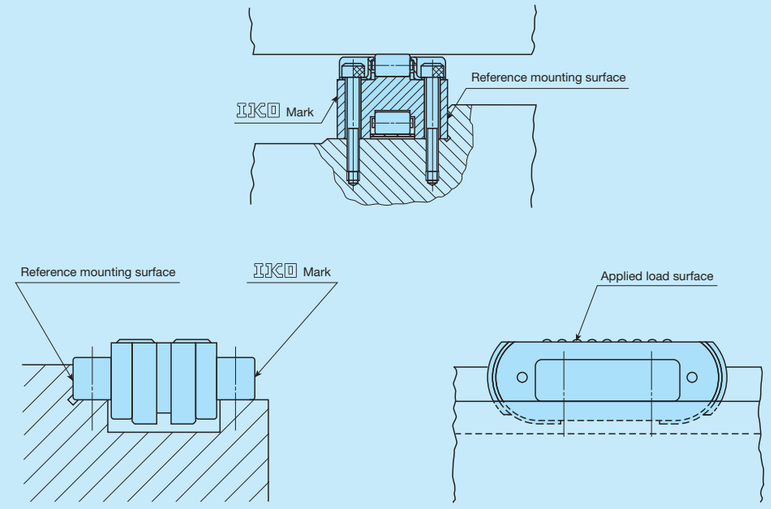


Fig. 3 Mounting examples

❷ How to mount SR and GSN

To mount it, fix the way directly to a table or a bed with bolts, or fix it with pressure plate as indicated in Fig. 4. For SR, mounting with pressure plate is recommended.

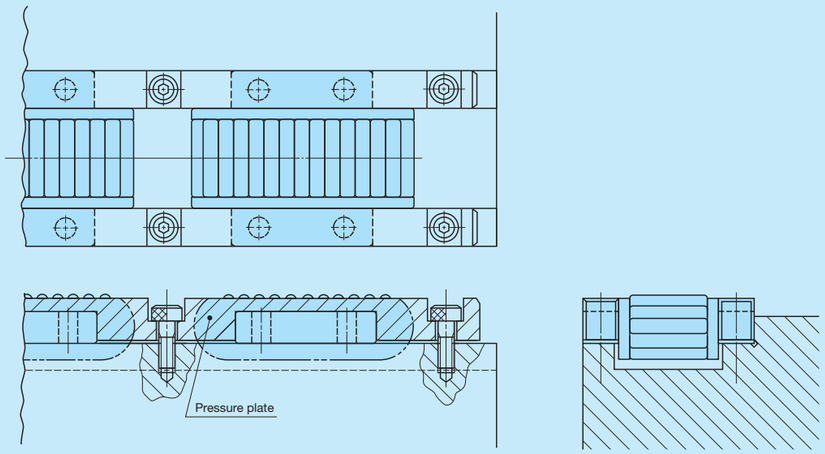
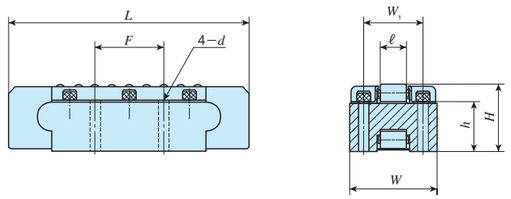


Fig. 4 Mounting with pressure plate

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

IKO Roller Way

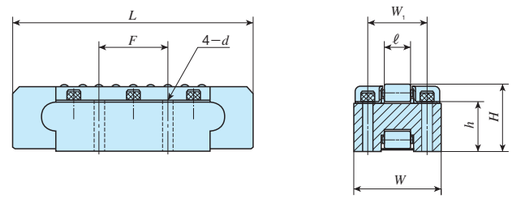
Shape	RW		
			
Size	26	30	40
	50	70	95



Identification number	Mass (Ref.)	Nominal dimensions mm								Basic dynamic load rating	Basic static load rating
		W	H	L	ℓ	F	W_1	h	d	C	C_0
	g									N	N
RW 26	74	26	14	50	6	19	16	10	3.4	25 000	40 100
RW 30	179	30	19	70	7.5	25.4	19	14	4.5	39 800	71 200
RW 40	740	40	28	100	11.3	38.1	26	21	5.5	85 700	160 000
RW 50	1 750	50	38	140	15	50.8	35	28.5	6.6	154 000	314 000
RW 70	5 260	70	57	200	22.5	76.2	48	42.5	9.0	306 000	638 000
RW 95	12 700	95	76	270	30	101.6	65	56.5	11.0	514 000	1 130 000

IKO Roller Way Inch Series

Shape	RWB		
			
Size	14	16	24
	32	48	64

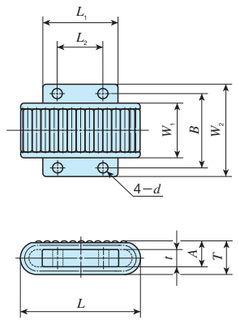


Identification number	Mass (Ref.)	Nominal dimensions inch / mm								Basic dynamic load rating	Basic static load rating
		W	H	L	ℓ	F	W_1	h	d	C	C_0
	g									N	N
RWB 14*	91	7/8 22.225	9/16 14.288	1.97 50	0.236 6	3/4 19.050	43/64 17.066	0.41 10.4	0.125 3.2	25 000	40 100
RWB 16*	227	1 25.400	3/4 19.050	2.76 70	0.295 7.5	1 25.400	13/16 20.638	0.56 14.2	0.125 3.2	39 800	71 200
RWB 24*	730	1 1/2 38.100	1 1/8 28.575	3.94 100	0.445 11.3	1 1/2 38.100	1 7/32 30.956	0.85 21.5	0.180 4.6	85 700	160 000
RWB 32*	1 770	2 50.800	1 1/2 38.100	5.51 140	0.591 15	2 50.800	1 5/8 41.275	1.12 28.5	0.206 5.2	154 000	314 000
RWB 48*	5 670	3 76.200	2 1/4 57.150	7.88 200	0.886 22.5	3 76.200	2 7/16 61.912	1.68 42.8	0.266 6.8	306 000	638 000
RWB 64*	13 500	4 101.600	3 76.200	10.63 270	1.181 30	4 101.600	3 1/4 82.550	2.24 57.0	0.328 8.3	514 000	1 130 000

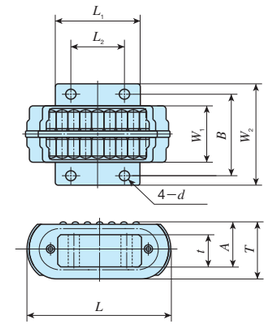
Remark: The identification numbers with * are our semi-standard items.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Shape	SR		
			
Size	15	20	25
	32	40	50



Shape	GSN		
			
Size	15	20	25
	32	40	50



Identification number		Mass (Ref.)	Nominal dimensions mm											Basic dynamic load rating	Basic static load rating
			W_1	W_2	L	A		T	L_1	L_2	B	d	t	C	C_0
		g												N	N
SR 1540	——	62	15	30	40	11		15	20	12	23	3.3	7	26 500	45 900
———	GSN 15	82	15	30	40	15		20	19	12	23	3.4	11	22 300	36 000
SR 2050	——	120	20	36	50	12		16	30	18	29	3.8	8	42 800	96 300
———	GSN 20	145	20	36	50	15		20	29	18	29	3.4	11	40 100	87 900
SR 2560	——	210	25	45	60	14		19	35	20	36	4.8	9	67 300	156 000
———	GSN 25	260	25	45	60	18		24.5	35	20	36	4.5	13	58 900	131 000
SR 3270	——	345	32	55	70	15		20	45	27	44	5.5	10	97 500	271 000
———	GSN 32	413	32	55	70	18		24.5	45	27	44	4.5	13	88 800	241 000
SR 4090	——	750	40	68	87	21		28	55	35	54	6.5	14	143 000	373 000
———	GSN 40	940	40	68	92	25		34	54	35	54	5.5	18	133 000	337 000
SR 50125	——	1 870	50	82	125	30		40	78	50	66	8.5	20	252 000	673 000
———	GSN 50	1 800	50	82	121	30		42	77	50	66	6.6	20	242 000	634 000

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch