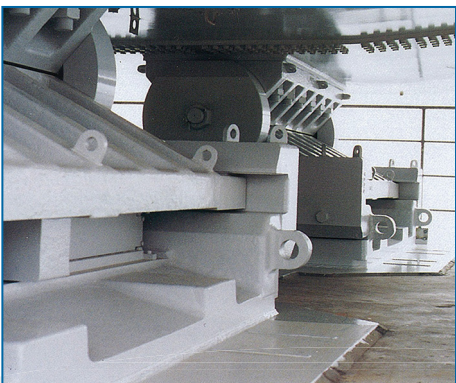
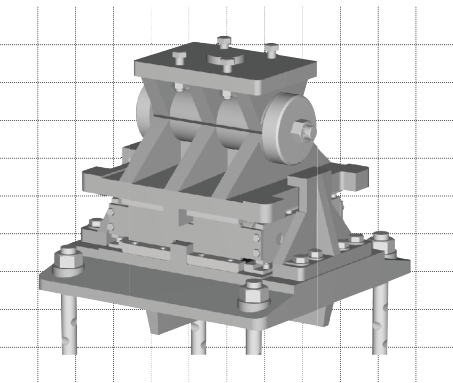
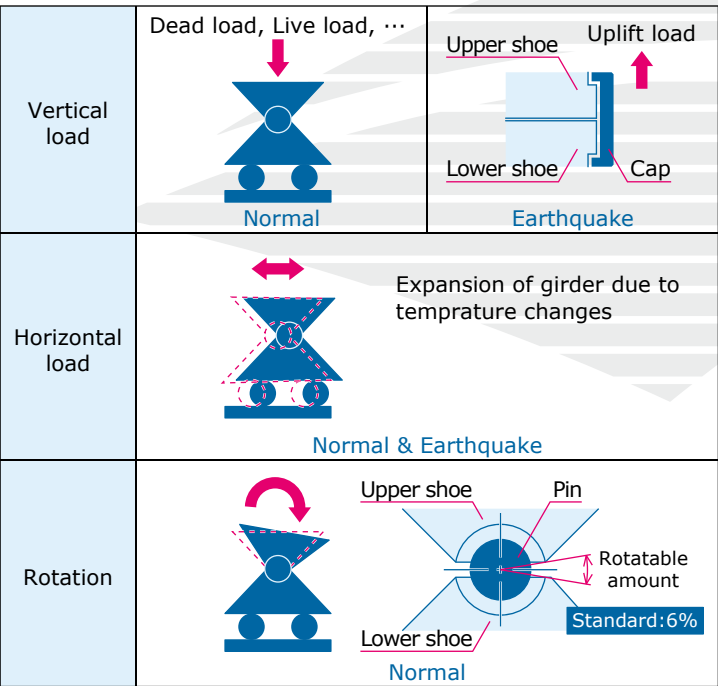




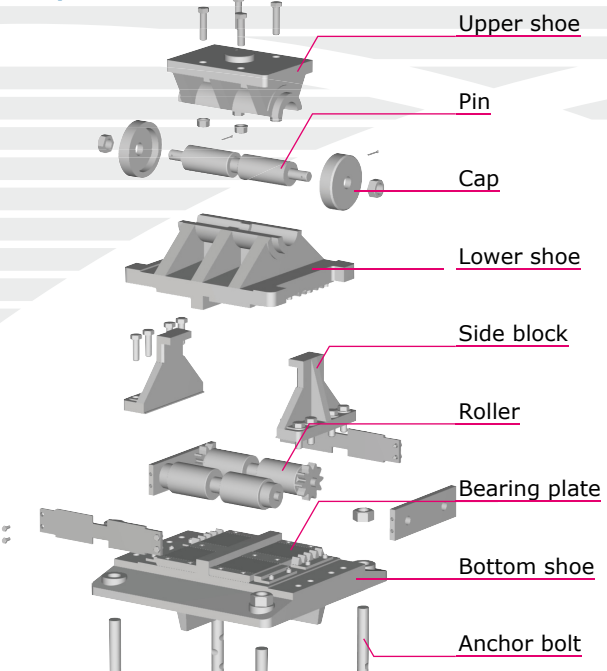
Pin Roller Bearing



Characteristics



» Exploded view



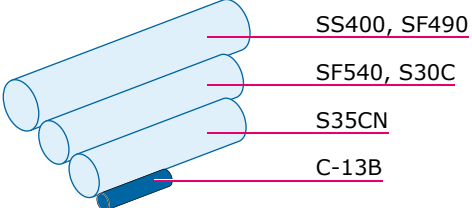
Roller Material Property

Special stainless steel (**C-13B**) has excellent properties for roller bearings, such as having distinct advantage of rustproofing, because of stainless steel, and expecting higher hardness of material as roller surface is treated by heat. (*Hardness of materials is very crucial for design of a roller, because the roller shape is dependent on hardness of material.)

» Relation between roller material and load bearing

Code name (Japanese standard)	Hardness (Brinell hardness)	Allowable bearing stress	Bearing load coefficient per unit length of roller	Bearing load ratio for C13B standard
	H_B	σ_{ba} (N/mm ²)	K_2	
SS400	125	600	10	0.10
S35CN	149	720	14	0.15
C-13B	475	1860	98	1

» Size of the rollers for identical load

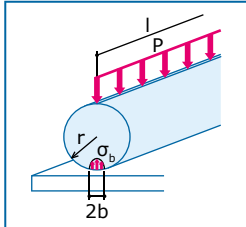


Note) Bearing load of rollers is checked in the following inequality.

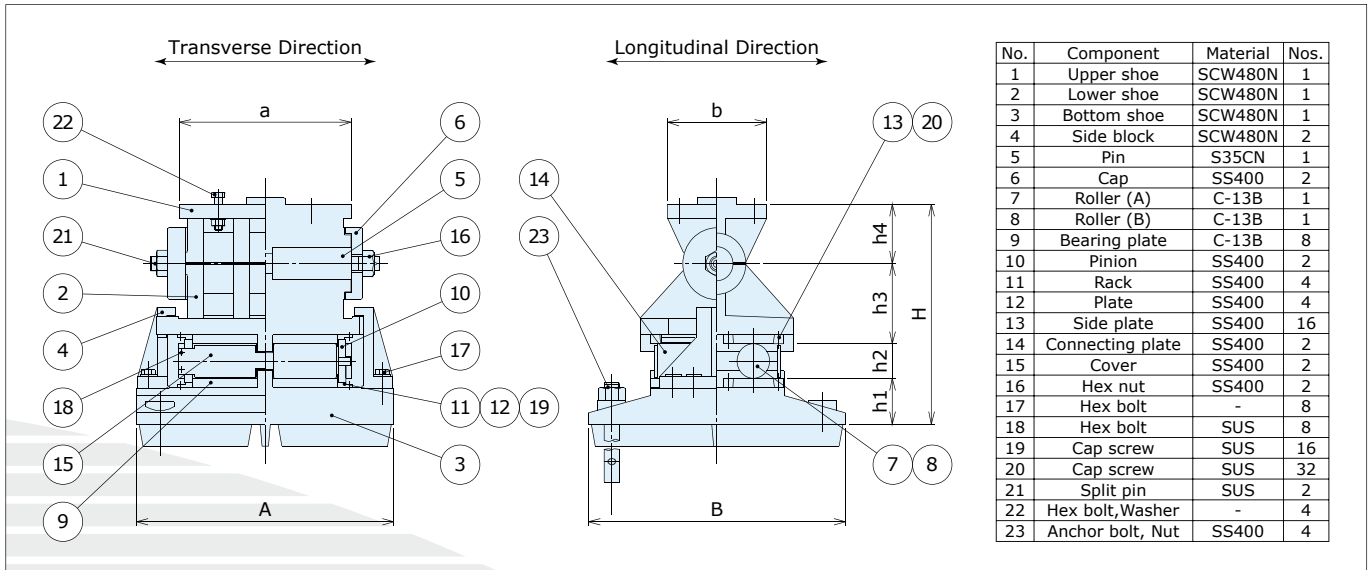
$$P \leq K_2 r l$$

P : Superstructure weight (N), l : Length of roller (mm), r : Radius of roller (mm)

$$K_2 = 5.72 \frac{\sigma_{ba}^2}{2.0 \times 10^5} \quad \sigma_{ba} = \frac{100H_B}{2\{(H_B^2/900000)+1\}}$$



Standard Dimension



Total load R (kN)	Dead load Rd (kN)	Longitudinal force (Earthquake) H ₁ (kN)	Transverse force (Earthquake) H ₂ (kN)	Uplift force (Earthquake) V (kN)	A (mm)	a (mm)	B (mm)	b (mm)	H (mm)	h ₁ (mm)	h ₂ (mm)	h ₃ (mm)	h ₄ (mm)	Bearing weight (kg)
1500	1200	289	289	143	630	340	630	250	510	105	80	185	140	525.0
1750	1400	289	289	143	650	360	650	250	520	106	80	189	145	559.3
2000	1600	366	366	172	670	360	670	260	540	109	80	201	150	11.6
2250	1800	408	408	186	690	380	690	280	580	117	105	209	150	727.5
2500	2000	498	498	226	720	400	720	280	590	119	105	211	155	812.3
2750	2200	498	498	226	750	410	750	280	605	123	105	217	160	875.5
3000	2400	598	598	258	770	440	770	300	630	125	105	230	170	97938
3500	2800	706	706	321	830	480	830	330	660	133	105	237	185	1206.5
4000	3200	706	706	321	870	560	870	350	700	141	105	259	195	1388.2
4500	3600	855	855	380	920	620	920	380	755	155	125	275	200	1680.3
5000	4000	1017	1017	441	960	640	960	380	780	159	125	281	215	1918.2
5500	4400	1017	1017	441	990	660	990	380	800	167	125	293	215	2057.0
6000	4800	1194	1194	539	1040	670	1040	400	830	171	125	304	230	2339.0
6500	5200	1194	1194	539	1070	690	1070	420	845	177	125	313	230	2503.8
7000	5600	1385	1385	626	1110	690	1110	420	880	182	140	328	230	2776.7
7500	6000	1385	1385	626	1140	720	1140	450	915	188	140	347	240	2985.6
8000	6400	1590	1590	707	1200	750	1200	460	970	202	160	363	245	3495.5
9000	7200	1809	1809	789	1260	790	1260	480	1025	209	160	411	245	3993.7
10000	8000	1809	1809	811	1310	830	1310	500	1060	216	160	434	250	4348.1
11000	8800	2042	2042	926	1350	850	1350	530	1120	221	180	449	270	5039.1
12000	9600	2290	2290	1031	1390	900	1390	550	1140	226	180	454	280	5553.2
13000	10400	2551	2551	1129	1440	930	1440	580	1180	232	180	473	295	6279.0
14000	11200	2827	2827	1237	1490	960	1490	600	1150	209	140	491	310	6881.6
15000	12000	2827	2827	1237	1530	960	1230	620	1175	214	140	501	320	7360.7

Note) Rolling friction force = $R \times 0.05$
Movable displacement = ± 210
Substructure RC $\sigma_{ck} = 21$
Superstructure Steel $\sigma_y = 275$

If you would like further information, please contact us.
Other than the above-mentioned standard, we are also available to designs requested.



Kawakin Core-Tech Co., Ltd.

Head office : 18-19, Miyacho, Kawaguchi-city, Saitama, 332-8502, JAPAN
Tel. +81-48-259-1113 Fax. +81-48-259-1137
Branch office : Yuki / Osaka / Sendai / Fukuoka
Representative Office : Hanoi (Vietnam)

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