

SUPFLEX Parallel Taut shock absorber mooring

Installation & User's Manual for SB SUPFLEX

2020 SUPFLEX

MOORING SYSTEM DESIGNED FOR A LIFETIME

Supflex Mooring System successfully tested for 355 years tidal cycle with Auto Cycle Pulling Machine on revival pulling for 3,110,400 seconds (36 days) nonstop at 60% elongation



Hurricane Proof

Since 2003, Supflex mooring systems have been tested by over 100 hurricanes globally with no failure rate



Environmental

Engineered with nano technology and cutting edge materials that are durable and environmentally friendly



Tested and Trusted

Rigorously tested by Zwick/ Roell, ABS, DNV and Marine Engineering Academia. Examined by HKAA and BMT.

A sustainable and tailored solution

We are the most dependable solution on the market with 15 years warranty and our products are designed and tailored to our customers' needs. We are here to help you, contact us for more information or for a quote.

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SUPFLEX Parallel Taut shock absorber mooring

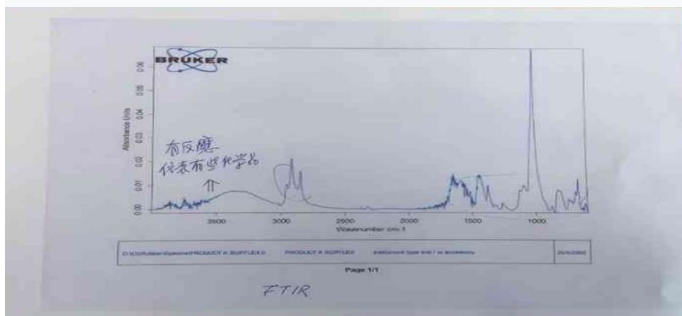
Installation Manual for SB SUPFLEX

SUPFLEX SB is Ultra Nano High Technology elastic full synthetic fibers rubber rope (Bar)

A product of Ultra Nano Technology High quality full synthetic fibers rubber rope bar (CEINS), it is good for taut elastic shock absorber product for tidal or for rough wind & wave area mooring industry. Please read this instruction manual carefully before use and install it, must under follow the guidance of a license senior engineer after correct calculation result indication.

Products suitable for environmental protection, including aramid, nylon, ultra-high polymer, carbon fiber and other fibers, and composite rubber bodies containing Neoprene, EPDM, Butyl, Natural rubber, Styrene butadiene rubber... etc. A high-tech composite rubber body made of elastic cable tension spring and containing nano and micro chemical materials.

SUPFLEX TEST RESULT BY MICROWAVE SEARCH



SUPFLEX external metal materials: use #316 stainless steel with higher quality sleeve shank pan head combination, and with #316 stainless steel or higher quality M22 bolts.

The SUPFLEX a single strand composite rubber high-elastic cable tension spring, the minimum breaking load force of each group of its single strand model is more than 1.5 tons (14.7 KN or more).

The SUPFLEX rubber rope (bar) taut elastic operation 1.65 times, and can work in the low temperature of the water from minus 45 degrees to 45 degrees above zero. When the extension is lower than 65%, its normal tidal water level difference service life can be more than 10 years above. (It stretches its life back and forth within the range of 65% extension, and can be used for more than 73,000 times (>100 years cycle of back-and-forth stretching with tide level difference))

Operating temperature: +45°C ~ -45°C (minus 45°C)

Each single strand tensile force for operation use: general normal operation: 650 kg, for short-term high load limit operation: 1,200 kg, minimum breaking load force: 1,500 kg.

Use range: limited with water in sea water or fresh water condition.

Without EVA sleeve protection, please must avoid long-term direct exposure to sunlight.

This SUPFLEX® super elastic rubber cable has a 10-year warranty for use in seawater or freshwater (commitment and regulations are as contract mentioned)

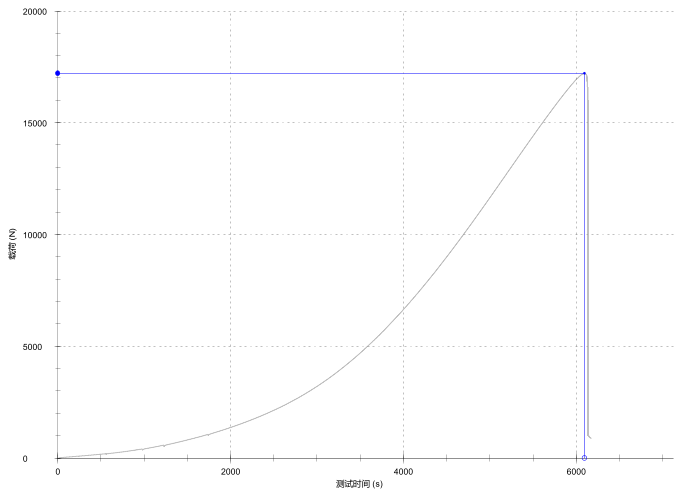
1. Step one: Seabed Survey & Positioning

- A.) Dedicated your dock seabed soil study survey, for check seabed soil holding capacity with each anchor sea level position, and choice which anchor type to mooring.
- B.) DGPS all your anchors positioning in a correct taut elastic mooring length range within 65% elongation.



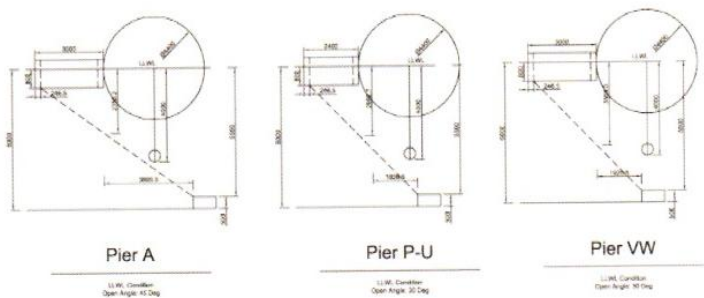
2. Step two: Check your parking boat or ship draft and your dock width for SUPFLEX mooring from elongation 10% - 60% safety must without any friction happen.

- **SUPFLEX SB Single strands model D27 tension within elongation E68% & time (on each 0.01 sec) test chart. (with 6,096 Secs)**



- **SUPFLEX SB D27mm E68% test with 6096 Sec**
- **Mooring must consider avoid any friction happen on SUPFLEX rope**

Check Sailing Boat Hull vs Mooring Line

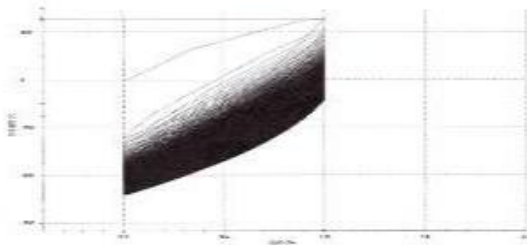


3. Step Three: Calculate Shock Absorber only need

30% of the 5 secs period energy absorbed.

Because the worst high wave of a storm is a continuous burst of impact force at the peak of the cycle within 5 seconds, the SUPFLEX super elastic cable, which absorbs the hurricane wave force, is explained as follows. We choice the 4-dimensional space method (including time

Supflex D26 rubber rope 1782 times fatigue test under each 5 sec cycle pulling

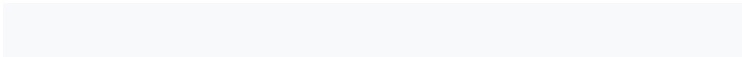


absorb control). The calculation and absorption show its anti-typhoon wave force. In the design of floating equipment, the ultra-high elastic mooring system has considered the fourth dimension: each 0.01- 0.1 second time, because it is a vector force belonging to the wind, and the spiral force is taxed. The relative force in different periods of time is a complex variable direction force, so now we use the cumulative power energy with time to count the total energy received (JOULES).

- 3.1. During this period, it needs to follow the line to accumulate the simultaneous occurrence. The energy force in the base period of time makes it the variable space surge bubble combined vector energy (joules), rather than simply calculating the horizontal or straight or spiral vector XY.Zka (or inclination) total force.
- 3.2. In the complex energy calculation solution, the interactive response energy is generally calculated during 5-10 seconds under each hurricane high pressure (the strongest wave energy during the most slippery hurricane wave), and avoid the super-SUPFLEX elastic error is used. When setting the system, you can calculate the energy change force that occurs in each section of the force test table every 0.01-0.1 second in accordance with the engineer's delicate test report.
- 3.3. The energy absorption is absorbed by the super elastic body. In this user manual, we select the elastic percentage change of the super elastic elongation as follows, such as within each 5 seconds during the elongation period, the following is an example if the absorption rate is at 11%, 21%, and 34. % And 42% and 62% of the test. (Detail as following test result)

Elongation 11.76%

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.				
490.617	8.1870	11.6957	763.05	8389	48	0.0099	11.6957%	11.7617%
490.751	8.1882	11.6974	763.15	8390	48	0.0099	3.91 secs	Absorb
490.893	8.1894	11.6991	763.26	8391	48	0.0099	Kilo Joule	11.05 KJ.
490.577	8.1906	11.7009	763.36	8392	48	0.0099		
490.585	8.1909	11.7013	763.37	8393	48	0.0099		
490.830	8.1918	11.7026	763.47	8394	48	0.0099		
490.917	8.1930	11.7043	763.57	8395	48	0.0099		
490.846	8.1945	11.7064	763.68	8396	48	0.0099		
490.956	8.1945	11.7064	763.70	8397	48	0.0099		
490.941	8.1957	11.7081	763.79	8398	48	0.0099		
490.822	8.1969	11.7099	763.89	8399	48	0.0099		
490.956	8.1984	11.7120	764.00	8400	48	0.0099		
490.933	8.1996	11.7137	764.11	8401	48	0.0099		
491.122	8.2008	11.7154	764.22	8402	48	0.0099		
491.154	8.2011	11.7159	764.24	8403	48	0.0099		
491.351	8.2020	11.7171	764.32	8404	48	0.0099		
491.217	8.2032	11.7189	764.43	8405	48	0.0099		
491.241	8.2044	11.7206	764.53	8406	48	0.0099		
491.312	8.2059	11.7227	764.64	8407	48	0.0099		
491.557	8.2068	11.7240	764.74	8408	48	0.0099		
491.414	8.2083	11.7261	764.85	8409	48	0.0099		
491.446	8.2095	11.7279	764.95	8410	48	0.0099		
491.572	8.2107	11.7296	765.06	8411	48	0.0099		
491.738	8.2113	11.7304	765.10	8412	48	0.0099		
491.580	8.2119	11.7313	765.16	8413	48	0.0099		
491.604	8.2131	11.7330	765.27	8414	48	0.0099		
491.683	8.2143	11.7347	765.37	8415	48	0.0099		
491.572	8.2158	11.7369	765.48	8416	48	0.0099		
491.659	8.2170	11.7386	765.58	8417	48	0.0099		
491.825	8.2182	11.7403	765.69	8418	48	0.0099		
491.841	8.2194	11.7420	765.80	8419	48	0.0099		
491.959	8.2200	11.7429	765.85	8420	48	0.0099		
491.928	8.2206	11.7437	765.90	8421	48	0.0099		
491.983	8.2215	11.7450	765.96	8422	48	0.0099		
491.951	8.2221	11.7459	766.01	8423	48	0.0099		
492.038	8.2233	11.7476	766.12	8424	48	0.0099		
492.046	8.2245	11.7493	766.23	8425	48	0.0099		
491.928	8.2257	11.7510	766.33	8426	48	0.0099		
492.015	8.2272	11.7531	766.44	8427	48	0.0099		
492.007	8.2284	11.7549	766.54	8428	48	0.0099		
492.212	8.2296	11.7566	766.65	8429	48	0.0099		
491.904	8.2308	11.7583	766.75	8430	48	0.0099		
492.030	8.2317	11.7596	766.82	8431	48	0.0099	11.6957%	11.7617%
492.196	8.2320	11.7600	766.86	8432	48	0.0099	3.91 secs	Absorb
492.386	8.2332	11.7617	766.96	8433	48	0.0099	Kilo Joule	11.05



Elongation 21.07%

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.			
717.65	14.70	21.00	1301.31	14251	48	0.0099	21%-
717.57	14.70	21.00	1301.41	14252	48	0.0099	4.02 secs
717.49	14.70	21.00	1301.52	14253	48	0.0099	Kilo Joule
717.50	14.70	21.01	1301.62	14254	48	0.0099	21.07%
717.61	14.71	21.01	1301.73	14255	48	0.0099	
717.70	14.71	21.01	1301.83	14256	48	0.0099	
717.74	14.71	21.01	1301.94	14257	48	0.0099	
717.73	14.71	21.01	1302.00	14258	48	0.0099	
717.92	14.71	21.01	1302.04	14259	48	0.0099	
717.91	14.71	21.02	1302.15	14260	48	0.0099	
717.61	14.71	21.02	1302.25	14261	48	0.0099	
717.99	14.71	21.02	1302.36	14262	48	0.0099	
717.85	14.71	21.02	1302.47	14263	48	0.0099	
718.06	14.72	21.02	1302.57	14264	48	0.0099	
718.17	14.72	21.02	1302.68	14265	48	0.0099	
718.18	14.72	21.03	1302.79	14266	48	0.0099	
718.18	14.72	21.03	1302.82	14267	48	0.0099	
718.21	14.72	21.03	1302.90	14268	48	0.0099	
718.07	14.72	21.03	1303.00	14269	48	0.0099	
718.06	14.72	21.03	1303.11	14270	48	0.0099	
718.17	14.72	21.03	1303.21	14271	48	0.0099	
718.40	14.73	21.04	1303.32	14272	48	0.0099	
718.18	14.73	21.04	1303.42	14273	48	0.0099	
718.27	14.73	21.04	1303.53	14274	48	0.0099	
718.30	14.73	21.04	1303.63	14275	48	0.0099	
718.31	14.73	21.04	1303.64	14276	48	0.0099	
718.33	14.73	21.04	1303.74	14277	48	0.0099	
718.51	14.73	21.05	1303.84	14278	48	0.0099	
718.51	14.73	21.05	1303.95	14279	48	0.0099	
718.66	14.73	21.05	1304.02	14280	48	0.0099	
718.58	14.73	21.05	1304.05	14281	48	0.0099	
718.67	14.74	21.05	1304.16	14282	48	0.0099	
718.58	14.74	21.05	1304.26	14283	48	0.0099	
718.66	14.74	21.05	1304.37	14284	48	0.0099	
718.68	14.74	21.06	1304.46	14285	48	0.0099	
718.69	14.74	21.06	1304.48	14286	48	0.0099	
718.86	14.74	21.06	1304.58	14287	48	0.0099	
718.66	14.74	21.06	1304.69	14288	48	0.0099	
719.01	14.74	21.06	1304.80	14289	48	0.0099	
718.78	14.75	21.06	1304.91	14290	48	0.0099	
718.97	14.75	21.07	1305.01	14291	48	0.0099	
718.94	14.75	21.07	1305.12	14292	48	0.0099	
719.14	14.75	21.07	1305.22	14293	48	0.0099	21%-
719.28	14.75	21.07	1305.27	14294	48	0.0099	4.02 secs
719.19	14.75	21.07	1305.33	14295	48	0.0099	Kilo Joule
							21.07%
							Absorb
							16.16

Elongation 34.64%

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.				
978.785	24.1950	34.5643	2022.88	22138	48	0.0099	34.56%	34.64%
978.833	24.1953	34.5647	2022.90	22139	48	0.0099	3.83 secs	Absorb
978.833	24.1965	34.5664	2023.00	22140	48	0.0099	Kilo Joule	22.53
978.856	24.1980	34.5686	2023.11	22141	48	0.0099		
978.951	24.1995	34.5707	2023.21	22142	48	0.0099		
979.101	24.2010	34.5729	2023.32	22143	48	0.0099		
979.054	24.2025	34.5750	2023.42	22144	48	0.0099		
979.141	24.2040	34.5771	2023.53	22145	48	0.0099		
979.070	24.2052	34.5789	2023.61	22146	48	0.0099		
979.062	24.2055	34.5793	2023.63	22147	48	0.0099		
979.070	24.2070	34.5814	2023.74	22148	48	0.0099		
979.070	24.2082	34.5831	2023.84	22149	48	0.0099		
979.464	24.2097	34.5853	2023.94	22150	48	0.0099		
979.528	24.2100	34.5857	2023.95	22151	48	0.0099		
979.362	24.2115	34.5879	2024.06	22152	48	0.0099		
979.464	24.2127	34.5896	2024.16	22153	48	0.0099		
979.591	24.2142	34.5917	2024.27	22154	48	0.0099		
979.607	24.2154	34.5934	2024.34	22155	48	0.0099		
979.599	24.2157	34.5939	2024.38	22156	48	0.0099		
979.504	24.2175	34.5964	2024.49	22157	48	0.0099		
979.709	24.2190	34.5986	2024.59	22158	48	0.0099		
979.741	24.2202	34.6003	2024.70	22159	48	0.0099		
979.678	24.2217	34.6024	2024.80	22160	48	0.0099		
979.812	24.2232	34.6046	2024.91	22161	48	0.0099		
979.551	24.2247	34.6067	2025.01	22162	48	0.0099		
979.607	24.2256	34.6080	2025.07	22163	48	0.0099		
979.662	24.2262	34.6089	2025.12	22164	48	0.0099		
979.757	24.2274	34.6106	2025.22	22165	48	0.0099		
979.844	24.2292	34.6131	2025.33	22166	48	0.0099		
979.859	24.2304	34.6149	2025.43	22167	48	0.0099		
980.017	24.2319	34.6170	2025.54	22168	48	0.0099		
979.757	24.2334	34.6191	2025.64	22169	48	0.0099		
980.065	24.2349	34.6213	2025.75	22170	48	0.0099		
980.049	24.2358	34.6226	2025.80	22171	48	0.0099		
980.088	24.2364	34.6234	2025.85	22172	48	0.0099		
980.325	24.2379	34.6256	2025.96	22173	48	0.0099		
980.088	24.2394	34.6277	2026.07	22174	48	0.0099		
980.144	24.2409	34.6299	2026.17	22175	48	0.0099		
980.246	24.2424	34.6320	2026.28	22176	48	0.0099		
980.349	24.2439	34.6341	2026.39	22177	48	0.0099		
980.467	24.2454	34.6363	2026.50	22178	48	0.0099		
980.625	24.2460	34.6371	2026.54	22179	48	0.0099		
980.610	24.2469	34.6384	2026.60	22180	48	0.0099		
980.412	24.2484	34.6406	2026.71	22181	48	0.0099	34.56%	34.64%
980.562	24.2499	34.6427	2026.81	22182	48	0.0099	3.83 secs	Absorb
980.357	24.2511	34.6444	2026.92	22183	48	0.0099	22.53	Kilo Joule

Elongation 42.08%

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.			
1173.39	29.4009	42.0013	2394.75	26267	48	0.0099	42.001%
1173.77	29.4024	42.0034	2394.85	26268	48	0.0099	4.02 secs
1173.50	29.4036	42.0051	2394.96	26269	48	0.0099	Kilo Joule
1173.77	29.4051	42.0073	2395.06	26270	48	0.0099	42.078%
1173.51	29.4066	42.0094	2395.17	26271	48	0.0099	Absorb
1173.82	29.4078	42.0111	2395.27	26272	48	0.0099	26.43 KJ.
1173.91	29.4090	42.0129	2395.34	26273	48	0.0099	
1173.95	29.4093	42.0133	2395.38	26274	48	0.0099	
1173.99	29.4108	42.0154	2395.48	26275	48	0.0099	
1174.09	29.4120	42.0171	2395.59	26276	48	0.0099	
1174.09	29.4135	42.0193	2395.69	26277	48	0.0099	
1174.30	29.4150	42.0214	2395.80	26278	48	0.0099	
1174.18	29.4165	42.0236	2395.91	26279	48	0.0099	
1174.53	29.4177	42.0253	2396.01	26280	48	0.0099	
1174.53	29.4192	42.0274	2396.11	26281	48	0.0099	
1174.50	29.4192	42.0274	2396.12	26282	48	0.0099	
1174.68	29.4207	42.0296	2396.23	26283	48	0.0099	
1174.53	29.4222	42.0317	2396.34	26284	48	0.0099	
1174.70	29.4234	42.0334	2396.44	26285	48	0.0099	
1174.82	29.4249	42.0356	2396.55	26286	48	0.0099	
1174.85	29.4264	42.0377	2396.65	26287	48	0.0099	
1174.79	29.4279	42.0399	2396.76	26288	48	0.0099	
1174.89	29.4291	42.0416	2396.86	26289	48	0.0099	
1174.90	29.4294	42.0420	2396.88	26290	48	0.0099	
1175.09	29.4306	42.0437	2396.97	26291	48	0.0099	
1175.02	29.4318	42.0454	2397.07	26292	48	0.0099	
1175.23	29.4336	42.0480	2397.18	26293	48	0.0099	
1175.27	29.4348	42.0497	2397.28	26294	48	0.0099	
1175.33	29.4351	42.0501	2397.30	26295	48	0.0099	
1175.45	29.4360	42.0514	2397.39	26296	48	0.0099	
1175.27	29.4375	42.0536	2397.49	26297	48	0.0099	
1175.23	29.4390	42.0557	2397.60	26298	48	0.0099	
1175.27	29.4396	42.0566	2397.64	26299	48	0.0099	
1175.46	29.4402	42.0574	2397.70	26300	48	0.0099	
1175.61	29.4417	42.0596	2397.81	26301	48	0.0099	
1175.58	29.4432	42.0617	2397.92	26302	48	0.0099	
1175.69	29.4447	42.0639	2398.02	26303	48	0.0099	
1175.74	29.4462	42.0660	2398.13	26304	48	0.0099	
1175.81	29.4474	42.0677	2398.24	26305	48	0.0099	
1175.79	29.4489	42.0699	2398.35	26306	48	0.0099	
1175.82	29.4498	42.0711	2398.40	26307	48	0.0099	
1175.86	29.4504	42.0720	2398.45	26308	48	0.0099	
1176.09	29.4519	42.0741	2398.56	26309	48	0.0099	42.001%
1175.99	29.4531	42.0759	2398.66	26310	48	0.0099	4.02 secs
1176.13	29.4546	42.0780	2398.77	26311	48	0.0099	Kilo Joule

Elongation 52.27%

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.		
2029.19	36.5502	52.2146	2998.17	33338	48	0.0099
2029.27	36.5514	52.2163	2998.27	33339	48	0.0099
2029.29	36.5517	52.2167	2998.30	33340	48	0.0099
2029.65	36.5523	52.2176	2998.38	33341	48	0.0099
2029.77	36.5535	52.2193	2998.48	33342	48	0.0099
2030.11	36.5547	52.2210	2998.59	33343	48	0.0099
2030.25	36.5556	52.2223	2998.69	33344	48	0.0099
2030.70	36.5568	52.2240	2998.80	33345	48	0.0099
2030.80	36.5580	52.2257	2998.91	33346	48	0.0099
2031.00	36.5589	52.2270	2999.01	33347	48	0.0099
2031.30	36.5601	52.2287	2999.10	33348	48	0.0099
2031.51	36.5601	52.2287	2999.12	33349	48	0.0099
2031.75	36.5613	52.2304	2999.23	33350	48	0.0099
2031.70	36.5619	52.2313	2999.27	33351	48	0.0099
2031.86	36.5625	52.2321	2999.34	33352	48	0.0099
2032.28	36.5634	52.2334	2999.44	33353	48	0.0099
2032.34	36.5637	52.2339	2999.46	33354	48	0.0099
2032.27	36.5646	52.2351	2999.55	33355	48	0.0099
2032.76	36.5658	52.2369	2999.65	33356	48	0.0099
2032.84	36.5670	52.2386	2999.76	33357	48	0.0099
2032.91	36.5679	52.2399	2999.86	33358	48	0.0099
2033.38	36.5688	52.2411	2999.95	33359	48	0.0099
2033.53	36.5691	52.2416	2999.97	33360	48	0.0099
2033.64	36.5700	52.2429	3000.07	33361	48	0.0099
2034.02	36.5712	52.2446	3000.18	33362	48	0.0099
2033.96	36.5721	52.2459	3000.25	33363	48	0.0099
2034.02	36.5724	52.2463	3000.28	33364	48	0.0099
2034.48	36.5730	52.2471	3000.35	33365	48	0.0099
2034.65	36.5736	52.2480	3000.39	33366	48	0.0099
2034.68	36.5745	52.2493	3000.49	33367	48	0.0099
2034.94	36.5757	52.2510	3000.60	33368	48	0.0099
2035.12	36.5766	52.2523	3000.70	33369	48	0.0099
2035.54	36.5775	52.2536	3000.77	33370	48	0.0099
2035.54	36.5778	52.2540	3000.81	33371	48	0.0099
2035.53	36.5790	52.2557	3000.92	33372	48	0.0099
2035.94	36.5799	52.2570	3001.02	33373	48	0.0099
2036.05	36.5811	52.2587	3001.13	33374	48	0.0099
2036.48	36.5823	52.2604	3001.23	33375	48	0.0099
2036.51	36.5823	52.2604	3001.24	33376	48	0.0099
2036.57	36.5823	52.2604	3001.25	33377	48	0.0099
2036.75	36.5835	52.2621	3001.35	33378	48	0.0099
2037.00	36.5844	52.2634	3001.45	33379	48	0.0099
2037.12	36.5856	52.2651	3001.56	33380	48	0.0099
2037.24	36.5868	52.2669	3001.66	33381	48	0.0099
2037.51	36.5877	52.2681	3001.77	33382	48	0.0099
2037.60	36.5880	52.2686	3001.80	33383	48	0.0099
2038.01	36.5889	52.2699	3001.87	33384	48	0.0099
2038.10	36.5901	52.2716	3001.98	33385	48	0.0099
2038.41	36.5910	52.2729	3002.08	33386	48	0.0099
2038.63	36.5919	52.2741	3002.17	33387	48	0.0099

52.21%52.27%
Dur. Time 4.00 secs
Abs. KJ44. 72

Elongation 62.06% - 1

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.				
4174.69	43.4001	62.0001	3664.07	42115	48	0.0099	62.0001%-	62.0589%
4174.96	43.4004	62.0006	3664.11	42116	48	0.0099	4.06 secs	Absorb
4175.5	43.4016	62.0023	3664.22	42117	48	0.0099	Kilo Joule	123.4 KJ.
4175.74	43.4019	62.0027	3664.25	42118	48	0.0099		
4176.10	43.4025	62.0036	3664.32	42119	48	0.0099		
4176.49	43.4037	62.0053	3664.43	42120	48	0.0099		
4176.82	43.4040	62.0057	3664.47	42121	48	0.0099		
4177.13	43.4049	62.0070	3664.54	42122	48	0.0099		
4177.54	43.4058	62.0083	3664.65	42123	48	0.0099		
4177.84	43.4070	62.0100	3664.74	42124	48	0.0099		
4177.92	43.4070	62.0100	3664.75	42125	48	0.0099		
4178.44	43.4079	62.0113	3664.86	42126	48	0.0099		
4178.52	43.4082	62.0117	3664.87	42127	48	0.0099		
4178.85	43.4085	62.0121	3664.92	42128	48	0.0099		
4179.15	43.4091	62.0130	3664.96	42129	48	0.0099		
4179.57	43.4103	62.0147	3665.07	42130	48	0.0099		
4179.89	43.4109	62.0156	3665.13	42131	48	0.0099		
4180.02	43.4112	62.0160	3665.17	42132	48	0.0099		
4180.56	43.4124	62.0177	3665.28	42133	48	0.0099		
4180.92	43.4130	62.0186	3665.36	42134	48	0.0099		
4180.94	43.4133	62.0190	3665.38	42135	48	0.0099		
4181.43	43.4145	62.0207	3665.49	42136	48	0.0099		
4181.63	43.4154	62.0220	3665.59	42137	48	0.0099		
4181.95	43.4160	62.0229	3665.66	42138	48	0.0099		
4182.39	43.4166	62.0237	3665.70	42139	48	0.0099		
4182.60	43.4175	62.0250	3665.80	42140	48	0.0099		
4182.95	43.4184	62.0263	3665.87	42141	48	0.0099		
4183.03	43.4184	62.0263	3665.88	42142	48	0.0099		
4183.25	43.4187	62.0267	3665.91	42143	48	0.0099		
4183.38	43.4196	62.0280	3666.01	42144	48	0.0099		
4184.09	43.4208	62.0297	3666.11	42145	48	0.0099		
4184.11	43.4208	62.0297	3666.12	42146	48	0.0099		
4184.38	43.4220	62.0314	3666.23	42147	48	0.0099		
4185.03	43.4229	62.0327	3666.33	42148	48	0.0099		
4185.10	43.4229	62.0327	3666.34	42149	48	0.0099		
4185.57	43.4241	62.0344	3666.44	42150	48	0.0099		
4186.12	43.4253	62.0361	3666.55	42151	48	0.0099		
4186.37	43.4262	62.0374	3666.66	42152	48	0.0099		
4186.90	43.4271	62.0387	3666.76	42153	48	0.0099		
4187.15	43.4280	62.0400	3666.83	42154	48	0.0099		
4187.31	43.4283	62.0404	3666.87	42155	48	0.0099		
4187.37	43.4286	62.0409	3666.88	42156	48	0.0099		
4187.86	43.4295	62.0421	3666.97	42157	48	0.0099		
4188.17	43.4304	62.0434	3667.06	42158	48	0.0099		
4188.21	43.4307	62.0439	3667.08	42159	48	0.0099		
4188.67	43.4316	62.0451	3667.18	42160	48	0.0099		

Elongation 62.06% - 2

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.			
4189.19	43.4325	62.0464	3667.27	42161	48	0.0099	
4189.39	43.4325	62.0464	3667.29	42162	48	0.0099	
4189.88	43.4337	62.0481	3667.39	42163	48	0.0099	
4190.20	43.4349	62.0499	3667.50	42164	48	0.0099	
4190.54	43.4358	62.0511	3667.60	42165	48	0.0099	
4191.14	43.4370	62.0529	3667.71	42166	48	0.0099	
4191.25	43.4373	62.0533	3667.75	42167	48	0.0099	
4191.55	43.4379	62.0541	3667.81	42168	48	0.0099	
4191.86	43.4388	62.0554	3667.89	42169	48	0.0099	
4192.13	43.4391	62.0559	3667.92	42170	48	0.0099	
4192.30	43.4391	62.0559	3667.94	42171	48	0.0099	62.0001%-
4192.66	43.4400	62.0571	3668.02	42172	48	0.0099	4.06 secs
4193.17	43.4412	62.0589	3668.13	42173	48	0.0099	Absorb Kilojoule 123.4

This is SUPFLEX SB installation and user's manual

Hope you enjoy your SUPFLEX mooring works.

If any question, do not hesitate to contact me with email

william@supflex.com or supflex@126.com

Thanks

By William YPH

at San Jose California U.S.A.



SUPFLEX 超博高强度弹性平行减震器锚定系统

使用及安装手册

2020 SUPFLEX

MOORING SYSTEM DESIGNED FOR A LIFETIME

Supflex Mooring System successfully tested for 355 years tidal cycle with Auto Cycle Pulling Machine on revival pulling for 3,110,400 seconds (36 days) nonstop at 60% elongation.



Hurricane Proof

Since 2003, Supflex mooring systems have been tested by over 100 hurricanes globally with no failure rate.



Environmental

Engineered with nano technology and cutting edge materials that are durable and environmentally friendly.



Tested and Trusted

Rigorously tested by Zwick/ Roell, ABS, DNV and Marine Engineering Academia. Examined by HKAA and BMT.

A sustainable and tailored solution

We are the most dependable solution on the market with 15 years warranty and our products are designed and tailored to our customers' needs. We are here to help you, contact us for more information or for a quote.

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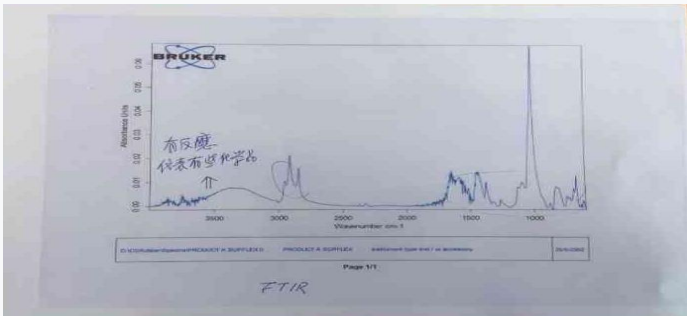
(Chinese Translation)

SUPFLEX 超博高强度弹性平行减震器锚定系统
使用及安装手册

SUPFLEX SB 是超博超高强度纳米高科技弹性复合成纤维橡胶绳（棒），本超博纳米超高强度弹性锚定技术产品 优质复合成纤维橡胶绳棒（CEINS），适用于潮汐或大风浪区系泊行业的需强力紧固锚定的弹性减震产品。使用前务必详细阅读本使用安装手册，安装前必须在正确的计算结果后，并在有执照的高级工程师的指导下进行安装。

本产品系环保的产品，内含包括芳纶、尼龙、超高聚物、碳纤维等纤维，以及含有氯丁橡胶、三元乙丙橡胶、丁基橡胶、天然橡胶、苯乙烯丁二烯橡胶.....等的复合橡胶高强度弹性体。是一种高科技复合橡胶主体能弹性拉伸弹簧制成，它是含有纳米和微米级化学复合的紧固材料。

SUPFLEX 纳米纤维复合材料的微波测试结果



SUPFLEX SB 的外部金属材料：使用#316 不锈钢或更高品质的套筒柄盘头组合，并搭配#316 不锈钢或更高品质的 M22 螺栓。

超博单股复合橡胶高弹拉索拉簧，其单股型号每组最小破断载荷力大于 1.5 吨（14.7kN 以上）。

超博橡胶弹性索（棒），其拉紧延伸弹性 1.65 倍，并可在摄氏零下 45 度的低温，至摄氏 45 度内的高温水环境下工作。当延伸率低于 65%时，其正常潮水位差使用寿命可达 10 年以上。（在 65%延伸范围内来回拉伸寿命，可使用 73000 次以上（>100 年循环周期随潮位差来回拉伸））

工作温度：+45° C ~ -45° C（负 45° C）

单股操作作用拉力：一般正常操作：650kg，短期高负荷极限操作：1200kg，最低破断负荷力：1500kg。

使用范围：安装需在海水或淡水的无污染水里为限。

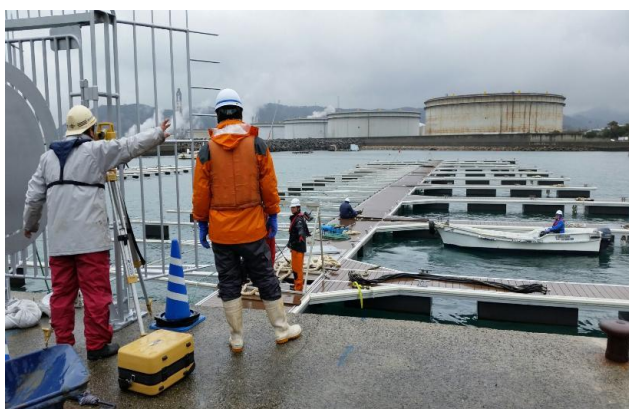
如果没有全 EVA 护套保护时，请务必避免长期直接暴露在阳光下。

本 SUPFLEX® 超弹性橡胶索具有 10 年保修期，适用于海水或淡水（承诺和规定如合同所述）

1. 第一步：需做锚位海底勘测定位

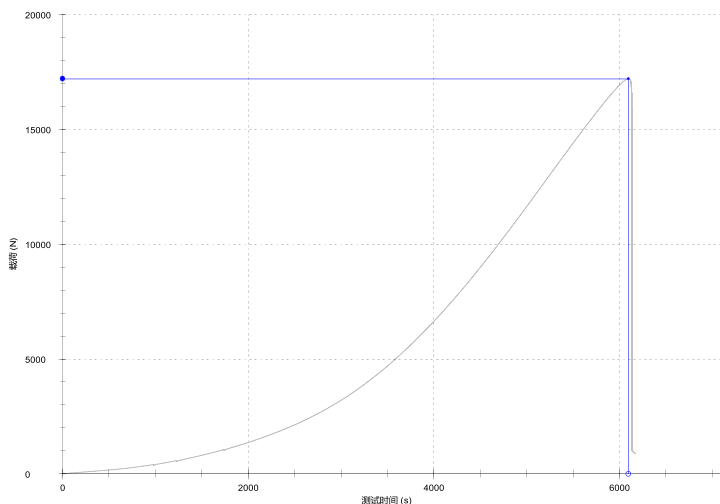
A.) 专门为您的码头海底土壤研究调查，检查每个锚点海平面位置的海底土壤承载及拉拔能量，再选择系泊的锚点类型（重量锚块或钻地下的杆锚）。

B.) 用差分定位仪 DGPS 把所有的锚必须安装在定位与正确的来回拉紧弹性系泊长度范围内（弹性伸长率限在 62% 以内）。



2. 第二步：设计安装时，需检查您的停泊船或工作平台它的吃水以及它们的宽度，以便超博弹性索的系泊是在伸长率 10% - 60% 的安全范围内，并必须避免任何物体与弹性索间，严禁在伸缩时会产生摩擦发生。

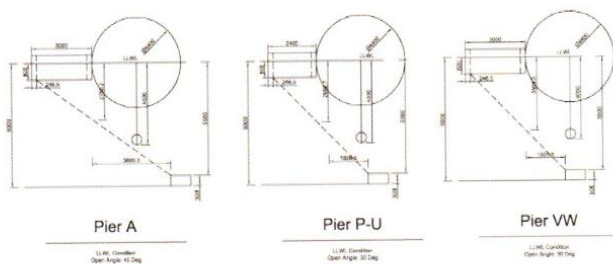
SUPFLEX SB Single strands model D27 tension within elongation E68% & time **(on each 0.01 sec) test chart. (with 6,096 Secs)**



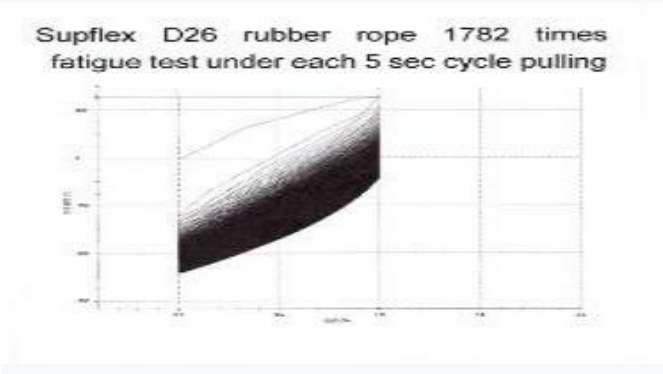
- SUPFLEX SB D27mm E68% test with 6096 Sec

*** 安装超博弹性索前,工程师务必制图检查船底与锚索的位置,绝对需避免有任何磨擦的现象发生.**

Check Sailing Boat Hull vs Mooring Line



3. 第三步：如何去计算，并采用减震器仅吸收在 5 秒周期的能量力的 30%。



因为地球上目前风暴最严重的高浪是在 5 秒内循环的峰值处，会连续爆发冲击力，所以发生如何吸收台风波力的超弹性弹性索的说明如下。首先，我们需选择四维空间法的概念（指在某时间段内的能量力的吸收与控制）。由于计算和吸收表明其抗台风波浪力。在漂浮设备的设计中，超博高弹性系泊系统已经考虑到了时间的维度：在每 0.01-0.1 秒一次，因为台风及大的暴风它是一个属于螺旋力的矢量力。

- 3. 1. 它会在不同时期的相对力强弱有时是发生变化的。因为在不同时间段的相对力是一个复杂的变向力，所以现在我们才选用随时间累积的功率能量（JOULES），来计算浮台锚定系统所接收到的总能量力（JOULES）。在此期间，需要积累计算沿拉力线下方同时发生的基期能量力，使其成为可计算的空间时间所组合矢量能量（焦耳）力，而不是简单地计算水平或直线或侧边的矢量 XY Z 方向总力。
- 3. 2. 在复杂的能量计算方案中，交互响应能量一般在每次台风高压下（目前地球上最大的台风波时最强的波能）计算 5-10 秒，避免发生计算使用 SUPFLEX 弹性时的误差。设置系统时，可以根据工程师的精密测试报告，计算出力测试表每 0.01-0.1 秒累计各段发生的

能量变化力。（再依在吸收 30% 的能量力下，超博的弹性锚定系统仍然还安全的话，那才合格。）

- 3.3. 四维能量力被超博弹性体的吸收。在本测试数据中，我们选择超博弹性索伸长率的弹性百分比变化如下。例如：在伸长期间每 5 秒内，以下是吸收率在 11%、21% 和 34 时的示例。% 和 42% 和 62% 的测试。（详情如下测试结果）



Elongation 11.76% （彈性索延申 11%左右時）

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.				
490.617	8.1870	11.6957	763.05	8389	48	0.0099	11.6957%	11.7617%
490.751	8.1882	11.6974	763.15	8390	48	0.0099	3.91 secs	Absorb
490.893	8.1894	11.6991	763.26	8391	48	0.0099	Kilo Joule	11.05 KJ.
490.577	8.1906	11.7009	763.36	8392	48	0.0099		
490.585	8.1909	11.7013	763.37	8393	48	0.0099		
490.830	8.1918	11.7026	763.47	8394	48	0.0099		
490.917	8.1930	11.7043	763.57	8395	48	0.0099		
490.846	8.1945	11.7064	763.68	8396	48	0.0099		
490.956	8.1945	11.7064	763.70	8397	48	0.0099		
490.941	8.1957	11.7081	763.79	8398	48	0.0099		
490.822	8.1969	11.7099	763.89	8399	48	0.0099		
490.956	8.1984	11.7120	764.00	8400	48	0.0099		
490.933	8.1996	11.7137	764.11	8401	48	0.0099		
491.122	8.2008	11.7154	764.22	8402	48	0.0099		
491.154	8.2011	11.7159	764.24	8403	48	0.0099		
491.351	8.2020	11.7171	764.32	8404	48	0.0099		
491.217	8.2032	11.7189	764.43	8405	48	0.0099		
491.241	8.2044	11.7206	764.53	8406	48	0.0099		
491.312	8.2059	11.7227	764.64	8407	48	0.0099		
491.557	8.2068	11.7240	764.74	8408	48	0.0099		
491.414	8.2083	11.7261	764.85	8409	48	0.0099		
491.446	8.2095	11.7279	764.95	8410	48	0.0099		
491.572	8.2107	11.7296	765.06	8411	48	0.0099		
491.738	8.2113	11.7304	765.10	8412	48	0.0099		
491.580	8.2119	11.7313	765.16	8413	48	0.0099		
491.604	8.2131	11.7330	765.27	8414	48	0.0099		
491.683	8.2143	11.7347	765.37	8415	48	0.0099		
491.572	8.2158	11.7369	765.48	8416	48	0.0099		
491.659	8.2170	11.7386	765.58	8417	48	0.0099		
491.825	8.2182	11.7403	765.69	8418	48	0.0099		
491.841	8.2194	11.7420	765.80	8419	48	0.0099		
491.959	8.2200	11.7429	765.85	8420	48	0.0099		
491.928	8.2206	11.7437	765.90	8421	48	0.0099		
491.983	8.2215	11.7450	765.96	8422	48	0.0099		
491.951	8.2221	11.7459	766.01	8423	48	0.0099		
492.038	8.2233	11.7476	766.12	8424	48	0.0099		
492.046	8.2245	11.7493	766.23	8425	48	0.0099		
491.928	8.2257	11.7510	766.33	8426	48	0.0099		
492.015	8.2272	11.7531	766.44	8427	48	0.0099		
492.007	8.2284	11.7549	766.54	8428	48	0.0099		
492.212	8.2296	11.7566	766.65	8429	48	0.0099		
491.904	8.2308	11.7583	766.75	8430	48	0.0099		
492.030	8.2317	11.7596	766.82	8431	48	0.0099	11.6957%	11.7617%
492.196	8.2320	11.7600	766.86	8432	48	0.0099	3.91 secs	Absorb
492.386	8.2332	11.7617	766.96	8433	48	0.0099	Kilo Joule	11.05

Elongation 21.07% （彈性索延申 21%左右時）

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.			
717.65	14.70	21.00	1301.31	14251	48	0.0099	21%-
717.57	14.70	21.00	1301.41	14252	48	0.0099	4.02 secs
717.49	14.70	21.00	1301.52	14253	48	0.0099	Kilo Joule
717.50	14.70	21.01	1301.62	14254	48	0.0099	16.16 KJ.
717.61	14.71	21.01	1301.73	14255	48	0.0099	
717.70	14.71	21.01	1301.83	14256	48	0.0099	
717.74	14.71	21.01	1301.94	14257	48	0.0099	
717.73	14.71	21.01	1302.00	14258	48	0.0099	
717.92	14.71	21.01	1302.04	14259	48	0.0099	
717.91	14.71	21.02	1302.15	14260	48	0.0099	
717.61	14.71	21.02	1302.25	14261	48	0.0099	
717.99	14.71	21.02	1302.36	14262	48	0.0099	
717.85	14.71	21.02	1302.47	14263	48	0.0099	
718.06	14.72	21.02	1302.57	14264	48	0.0099	
718.17	14.72	21.02	1302.68	14265	48	0.0099	
718.18	14.72	21.03	1302.79	14266	48	0.0099	
718.18	14.72	21.03	1302.82	14267	48	0.0099	
718.21	14.72	21.03	1302.90	14268	48	0.0099	
718.07	14.72	21.03	1303.00	14269	48	0.0099	
718.06	14.72	21.03	1303.11	14270	48	0.0099	
718.17	14.72	21.03	1303.21	14271	48	0.0099	
718.40	14.73	21.04	1303.32	14272	48	0.0099	
718.18	14.73	21.04	1303.42	14273	48	0.0099	
718.27	14.73	21.04	1303.53	14274	48	0.0099	
718.30	14.73	21.04	1303.63	14275	48	0.0099	
718.31	14.73	21.04	1303.64	14276	48	0.0099	
718.33	14.73	21.04	1303.74	14277	48	0.0099	
718.51	14.73	21.05	1303.84	14278	48	0.0099	
718.51	14.73	21.05	1303.95	14279	48	0.0099	
718.66	14.73	21.05	1304.02	14280	48	0.0099	
718.58	14.73	21.05	1304.05	14281	48	0.0099	
718.67	14.74	21.05	1304.16	14282	48	0.0099	
718.58	14.74	21.05	1304.26	14283	48	0.0099	
718.66	14.74	21.05	1304.37	14284	48	0.0099	
718.68	14.74	21.06	1304.46	14285	48	0.0099	
718.69	14.74	21.06	1304.48	14286	48	0.0099	
718.86	14.74	21.06	1304.58	14287	48	0.0099	
718.66	14.74	21.06	1304.69	14288	48	0.0099	
719.01	14.74	21.06	1304.80	14289	48	0.0099	
718.78	14.75	21.06	1304.91	14290	48	0.0099	
718.97	14.75	21.07	1305.01	14291	48	0.0099	
718.94	14.75	21.07	1305.12	14292	48	0.0099	
719.14	14.75	21.07	1305.22	14293	48	0.0099	21%-
719.28	14.75	21.07	1305.27	14294	48	0.0099	4.02 secs
719.19	14.75	21.07	1305.33	14295	48	0.0099	Kilo Joule

Elongation 34.64%（弾性索延申 34%左右時）

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.				
978.785	24.1950	34.5643	2022.88	22138	48	0.0099	34.56%	34.64%
978.833	24.1953	34.5647	2022.90	22139	48	0.0099	3.83 secs	Absorb
978.833	24.1965	34.5664	2023.00	22140	48	0.0099	Kilo Joule	22.53
978.856	24.1980	34.5686	2023.11	22141	48	0.0099		
978.951	24.1995	34.5707	2023.21	22142	48	0.0099		
979.101	24.2010	34.5729	2023.32	22143	48	0.0099		
979.054	24.2025	34.5750	2023.42	22144	48	0.0099		
979.141	24.2040	34.5771	2023.53	22145	48	0.0099		
979.070	24.2052	34.5789	2023.61	22146	48	0.0099		
979.062	24.2055	34.5793	2023.63	22147	48	0.0099		
979.070	24.2070	34.5814	2023.74	22148	48	0.0099		
979.070	24.2082	34.5831	2023.84	22149	48	0.0099		
979.464	24.2097	34.5853	2023.94	22150	48	0.0099		
979.528	24.2100	34.5857	2023.95	22151	48	0.0099		
979.362	24.2115	34.5879	2024.06	22152	48	0.0099		
979.464	24.2127	34.5896	2024.16	22153	48	0.0099		
979.591	24.2142	34.5917	2024.27	22154	48	0.0099		
979.607	24.2154	34.5934	2024.34	22155	48	0.0099		
979.599	24.2157	34.5939	2024.38	22156	48	0.0099		
979.504	24.2175	34.5964	2024.49	22157	48	0.0099		
979.709	24.2190	34.5986	2024.59	22158	48	0.0099		
979.741	24.2202	34.6003	2024.70	22159	48	0.0099		
979.678	24.2217	34.6024	2024.80	22160	48	0.0099		
979.812	24.2232	34.6046	2024.91	22161	48	0.0099		
979.551	24.2247	34.6067	2025.01	22162	48	0.0099		
979.607	24.2256	34.6080	2025.07	22163	48	0.0099		
979.662	24.2262	34.6089	2025.12	22164	48	0.0099		
979.757	24.2274	34.6106	2025.22	22165	48	0.0099		
979.844	24.2292	34.6131	2025.33	22166	48	0.0099		
979.859	24.2304	34.6149	2025.43	22167	48	0.0099		
980.017	24.2319	34.6170	2025.54	22168	48	0.0099		
979.757	24.2334	34.6191	2025.64	22169	48	0.0099		
980.065	24.2349	34.6213	2025.75	22170	48	0.0099		
980.049	24.2358	34.6226	2025.80	22171	48	0.0099		
980.088	24.2364	34.6234	2025.85	22172	48	0.0099		
980.325	24.2379	34.6256	2025.96	22173	48	0.0099		
980.088	24.2394	34.6277	2026.07	22174	48	0.0099		
980.144	24.2409	34.6299	2026.17	22175	48	0.0099		
980.246	24.2424	34.6320	2026.28	22176	48	0.0099		
980.349	24.2439	34.6341	2026.39	22177	48	0.0099		
980.467	24.2454	34.6363	2026.50	22178	48	0.0099		
980.625	24.2460	34.6371	2026.54	22179	48	0.0099		
980.610	24.2469	34.6384	2026.60	22180	48	0.0099		
980.412	24.2484	34.6406	2026.71	22181	48	0.0099	34.56%	34.64%
980.562	24.2499	34.6427	2026.81	22182	48	0.0099	3.83 secs	Absorb
980.357	24.2511	34.6444	2026.92	22183	48	0.0099	22.53	Kilo Joule

Elongation 42.08%（彈性索延申 42%左右時）

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.			
1173.39	29.4009	42.0013	2394.75	26267	48	0.0099	42.001%
1173.77	29.4024	42.0034	2394.85	26268	48	0.0099	4.02 secs
1173.50	29.4036	42.0051	2394.96	26269	48	0.0099	Kilo Joule
1173.77	29.4051	42.0073	2395.06	26270	48	0.0099	26.43 K.J.
1173.51	29.4066	42.0094	2395.17	26271	48	0.0099	
1173.82	29.4078	42.0111	2395.27	26272	48	0.0099	
1173.91	29.4090	42.0129	2395.34	26273	48	0.0099	
1173.95	29.4093	42.0133	2395.38	26274	48	0.0099	
1173.99	29.4108	42.0154	2395.48	26275	48	0.0099	
1174.09	29.4120	42.0171	2395.59	26276	48	0.0099	
1174.09	29.4135	42.0193	2395.69	26277	48	0.0099	
1174.30	29.4150	42.0214	2395.80	26278	48	0.0099	
1174.18	29.4165	42.0236	2395.91	26279	48	0.0099	
1174.53	29.4177	42.0253	2396.01	26280	48	0.0099	
1174.53	29.4192	42.0274	2396.11	26281	48	0.0099	
1174.50	29.4192	42.0274	2396.12	26282	48	0.0099	
1174.68	29.4207	42.0296	2396.23	26283	48	0.0099	
1174.53	29.4222	42.0317	2396.34	26284	48	0.0099	
1174.70	29.4234	42.0334	2396.44	26285	48	0.0099	
1174.82	29.4249	42.0356	2396.55	26286	48	0.0099	
1174.85	29.4264	42.0377	2396.65	26287	48	0.0099	
1174.79	29.4279	42.0399	2396.76	26288	48	0.0099	
1174.89	29.4291	42.0416	2396.86	26289	48	0.0099	
1174.90	29.4294	42.0420	2396.88	26290	48	0.0099	
1175.09	29.4306	42.0437	2396.97	26291	48	0.0099	
1175.02	29.4318	42.0454	2397.07	26292	48	0.0099	
1175.23	29.4336	42.0480	2397.18	26293	48	0.0099	
1175.27	29.4348	42.0497	2397.28	26294	48	0.0099	
1175.33	29.4351	42.0501	2397.30	26295	48	0.0099	
1175.45	29.4360	42.0514	2397.39	26296	48	0.0099	
1175.27	29.4375	42.0536	2397.49	26297	48	0.0099	
1175.23	29.4390	42.0557	2397.60	26298	48	0.0099	
1175.27	29.4396	42.0566	2397.64	26299	48	0.0099	
1175.46	29.4402	42.0574	2397.70	26300	48	0.0099	
1175.61	29.4417	42.0596	2397.81	26301	48	0.0099	
1175.58	29.4432	42.0617	2397.92	26302	48	0.0099	
1175.69	29.4447	42.0639	2398.02	26303	48	0.0099	
1175.74	29.4462	42.0660	2398.13	26304	48	0.0099	
1175.81	29.4474	42.0677	2398.24	26305	48	0.0099	
1175.79	29.4489	42.0699	2398.35	26306	48	0.0099	
1175.82	29.4498	42.0711	2398.40	26307	48	0.0099	
1175.86	29.4504	42.0720	2398.45	26308	48	0.0099	
1176.09	29.4519	42.0741	2398.56	26309	48	0.0099	42.001%
1175.99	29.4531	42.0759	2398.66	26310	48	0.0099	4.02 secs
1176.13	29.4546	42.0780	2398.77	26311	48	0.0099	Kilo Joule

Elongation 62.06% -1 （彈性索延申 62%左右时-1）

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.				
4174.69	43.4001	62.0001	3664.07	42115	48	0.0099	62.0001%- 4.06 secs Kilo Joule	62.0589% Absorb 123.4 KJ.
4174.96	43.4004	62.0006	3664.11	42116	48	0.0099		
4175.5	43.4016	62.0023	3664.22	42117	48	0.0099		
4175.74	43.4019	62.0027	3664.25	42118	48	0.0099		
4176.10	43.4025	62.0036	3664.32	42119	48	0.0099		
4176.49	43.4037	62.0053	3664.43	42120	48	0.0099		
4176.82	43.4040	62.0057	3664.47	42121	48	0.0099		
4177.13	43.4049	62.0070	3664.54	42122	48	0.0099		
4177.54	43.4058	62.0083	3664.65	42123	48	0.0099		
4177.84	43.4070	62.0100	3664.74	42124	48	0.0099		
4177.92	43.4070	62.0100	3664.75	42125	48	0.0099		
4178.44	43.4079	62.0113	3664.86	42126	48	0.0099		
4178.52	43.4082	62.0117	3664.87	42127	48	0.0099		
4178.85	43.4085	62.0121	3664.92	42128	48	0.0099		
4179.15	43.4091	62.0130	3664.96	42129	48	0.0099		
4179.57	43.4103	62.0147	3665.07	42130	48	0.0099		
4179.89	43.4109	62.0156	3665.13	42131	48	0.0099		
4180.02	43.4112	62.0160	3665.17	42132	48	0.0099		
4180.56	43.4124	62.0177	3665.28	42133	48	0.0099		
4180.92	43.4130	62.0186	3665.36	42134	48	0.0099		
4180.94	43.4133	62.0190	3665.38	42135	48	0.0099		
4181.43	43.4145	62.0207	3665.49	42136	48	0.0099		
4181.63	43.4154	62.0220	3665.59	42137	48	0.0099		
4181.95	43.4160	62.0229	3665.66	42138	48	0.0099		
4182.39	43.4166	62.0237	3665.70	42139	48	0.0099		
4182.60	43.4175	62.0250	3665.80	42140	48	0.0099		
4182.95	43.4184	62.0263	3665.87	42141	48	0.0099		
4183.03	43.4184	62.0263	3665.88	42142	48	0.0099		
4183.25	43.4187	62.0267	3665.91	42143	48	0.0099		
4183.38	43.4196	62.0280	3666.01	42144	48	0.0099		
4184.09	43.4208	62.0297	3666.11	42145	48	0.0099		
4184.11	43.4208	62.0297	3666.12	42146	48	0.0099		
4184.38	43.4220	62.0314	3666.23	42147	48	0.0099		
4185.03	43.4229	62.0327	3666.33	42148	48	0.0099		
4185.10	43.4229	62.0327	3666.34	42149	48	0.0099		
4185.57	43.4241	62.0344	3666.44	42150	48	0.0099		
4186.12	43.4253	62.0361	3666.55	42151	48	0.0099		
4186.37	43.4262	62.0374	3666.66	42152	48	0.0099		
4186.90	43.4271	62.0387	3666.76	42153	48	0.0099		
4187.15	43.4280	62.0400	3666.83	42154	48	0.0099		
4187.31	43.4283	62.0404	3666.87	42155	48	0.0099		
4187.37	43.4286	62.0409	3666.88	42156	48	0.0099		
4187.86	43.4295	62.0421	3666.97	42157	48	0.0099		
4188.17	43.4304	62.0434	3667.06	42158	48	0.0099		
4188.21	43.4307	62.0439	3667.08	42159	48	0.0099		
4188.67	43.4316	62.0451	3667.18	42160	48	0.0099		

Elongation 62.06% -2 （彈性索延申 62%左右时-2）

Newton	Elongation Length	Percentage (%)	Elastic Time(s)	No.			
4189.19	43.4325	62.0464	3667.27	42161	48	0.0099	
4189.39	43.4325	62.0464	3667.29	42162	48	0.0099	
4189.88	43.4337	62.0481	3667.39	42163	48	0.0099	
4190.20	43.4349	62.0499	3667.50	42164	48	0.0099	
4190.54	43.4358	62.0511	3667.60	42165	48	0.0099	
4191.14	43.4370	62.0529	3667.71	42166	48	0.0099	
4191.25	43.4373	62.0533	3667.75	42167	48	0.0099	
4191.55	43.4379	62.0541	3667.81	42168	48	0.0099	
4191.86	43.4388	62.0554	3667.89	42169	48	0.0099	
4192.13	43.4391	62.0559	3667.92	42170	48	0.0099	
4192.30	43.4391	62.0559	3667.94	42171	48	0.0099	62.0001%-
4192.66	43.4400	62.0571	3668.02	42172	48	0.0099	4.06 secs Absorb
4193.17	43.4412	62.0589	3668.13	42173	48	0.0099	Kilojoule 123.4

以上是 SB 的 SUPFLEX 安装和使用手册，
感谢您选用 SUPFLEX 平行紧固弹性锚定系统。
如有任何问题，请随时通过电子邮件与我们联系
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