

Column strength is the ability of the lift shaft to hold compressive loads without buckling. With longer screw lengths, column strength may be substantially lower than nominal jack capacity.

If the lift shaft is in tension only, the screw jack travel is limited by the available screw material or by the critical speed of the screw. Refer to the ball screw technical section for critical speed limitations. If there is any possibility for the lift shaft to go into compression, the application should be sized for sufficient column strength.

Charts are used to determine the required jack size in applications where the lift shaft is loaded in compression. To use this chart:

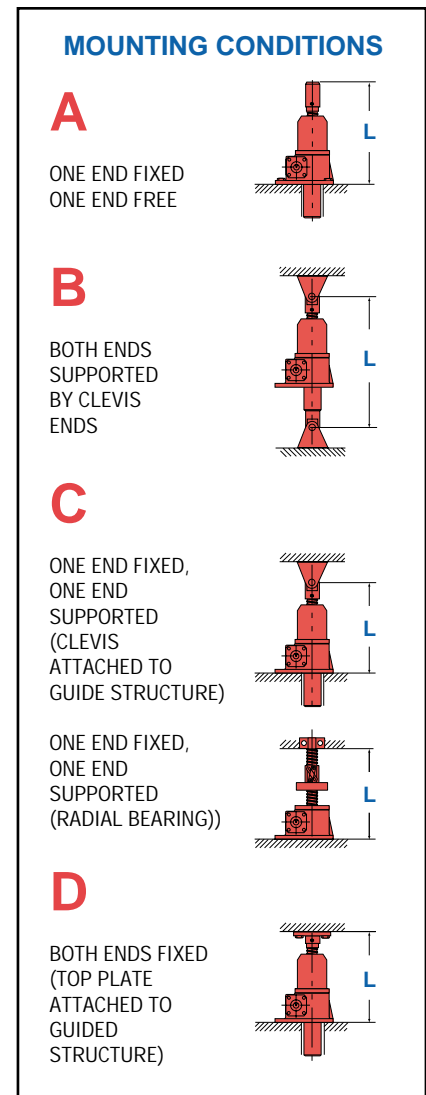
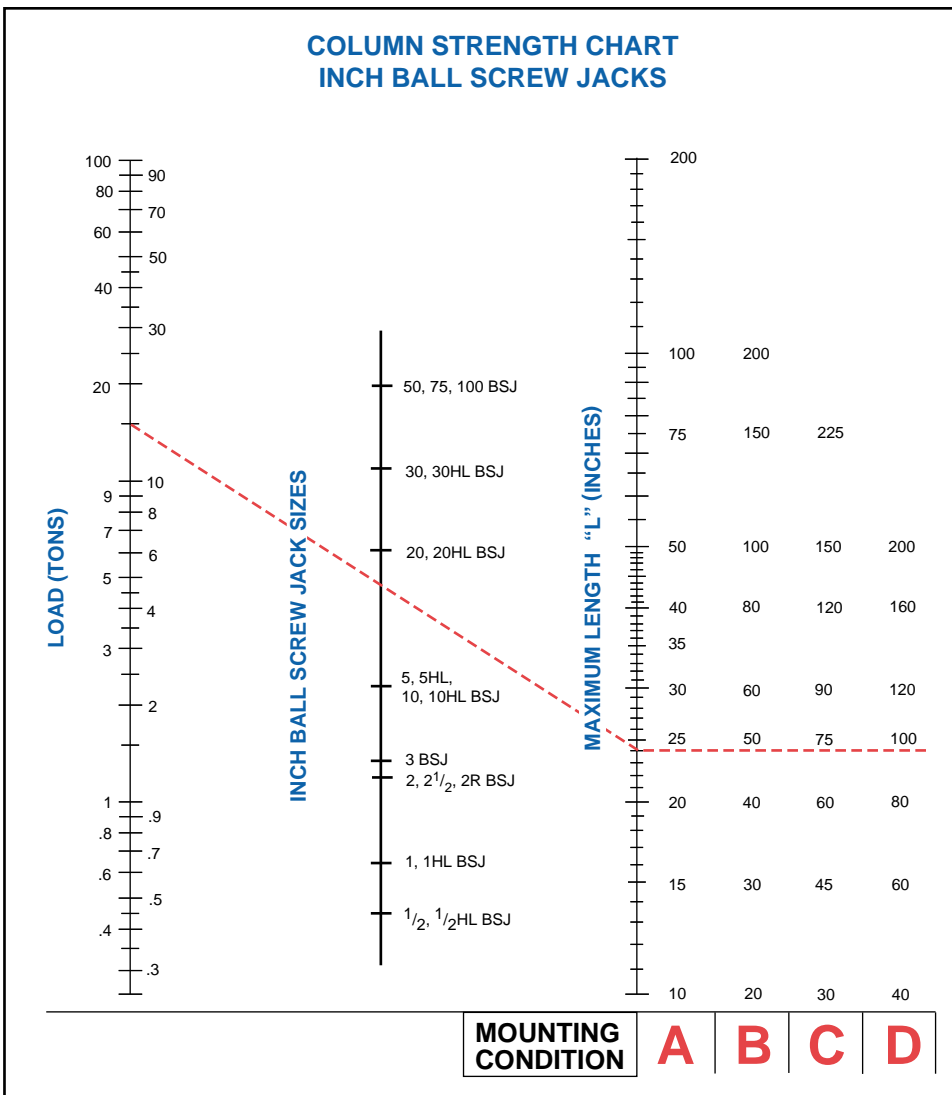
- Determine the mounting condition and mark a point on the "Maximum length" line.

- Mark a point on the "Load" line, applying an appropriate design factor.

**CAUTION:** chart does not include a design factor.

- Draw a line connecting the two marked points. Select a jack above the point where the line drawn crosses the "Jack Sizes" line.

The chart assumes proper jack alignment with no bending loads on the screw. Effects from side loading are not included in this chart. Jacks operating horizontally with long lift shafts can experience bending from the weight of the screw. Consult Nook Industries, Inc. if side thrust is anticipated, operating horizontally, or maximum raise is greater than 30 times the screw diameter.



### AVAILABLE LIFT SCREW LENGTHS

As a major manufacturer of industrial lead screws, Nook Industries stocks a wide selection of ball screws. Nook Industries has the capacity to make long ball screws for

special applications. Rotating screw jacks can be built with a larger diameter lift screw for greater column strength, or a different lead to change the jack operating speed.

The following Chart provides the minimum life expectancy in total inches of travel for the ball screws.

MODEL	Operating Load (lbs)	MINIMUM INCHES OF TRAVEL (in. x 10 <sup>3</sup> )				Page Number
		UPRIGHT & INVERTED		UPRIGHT & INVERTED ROTATING		
		Standard (in)	High-Lead (in)	Standard (in)	High-Lead (in)	
0.5-BSJ 0.5HL-BSJ	1,000	377	708	471	885	269
	750	893	1,678	116	2,097	
	500	3,014	5,662	3,767	7,078	
	250	24,111	45,299	56,623	56,623	
1-BSJ 1HL-BSJ	2,000	133	2,019	166	2,524	270-271
	1,500	316	4,785.9	394	5,982	
	1,000	1,065	16,152	1,331	20,190	
	500	8,518	129,218	10,648	161,523	
2-BSJ 2R-BSJ	5,000	52	—	66	—	272-273
	3,750	124	—	155	—	
	2,500	419	—	524	—	
	1,250	3,351	—	4,189	—	
2.5-BSJ 2.5H-BSJ	5,000	27	63	34	79	274-275
	3,750	64	149	79	186	
	2,500	215	503	268	629	
	1,250	1,716	4,026	2,145	5,031	
3-BSJ	6,000	219	—	273	—	276
	4,500	518	—	648	—	
	3,000	1,750	—	2,187	—	
	1,500	13,996	—	17,495	—	
5-BSJ 5HL-BSJ	10,000	812	346	1,015	432	277
	7,500	1,925	819	2,406	1,024	
	5,000	6,497	2,765	8,121	1,024	
	2,500	51,972	22,123	64,965	27,653	
10-BSJ 10HL-BSJ	20,000	102	43	127	54	278
	15,000	241	103	301	128	
	10,000	812	346	1,015	432	
	5,000	6,497	2,765	8,121	3,457	
20-BSJ 20HL-BSJ	40,000	121	234	151	292	279
	30,000	287	554	358	692	
	20,000	967	1,869	1,209	2,336	
	10,000	7,737	14,952	9,672	18,690	
30-BSJ 30HL-BSJ	60,000	323	572	403	715	28
	45,000	764	1,355	955	1,694	
	30,000	2,579	4,574	3,223	5,718	
	15,000	20,630	36,596	25,787	45,744	
50-BSJ	100,000	505	—	631	—	281
	75,000	1,196	—	1,495	—	
	50,000	4,037	—	5,046	—	
	25,000	32,292	—	40,365	—	
75-BSJ	150,000	150	—	187	—	282
	112,500	354	—	443	—	
	75,000	1,196	—	1,495	—	
	37,500	9,568	—	11,960	—	
100-BSJ	200,000	63	—	79	—	283
	150,000	150	—	187	—	
	100,000	505	—	631	—	
	50,000	4,037	—	5,046	—	

**LEAD ACCURACY**

The rolled thread ball screw, as employed in ActionJac™ products, is held within ±0.004" per foot cumulative from nominal dimension. Lift Shafts can be matched to within ±0.002" per foot when ordered as matched sets. Special ground threads having lead accuracies of ±0.0005" per foot can be provided.

**BACKLASH**

Axial backlash ranges from 0.005" to 0.012". Specify optional selective fit lift shaft for 0.003" to 0.005" backlash.

**MATERIAL HARDNESS**

Ball screws have a race hardness of Rockwell C 58 minimum. Core hardness will run from Rc 20 to 35.

**NOTES:**

- Refer to Lubrication Instructions in order to obtain maximum life from ball screw assemblies.
- These values may be greatly reduced if the units are subjected to misalignment, shock loads, side thrust, contamination or lack of proper lubrication and maintenance.