

Body Tube Up- and Downscale Ratios by Jay Goemmer								SemrocEstes.xlr			
								Version 2 -- 10 Sept 2006			
Semroc/Centuri (*includes FSI)											
	ST-5	ST-7	ST-8	ST-8F*	ST-9	ST-10	ST-11*	ST-13	ST-16	ST-18*	ST-20
ST-5	1.00	1.40	1.67	1.69	1.82	1.91	2.15	2.46	3.01	3.38	3.75
ST-7	0.72	1.00	1.20	1.21	1.30	1.37	1.54	1.77	2.16	2.42	2.69
ST-8	0.60	0.84	1.00	1.01	1.09	1.15	1.29	1.48	1.81	2.03	2.25
ST-8F*	0.59	0.82	0.99	1.00	1.07	1.13	1.27	1.45	1.78	2.00	2.21
ST-9	0.55	0.77	0.92	0.93	1.00	1.05	1.18	1.36	1.66	1.86	2.06
ST-10	0.52	0.73	0.87	0.89	0.95	1.00	1.13	1.29	1.58	1.77	1.96
ST-11*	0.46	0.65	0.78	0.79	0.84	0.89	1.00	1.15	1.40	1.57	1.74
ST-13	0.41	0.57	0.68	0.69	0.74	0.78	0.87	1.00	1.22	1.37	1.52
ST-16	0.33	0.46	0.55	0.56	0.60	0.63	0.71	0.82	1.00	1.12	1.24
ST-18*	0.30	0.41	0.49	0.50	0.54	0.57	0.64	0.73	0.89	1.00	1.11
ST-20	0.27	0.37	0.45	0.45	0.48	0.51	0.57	0.66	0.80	0.90	1.00
Semroc/Centuri											
to Estes	BT-3**	BT-5	BT-20	BT-40**	BT-50	BT-55	BT-60	BT-70	BT-80		
ST-5	0.69	0.99	1.35	1.52	1.79	2.44	3.01	4.08	4.78		
ST-7	0.49	0.71	0.97	1.09	1.29	1.75	2.16	2.92	3.43		
ST-8	0.41	0.60	0.81	0.91	1.07	1.46	1.80	2.44	2.86		
ST-8F*	0.41	0.59	0.80	0.90	1.06	1.44	1.78	2.41	2.82		
ST-9	0.38	0.55	0.74	0.84	0.99	1.34	1.66	2.24	2.63		
ST-10	0.36	0.52	0.71	0.79	0.94	1.27	1.57	2.13	2.50		
ST-11*	0.32	0.46	0.63	0.71	0.83	0.89	1.40	1.89	1.74		
ST-13	0.28	0.40	0.55	0.62	0.73	0.99	1.22	1.65	1.94		
ST-16	0.23	0.33	0.45	0.50	0.60	0.81	1.00	1.35	1.59		
ST-18*	0.20	0.29	0.40	0.45	0.53	0.72	0.73	1.20	1.41		
ST-20	0.18	0.27	0.36	0.40	0.48	0.65	0.80	1.09	1.27		
Estes											
to Semroc/Centuri											
	ST-5	ST-7	ST-8	ST-8F*	ST-9	ST-10	ST-11*	ST-13	ST-16	ST-18*	ST-20
BT-3**	1.45	2.02	2.42	2.46	2.63	2.77	3.12	3.57	4.37	4.91	5.44
BT-5	1.01	1.40	1.68	1.70	1.83	1.92	2.16	2.48	3.03	3.40	3.77
BT-20	0.74	1.03	1.23	1.25	1.34	1.41	1.59	1.82	2.23	2.50	2.77
BT-40**	0.66	0.92	1.10	1.12	1.20	1.26	1.42	1.62	1.99	2.23	2.47
BT-50	0.56	0.78	0.93	0.94	1.01	1.07	1.20	1.37	1.68	1.89	2.09
BT-55	0.41	0.57	0.69	0.70	0.75	0.78	0.88	1.01	1.24	1.39	1.54
BT-60	0.33	0.46	0.60	0.56	0.60	0.64	0.71	0.82	1.00	1.12	1.25
BT-70	0.25	0.34	0.41	0.42	0.45	0.49	0.53	0.60	0.74	0.83	0.92
BT-80	0.21	0.29	0.35	0.35	0.38	0.40	0.45	0.52	0.63	0.71	0.78

Semroc											
	LT-085	LT-115	LT-125	LT-150	LT-175	LT-225	LT-275				
ST-5	1.74	2.24	2.46	2.92	3.38	4.30	5.22				
ST-7	1.25	1.61	1.77	2.09	2.42	3.08	3.74				
ST-8	1.04	1.34	1.48	1.75	2.03	2.58	3.13				
ST-8F*	1.03	1.32	1.45	1.73	2.00	2.54	3.08				
ST-9	0.96	1.23	1.36	1.61	1.86	2.37	2.87				

ST-10	0.91	1.17	1.29	1.53	1.77	2.25	2.73				
ST-11*	0.81	1.04	1.15	1.36	1.57	2.00	2.43				
ST-13	0.71	0.91	1.00	1.19	1.37	1.75	2.12				
ST-16	0.58	0.74	0.82	0.97	1.12	1.43	1.73				
ST-18*	0.51	0.66	0.73	0.86	1.00	1.27	1.54				
ST-20	0.46	0.60	0.66	0.78	0.90	1.15	1.39				
Semroc											
	ST-5	ST-7	ST-8	ST-8F*	ST-9	ST-10	ST-11*	ST-13	ST-16	ST-18*	ST-20
LT-085	0.58	0.80	0.96	0.97	1.05	1.10	1.24	1.42	1.74	1.95	2.16
LT-115	0.45	0.62	0.74	0.75	0.81	0.85	0.96	1.10	1.34	1.51	1.67
LT-125	0.41	0.57	0.68	0.69	0.74	0.78	0.87	1.00	1.22	1.37	1.52
LT-150	0.34	0.48	0.57	0.58	0.62	0.65	0.74	0.84	1.03	1.16	1.28
LT-175	0.30	0.41	0.49	0.50	0.54	0.57	0.64	0.73	0.89	1.00	1.11
LT-225	0.23	0.32	0.39	0.39	0.42	0.44	0.50	0.57	0.70	0.79	0.87
LT-275	0.19	0.27	0.32	0.32	0.35	0.37	0.41	0.47	0.58	0.65	0.72
Quest											
	T-15	T-20	T-25	T-30	T-35						
T-15	1.00	1.33	1.67	2.00	2.33						
T-20	0.75	1.00	1.25	1.50	1.75						
T-25	0.60	0.80	1.00	1.20	1.40						
T-30	0.50	0.67	0.83	1.00	1.17						
T-35	0.43	0.57	0.71	0.86	1.00						
Instructions											
1) Find the body tube of the original rocket that you want to up- or downscale on the left side of the page.											
2) Locate the body tube that you'd like to "scale" your rocket to in the row across the top of the desired table.											
3) The box where the left row and upper column meet is the up- or downscale ratio that you'll want to use.											
*Flight Systems Incorporated (FSI) tube sizes ST-8F, ST-11 and ST-18 are included.											
**Estes tube sizes BT-3 and BT-40 are also included in these tables because they're available from Semroc. However, Semroc's BT-51, BTH-70, BT-99, BT-100, and BT-101 body tubes are not.											