

Pre-Defined Parameters:	
Voltage:	390
Max Current:	860
Coil ID (mm):	10
*Snubber Rating (Watts):	5000

\*The pulse-power rating of the device that will dissipate the coil's energy

Color Key:	Puple Cell:		Informational
	Grey Cell:		User-defined value
	Blue Cell:		Input from coil calculator
	Red Text:		Maximum value exceeded
Green Cell,	Yellow Cell,	or Red Cell	Calculated value
Positive	Neutral	Negative	

Coil Calculator instructions:	
Go to	<a href="https://www.accelinstruments.com/Magnetic/Magnetic-field-calculator.html">https://www.accelinstruments.com/Magnetic/Magnetic-field-calculator.html</a>
Set inner radius to half your specified coil ID	
Set the coil length to specified value	
Set wire diameter with and without insulation*	
Input the number of turns calculated by this sheet	
Set current to 1A	
Set distance from center to 0mm	
Set permeability and Compac factor to 1	
Input resulting resistance, inductance, and field values into their respective blue boxes	

\*Not accounting for enamel thickness only has a marginal impact on accuracy

To clear this sheet, highlight the blue and grey columns and press 'del' on your keyboard.

										Note 1:	Note 2:	Note 3:	Note 4:	Note 5:	Note 6:	Note 7:	Note 8:
Wire diameter: (Millimeter)	Coil Length: (Millimeter)	Coil OD: (Millimeter)	Coil Volume: (Cubic Cent.)	Layers: #	Turns/Layer: #	Total Turns: #	Resistance: (Ohms)	Inductance: (Microhenry)	Max Current: (Amperes)	Max Power: (Kilowatts)	Energy Stored: (Joules)	Snub Power: (Kilowatts)	Field Constant: (Millitesla)	Max Field: (Tesla)	Charge Time: (Milliseconds)	Field Rate: (Tesla/Second)	Rating: (Arbitrary)
0.68	50	50	94.25	29	74	2163	9.22	44811.9	42.3	16.5	40	2.1	46.6437	1.97	19.44	101	4734
0.68	50	30	31.42	15	74	1081	3.04	6032.2	128.5	50.1	50	6.3	25.2611	3.25	7.95	408	10314
0.68	50	20	11.78	7	74	541	1.13	951.8	345.7	134.8	57	16.9	13.0530	4.51	3.38	1337	17453
0.68	30	50	56.55	29	44	1298	5.53	21326.7	70.5	27.5	53	3.4	39.3978	2.78	15.42	180	7096
0.68	30	30	18.85	15	44	649	1.82	3085.9	213.8	83.4	71	10.4	22.8047	4.88	6.77	721	16431
0.68	30	20	7.07	7	44	324	0.68	509.2	577.8	225.3	85	28.2	12.2262	7.06	3.02	2341	28622
0.68	20	50	37.70	29	29	865	3.69	11281.1	105.8	41.3	63	5.2	32.1722	3.40	12.24	278	8946
0.68	20	30	12.57	15	29	433	1.22	1738	320.5	125.0	89	15.6	19.7216	6.32	5.71	1106	21819
0.68	20	20	4.71	7	29	216	0.45	300.4	866.7	338.0	113	42.3	11.0319	9.56	2.67	3581	39501
0.68	10	50	18.85	29	15	433	1.85	3499	211.2	82.3	78	10.3	19.9381	4.21	7.58	556	11077
0.68	10	30	6.28	15	15	216	0.61	587.4	643.6	251.0	122	31.4	13.0865	8.42	3.88	2172	28426
0.68	10	20	2.36	7	15	108	0.23	111.7	1733.3	676.0	168	84.5	7.8710	13.64	1.99	6870	54076

1.02	50	50	94.25	20	49	961	1.80	8842.6	216.8	84.5	208	10.6	20.7781	4.50	19.66	229	4760
1.02	50	30	31.42	10	49	481	0.59	1195.4	661.0	257.8	261	32.2	11.2589	7.44	8.10	918	10339
1.02	50	20	11.78	5	49	240	0.22	187.1	1797.2	700.9	302	87.6	5.8017	10.43	3.45	3023	17540
1.02	30	50	56.55	20	29	577	1.08	4215	360.8	140.7	274	17.6	17.5999	6.35	15.60	407	7165
1.02	30	30	18.85	10	29	288	0.35	607	1104.8	430.9	370	53.9	10.1709	11.24	6.88	1634	16616
1.02	30	20	7.07	5	29	144	0.13	100.6	3000.0	1170.0	453	146.3	5.4570	16.37	3.10	5289	28861
1.02	20	50	37.70	20	20	384	0.72	2221.2	542.4	211.5	327	26.4	14.3946	7.81	12.36	632	9095
1.02	20	30	12.57	10	20	192	0.24	341.2	1659.6	647.2	470	80.9	8.8179	14.63	5.81	2520	22219
1.02	20	20	4.71	5	20	96	0.09	59.3	4482.8	1748.3	596	218.5	4.9413	22.15	2.73	8124	40145
1.02	10	50	18.85	20	10	192	0.36	686.9	1086.4	423.7	405	53.0	8.9572	9.73	7.65	1271	11388
1.02	10	30	6.28	10	10	96	0.12	116	3305.1	1289.0	634	161.1	5.8985	19.50	3.93	4958	29244
1.02	10	20	2.36	5	10	48	0.04	22.1	9069.8	3537.2	909	442.2	3.5536	32.23	2.06	15678	55712

1.29	50	50	94.25	16	39	601	0.70	3459.5	559.5	218.2	542	27.3	13.0188	7.28	19.85	367	4777
1.29	50	30	31.42	8	39	300	0.23	464.1	1718.1	670.0	685	83.8	7.0351	12.09	8.18	1478	10398
1.29	50	20	11.78	4	39	150	0.08	73.1	4698.8	1832.5	807	229.1	3.6309	17.06	3.52	4843	17584
1.29	30	50	56.55	16	23	361	0.42	1650.9	930.8	363.0	715	45.4	11.0520	10.29	15.76	653	7214
1.29	30	30	18.85	8	23	180	0.14	237.1	2867.6	1118.4	975	139.8	6.3801	18.30	6.97	2624	16739
1.29	30	20	7.07	4	23	90	0.05	39.3	7800.0	3042.0	1196	380.3	3.4214	26.69	3.14	8488	29042
1.29	20	50	37.70	16	16	240	0.28	867.4	1402.9	547.1	854	68.4	9.0515	12.70	12.48	1017	9209
1.29	20	30	12.57	8	16	120	0.09	133.3	4285.7	1671.4	1224	208.9	5.5449	23.76	5.86	4056	22489
1.29	20	20	4.71	4	16	60	0.03	23.2	11818.2	4609.1	1620	576.1	3.1062	36.71	2.81	13054	40549
1.29	10	50	18.85	16	8	120	0.14	268.3	2805.8	1094.2	1056	136.8	5.6530	15.86	7.72	2054	11613
1.29	10	30	6.28	8	8	60	0.05	45.3	8666.7	3380.0	1701	422.5	3.7276	32.31	4.03	8023	29906
1.29	10	20	2.36	4	8	30	0.02	8.6	22941.2	8947.1	2263	1118.4	2.2475	51.56	2.02	25480	57267

< Option 1

< Option 2

< Option 3

< Original plan