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

*The	pulse-power	rating c	of the	device	that will	dissipate	the coil's	enerav
	paice power	raung c	,, ,,,,	401100	triat will	alcolpato	ti io oon o	0110193

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				

Notes:

- 1: Power the coil will consume when fully charged by the specified voltage source, it is also how much heat the coil will generate when fully charged.
- 2: Energy stored within the coil when it is fully charged. It will need to dissipate this when discharging.
- 3: Amount of power that a device will dissipate when removing energy from the coil. Many devices can handle dozens of times their rated power for a short period of time.
- 4: Strength of field the coil generates per amp of current flowing through it. Some coils generate generate weaker overall fields, but do it more efficiently.
- 5: How strong the field will be after it is fully charged by the voltage source specified.
- 6: How long the coil will take to build OR collapse %98.1 field strength.
- 7: This value indicates the average linear rate that a coil will build/collapse its field. In reality the coil's initial rate will be much higher, and will slow down asymptotically.
- 8: This is an arbitrary value that multiplies the field constant by the field rate. It is only intended for comparing coils.

Coil Calculator instructions:

https://www.accelinstruments.com/Magnetic/Magnetic-field-calculator.html

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

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:	Coil Length:	Coil OD:	Coil Volume:	Layers:	Turns/Layer:	Total Turns:	Resistance:	Inductance:	Max Current:	Max Power:	Energy Stored:	Snub Power:	Field Constant:	Max Field:	Charge Time:	Field Rate:	Rating:
(Millimeter)	(Millimeter)	(Millimeter)	(Cubic Cent.)	#	#	#	(Ohms)	(Microhenry)	(Amperes)	(Kilowatts)	(Joules)	(Kilowatts)	(Millitesla)	(Tesla)	(Milliseconds)	(Tesla/Second)	(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
	.						<u> </u>		-					<u> </u>			
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

^{*}Not accounting for enamel thickness only has a marginal impact on accuracy

< Option 1

< Option 2

< Option 3

< Original plan