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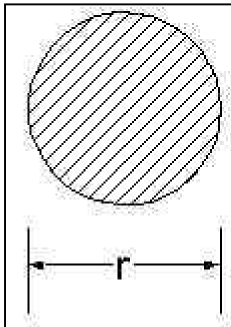
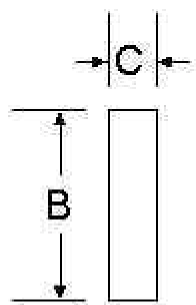
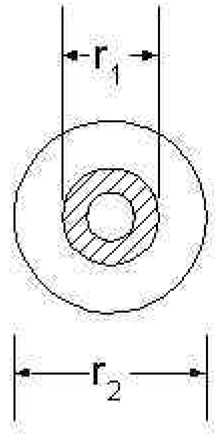
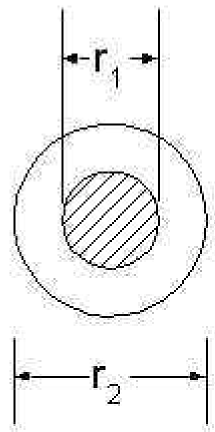
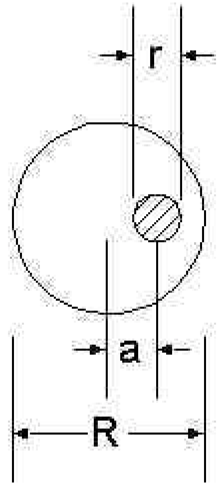
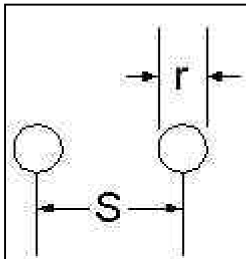
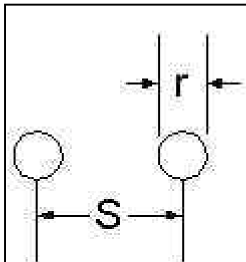
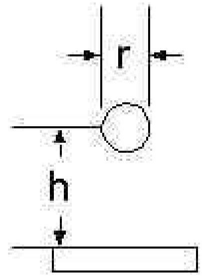
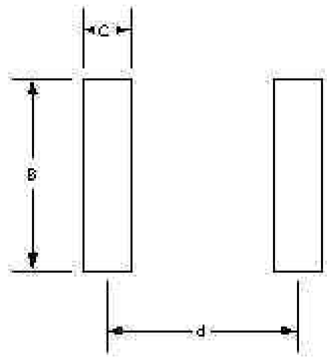
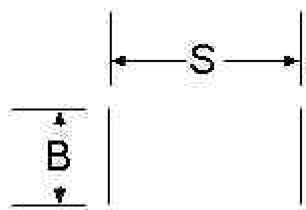
	Coil or Conductor Configuration (meters)		Self Inductance	
			DC Value	High Frequency o Pulse Value
1	Single Conductor, circular and solid section r is the conductor radius and l is the conductor length		$2\cdot l\cdot\left(\ln\left(\frac{2\cdot l}{r}\right)-\frac{3}{4}\right)\cdot 10^{-7}\cdot henry$	$2\cdot l\cdot\left(\ln\left(\frac{2\cdot l}{r}\right)-1\right)\cdot 10^{-7}\cdot henry$
2	Single conductor, rectangular section		$2\cdot l\cdot\left(\ln\left(\frac{2\cdot l}{B+C}\right)-\ln(\varepsilon)+\frac{1}{2}\right)\cdot 10^{-7}\cdot henry$ ε from table 3 ref 1 page 35 Table 3 is on page 23 of ref 1	
3 (a)	Return circuit of two tubular concentric		Ref 1 page 41	$2\cdot\left(\ln\left(\frac{r_2}{r_1}\right)\right)\cdot 10^{-7}\cdot\frac{henry}{m}$

	conductors			
3 (b)	Return circuit of two tubular concentric conductors with thin conductors		$2\cdot\left(\ln\left(\frac{r_2}{r_1}\right)+\frac{1}{4}\right)\cdot 10^{-7}\cdot\frac{\text{henry}}{\text{m}}$	$2\cdot\left(\ln\left(\frac{r_2}{r_1}\right)\right)\cdot 10^{-7}\cdot\frac{\text{henry}}{\text{m}}$
4	Return circuit of eccentric cylindircal conductors			$2\cdot\left(\ln\left(\frac{R^2-a^2}{R\cdot r}\right)\right)\cdot 10^{-7}\cdot\frac{\text{henry}}{\text{m}}$

				
5	Parallel pair of round conductors		$\left(4\cdot\ln\left(\frac{S}{r}\right)+1\right)\cdot 10^{-7}\cdot\frac{henry}{m}$	$4\cdot\ln\left(\frac{S}{r}\right)\cdot 10^{-7}\cdot\frac{henry}{m}$
6	Parallel conductors over conducting earth		$\left[4\cdot\ln\left[2\cdot s\cdot\frac{(h+r)}{r\cdot\sqrt{4\cdot(h+r)^2+s^2}}\right]+1\right]\cdot 10^{-7}\cdot\frac{henry}{m}$ r is skin depth at frequency of operation. For DC value see 5 above and Note (4)	$4\cdot\left(\ln\left(\frac{2\cdot h\cdot s}{r\cdot\sqrt{4\cdot h^2+S^2}}\right)\right)\cdot 10^{-7}\cdot\frac{henry}{m}$
7	Conductor near to conducting earth wich is not the		$\left[2\cdot\ln\left[2\cdot\frac{(h+r)}{r}\right]+\frac{1}{2}\right]\cdot 10^{-7}\cdot\frac{henry}{m}$ For DC value see one above and Note 4. For freq	$2\cdot\ln\left(\frac{2\cdot h}{r}\right)\cdot 10^{-7}\cdot\frac{henry}{m}$

	return		giving skin depth r use this equation.	
8	Parallel pair of rectangular conductors		$4\left(\ln\left(\frac{d}{B+C}\right)+1.5+\ln(k)\right)\cdot 10^{-7}\cdot\frac{henry}{m}$ k obtained from ref 1 table 2, p 20	
9	Parallel Pair of strip conductors (S>>B)		$4\left(\ln\left(\frac{S}{B}\right)+1.5\right)\cdot 10^{-7}\cdot\frac{henry}{m}$	
10	Transmission line (C<<B>>S		$\frac{4\cdot\pi\cdot\left(S+\frac{C}{2}\right)}{B}\cdot 10^{-7}\cdot\frac{henry}{m}$	
11	Circular turn with circular section (r is wire radius, R is major radius		$4\cdot\pi\cdot R\cdot\left(\ln\left(\frac{8\cdot R}{r}\right)-\frac{7}{4}\right)\cdot 10^{-7}\cdot henry$	$4\cdot\pi\cdot R\cdot\left(\ln\left(\frac{8\cdot R}{r}\right)-2\right)\cdot 10^{-7}\cdot\frac{henry}{m}$

12	Rectangular Turn with circular section		DC $4\left[a\cdot\ln\left(\frac{2\cdot a}{r}\right)+b\cdot\ln\left(\frac{2\cdot b}{r}\right)+2\sqrt{a^2+b^2}-\left[\frac{7}{4}\cdot(a+b)-a\cdot\operatorname{asinh}\left(\frac{a}{b}\right)-b\cdot\operatorname{asinh}\left(\frac{b}{a}\right)\right]\right]\cdot 1$ AC $4\left[a\cdot\ln\left(\frac{2\cdot a}{r}\right)+b\cdot\ln\left(\frac{2\cdot b}{r}\right)+2\cdot\sqrt{a^2+b^2}-2\cdot(a+b)-a\cdot\operatorname{asinh}\left(\frac{a}{b}\right)-b\cdot\operatorname{asinh}\left(\frac{b}{a}\right)\right]\cdot 10^{-7}$	
13	Circular turn of thin sheet		$4\cdot\pi\cdot R\cdot\left(\ln\left(\frac{8\cdot R}{\omega}\right)-\frac{1}{2}\right)\cdot 10^{-7}\cdot\text{henry}$	
14	Toroidal solenoid of N turns in single layer		$4\cdot\pi\cdot N^2\cdot\left(R-\sqrt{R^2-r^2}\right)\cdot 10^{-7}\cdot\text{henry}$	
15 (a)	Long straight solenoid with single layer of N thin turns		$\frac{4\cdot\pi^2\cdot r^2\cdot N^2}{b}\cdot 10^{-7}\cdot\text{henry}$	
15 (b)	Short solenoid with single layer of Nthin turns for b>2/3r		$\frac{4\cdot\pi^2\cdot r^2\cdot N^2}{b+.9\cdot r}\cdot 10^{-7}\cdot\text{henry}$ $b<\frac{2}{3}\cdot r$	
16	Short solenoid of N rund turns in single layer	.	See ref 1	
17 (a)	Circular coil multi layer with rectanglular winding section	.	See ref 1	
	Brooks Coil (gives			

17 (b)	maximum inductance for given length of wire) b=c 2a/c=3		$1.7 \cdot a \cdot N^2 \cdot 10^{-6}$ henry	
18	Circular coil flat (pancake)			
19	Thin conducting torus cut to produce Bz field			

Notes:

1. Formulae based on non-magnetic conductors and space
2. References in table are listed below
3. Further information and arrangements are given in Ref. 6, p. 47-64
4. Proximity of metal to conductors affects HF inductance but not DC
5. DC inductance of bar due to its internal flux only 50 nH/m

References:

1. Gover, F.W. "Inductance Calculations, Working Formulas and Tables" Pub. Dover
2. Say, M.G. "Electrical Engineers reference Book", Pub. newnes.
3. Smart, D.L. "Calculation of Forces on Ioffe Bars for MTSE II", MTSEE II Engineering Memo No. 4 pp. 2-4.
4. Carter, G.W. "The Electromagnetic Field in its Engineergin Aspects". Pub. Longmans.
5. Smythe, W.R. "Static and Dymamic Electricity". Pub. McGraw-Hill.
6. Terman, F.E. "Radio Engineers Handbook". Pub. McGraw-Hill.
7. Dwight, H.B. "mathematical Tables". Pub. Dover.

8. Welsby, V.G. "Inductance Coils". Pub. Macdonald.