

**BREAK DOWN VOLTAGE FOR ENAMELLED ROUND COPPER WINDING WIRES (BASIS : IS 13730-.. and IS 13778 – 5)**

Nominal Conductor		Test Specimen Configuration	Test specimen Preparation		Break down voltage			
			Force (N)	Twists per 125 mm	Volts (min.)			
(mm)	SWG				Grade 1	Grade 2	Grade 3	
					Grade 1B	Grade 2B		
0.018		Cylinder Wrap			110	225	350	
0.020						120	250	410
0.022						130	275	470
0.025						150	300	470
0.028						170	325	530
0.032						190	375	590
0.036						225	425	650
0.040						250	475	710
0.041	48			0.1	-	275	550	-
0.045						275	550	710
0.050						300	600	830
0.051	47			0.15	-	325	650	-
0.056						325	650	890
0.061	46			0.15	-	375	700	-
0.063						375	700	1020
0.071	45			0.2	-	425	700	1100
0.071						425	700	1100
0.080						425	850	1200
0.081	44		0.3	-	500	900	1300	
0.090					500	900	1300	
0.091	43		0.4	-	500	950	1400	
0.100		Twisted pair			500	950	1400	
0.102	42					1300	2700	3900
0.112	41					1300	2700	3900
0.112						1300	2700	3900
0.122	40					1500	2800	4100
0.125						1500	2800	4100
0.138	39					1600	3000	4200
0.140						1600	3000	4200
0.152	38			0.85	33	1700	3200	4400
0.160						1700	3200	4400
0.173	37					1700	3300	4700
0.180						1700	3300	4700
0.193	36					1800	3500	5100
0.200						1800	3500	5100
0.213	35					1900	3700	5200
0.224						1900	3700	5200
0.234	34					2100	3900	5500
0.250						2100	3900	5500
0.254	33				2200	4000	5800	
0.274	32				2200	4000	5800	
0.280					2200	4000	5800	
0.295	31		1.7	23	2200	4100	6100	

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					Volts (min.)			
(mm)	SWG		Force (N)	Twists per 125 mm	Grade 1	Grade 2	Grade 3	
					Grade 1B	Grade 2B		
0.315	30	Twisted pair			2200	4100	6100	
0.315						2200	4100	6100
0.345	29					2300	4300	6400
0.355						2300	4300	6400
0.376	28					2300	4400	6600
0.400						2300	4400	6600
0.417	27			3.4	16	2300	4400	6800
0.450						2300	4400	6800
0.457	26					2400	4600	7000
0.500						2400	4600	7000
0.508	25					2500	4600	7100
0.559	24					2500	4600	7100
0.560						2500	4600	7100
0.61	23			7	12	2600	4800	7100
0.630						2600	4800	7100
0.710						2600	4800	7200
0.711	22					2600	4900	7400
0.800						2600	4900	7400
0.813	21					2700	5000	7600
0.900						2700	5000	7600
0.914	20			13.5	8	2700	5000	7600
1.000						2700	5000	7600
1.016	19					2700	5000	7600
1.219	18			27	6	2700	5000	7600
1.422	17					2700	5000	7600
1.626	16					2700	5000	7600
1.829	15			54	5	2700	5000	7600
2.032	14					2700	5000	7600
2.337	13			108	3	2700	5000	7600
2.500 & over			Shot Ball			1300	2500	3800
2.642	12					1300	2500	3800
2.946	11					1300	2500	3800

Notes :

- 1) For intermediate nominal conductor diameter, break down voltage value for next largest nominal conductor diameter shall be taken.
- 2) 1N = 0.102 kg